STATE OF COLORADO

Eschberger - DNR, Amy <amy.eschberger@state.co.us>

Cross Gold Mine, Permit No. M-1977-410, Preliminary Designated Mining Operation Determination

Botts, Jr., Robert E. <robert.botts@stinson.com> Fri, Mar 18, 2022 at 3:15 PM
To: "amy.eschberger@state.co.us" <amy.eschberger@state.co.us>

Good afternoon Ms. Eschberger,

Grand Island Resources, LLC, the owner of the Cross Gold Mine, through its representative Stinson LLP, hereby submits its appeal of the Division of Reclamation, Mining and Safety's determination that the Cross Mine meets the definition of a "Designated Mining Operation."

For ease of reference, GIR is submitting herewith a copy of the reports referenced in Appendix A and the Affidavit of Sean Muller, which contain information in support of GIR's appeal. These documents can be accessed through the below ShareFile link.

https://stinson.sharefile.com/d-s99bac88b08f04fd081976649e5a92181

Regards, Robert

Robert E. Botts, Jr.
Partner

STINSON LLP
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GIR Appeal Re. DMO Designation (3.18.2022).PDF
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STINSON

March 18, 2022

Via Electronic Mail to: amy.eschberger@state.co.us

Ms. Amy Eschberger
Environmental Protection Specialist
Colorado Division of Reclamation, Mining and Safety
1001 E 62nd Avenue, Room 215
Denver, CO 80216

Re: Cross Gold Mine, Permit No. M-1977-410, Preliminary Designated Mining Operation Determination

Grand Island Resources, LLC's Appeal of the Division's DMO Determination

In response to your letter dated February 17, 2022 ("Division Letter"), and pursuant to Rule 7.2.4 of the Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board, as amended in April 1994 ("Mineral Rules"), Grand Island Resources, LLC ("GIR"), the owner of the Cross Gold Mine (referred to herein as the "Cross Mine"), through its representative Stinson LLP, hereby submits its appeal of the Division of Reclamation, Mining and Safety's (the "Division") determination that the Cross Mine meets the definition of a "Designated Mining Operation" ("DMO").

Description of the Cross Mine

The Cross Mine site is located approximately four miles northwest of Nederland, Colorado adjacent to Roosevelt National Forest, at an elevation of approximately 9,700 feet above mean sea level (MSL). The property is an existing hard rock mining operation owned by GIR and at present, no active mining is being conducted. The mine permit number M-1977-410 was last revised through Amendment No. 2, dated January 6, 2022 ("AM 2") and approved by the Division on February 8, 2022. The AM 2 increased the permit area to the current 9.99 acres and provided an additional financial warranty for reclamation.

The site is bisected by Coon Track Creek, a tributary of Beaver Creek that joins with Middle Boulder Creek near its discharge at the Barker Meadows Reservoir. The mine currently manages discharges directly into Coon Track Creek under the Colorado Department of Public Health and Environment, Water Quality Control Division ("WQCD") National Pollutant Discharge Elimination System ("NPDES") permit number CO-0032751.

Summary of Arguments

1. The Division Letter does not specify the basis for designating the Cross Mine as a DMO, but instead simply cites Rule 1.1(1).

2. The Cross Mine operation does not meet the criteria for designation as a DMO under Section 34-32-112.5, CRS 1984, as amended, or Rule 1.1(1), or Rule 1.1(20).
3. The current activities carried out at the Cross Mine ensure that no toxic or acid forming materials are exposed or disturbed in quantities sufficient to adversely affect human health, property or the environment.
4. The geologic makeup of the Cross Mine precludes the mine from being or becoming an acid mine.

The Division's DMO Determination

The Division Letter provides, in relevant part that:

> On January 11, 2022, the Division conducted an inspection of the Cross Gold Mine and observed the new water treatment system. The system was brought online in December 2021 and consists of filtration and absorption water treatment technology. The Cross Gold Mine is required to treat water to prevent the discharge of heavy metals into the Coon Track Creek. Designated Mining Operations are those operations at which toxic or acid producing materials may be exposed or disturbed as a result of mining operations. Rule 1.1(1) defines acid and toxic producing materials as natural or reworked earth materials having acid or toxic chemical and physical characteristics that, under mining or post-mining conditions of drainage, exposure, or other processes, produce materials which contain detrimental amounts of chemical constituents such as acids, bases, or metallic compounds.

Standard for Designation of a DMO

Rule 1.1(20) states that a DMO "means a mining operation at which:

(a) designated chemicals used in metallurgical processing are present on-site; or

(b) toxic or acid-forming materials may be exposed or disturbed as a result of mining operations; or

(c) acid mine drainage occurs or has the potential to occur due to mining or reclamation activities; or

(d) uranium is developed or extracted, either by in situ leach mining methods or by conventional underground or open mining techniques.

(e) The various types of Designated Mining Operations are identified in Section 34-32-112.5, C.R.S. 1984, as amended. Except as to uranium mining operations designated mining operations exclude operations that do not use toxic or acid chemicals in processing for purposes of extractive metallurgy

and will not cause acid mine drainage. Any designated mining operation, including uranium designated mining operations, may seek exemptions from this status pursuant to Rule 7.

(f) (1) Metal mining operations, permitted under Section 34-32-110, C.R.S. 1984, as amended, which do not use or store designated chemicals, shall be excepted from the requirements applicable to Designated Mining Operations, unless they have a potential to produce acid or toxic mine drainage in quantities sufficient to adversely affect any person, property or environment. It shall be the burden of the Operator or Applicant to demonstrate to the satisfaction of the Office that such potential does not exist.

(2) The exception set forth in Rule 1.1(20)(f)(1) does not apply to Section 110 uranium mining operations. However, such operations may apply for an exemption from Designated Mining Operation status pursuant to the requirements and procedures set forth in Rule 7."

The Division Letter does not reference this Rule or specifically identify which section of the Rule the Division relied on in making its DMO determination. The Division Letter also does not contain the information required by Rule 7.2.2(2). For instance, the Division Letter does not provide the factual basis to support its DMO determination by identifying, for example, what mining or post-mining conditions exist in connection with the Cross Mine that purportedly support the Division's DMO determination. *See* Rule 7.2.2(2) (requiring that the Division's notice be accompanied by, among other things, "factual statements including a review of the permit application, approved permit application, proposed or existing metallurgical process, known site geology or geochemistry, and the most recent site inspection").

GIR can only infer from the Division's statement that because the "Cross Mine is required to <u>treat water to prevent the discharge of heavy metals into the Coon Track Creek</u>" (emphasis added), and that the Division cited to Rule 1.1(1), the Division has concluded that the Cross Mine is an operation at which toxic or acid producing materials may be exposed or disturbed as a result of mining operations.

Rule 1.1(1) provides as follows:

"Acid and Toxic Producing Materials" means natural or reworked earth materials having acid or toxic chemicals and physical characteristics that, under mining or post-mining conditions of drainage, exposure, or other processes, produce materials which contain detrimental amounts of chemical constituents such as acids, bases, or metallic compounds.

For the reasons set forth below, the Division's conclusion that Cross Mine is a DMO is inconsistent with the facts and is a misapplication of Rules 1.1(1) and 1.1(20).

Legal Background Regarding Rule 1.1

The definition of acid or toxic forming materials was added to the Mined Land Reclamation Act ("MLRA") by S.B. 93-247. The bill was prompted by the disaster at the Summitville Mine where cyanide used to extract minerals was released into the Alamosa River. *Colorado Min. Ass'n v. Bd. of Cty. Comm'rs of Summit Cty.*, 199 P.3d 718, 727 (Colo. 2009). "[T]he purpose" of the 1993 amendments "was to ensure that mining operations utilizing toxic or acidic chemicals would receive increased regulatory oversight under the MLRA." *Id*. To achieve that purpose, the amendments "vest[ed] the Board with the authority to authorize the use of toxic or acidic chemicals, including cyanide, for mineral extraction in mining operations, under heavily regulated conditions" and created a more heavily regulated category of mines ("designated mining operations"), which included "operations utilizing toxic or acidic chemicals, such as cyanide, for extractive metallurgical processing." *Id*. These amendments and the definitions of acid and toxic materials were specifically designed to address mining operations that use harmful chemicals to extract the target mineral from the surrounding rock or which produce, or have significant potential to produce, acid mine drainage, a primary mobilizer of metallics from host rocks.

The statute and the regulations underwent a second round of substantial amendments to address the increase in uranium mines that similarly used toxic chemicals to extract the uranium. H.B. 08-1161, 66th Gen. Assemb., Reg. Sess. (Colo. 2008); 2 CCR 407-1, Permanent Rule Docket No. 2010-00032 (Aug. 12, 2010). The sponsor of the bill, Senator Steven Johnson, explained that the "bill deals with in situ uranium mining technology," which is "not a technology that [the government] ha[s] a lot of experience with in the state of Colorado and that's why [the legislature] update[d] the regulations." Audio Colorado State Senate Proceeding at 2:30-2:33 & 3:05-3:11 (Apr. 20, 2008). The amendments in both the statute and the regulations specifically increased regulatory oversight over uranium in situ leach mining. *See* H.B. 08-1161 §§ 1, 3, 5, 66th Gen. Assemb., Reg. Sess. (Colo. 2008) (adding uranium mines to DMO categories and adding additional permit requirements for in situ leach mines); Statement of Basis, Specific Statutory Authority, and Purpose, 2 CCR 407-1, Permanent Rule Docket No. 2010-00032 (Aug. 12, 2010), at pp. 4-5 (explaining that the changes to the regulations were intended to "mirror" H.B. 08-1161's goal of "provid[ing] new requirements for uranium mining operations"). As with the initial amendments in 1993, this more recent amendment to the MLRA was meant to address mines that use harmful chemicals to extract the target mineral from the surrounding rock.

Analysis

The presence of a water treatment system is not evidence of Cross Mine's Activities "produc[ing] materials which contain detrimental amounts of chemical constituents such as acids, bases, or metallic compounds."

The modifications to GIR's water treatment system at the focus of the Division's Letter were prompted in part by temporary exceedances and not changes in Cross Mine's operations. As set forth in the Findings of Fact, Conclusions of Law, and Order, Grand Island Resources LLC, File No. M-1977-4410, MV-2021-017, dated February 18, 2022 ("NOV Order"), it is undisputed that in February 2020, certain water outflow measurements exceeded GIR's WQCD water discharge permit standards, including elevated levels of zinc, cadmium, lead, copper and silver ("Exceedance Reports"). *See* NOV Order, ¶¶ 14, 15. It is also undisputed that the water quality issues that precipitated the exceedances under the discharge permit were the result of a collapse in the Idaho Tunnel (also known as the Caribou Mine). The collapse choked off water flow which was subsequently released during the rehabilitation process. *See id*. at ¶ 22. The tunnel collapse was a random occurrence, one that has not changed, nor will it change the mineral composition or physical characteristics of the Cross Mine. Significantly, as noted in the Division's Response to Citizen's Complaints, dated February 22, 2022, according to the Division's own analysis, there was "no evidence" that the exceedances "led to the degradation of surface and ground water resources," and all of the data, including the exceedances, "were below drinking water standards."

The mere existence of certain metals that were detected at a temporary exceedance level does not support a finding that they constitute "detrimental amounts of chemical constituents such as acids, bases, or metallic compounds," and therefore, do not meet the standards in Rule 1.1(1).

GIR clearly recognizes the significance of any exceedances under its discharge permit, even a random event-caused temporary exceedance, which is the case here. GIR also understands that each and every stakeholder has a legitimate interest in ensuring that operators are compliant with the State's water quality standards. GIR considers itself to be a stakeholder and endeavors to ensure that compliance with water quality standards is its highest priority.

As set forth in GIR's Cross Mine, Permit number M1977-410, Technical Revision 10, submitted on March 1, 2022 ("TR 10"), GIR provided a detailed plan of action, including current activities addressing the surface water quality, descriptions of the underground sumps installations and new water treatment pilot system, as well as the results of the current system compliance testing, and the Groundwater Monitoring Plan as required by the NOV Order.

The fact that GIR continues to treat water discharged from the Cross Mine does not mean that its operations "produce materials which contain detrimental amounts of chemical constituents such as acids, bases, or metallic compounds." GIR's current water treatment system is specifically

designed to maintain compliance with all applicable water quality standards. The water samples collected since January 2022 have shown no exceedances above permitted water quality standards. *See* Affidavit of Sean Muller, ¶¶ 5-6.

Moreover, considering the existence of a water treatment system as evidence supporting a DMO designation is an impermissible and impractical expansion of the regulations. If the Division considers any operator that utilizes a water discharge treatment system to comply with water standards, including the abatement or neutralization of certain metals or other materials that could be potentially detrimental to human or aquatic life, then virtually every mine in Colorado that has a water discharge treatment system would have to be designated as a DMO. As a result, there would be very few 110 permit holders and even fewer operators with exemptions to 112 permits. Clearly, that is not the intent of Rule 1.1(1), nor how the rule should or has been applied. Our analysis of the Division's records showed a substantial number of 110 permitted mines in Colorado, including other gold and silver mines, that have discharge settling ponds and other water treatment systems covered under their permits. There have been certain instances where the Division has even granted an exemption under 112 permits to uranium operators. There is nothing unique about the Cross Mine's water treatment system or the mine's operations that would justify treating it differently than other mines.

GIR is compliant with its mining permit number M-1977-410 and with its water discharge permit number CO-0032751. There are no activities or conditions at the Cross Mine that warrant the need for any increased regulatory oversight. The Division's DMO determination amounts to an unwarranted penalty assessed against the Cross Mine as the mine does not meet the criteria for designation as a DMO under Section 34-32-112.5, Rule 1.1(1), or Rule 1.1(20).

There is no indication that "acid and toxic producing materials as natural or reworked earth materials having acid or toxic chemical and physical characteristics that, under mining or post-mining conditions of drainage, exposure, or other processes, produce materials which contain detrimental amounts of chemical constituents such as acids, bases, or metallic compounds" exist at the Cross Mine.

GIR's current activities at the Cross Mine are focused on compliance with the NOV Order. There are no designated chemicals used in metallurgical processing stored on site, because no metallurgical processing occurs at the Cross Mine. The chemicals used or stored at the Cross Mine are those referenced in Safety Data Sheets. *See* Affidavit of Sean Muller, ¶ 4.

The Cross Mine host rock is predominantly monzonite, a rock with high amounts of calcium that buffers any sulfides in the rock, and is a non-acid producing rock. The gold and silver occurs in the Cross Mine mostly with iron pyrite, and includes lead, zinc and copper sulfides with trace cadmium occurring with the zinc sulfides. Although the site contains some lead, zinc and copper sulfides and cadmium similar to the naturally occurring levels present in outcrops in the area, the

definition of acid– or toxic– producing materials in Rule 1.1(1) relates solely to materials which contain detrimental amounts of chemical constituents such as acids, bases, or metallic compounds. There is no evidence that any such material exists at the Cross Mine that meets this definition.

Based on the well-documented surveys and analytical reports pertaining the geology and ore deposits specific to the Grand Island District, of which the Cross Mine is a part, there is no evidence of the development of acid mine drainage from workings, host rock, or waste rock at the Cross Mine. *See* Affidavit of Sean Muller, ¶ 3; *see also*, Core Laboratories and USGS reports referenced below.

In support of GIR's AM 2, GIR provided the Division with various environmental reports and studies performed related to the Cross Mine property, including an acid-base accounting that was performed in 1994 and 1995. For ease of reference, GIR is submitting herewith a copy of the reports referenced below in Appendix A, which contain information in support of GIR's appeal.

The discussion above comparing the Cross Mine operation against the criteria for DMO designation indicates that the Cross Mine should not be designated as a DMO, but should instead maintain its 110(2) permit status.

Pursuant to Rule 7.2.4, GIR disputes the Division's pending designation of Cross Mine as a DMO. We request that the Division reverse its pending designation as we have demonstrated there is an insufficient factual basis for designating the Cross Mine as a DMO.

Dated: March 18, 2022

/s/ *Robert E. Botts, Jr.*
Robert E. Botts, Jr., #21317
Zane Gilmer, #41602
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Denver, CO 80202
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robert.botts@stinson.com
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Appendix A

List of Environmental Reports and Studies:

1. Core Laboratories Analytical Report, dated October 20, 1994
2. Core Laboratories Analytical Report, dated November 10, 1994
3. Core Laboratories Analytical Report, dated November 30, 1994
4. Core Laboratories Analytical Report, dated January 12, 1995
5. Core Laboratories Analytical Report, dated January 27, 1995
6. Core Laboratories Analytical Report, dated March 9, 1995
7. Core Laboratories Analytical Report, dated March 24, 1995
8. Preliminary Environmental Due Diligence of Calais Resource Consolidated Caribou Mining District, by Knight Piésold Consulting, dated December 14, 2004
9. State of the Watershed: Water Quality of Boulder Creek, Colorado, by Sheila F Murphy, 2006
10. Science of the Total Environment, 743 (2020) 140635, Wildfire-driven change in hydrology mobilize arsenic and metals from legacy mine waste, by Sheila F. Murphy, et al.
11. Special Use Review Application and Addendum, Cross Mine Expansion, Boulder County, Colorado, prepared by Walsh Environmental Scientists and Engineers, LLC, reproduced July 2008
12. "Geology and Ore Deposits of the Front Range Colorado" USGS Professional Paper 223, Lovering and Goddard (1950), pp. 197-202.

BEFORE THE DIVISION OF RECLAMATION, MINING AND SAFETY
STATE OF COLORADO

RE: CROSS GOLD MINE, PERMIT NO. M-1977-410, PRELIMINARY DESIGNATED MINING OPERATION DETERMINATION

AFFIDAVIT IN SUPPORT OF GRAND ISLAND RESOURCES, LLC'S APPEAL

STATE OF COLORADO)
) SS.
COUNTY OF BOULDER)

I, Sean Muller, being over the age of eighteen, being first duly sworn on oath, state as follows:

1. My name is Sean Muller. I am the Geology Manager for Grand Island Resources, LLC. My experience at the Cross Mine goes back to 2010 when I worked with the previous mine owner, Tom Hendricks.

2. I have a Bachelors in Earth Science/Biology and a Masters in Economic Geology. I started my PhD in Mining Engineering in 2010 at the Colorado School of Mines with a thesis topic at the mine. I have 49 years of mining and environmental experience starting my career in metallurgy then moving into exploration, operations and environmental characterization plus remedial design. During the 1990s when the metals market crashed, I worked in aqueous phase geochemistry for characterizing the Superfund cleanup of about 20 Anaconda mines, mills, and smelters. This diverse technical expertise gives me a full understanding of the processes and potential impacts of mining and future reclamation.

3. Effluent discharge from the Cross and Caribou mines has occurred since the 1870s and there are perhaps 30 legacy mines in the Coon Track Creek drainage where there is no evidence of acid mine drainage (AMD). Significant is the fact that through this 150 years, waste rock piles around these legacy mines have had no AMD seepage. The reason for this is explained in the Acid Base Accounting tests conducted on ore and evaluated in a TCLP generated leachate in 1994 and 1995. These tests were conducted after the Designated Mining Operation (DMO) rule came into effect. At that time, DNR asked all of the mining companies to prove they are not a DMO. In 1995, DNR after reviewing the analytical testing provided by Core Laboratories, concluded that the ore and leachate had no indication of being acid generating. Monzonite is the host rock for the sulfide veins and it has a very high neutralization potential. Even sulfide-laden waste rock at these legacy mines are non-acid generating.

4. A comprehensive file of all chemicals stored or used at the permitted mine site is maintained in the Cross-Caribou Mine's records labeled "Safety Data Sheets. No

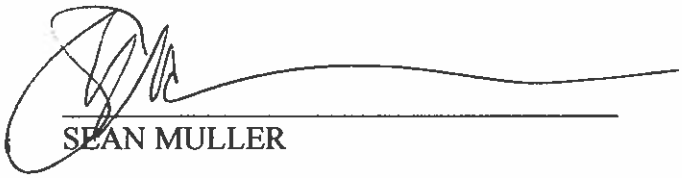
designated chemicals sufficient for processing ore exist on the site as no milling occurs. There is one pallet of hydrated lime used prior to 2021 for dropping out metals and dissolved solids in the effluent coming from the portals. The only acids on site are one gallon of sulfuric acid used for recharging batteries and approximately one liter of dilute hydrochloric acid used by the geologists for identifying carbonate rocks.

5. Effluent discharge exceedances that occurred during the rehabilitation of the collapsed portal at the Idaho Tunnel have been mitigated by the treatment system installed at the end December 2021. This treatment system was designed by Environmental Solutions in conjunction with Graver Engineers. Black Fox Mining Consultants are monitoring sampling in an audit capacity for independent reporting to CDPHE. This treatment system is designed to eliminate total suspended solids (TSS) through filtration to 5 micron and total dissolved solids (TDS) removal by a cation adsorption media known as Metsorb. These respective analytical certificates have been provided to CDPHE to ascertain the success of the treatment system. Additionally, samples collected for a more comprehensive analytical suite per compliance reporting have had no exceedances to the metals limitations established in the NDPES permit from January 2022 through February 2022. Compliance samples for the first half of March have been collected and we are awaiting lab results. Additionally, wet samples for testing of the flathead minnow and daphnia are undergoing quarterly testing at this time. With no exceedances during the last eight weeks (re: weekly treatment system validation) for metals we are confident that the March 2022 sampling results will follow suit.

6. Effectually, discharge waters into Coon Track Creek meet the aquatic criteria in the NPDES permit. Post-mining reclamation will include sealing the portals from future discharge. With the lack of dissolution of the sulfides due to the high buffering capacity of the monzonitic host rock, future treatment post-reclamation will not be necessary.

I state under penalty of perjury that the facts set forth above are true and correct.

Further Affiant sayeth naught.



SEAN MULLER

STATE OF COLORADO)

) SS.

COUNTY OF Boulder)

On this 18 day of March, 2022, before me, the undersigned Notary Public, personally appeared Sean Muller, proved to me through satisfactory evidence of identification, which was ~~Colorado~~ Wyoming DL, to be the person whose name is signed on the preceding document who swore or affirmed to me that the contents of the document are truthful and accurate to the best of their knowledge and belief.

Notary Public

DONTAY MOORE
NOTARY PUBLIC - STATE OF COLORADO
NOTARY ID 20214043568
MY COMMISSION EXPIRES NOV 5, 2025

My Commission expires: Nov 5, 2025

WESTERN ATLAS

Core Laboratories

CORE LABORATORIES
A N A L Y T I C A L R E P O R T

Job Number: 941802
Prepared For:

HENDRICKS MINING CO, INC.
THOMAS HENDRICKS
P.O. BOX 653-CARIBOU
NEDERLAND, CO 80466-0653

Date: 10/20/94

AMENDED REPORT

Signature Patrick J. McEntee Date: 10-20-94

Name: Patrick J. McEntee

Core Laboratories
10703 East Bethany Drive
Aurora, CO 80014

Title: LABORATORY SUPERVISOR

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WESTERN ATLAS

Core Laboratories

SUMMARY OF DATA GENERATED FROM HUMIDITY CELL TESTING
HENDRICKS MINING CO, INC.
OCTOBER 20, 1994

CLIENT SAMPLE I.D...: COMPOSITE HEAD
LAB SAMPLE I.D.....: 941802-1

PARAMETER	UNITS	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Leachate Quantity	mls	162	173	175	167	166	N/A	N/A	N/A	N/A	N/A
pH	pH Units	6.97	6.74	7.32	7.29	7.60	N/A	N/A	N/A	N/A	N/A
Conductivity	umohs/cm	80	195	154	151	142	N/A	N/A	N/A	N/A	N/A
Sulfate	mg/L	13	64	54	50	N/A	N/A	N/A	N/A	N/A	N/A
Cumulative Sulfate	Total mg	2	13	23	31	31	31	31	31	31	31
Acidity	mg/L CaCO3	<10	<10	<10	<10	<10	N/A	N/A	N/A	N/A	N/A
Cumulative Acidity	Tot. mg CaCO3	0	0	0	0	0	0	0	0	0	0
Iron (Diss.)	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	N/A	N/A	N/A	N/A	N/A
Cumulative Iron	Total ug	0	0	0	0	0	0	0	0	0	0
Alkalinity	mg/L CaCO3	20	17	12	16	20	N/A	N/A	N/A	N/A	N/A
Cumulative Alkalinity	Tot. mg CaCO3	3	6	8	11	14	14	14	14	14	14
pH of DI H2O	pH Units	5.29	5.70	5.03	5.17	5.77	N/A	N/A	N/A	N/A	N/A

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WESTERN ATLAS

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QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:08/22/94 07:15 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:305732 TECHNICIAN:SLS
BLANK	MB	940822	<5							
STANDARD	LCS	G940805A	166			167	99			
DUPLICATE	MD	940765-274	<5	<5	NC					
DUPLICATE	MD	940765-283	22	21	1					
DUPLICATE	MD	940936-46	12	12	0					
DUPLICATE	MD	941802-3	17	17	0					
DUPLICATE	MD	940925-60	17	16	1					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:08/22/94 07:15 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:305737 TECHNICIAN:SLS
BLANK	MB	940822	<10							
DUPLICATE	MD	940765-274	406	408	0					
DUPLICATE	MD	940765-283	<10	<10	NC					
DUPLICATE	MD	940936-46	<10	<10	NC					
DUPLICATE	MD	941802-3	<10	<10	NC					
DUPLICATE	MD	940925-60	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:08/22/94 07:15 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:305739 TECHNICIAN:SLS
STANDARD	ICV	G940711C	4.06			4.00	101			
STANDARD	CCV	S7.00	7.05			7.00	101			
STANDARD	CCV	S7.00	7.05			7.00	101			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	7.06			7.00	101			
DUPLICATE	MD	940765-274	3.28	3.27	0					
DUPLICATE	MD	940765-283	7.62	7.50	2					
DUPLICATE	MD	940936-46	6.52	6.59	1					
DUPLICATE	MD	941802-3	6.74	6.75	0					
DUPLICATE	MD	940925-60	7.01	6.97	1					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:08/23/94 10:50 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:305935 TECHNICIAN:GEF
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	10.6			10.0	106			
STANDARD	ICV	0524F	2.06			2.00	103			
STANDARD	CCV	0714D	10.9			10.0	109			
STANDARD	ISA	0609A	185			200	92			

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WESTERN ATLAS

Core Laboratories

QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:08/23/94 10:50							QC BATCH NUMBER:305935
REPORTING LIMIT/DF: 0.03	UNITS:mg/L		METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
STANDARD	CCV	0714D	10.5			10.0	105			
STANDARD	ISB	0710A	182			200	91			
STANDARD	CCV	0714D	9.97			10.0	100			
STANDARD	ISA	0609A	178			200	89			
STANDARD	ISB	0710A	172			200	86			
STANDARD	CCV	0714D	9.98			10.0	100			
SPIKE	PDS	941974-002	1.99					0.07	2.00	96
DUPLICATE	MD	941974-001	0.09	0.08	0.01					
PARAMETER:Conductivity (Filt.)			DATE/TIME ANALYZED:08/26/94 12:00							QC BATCH NUMBER:306137
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC		METHOD REFERENCE :120.1 (1)							TECHNICIAN:RPK
BLANK	ICB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
STANDARD	ICV/LCS	941319	99			98	101			
STANDARD	CCV	G940711B	151			147	103			
STANDARD	CCV	G940711B	148			147	101			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	148			147	101			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	146			147	99			
STANDARD	CCV	G940711B	146			147	99			
STANDARD	CCV	G940711B	144			147	98			
DUPLICATE	MD	941113-32	2850	2850	0					
DUPLICATE	MD	940673-410	85	85	0					
DUPLICATE	MD	940673-420	26	26	0					
DUPLICATE	MD	940765-284	150	150	0					
DUPLICATE	MD	940765-294	670	670	0					
DUPLICATE	MD	940765-304	1310	1310	0					
DUPLICATE	MD	940925-65	35	35	0					
DUPLICATE	MD	941875-9	242	242	0					
DUPLICATE	MD	941875-19	233	231	1					

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QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:08/25/94 12:48						QC BATCH NUMBER:306204
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	98			100	98			
SPIKE	MS	940765-277	47					22	25	100
SPIKE	MS	940767-103	27					<10	25	108
SPIKE	MS	940767-108	25					<10	25	100
SPIKE	MS	940765-272	56					33	25	92
SPIKE	MS	940765-273	42					19	25	92
DUPLICATE	MD	940765-277	22	22	0					
DUPLICATE	MD	940767-103	<10	<10	NC					
DUPLICATE	MD	940767-108	<10	<10	NC					
DUPLICATE	MD	940765-272	33	33	0					
DUPLICATE	MD	940765-273	19	18	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:08/31/94 12:37						QC BATCH NUMBER:306639
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	9.68			10.0	97			
STANDARD	ICV	0524F	2.04			2.00	102			
STANDARD	CCV	0714D	9.66			10.0	97			
STANDARD	ISA	0609A	179			200	90			
STANDARD	CCV	0714D	9.64			10.0	96			
STANDARD	ISB	0710A	169			200	84			
STANDARD	CCV	0714D	9.64			10.0	96			
STANDARD	ISA	0609A	173			200	86			
STANDARD	ISB	0710A	165			200	82			
STANDARD	CCV	0714D	9.47			10.0	95			
SPIKE	PDS	942139-012	1.98					0.03	2.00	98
SPIKE	PDS	942139-022	1.98					<0.03	2.00	99
SPIKE	PDS	942139-002	2.01					0.03	2.00	99
SPIKE	PDS	941691-004	1.96					<0.03	2.00	98

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QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:08/31/94 12:37							QC BATCH NUMBER:306639
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
DUPLICATE	MD	942139-021	<0.03	<0.03	NC					
DUPLICATE	MD	941691-004	<0.03	<0.03	NC					
DUPLICATE	MD	942139-011	<0.03	<0.03	NC					
DUPLICATE	MD	942139-001	0.05	0.03	0.02					
PARAMETER:pH (Filt.)			DATE/TIME ANALYZED:09/04/94 09:00							QC BATCH NUMBER:306972
REPORTING LIMIT/DF: 0.01 UNITS:pH Units			METHOD REFERENCE :150.1 (1)							TECHNICIAN:KDS
STANDARD	ICV	G940711C	4.00			4.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
DUPLICATE	MD	940765-308	3.54	3.53	0					
DUPLICATE	MD	940767-120	7.83	7.82	0					
DUPLICATE	MD	940925-70	7.98	7.90	1					
DUPLICATE	MD	940936-56	3.24	3.25	0					
DUPLICATE	MD	941391-60	7.34	7.33	0					
DUPLICATE	MD	941875-20	8.96	8.97	0					
PARAMETER:Alkalinity, Total (Filt.)			DATE/TIME ANALYZED:09/04/94 09:00							QC BATCH NUMBER:306973
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)							TECHNICIAN:KDS
BLANK	MB	940904	<5							
STANDARD	LCS	G940805A	162			167	97			
DUPLICATE	MD	940765-308	<5	<5	NC					
DUPLICATE	MD	940767-120	26	26	0					
DUPLICATE	MD	940925-70	20	19	1					
DUPLICATE	MD	940936-56	<5	<5	NC					
DUPLICATE	MD	941391-60	17	16	1					
DUPLICATE	MD	941875-20	62	61	2					
PARAMETER:Acidity (Filt.)			DATE/TIME ANALYZED:09/04/94 09:00							QC BATCH NUMBER:306975
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)							TECHNICIAN:KDS
BLANK	MB	940904	<10							
DUPLICATE	MD	940765-308	500	500	0					
DUPLICATE	MD	940767-120	<10	<10	NC					
DUPLICATE	MD	940925-70	<10	<10	NC					
DUPLICATE	MD	941391-60	<10	<10	NC					
DUPLICATE	MD	941875-20	<10	<10	NC					

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QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:09/12/94 12:35							QC BATCH NUMBER:307417
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	ICV	0524F	2.00			2.00	100			
STANDARD	CCV	0714D	9.83			10.0	98			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	ISA	0609A	167			200	84			
STANDARD	CCV	0714D	9.47			10.0	95			
STANDARD	CCV	0714D	9.17			10.0	92			
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	CCV	0714D	9.87			10.0	99			
STANDARD	ISA	0609A	184			200	92			
STANDARD	ISB	0710A	180			200	90			
STANDARD	CCV	0714D	9.32			10.0	93			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	ISB	0710A	180			200	90			
SPIKE	PDS	940495-042	2.40					0.55	2.00	92
SPIKE	PDS	941922-004	1.89					<0.03	2.00	94
SPIKE	PDS	941875-030	1.99					0.03	2.00	98
SPIKE	PDS	941391-064	1.51					<0.03	2.00	76
DUPLICATE	MD	941875-030	0.03	0.03	0.00					
DUPLICATE	MD	941391-064	<0.03	<0.03	NC					
DUPLICATE	MD	940495-042	0.55	0.52	6					
DUPLICATE	MD	941922-004	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)			DATE/TIME ANALYZED:09/12/94 06:30							QC BATCH NUMBER:307487
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)							TECHNICIAN:SLS
BLANK	MB	940912	<5							
STANDARD	LCS	G940805A	163			167	98			
DUPLICATE	MD	941391-65	14	14	0					
DUPLICATE	MD	941391-64	6	6	0					
DUPLICATE	MD	940881-40	<5	<5	NC					
DUPLICATE	MD	940936-60	<5	<5	NC					
PARAMETER:Acidity (Filt.)			DATE/TIME ANALYZED:09/12/94 06:30							QC BATCH NUMBER:307488
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)							TECHNICIAN:SLS
BLANK	MB	940912	<10							

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QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:09/12/94 06:30 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:307488 TECHNICIAN:SLS
DUPLICATE	MD	941391-65	<10	<10	NC					
DUPLICATE	MD	941391-64	<10	<10	NC					
DUPLICATE	MD	940881-40	79	79	0					
DUPLICATE	MD	940936-60	243	241	1					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:09/12/94 06:30 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:307489 TECHNICIAN:SLS
STANDARD	ICV	G940711C	4.00			4.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
STANDARD	CCV	S7.00	7.04			7.00	101			
DUPLICATE	MD	941391-65	7.20	7.19	0					
DUPLICATE	MD	941391-64	6.49	6.52	0					
DUPLICATE	MD	940881-40	4.76	4.79	1					
DUPLICATE	MD	940936-60	3.12	3.11	0					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:09/12/94 08:28 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:307516 TECHNICIAN:SLS
BLANK	ICB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
STANDARD	ICV/LCS	G940415A	73			75	97			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	98			100	98			
SPIKE	MS	940416-101	40					14	25	104
SPIKE	MS	940767-114	27					<10	25	108
SPIKE	MS	940925-65	27					<10	25	108
SPIKE	MS	941875-15	47					21	25	104
DUPLICATE	MD	940416-101	14	15	1					
DUPLICATE	MD	940767-114	<10	<10	NC					
DUPLICATE	MD	940925-65	<10	<10	NC					
DUPLICATE	MD	941875-15	21	22	1					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:09/15/94 10:20 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:307844 TECHNICIAN:LM
BLANK	ICB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							

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QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)			DATE/TIME ANALYZED:09/15/94 10:20							QC BATCH NUMBER:307844
REPORTING LIMIT/DF: 1		UNITS:umhos/cm @25dC	METHOD REFERENCE :120.1 (1)							TECHNICIAN:LM
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
STANDARD	ICV/LCS	940584	987			987	100			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1410			1410	100			
STANDARD	CCV	G940901A	1410			1410	100			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1420			1410	101			
DUPLICATE	MD	940416-108	123	122	1					
DUPLICATE	MD	940767-124	65	65	0					
DUPLICATE	MD	941802-5	151	150	1					
DUPLICATE	MD	941875-27	104	104	0					
DUPLICATE	MD	942095-14	134	134	0					
PARAMETER:pH (Filt.)			DATE/TIME ANALYZED:09/18/94 11:00							QC BATCH NUMBER:308099
REPORTING LIMIT/DF: 0.01		UNITS:pH Units	METHOD REFERENCE :150.1 (1)							TECHNICIAN:KDS
STANDARD	ICV	G940711C	3.98			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	941391-70	7.23	7.16	1					
DUPLICATE	MD	941875-30	9.03	8.92	1					
DUPLICATE	MD	942074-30	7.32	7.34	0					
DUPLICATE	MD	942074-38	3.60	3.60	0					
PARAMETER:Alkalinity, Total (Filt.)			DATE/TIME ANALYZED:09/18/94 11:00							QC BATCH NUMBER:308100
REPORTING LIMIT/DF: 5		UNITS:mg/L CaCO3	METHOD REFERENCE :310.1 (1)							TECHNICIAN:KDS
BLANK	MB	940918	<5							
STANDARD	LCS	G940805A	163			167	98			
DUPLICATE	MD	941391-70	14	12	2					
DUPLICATE	MD	941875-30	59	59	0					
DUPLICATE	MD	942074-30	22	22	0					
DUPLICATE	MD	942074-38	<5	<5	NC					
PARAMETER:Acidity (Filt.)			DATE/TIME ANALYZED:09/18/94 11:00							QC BATCH NUMBER:308101
REPORTING LIMIT/DF: 10		UNITS:mg/L CaCO3	METHOD REFERENCE :305.1 (1)							TECHNICIAN:KDS
BLANK	MB	940918	<10							

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WESTERN ATLAS

Core Laboratories

QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:09/18/94 11:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:308101 TECHNICIAN:KDS
DUPLICATE	MD	941391-70	<10	<10	NC					
DUPLICATE	MD	941875-30	<10	<10	NC					
DUPLICATE	MD	942074-30	25	24	1					
DUPLICATE	MD	942074-38	250	250	0					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:09/19/94 08:30 METHOD REFERENCE :375.2 (1)						QC BATCH NUMBER:308159 TECHNICIAN:DME
BLANK	ICB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
STANDARD	ICV/LCS	G940415A	153			150	102			
STANDARD	CCV	S160	162			160	101			
STANDARD	CCV	S160	161			160	101			
STANDARD	CCV	S160	159			160	99			
STANDARD	CCV	S160	158			160	99			
SPIKE	MS	941875-22	81					30	50	102
SPIKE	MS	942200-2	70					20	50	100
SPIKE	MS	942210-1	151					103	50	96
SPIKE	MS	940936-60	113					62	50	102
DUPLICATE	MD	941875-22	30	30	0					
DUPLICATE	MD	942200-2	20	20	0					
DUPLICATE	MD	942210-1	103	103	0					
DUPLICATE	MD	940936-60	62	66	6					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:09/20/94 07:43 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:308394 TECHNICIAN:SLS
BLANK	ICB	940920	<10							
BLANK	CCB	940920	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	103			100	103			
SPIKE	MS	941802-6	66					42	25	96
DUPLICATE	MD	941802-6	42	41	1					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:09/21/94 09:54 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:308462 TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							

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Core Laboratories

QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/21/94 09:54						QC BATCH NUMBER:308462
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	9.87			10.0	99			
STANDARD	ICV	0914E	1.98			2.00	99			
STANDARD	CCV	0714D	9.62			10.0	96			
STANDARD	ISA	0609A	171			200	86			
STANDARD	CCV	0714D	9.98			10.0	100			
STANDARD	ISB	0710A	176			200	88			
STANDARD	CCV	0714D	9.80			10.0	98			
STANDARD	CCV	0714D	10.3			10.0	103			
STANDARD	CCV	0714D	9.46			10.0	95			
STANDARD	CCV	0714D	9.49			10.0	95			
STANDARD	ISA	0609A	180			200	90			
STANDARD	ISA	0609A	176			200	88			
STANDARD	ISB	0710A	178			200	89			
STANDARD	CCV	0714D	9.76			10.0	98			
STANDARD	ISB	0710A	181			200	90			
SPIKE	PDS	942332-011	2.02					<0.03	2.00	101
SPIKE	PDS	942332-001	2.10					<0.03	2.00	105
SPIKE	PDS	942332-021	2.26					<0.03	2.00	113
SPIKE	PDS	942332-031	2.41					0.07	2.00	117
SPIKE	PDS	942140-003	2.02					0.05	2.00	98
SPIKE	PDS	942332-041	2.01					<0.03	2.00	100
SPIKE	PDS	940925-081	2.11					<0.03	2.00	106
DUPLICATE	MD	942332-011	<0.03	<0.03	NC					
DUPLICATE	MD	942332-021	<0.03	<0.03	NC					
DUPLICATE	MD	942332-031	0.07	0.07	0.00					
DUPLICATE	MD	942140-003	0.05	0.03	0.02					
DUPLICATE	MD	942332-041	<0.03	<0.03	NC					
DUPLICATE	MD	940925-081	<0.03	<0.03	NC					
DUPLICATE	MD	942332-001	<0.03	<0.03	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/25/94 07:00						QC BATCH NUMBER:308719
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G940711C	3.99			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	940925-85	6.98	7.20	3					
DUPLICATE	MD	942074-42	5.96	5.96	0					
DUPLICATE	MD	942074-50	6.72	6.73	0					
DUPLICATE	MD	942074-57	3.95	3.95	0					

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QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:09/25/94 07:00 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:308720 TECHNICIAN:KDS
BLANK	MB	940925	<5							
STANDARD	LCS	G940805A	162			167	97			
DUPLICATE	MD	940925-85	17	17	0					
DUPLICATE	MD	942074-42	<5	<5	NC					
DUPLICATE	MD	942074-50	22	22	0					
DUPLICATE	MD	942074-57	<5	<5	NC					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:09/25/94 07:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:308721 TECHNICIAN:KDS
BLANK	MB	940925	<10							
DUPLICATE	MD	940925-85	<10	<10	NC					
DUPLICATE	MD	942074-42	31	31	0					
DUPLICATE	MD	942074-50	19	29	10					
DUPLICATE	MD	942074-57	320	302	6					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:09/23/94 15:15 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:308752 TECHNICIAN:LM
BLANK	ICB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
STANDARD	ICV/LCS	940584	985			987	100			
STANDARD	CCV	G940901B	146			147	99			
STANDARD	CCV	G940901B	146			147	99			
STANDARD	CCV	G940901B	145			147	99			
STANDARD	CCV	G940901B	145			147	99			
DUPLICATE	MD	940925-66	35	35	0					
DUPLICATE	MD	942074-41	1020	1010	1					
DUPLICATE	MD	942074-50	831	829	0					
DUPLICATE	MD	942074-57	1720	1710	1					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:09/27/94 08:00 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:309042 TECHNICIAN:RPK
BLANK	MB	940927	<5							
STANDARD	LCS	G940711C	163			167	98			
DUPLICATE	MD	940936-71	39	47	19					
DUPLICATE	MD	941802-8	16	18	2					
DUPLICATE	MD	942074-67	25	25	0					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:09/27/94 08:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:309044 TECHNICIAN:RPK
STANDARD	ICV	G940711C	3.99			4.00	100			

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WESTERN ATLAS

Core Laboratories

QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309044
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	940936-71	4.36	4.30	1					
DUPLICATE	MD	941802-8	6.79	6.85	1					
DUPLICATE	MD	942074-67	6.99	7.29	4					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309047
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	940927	<10							
DUPLICATE	MD	940936-71	39	47	8					
DUPLICATE	MD	941802-8	<10	<10	NC					
DUPLICATE	MD	942074-67	<10	<10	NC					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/27/94 17:55						QC BATCH NUMBER:309114
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0831F	5.20			5.00	104			
STANDARD	ISB	0710A	182			200	91			
STANDARD	CCV	0831F	5.16			5.00	103			
STANDARD	CCV	0831F	5.11			5.00	102			
STANDARD	CCV	0831F	5.23			5.00	105			
STANDARD	ICV	0914E	1.86			2.00	93			
STANDARD	CCV	0831F	5.21			5.00	104			
STANDARD	CCV	0831F	5.14			5.00	103			
STANDARD	CCV	0831F	5.28			5.00	106			
STANDARD	ISA	09260	188			200	94			
STANDARD	ISA	09260	203			200	101			
STANDARD	ISB	0710A	202			200	101			
SPIKE	PDS	941391-076	5.40					3.37	2.00	102
SPIKE	PDS	941113-037	2.38					<0.03	2.00	119
SPIKE	PDS	942074-046	2.04					<0.03	2.00	102
SPIKE	PDS	942074-054	2.31					<0.03	2.00	116
SPIKE	PDS	940936-067	7.10					5.09	2.00	100
DUPLICATE	MD	941802-008	<0.03	<0.03	NC					
DUPLICATE	MD	941113-035	<0.03	<0.03	NC					
DUPLICATE	MD	942074-045	<0.03	<0.03	NC					

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WESTERN ATLAS

Core Laboratories

QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/27/94 17:55						QC BATCH NUMBER:309114
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
DUPLICATE	MD	940936-066	0.03	<0.03	0.03					
DUPLICATE	MD	942074-053	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:09/28/94 10:57						QC BATCH NUMBER:309125
REPORTING LIMIT/DF: 10 UNITS:mg/L				METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
STANDARD	ICV/LCS	G940415A	74			75	99			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
SPIKE	MS	940936-61	25					<10	25	100
SPIKE	MS	942332-18	40					14	25	104
SPIKE	MS	942332-25	44					19	25	100
SPIKE	MS	942332-28	38					13	25	100
DUPLICATE	MD	940936-61	<10	<10	NC					
DUPLICATE	MD	942332-18	14	14	0					
DUPLICATE	MD	942332-25	19	19	0					
DUPLICATE	MD	942332-28	13	14	1					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/28/94 10:45						QC BATCH NUMBER:309160
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			

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QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/28/94 10:45						QC BATCH NUMBER:309160
REPORTING LIMIT/DF: 1		UNITS:umhos/cm @25dC		METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
DUPLICATE	MD	940925-90	40	40	0					
DUPLICATE	MD	940936-72	719	717	0					
DUPLICATE	MD	941391-78	512	510	0					
DUPLICATE	MD	941691-9	546	545	0					
DUPLICATE	MD	942074-58	918	919	0					
DUPLICATE	MD	942074-67	879	876	0					
DUPLICATE	MD	942074-76	663	660	0					
DUPLICATE	MD	942074-85	508	507	0					
DUPLICATE	MD	942074-95	599	597	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/29/94 08:00						QC BATCH NUMBER:309251
REPORTING LIMIT/DF: 5		UNITS:mg/L CaCO3		METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	940929	<5							
STANDARD	LCS	G940805A	160			167	96			
DUPLICATE	MD	941691-9	15	14	1					
DUPLICATE	MD	942074-79	20	24	4					
DUPLICATE	MD	942074-83	18	20	2					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/29/94 08:00						QC BATCH NUMBER:309304
REPORTING LIMIT/DF: 0.01		UNITS:pH Units		METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G940711C	4.01			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	941691-9	6.76	6.56	3					
DUPLICATE	MD	942074-79	6.60	6.33	4					
DUPLICATE	MD	942074-83	6.57	6.77	3					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/29/94 08:00						QC BATCH NUMBER:309314
REPORTING LIMIT/DF: 10		UNITS:mg/L CaCO3		METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	940929	<10							
DUPLICATE	MD	941691-9	<10	<10	NC					
DUPLICATE	MD	942074-79	<10	<10	NC					
DUPLICATE	MD	942074-83	<10	<10	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/03/94 07:54						QC BATCH NUMBER:309563
REPORTING LIMIT/DF: 10		UNITS:mg/L		METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	941003	<10							

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WESTERN ATLAS

Core Laboratories

QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.) DATE/TIME ANALYZED:10/03/94 07:54 QC BATCH NUMBER:309563										
REPORTING LIMIT/DF: 10 UNITS:mg/L METHOD REFERENCE :300.0 (1) TECHNICIAN:SLS										
BLANK	CCB	941003	<10							
STANDARD	ICV/LCS	G940415A	80			75	107			
STANDARD	CCV	S100	96			100	96			
SPIKE	MS	941802-9	53					29	25	96
DUPLICATE	MD	941802-9	29	29	0					
PARAMETER:Conductivity (Filt.) DATE/TIME ANALYZED:10/06/94 14:50 QC BATCH NUMBER:309882										
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC METHOD REFERENCE :120.1 (1) TECHNICIAN:MLM										
BLANK	ICB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1400			1410	99			
STANDARD	CCV	G940926A	1400			1410	99			
DUPLICATE	MD	940925-100	34	34	0					
DUPLICATE	MD	941391-90	203	203	0					
DUPLICATE	MD	941875-48	98	98	0					
DUPLICATE	MD	942074-101	450	448	0					
DUPLICATE	MD	942074-110	490	489	0					
DUPLICATE	MD	942074-114	332	331	0					
PARAMETER:Iron, Diss. (Fe) DATE/TIME ANALYZED:10/10/94 15:09 QC BATCH NUMBER:310114										
REPORTING LIMIT/DF: 0.03 UNITS:mg/L METHOD REFERENCE :6010 (2) TECHNICIAN:WGL										
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							

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Core Laboratories

QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:10/10/94 15:09						QC BATCH NUMBER:310114
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
STANDARD	ICV	0914E	1.81			2.00	90			
STANDARD	CCV	0831F	4.96			5.00	99			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	ISA	09260	181			200	90			
STANDARD	CCV	0831F	4.95			5.00	99			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	CCV	0831F	5.01			5.00	100			
STANDARD	ISB	1004A	175			200	88			
STANDARD	CCV	0831F	4.98			5.00	100			
STANDARD	CCV	0831F	5.05			5.00	101			
STANDARD	CCV	0831F	5.04			5.00	101			
STANDARD	CCV	0831F	4.96			5.00	99			
STANDARD	ISA	09260	185			200	92			
STANDARD	ISB	1004A	184			200	92			
STANDARD	CCV	0831F	4.97			5.00	99			
STANDARD	CCV	0831F	4.92			5.00	98			
SPIKE	PDS	941802-009	2.02					<0.03	2.00	101
SPIKE	PDS	941391-081	6.54					4.58	2.00	98
SPIKE	PDS	940936-073	2.09					<0.03	2.00	104
DUPLICATE	MD	941802-009	<0.03	<0.03	NC					
DUPLICATE	MD	941391-081	4.58	4.60	0					
DUPLICATE	MD	940936-073	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:10/14/94 15:00						QC BATCH NUMBER:310852
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	941014	<5							
STANDARD	LCS	G941007A	163			167	98			
DUPLICATE	MD	941875-46	13	12	1					
DUPLICATE	MD	941691-10	17	18	1					
DUPLICATE	MD	941802-10	21	22	1					
DUPLICATE	MD	941922-10	12	12	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:10/14/94 15:00						QC BATCH NUMBER:310853
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	6.93			7.00	99			
STANDARD	CCV	S7.00	6.95			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	6.98			7.00	100			
DUPLICATE	MD	941875-46	6.94	6.97	0					
DUPLICATE	MD	941691-10	7.18	7.20	0					
DUPLICATE	MD	941802-10	7.23	7.32	1					

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QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:10/14/94 15:00 METHOD REFERENCE :150.1 (1)							QC BATCH NUMBER:310853 TECHNICIAN:KDS
DUPLICATE	MD	941922-10	7.21	7.22	0					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:10/14/94 15:00 METHOD REFERENCE :305.1 (1)							QC BATCH NUMBER:310854 TECHNICIAN:KDS
BLANK	MB	941014	<10							
DUPLICATE	MD	941875-46	<10	<10	NC					
DUPLICATE	MD	941922-10	<10	<10	NC					
DUPLICATE	MD	941691-10	<10	<10	NC					
DUPLICATE	MD	941802-10	<10	<10	NC					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			DATE/TIME ANALYZED:10/14/94 08:00 METHOD REFERENCE :120.1 (1)							QC BATCH NUMBER:311082 TECHNICIAN:RPK
BLANK	MB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
STANDARD	ICV/LCS	G940926A	1420			1410	101			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	152			147	103			
STANDARD	CCV	G940926B	147			147	100			
DUPLICATE	MD	940416-13	58	58	0					
DUPLICATE	MD	940936-82	26	26	0					
DUPLICATE	MD	941875-51	22	21	5					
DUPLICATE	MD	942074-117	364	367	1					
DUPLICATE	MD	942074-127	399	399	0					
DUPLICATE	MD	942074-133	69	69	0					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			DATE/TIME ANALYZED:10/18/94 13:30 METHOD REFERENCE :120.1 (1)							QC BATCH NUMBER:311126 TECHNICIAN:RPK
BLANK	ICB	941018	<1							
BLANK	CCB	941018	<1							
BLANK	CCB	941018	<1							

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QUALITY CONTROL REPORT
10/20/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:10/18/94 13:30						QC BATCH NUMBER:311126
REPORTING LIMIT/DF: 1		UNITS:umhos/cm @25dC		METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	CCB	941018	<1							
BLANK	CCB	941018	<1							
STANDARD	ICV	G940926A	1436			1410	102			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	148			147	101			
DUPLICATE	MD	941875-58	93	93	0					
DUPLICATE	MD	942074-140	290	290	0					
DUPLICATE	MD	942074-150	324	324	0					
DUPLICATE	MD	942074-152	77	77	0					

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QUALITY CONTROL FOOTER

METHOD REFERENCES

(1) EPA 600/4-79-020, Methods For Chemical Analysis Of Water And Wastes, March 1983

(2) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, November 1986

(3) Standard Methods For The Examination Of Water And Wastewater, 17th Edition, 1989

(4) EPA 600/4-80-032, Prescribed Procedures For Measurement Of Radioactivity In Drinking Water, August 1980

(5) EPA 600/8-78-017, Microbiological Methods For Monitoring The Environment, December 1978

(6) Federal Register, July 1, 1990 (40 CFR Part 136)

(7) EPA 600/4-88-039, Methods For The Determination Of Organics Compounds In Drinking Water, December 1988

(8) U.S.G.S. Methods For The Determination Of Inorganic Substances In Water And Fluvial Sediments, Book 5, Chapter A1, 1985

(9) Federal Register, Friday, June 7, 1991, (40 CFR Parts 141 and 142)

(10) Standard Methods For The Examination Of Water And Wastewater, 16th Edition, 1985

(11) ASTM, Section 11 Water And Environmental Technology, Volume 11.01 Water (1), 1991

(12) Methods Of Soil Analysis, American Society Of Agronomy, Agronomy No. 9, 1965

(13) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, Revision 1, November 1990

(14) ASTM, Section 5, Petroleum Products, Lubricants, and Fossil Fuels, Volume 05.05, Gaseous Fuels, Coal and Coke

(15) EPA 600/2-78-054, Field and Laboratory Methods Applicable To Overburdens and Mine Soils, March 1978

(16) ASTM, Part 19, Soils and Rock; Building Stones, 1981

Comments: Data in QA report may differ from final results due to digestion and/or dilution of sample into analytical ranges. The "Time Analyzed" in the QA report refers to the start time of the analytical batch which may not reflect the actual time of each analysis. The "Date Analyzed" is the actual date of analysis. Results for soil and sludge samples are reported on a wet weight basis (i.e. not corrected for percent moisture) unless otherwise indicated.
NC = Not Calculable Due To Value(s) Lower Than The Detection Limit.

Blank QC Sample Identification

MB	Method Blank
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank

Reference Standard QC Sample Identification

LCS	Laboratory Control Standard
RS	Reference Standard
ICV	Initial Calibration Verification Standard
CCV	Continuing Calibration Verification Standard
ISA/ISB	ICP Interference Check Samples

Spike QC Sample Identification

MS	Method (Matrix) Spike
MSD	Method (Matrix) Spike Duplicate
PDS	Post Digestion Spike
SB	Spiked Blank
SBD	Spiked Blank Duplicate

Duplicate QC Sample Identification

MD	Method (Matrix) Duplicate
ED	Extraction Duplicate
DD	Digestion Duplicate

Analyses performed by a subcontract laboratory are indicated on the analytical and/or quality control reports under "Technician" using the following codes:

Subcontract Laboratory	Code
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Core Laboratories - Casper, WY	* CA
Core Laboratories - Corpus Christi, TX	* CC
Core Laboratories - Houston, TX	* HP
Core Laboratories - Lake Charles, LA	* LC
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A N A L Y T I C A L R E P O R T

Job Number: 941802
Prepared For:

HENDRICKS MINING CO, INC.
THOMAS HENDRICKS
P.O. BOX 653-CARIBOU
NEDERLAND, CO 80466-0653

Date: 11/10/94

Signature Patrick J. McEntee

Date: 11-14-94

Name: Patrick J. McEntee

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10703 East Bethany Drive
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Title: LABORATORY SUPERVISOR

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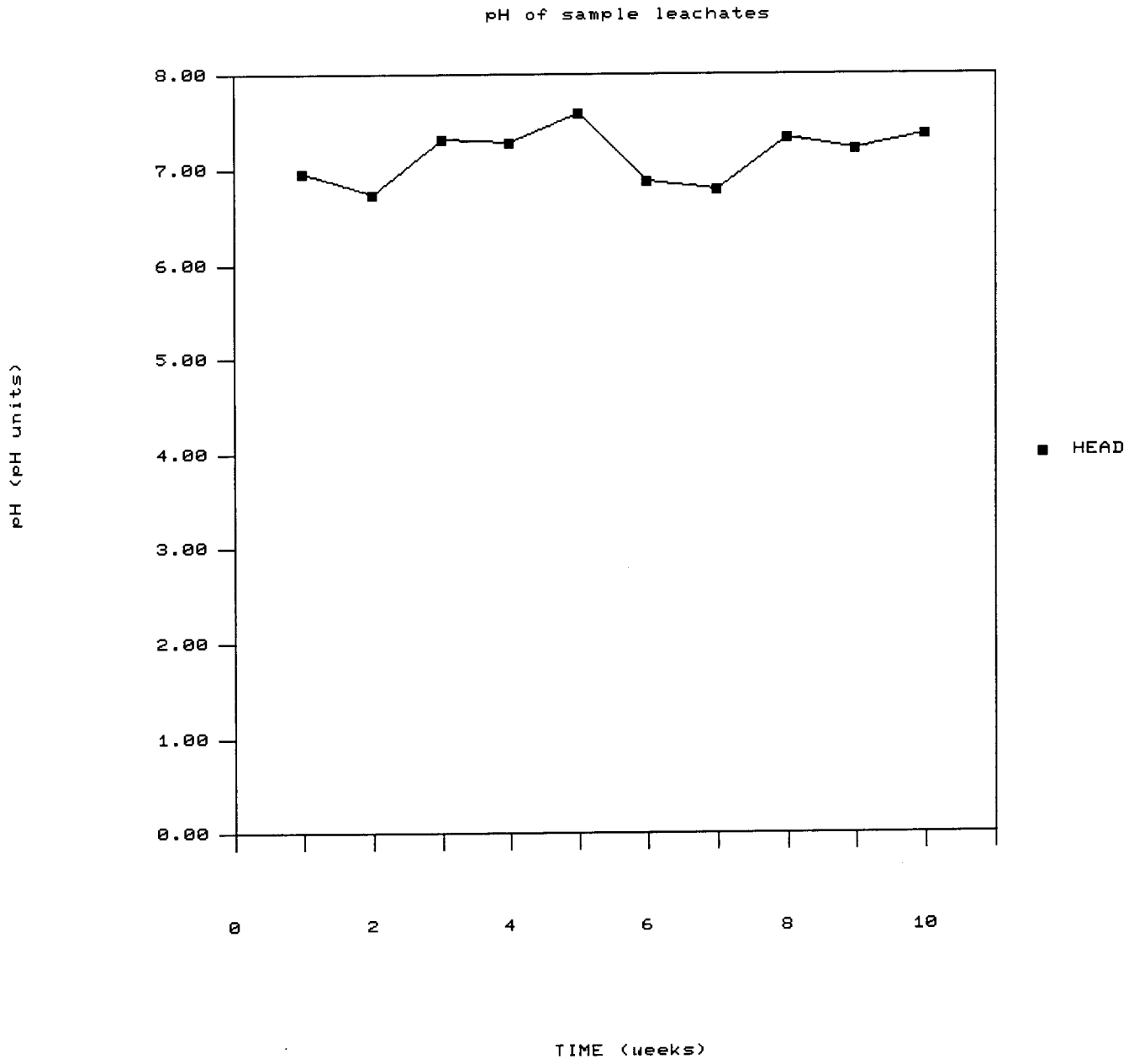
SUMMARY OF DATA GENERATED FROM HUMIDITY CELL TESTING
HENDRICKS MINING CO, INC.
November 10, 1994

CLIENT SAMPLE I.D...: HEAD
LAB SAMPLE I.D.....: 941802-1

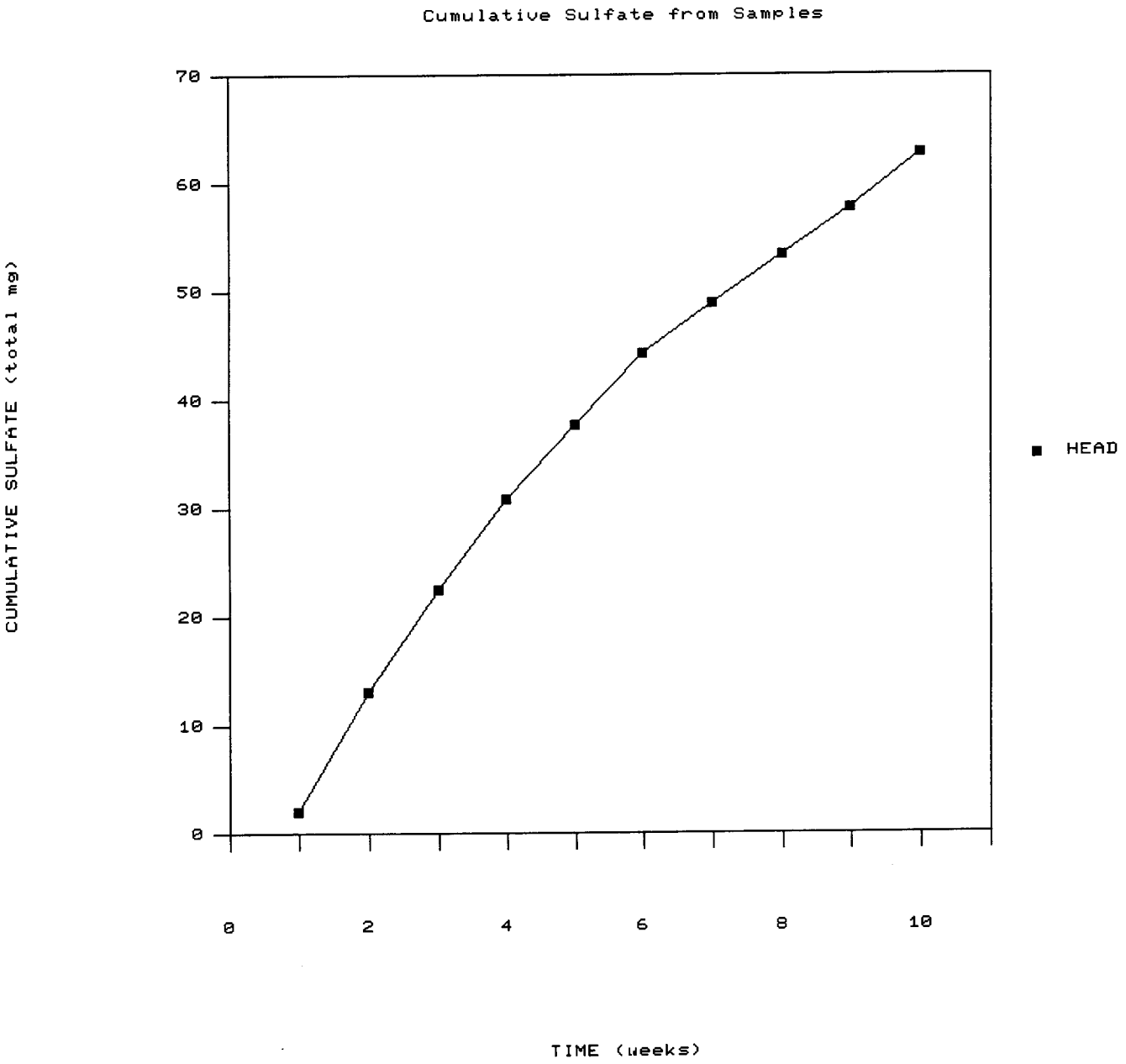
PARAMETER	UNITS	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Leachate Quantity	mls	162	173	175	167	166	162	171	155	158	187
pH	pH Units	6.97	6.74	7.32	7.29	7.60	6.88	6.79	7.34	7.23	7.37
Conductivity	umohs/cm	80	195	154	151	142	152	103	112	115	112
Sulfate	mg/L	13	64	54	50	41	41	27	29	27	27
Cumulative Sulfate	Total mg	2	13	23	31	38	44	49	54	58	63
Acidity	mg/L CaCO3	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cumulative Acidity	Tot. mg CaCO3	0	0	0	0	0	0	0	0	0	0
Iron (Diss.)	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Cumulative Iron	Total ug	0	0	0	0	0	0	0	0	0	0
Alkalinity	mg/L CaCO3	20	17	12	16	20	26	16	44	21	23
Cumulative Alkalinity	Tot. mg CaCO3	3	6	8	11	14	18	21	28	31	36
pH of DI H2O	pH Units	5.29	5.70	5.03	5.17	5.77	5.58	5.96	6.04	6.69	5.82

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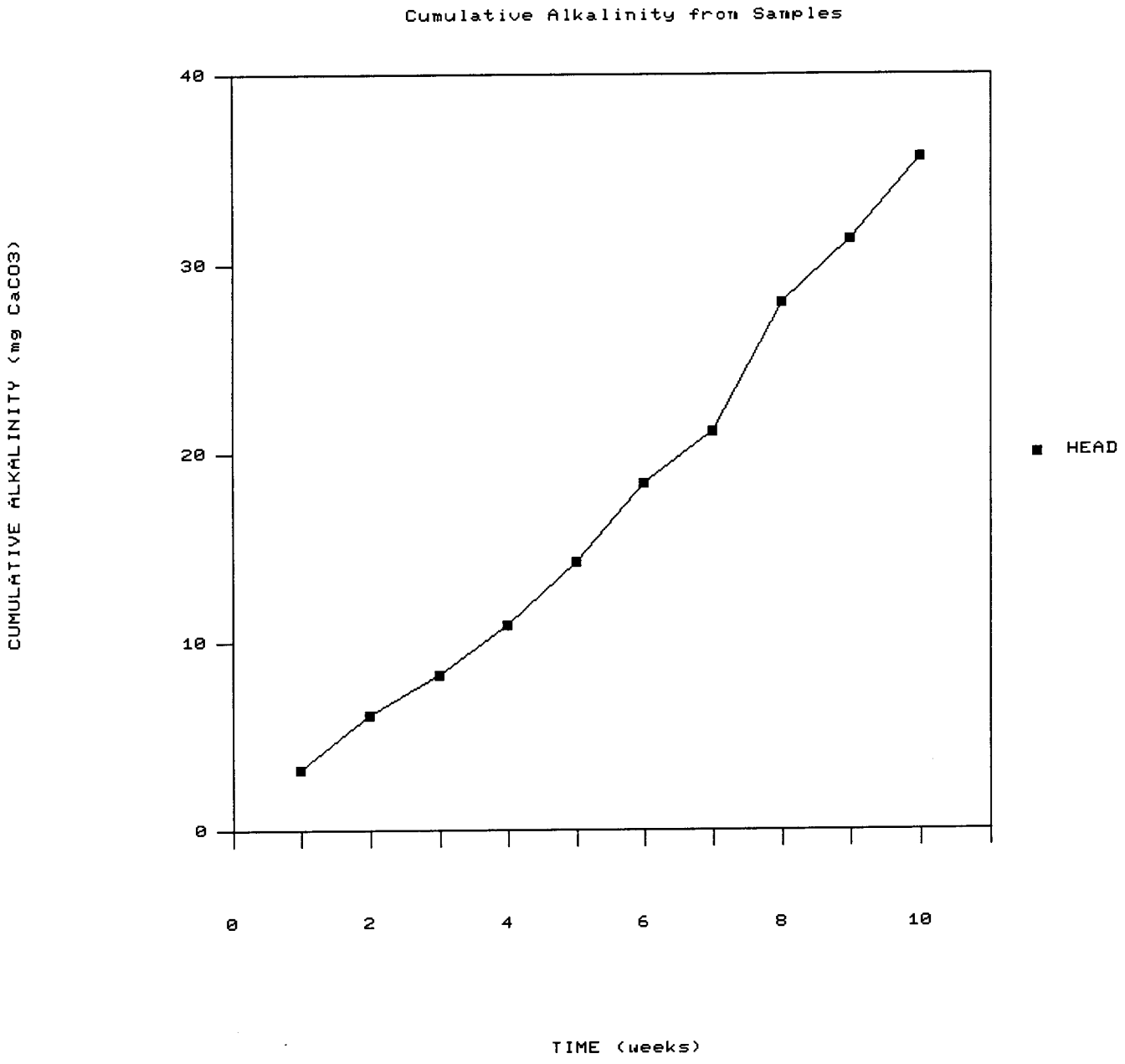
HUMIDITY CELL TESTS



HUMIDITY CELL TESTS



HUMIDITY CELL TESTS



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QUALITY CONTROL REPORT
11/10/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:11/09/94 11:00						QC BATCH NUMBER:313683
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:MLM
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.96			7.00	99			
DUPLICATE	MD	941802-15	7.40	7.35	1					
DUPLICATE	MD	941875-75	8.41	8.52	1					

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:08/22/94 07:15 METHOD REFERENCE :310.1 (1)							QC BATCH NUMBER:305732 TECHNICIAN:SLS
BLANK	MB	940822	<5							
STANDARD	LCS	G940805A	166			167	99			
DUPLICATE	MD	940765-274	<5	<5	NC					
DUPLICATE	MD	940765-283	22	21	1					
DUPLICATE	MD	940936-46	12	12	0					
DUPLICATE	MD	941802-3	17	17	0					
DUPLICATE	MD	940925-60	17	16	1					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:08/22/94 07:15 METHOD REFERENCE :305.1 (1)							QC BATCH NUMBER:305737 TECHNICIAN:SLS
BLANK	MB	940822	<10							
DUPLICATE	MD	940765-274	406	408	0					
DUPLICATE	MD	940765-283	<10	<10	NC					
DUPLICATE	MD	940936-46	<10	<10	NC					
DUPLICATE	MD	941802-3	<10	<10	NC					
DUPLICATE	MD	940925-60	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:08/22/94 07:15 METHOD REFERENCE :150.1 (1)							QC BATCH NUMBER:305739 TECHNICIAN:SLS
STANDARD	ICV	G940711C	4.06			4.00	101			
STANDARD	CCV	S7.00	7.05			7.00	101			
STANDARD	CCV	S7.00	7.05			7.00	101			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	7.06			7.00	101			
DUPLICATE	MD	940765-274	3.28	3.27	0					
DUPLICATE	MD	940765-283	7.62	7.50	2					
DUPLICATE	MD	940936-46	6.52	6.59	1					
DUPLICATE	MD	941802-3	6.74	6.75	0					
DUPLICATE	MD	940925-60	7.01	6.97	1					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:08/23/94 10:50 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:305935 TECHNICIAN:GEF
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	10.6			10.0	106			
STANDARD	ICV	0524F	2.06			2.00	103			
STANDARD	CCV	0714D	10.9			10.0	109			
STANDARD	ISA	0609A	185			200	92			

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:08/23/94 10:50						QC BATCH NUMBER:305935
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
STANDARD	CCV	0714D	10.5			10.0	105			
STANDARD	ISB	0710A	182			200	91			
STANDARD	CCV	0714D	9.97			10.0	100			
STANDARD	ISA	0609A	178			200	89			
STANDARD	ISB	0710A	172			200	86			
STANDARD	CCV	0714D	9.98			10.0	100			
SPIKE	PDS	941974-002	1.99					0.07	2.00	96
DUPLICATE	MD	941974-001	0.09	0.08	0.01					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:08/26/94 12:00						QC BATCH NUMBER:306137
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
STANDARD	ICV/LCS	941319	99			98	101			
STANDARD	CCV	G940711B	151			147	103			
STANDARD	CCV	G940711B	148			147	101			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	148			147	101			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	146			147	99			
STANDARD	CCV	G940711B	146			147	99			
STANDARD	CCV	G940711B	144			147	98			
DUPLICATE	MD	941113-32	2850	2850	0					
DUPLICATE	MD	940673-410	85	85	0					
DUPLICATE	MD	940673-420	26	26	0					
DUPLICATE	MD	940765-284	150	150	0					
DUPLICATE	MD	940765-294	670	670	0					
DUPLICATE	MD	940765-304	1310	1310	0					
DUPLICATE	MD	940925-65	35	35	0					
DUPLICATE	MD	941875-9	242	242	0					
DUPLICATE	MD	941875-19	233	231	1					

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QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:08/25/94 12:48						QC BATCH NUMBER:306204
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	98			100	98			
SPIKE	MS	940765-277	47					22	25	100
SPIKE	MS	940767-103	27					<10	25	108
SPIKE	MS	940767-108	25					<10	25	100
SPIKE	MS	940765-272	56					33	25	92
SPIKE	MS	940765-273	42					19	25	92
DUPLICATE	MD	940765-277	22	22	0					
DUPLICATE	MD	940767-103	<10	<10	NC					
DUPLICATE	MD	940767-108	<10	<10	NC					
DUPLICATE	MD	940765-272	33	33	0					
DUPLICATE	MD	940765-273	19	18	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:08/31/94 12:37						QC BATCH NUMBER:306639
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	9.68			10.0	97			
STANDARD	ICV	0524F	2.04			2.00	102			
STANDARD	CCV	0714D	9.66			10.0	97			
STANDARD	ISA	0609A	179			200	90			
STANDARD	CCV	0714D	9.64			10.0	96			
STANDARD	ISB	0710A	169			200	84			
STANDARD	CCV	0714D	9.64			10.0	96			
STANDARD	ISA	0609A	173			200	86			
STANDARD	ISB	0710A	165			200	82			
STANDARD	CCV	0714D	9.47			10.0	95			
SPIKE	PDS	942139-012	1.98					0.03	2.00	98
SPIKE	PDS	942139-022	1.98					<0.03	2.00	99
SPIKE	PDS	942139-002	2.01					0.03	2.00	99
SPIKE	PDS	941691-004	1.96					<0.03	2.00	98

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:08/31/94 12:37 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:306639 TECHNICIAN:GEF
DUPLICATE	MD	942139-021	<0.03	<0.03	NC					
DUPLICATE	MD	941691-004	<0.03	<0.03	NC					
DUPLICATE	MD	942139-011	<0.03	<0.03	NC					
DUPLICATE	MD	942139-001	0.05	0.03	0.02					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:09/04/94 09:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:306972 TECHNICIAN:KDS
STANDARD	ICV	G940711C	4.00			4.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
DUPLICATE	MD	940765-308	3.54	3.53	0					
DUPLICATE	MD	940767-120	7.83	7.82	0					
DUPLICATE	MD	940925-70	7.98	7.90	1					
DUPLICATE	MD	940936-56	3.24	3.25	0					
DUPLICATE	MD	941391-60	7.34	7.33	0					
DUPLICATE	MD	941875-20	8.96	8.97	0					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:09/04/94 09:00 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:306973 TECHNICIAN:KDS
BLANK	MB	940904	<5							
STANDARD	LCS	G940805A	162			167	97			
DUPLICATE	MD	940765-308	<5	<5	NC					
DUPLICATE	MD	940767-120	26	26	0					
DUPLICATE	MD	940925-70	20	19	1					
DUPLICATE	MD	940936-56	<5	<5	NC					
DUPLICATE	MD	941391-60	17	16	1					
DUPLICATE	MD	941875-20	62	61	2					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:09/04/94 09:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:306975 TECHNICIAN:KDS
BLANK	MB	940904	<10							
DUPLICATE	MD	940765-308	500	500	0					
DUPLICATE	MD	940767-120	<10	<10	NC					
DUPLICATE	MD	940925-70	<10	<10	NC					
DUPLICATE	MD	941391-60	<10	<10	NC					
DUPLICATE	MD	941875-20	<10	<10	NC					

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/12/94 12:35						QC BATCH NUMBER:307417
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	ICV	0524F	2.00			2.00	100			
STANDARD	CCV	0714D	9.83			10.0	98			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	ISA	0609A	167			200	84			
STANDARD	CCV	0714D	9.47			10.0	95			
STANDARD	CCV	0714D	9.17			10.0	92			
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	CCV	0714D	9.87			10.0	99			
STANDARD	ISA	0609A	184			200	92			
STANDARD	ISB	0710A	180			200	90			
STANDARD	CCV	0714D	9.32			10.0	93			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	ISB	0710A	180			200	90			
SPIKE	PDS	940495-042	2.40					0.55	2.00	92
SPIKE	PDS	941922-004	1.89					<0.03	2.00	94
SPIKE	PDS	941875-030	1.99					0.03	2.00	98
SPIKE	PDS	941391-064	1.51					<0.03	2.00	76
DUPLICATE	MD	941875-030	0.03	0.03	0.00					
DUPLICATE	MD	941391-064	<0.03	<0.03	NC					
DUPLICATE	MD	940495-042	0.55	0.52	6					
DUPLICATE	MD	941922-004	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/12/94 06:30						QC BATCH NUMBER:307487
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:SLS
BLANK	MB	940912	<5							
STANDARD	LCS	G940805A	163			167	98			
DUPLICATE	MD	941391-65	14	14	0					
DUPLICATE	MD	941391-64	6	6	0					
DUPLICATE	MD	940881-40	<5	<5	NC					
DUPLICATE	MD	940936-60	<5	<5	NC					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/12/94 06:30						QC BATCH NUMBER:307488
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				METHOD REFERENCE :305.1 (1)						TECHNICIAN:SLS
BLANK	MB	940912	<10							

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QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:09/12/94 06:30 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:307488 TECHNICIAN:SLS
DUPLICATE	MD	941391-65	<10	<10	NC					
DUPLICATE	MD	941391-64	<10	<10	NC					
DUPLICATE	MD	940881-40	79	79	0					
DUPLICATE	MD	940936-60	243	241	1					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:09/12/94 06:30 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:307489 TECHNICIAN:SLS
STANDARD	ICV	G940711C	4.00			4.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
STANDARD	CCV	S7.00	7.04			7.00	101			
DUPLICATE	MD	941391-65	7.20	7.19	0					
DUPLICATE	MD	941391-64	6.49	6.52	0					
DUPLICATE	MD	940881-40	4.76	4.79	1					
DUPLICATE	MD	940936-60	3.12	3.11	0					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:09/12/94 08:28 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:307516 TECHNICIAN:SLS
BLANK	ICB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
STANDARD	ICV/LCS	G940415A	73			75	97			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	98			100	98			
SPIKE	MS	940416-101	40					14	25	104
SPIKE	MS	940767-114	27					<10	25	108
SPIKE	MS	940925-65	27					<10	25	108
SPIKE	MS	941875-15	47					21	25	104
DUPLICATE	MD	940416-101	14	15	1					
DUPLICATE	MD	940767-114	<10	<10	NC					
DUPLICATE	MD	940925-65	<10	<10	NC					
DUPLICATE	MD	941875-15	21	22	1					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:09/15/94 10:20 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:307844 TECHNICIAN:LM
BLANK	ICB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/15/94 10:20						QC BATCH NUMBER:307844
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:LM
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
STANDARD	ICV/LCS	940584	987			987	100			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1410			1410	100			
STANDARD	CCV	G940901A	1410			1410	100			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1420			1410	101			
DUPLICATE	MD	940416-108	123	122	1					
DUPLICATE	MD	940767-124	65	65	0					
DUPLICATE	MD	941802-5	151	150	1					
DUPLICATE	MD	941875-27	104	104	0					
DUPLICATE	MD	942095-14	134	134	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/18/94 11:00						QC BATCH NUMBER:308099
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G940711C	3.98			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	941391-70	7.23	7.16	1					
DUPLICATE	MD	941875-30	9.03	8.92	1					
DUPLICATE	MD	942074-30	7.32	7.34	0					
DUPLICATE	MD	942074-38	3.60	3.60	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/18/94 11:00						QC BATCH NUMBER:308100
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	940918	<5							
STANDARD	LCS	G940805A	163			167	98			
DUPLICATE	MD	941391-70	14	12	2					
DUPLICATE	MD	941875-30	59	59	0					
DUPLICATE	MD	942074-30	22	22	0					
DUPLICATE	MD	942074-38	<5	<5	NC					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/18/94 11:00						QC BATCH NUMBER:308101
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:KDS
BLANK	MB	940918	<10							

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:09/18/94 11:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:308101 TECHNICIAN:KDS
DUPLICATE	MD	941391-70	<10	<10	NC					
DUPLICATE	MD	941875-30	<10	<10	NC					
DUPLICATE	MD	942074-30	25	24	1					
DUPLICATE	MD	942074-38	250	250	0					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:09/19/94 08:30 METHOD REFERENCE :375.2 (1)						QC BATCH NUMBER:308159 TECHNICIAN:DME
BLANK	ICB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
STANDARD	ICV/LCS	G940415A	153			150	102			
STANDARD	CCV	S160	162			160	101			
STANDARD	CCV	S160	161			160	101			
STANDARD	CCV	S160	159			160	99			
STANDARD	CCV	S160	158			160	99			
SPIKE	MS	941875-22	81					30	50	102
SPIKE	MS	942200-2	70					20	50	100
SPIKE	MS	942210-1	151					103	50	96
SPIKE	MS	940936-60	113					62	50	102
DUPLICATE	MD	941875-22	30	30	0					
DUPLICATE	MD	942200-2	20	20	0					
DUPLICATE	MD	942210-1	103	103	0					
DUPLICATE	MD	940936-60	62	66	6					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:09/20/94 07:43 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:308394 TECHNICIAN:SLS
BLANK	ICB	940920	<10							
BLANK	CCB	940920	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	103			100	103			
SPIKE	MS	941802-6	66					42	25	96
DUPLICATE	MD	941802-6	42	41	1					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:09/21/94 09:54 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:308462 TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							

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QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/21/94 09:54						QC BATCH NUMBER:308462
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	9.87			10.0	99			
STANDARD	ICV	0914E	1.98			2.00	99			
STANDARD	CCV	0714D	9.62			10.0	96			
STANDARD	ISA	0609A	171			200	86			
STANDARD	CCV	0714D	9.98			10.0	100			
STANDARD	ISB	0710A	176			200	88			
STANDARD	CCV	0714D	9.80			10.0	98			
STANDARD	CCV	0714D	10.3			10.0	103			
STANDARD	CCV	0714D	9.46			10.0	95			
STANDARD	CCV	0714D	9.49			10.0	95			
STANDARD	ISA	0609A	180			200	90			
STANDARD	ISA	0609A	176			200	88			
STANDARD	ISB	0710A	178			200	89			
STANDARD	CCV	0714D	9.76			10.0	98			
STANDARD	ISB	0710A	181			200	90			
SPIKE	PDS	942332-011	2.02					<0.03	2.00	101
SPIKE	PDS	942332-001	2.10					<0.03	2.00	105
SPIKE	PDS	942332-021	2.26					<0.03	2.00	113
SPIKE	PDS	942332-031	2.41					0.07	2.00	117
SPIKE	PDS	942140-003	2.02					0.05	2.00	98
SPIKE	PDS	942332-041	2.01					<0.03	2.00	100
SPIKE	PDS	940925-081	2.11					<0.03	2.00	106
DUPLICATE	MD	942332-011	<0.03	<0.03	NC					
DUPLICATE	MD	942332-021	<0.03	<0.03	NC					
DUPLICATE	MD	942332-031	0.07	0.07	0.00					
DUPLICATE	MD	942140-003	0.05	0.03	0.02					
DUPLICATE	MD	942332-041	<0.03	<0.03	NC					
DUPLICATE	MD	940925-081	<0.03	<0.03	NC					
DUPLICATE	MD	942332-001	<0.03	<0.03	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/25/94 07:00						QC BATCH NUMBER:308719
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G940711C	3.99			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	940925-85	6.98	7.20	3					
DUPLICATE	MD	942074-42	5.96	5.96	0					
DUPLICATE	MD	942074-50	6.72	6.73	0					
DUPLICATE	MD	942074-57	3.95	3.95	0					

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/25/94 07:00						QC BATCH NUMBER:308720
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	940925	<5							
STANDARD	LCS	G940805A	162			167	97			
DUPLICATE	MD	940925-85	17	17	0					
DUPLICATE	MD	942074-42	<5	<5	NC					
DUPLICATE	MD	942074-50	22	22	0					
DUPLICATE	MD	942074-57	<5	<5	NC					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/25/94 07:00						QC BATCH NUMBER:308721
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:KDS
BLANK	MB	940925	<10							
DUPLICATE	MD	940925-85	<10	<10	NC					
DUPLICATE	MD	942074-42	31	31	0					
DUPLICATE	MD	942074-50	19	29	10					
DUPLICATE	MD	942074-57	320	302	6					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/23/94 15:15						QC BATCH NUMBER:308752
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:LM
BLANK	ICB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
STANDARD	ICV/LCS	940584	985			987	100			
STANDARD	CCV	G940901B	146			147	99			
STANDARD	CCV	G940901B	146			147	99			
STANDARD	CCV	G940901B	145			147	99			
STANDARD	CCV	G940901B	145			147	99			
DUPLICATE	MD	940925-66	35	35	0					
DUPLICATE	MD	942074-41	1020	1010	1					
DUPLICATE	MD	942074-50	831	829	0					
DUPLICATE	MD	942074-57	1720	1710	1					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309042
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	940927	<5							
STANDARD	LCS	G940711C	163			167	98			
DUPLICATE	MD	940936-71	39	47	19					
DUPLICATE	MD	941802-8	16	18	2					
DUPLICATE	MD	942074-67	25	25	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309044
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G940711C	3.99			4.00	100			

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309044
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	940936-71	4.36	4.30	1					
DUPLICATE	MD	941802-8	6.79	6.85	1					
DUPLICATE	MD	942074-67	6.99	7.29	4					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309047
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	940927	<10							
DUPLICATE	MD	940936-71	39	47	8					
DUPLICATE	MD	941802-8	<10	<10	NC					
DUPLICATE	MD	942074-67	<10	<10	NC					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/27/94 17:55						QC BATCH NUMBER:309114
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0831F	5.20			5.00	104			
STANDARD	ISB	0710A	182			200	91			
STANDARD	CCV	0831F	5.16			5.00	103			
STANDARD	CCV	0831F	5.11			5.00	102			
STANDARD	CCV	0831F	5.23			5.00	105			
STANDARD	ICV	0914E	1.86			2.00	93			
STANDARD	CCV	0831F	5.21			5.00	104			
STANDARD	CCV	0831F	5.14			5.00	103			
STANDARD	CCV	0831F	5.28			5.00	106			
STANDARD	ISA	09260	188			200	94			
STANDARD	ISA	09260	203			200	101			
STANDARD	ISB	0710A	202			200	101			
SPIKE	PDS	941391-076	5.40					3.37	2.00	102
SPIKE	PDS	941113-037	2.38					<0.03	2.00	119
SPIKE	PDS	942074-046	2.04					<0.03	2.00	102
SPIKE	PDS	942074-054	2.31					<0.03	2.00	116
SPIKE	PDS	940936-067	7.10					5.09	2.00	100
DUPLICATE	MD	941802-008	<0.03	<0.03	NC					
DUPLICATE	MD	941113-035	<0.03	<0.03	NC					
DUPLICATE	MD	942074-045	<0.03	<0.03	NC					

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QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:09/27/94 17:55 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:309114 TECHNICIAN:GAG
DUPLICATE	MD	940936-066	0.03	<0.03	0.03					
DUPLICATE	MD	942074-053	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:09/28/94 10:57 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:309125 TECHNICIAN:SLS
BLANK	ICB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
STANDARD	ICV/LCS	G940415A	74			75	99			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
SPIKE	MS	940936-61	25					<10	25	100
SPIKE	MS	942332-18	40					14	25	104
SPIKE	MS	942332-25	44					19	25	100
SPIKE	MS	942332-28	38					13	25	100
DUPLICATE	MD	940936-61	<10	<10	NC					
DUPLICATE	MD	942332-18	14	14	0					
DUPLICATE	MD	942332-25	19	19	0					
DUPLICATE	MD	942332-28	13	14	1					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:09/28/94 10:45 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:309160 TECHNICIAN:MLM
BLANK	ICB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/28/94 10:45						QC BATCH NUMBER:309160
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
DUPLICATE	MD	940925-90	40	40	0					
DUPLICATE	MD	940936-72	719	717	0					
DUPLICATE	MD	941391-78	512	510	0					
DUPLICATE	MD	941691-9	546	545	0					
DUPLICATE	MD	942074-58	918	919	0					
DUPLICATE	MD	942074-67	879	876	0					
DUPLICATE	MD	942074-76	663	660	0					
DUPLICATE	MD	942074-85	508	507	0					
DUPLICATE	MD	942074-95	599	597	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/29/94 08:00						QC BATCH NUMBER:309251
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	940929	<5							
STANDARD	LCS	G940805A	160			167	96			
DUPLICATE	MD	941691-9	15	14	1					
DUPLICATE	MD	942074-79	20	24	4					
DUPLICATE	MD	942074-83	18	20	2					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/29/94 08:00						QC BATCH NUMBER:309304
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G940711C	4.01			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	941691-9	6.76	6.56	3					
DUPLICATE	MD	942074-79	6.60	6.33	4					
DUPLICATE	MD	942074-83	6.57	6.77	3					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/29/94 08:00						QC BATCH NUMBER:309314
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	940929	<10							
DUPLICATE	MD	941691-9	<10	<10	NC					
DUPLICATE	MD	942074-79	<10	<10	NC					
DUPLICATE	MD	942074-83	<10	<10	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/03/94 07:54						QC BATCH NUMBER:309563
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	941003	<10							

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/03/94 07:54						QC BATCH NUMBER:309563
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	CCB	941003	<10							
STANDARD	ICV/LCS	G940415A	80			75	107			
STANDARD	CCV	S100	96			100	96			
SPIKE	MS	941802-9	53					29	25	96
DUPLICATE	MD	941802-9	29	29	0					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:10/06/94 14:50						QC BATCH NUMBER:309882
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1400			1410	99			
STANDARD	CCV	G940926A	1400			1410	99			
DUPLICATE	MD	940925-100	34	34	0					
DUPLICATE	MD	941391-90	203	203	0					
DUPLICATE	MD	941875-48	98	98	0					
DUPLICATE	MD	942074-101	450	448	0					
DUPLICATE	MD	942074-110	490	489	0					
DUPLICATE	MD	942074-114	332	331	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:10/10/94 15:09						QC BATCH NUMBER:310114
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:10/10/94 15:09						QC BATCH NUMBER:310114
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
STANDARD	ICV	0914E	1.81			2.00	90			
STANDARD	CCV	0831F	4.96			5.00	99			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	ISA	09260	181			200	90			
STANDARD	CCV	0831F	4.95			5.00	99			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	CCV	0831F	5.01			5.00	100			
STANDARD	ISB	1004A	175			200	88			
STANDARD	CCV	0831F	4.98			5.00	100			
STANDARD	CCV	0831F	5.05			5.00	101			
STANDARD	CCV	0831F	5.04			5.00	101			
STANDARD	CCV	0831F	4.96			5.00	99			
STANDARD	ISA	09260	185			200	92			
STANDARD	ISB	1004A	184			200	92			
STANDARD	CCV	0831F	4.97			5.00	99			
STANDARD	CCV	0831F	4.92			5.00	98			
SPIKE	PDS	941802-009	2.02					<0.03	2.00	101
SPIKE	PDS	941391-081	6.54					4.58	2.00	98
SPIKE	PDS	940936-073	2.09					<0.03	2.00	104
DUPLICATE	MD	941802-009	<0.03	<0.03	NC					
DUPLICATE	MD	941391-081	4.58	4.60	0					
DUPLICATE	MD	940936-073	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:10/14/94 15:00						QC BATCH NUMBER:310852
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	941014	<5							
STANDARD	LCS	G941007A	163			167	98			
DUPLICATE	MD	941875-46	13	12	1					
DUPLICATE	MD	941691-10	17	18	1					
DUPLICATE	MD	941802-10	21	22	1					
DUPLICATE	MD	941922-10	12	12	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:10/14/94 15:00						QC BATCH NUMBER:310853
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	6.93			7.00	99			
STANDARD	CCV	S7.00	6.95			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	6.98			7.00	100			
DUPLICATE	MD	941875-46	6.94	6.97	0					
DUPLICATE	MD	941691-10	7.18	7.20	0					
DUPLICATE	MD	941802-10	7.23	7.32	1					

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:10/14/94 15:00						QC BATCH NUMBER:310853
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
DUPLICATE	MD	941922-10	7.21	7.22	0					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:10/14/94 15:00						QC BATCH NUMBER:310854
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:KDS
BLANK	MB	941014	<10							
DUPLICATE	MD	941875-46	<10	<10	NC					
DUPLICATE	MD	941922-10	<10	<10	NC					
DUPLICATE	MD	941691-10	<10	<10	NC					
DUPLICATE	MD	941802-10	<10	<10	NC					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:10/14/94 08:00						QC BATCH NUMBER:311082
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
STANDARD	ICV/LCS	G940926A	1420			1410	101			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	152			147	103			
STANDARD	CCV	G940926B	147			147	100			
DUPLICATE	MD	940416-13	58	58	0					
DUPLICATE	MD	940936-82	26	26	0					
DUPLICATE	MD	941875-51	22	21	5					
DUPLICATE	MD	942074-117	364	367	1					
DUPLICATE	MD	942074-127	399	399	0					
DUPLICATE	MD	942074-133	69	69	0					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:10/18/94 13:30						QC BATCH NUMBER:311126
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	941018	<1							
BLANK	CCB	941018	<1							
BLANK	CCB	941018	<1							

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:10/18/94 13:30						QC BATCH NUMBER:311126
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	CCB	941018	<1							
BLANK	CCB	941018	<1							
STANDARD	ICV/LCS	G940926A	1440			1410	102			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	148			147	101			
DUPLICATE	MD	941875-58	93	93	0					
DUPLICATE	MD	942074-140	290	290	0					
DUPLICATE	MD	942074-150	324	324	0					
DUPLICATE	MD	942074-152	77	77	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:10/26/94 13:15						QC BATCH NUMBER:312242
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	941026	<5							
STANDARD	LCS	G941007A	162			167	97			
DUPLICATE	MD	941802-12	14	15	1					
DUPLICATE	MD	940881-55	<5	<5	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:10/26/94 13:15						QC BATCH NUMBER:312243
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G941001A	3.96			4.00	99			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
DUPLICATE	MD	941802-12	7.19	7.42	3					
DUPLICATE	MD	940881-55	5.33	5.36	1					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:10/26/94 13:15						QC BATCH NUMBER:312244
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	941026	<10							
DUPLICATE	MD	941802-12	<10	<10	NC					
DUPLICATE	MD	940881-55	46	44	2					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:10/27/94 15:30						QC BATCH NUMBER:312298
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:10/27/94 15:30						QC BATCH NUMBER:312298
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
STANDARD	ISA	09260	174			200	87			
STANDARD	ISB	1004A	175			200	88			
STANDARD	CCV	0714D	9.72			10.0	97			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.42			10.0	94			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.16			10.0	92			
STANDARD	ICV	0405J	1.91			2.00	96			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	CCV	0714D	9.54			10.0	95			
STANDARD	CCV	0714D	9.39			10.0	94			
STANDARD	ISA	09260	174			200	87			
STANDARD	CCV	0714D	9.91			10.0	99			
STANDARD	CCV	0714D	9.71			10.0	97			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	ISB	1004A	169			200	84			
SPIKE	PDS	941802-011	1.10					<0.03	1.00	110
SPIKE	PDS	941391-092	3.37					1.27	2.00	105
SPIKE	PDS	941391-069	2.80					0.45	2.00	117
SPIKE	PDS	941875-053	2.16					<0.03	2.00	108
DUPLICATE	MD	941922-006	<0.03	<0.03	NC					
DUPLICATE	MD	941391-091	5.64	5.48	3					
DUPLICATE	MD	941875-052	<0.03	<0.03	NC					
DUPLICATE	MD	941802-011	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/27/94 12:56						QC BATCH NUMBER:312453
REPORTING LIMIT/DF: 10 UNITS:mg/L				METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	100			100	100			
SPIKE	MS	940881-50	60					37	25	92
SPIKE	MS	941392-49	29					<10	25	116

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/27/94 12:56						QC BATCH NUMBER:312453
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
SPIKE	MS	941875-48	49					24	25	100
SPIKE	MS	941875-50	41					16	25	100
SPIKE	MS	941875-49	30					11	25	76
DUPLICATE	MD	940881-50	37	39	2					
DUPLICATE	MD	941392-49	<10	<10	NC					
DUPLICATE	MD	941875-48	24	24	0					
DUPLICATE	MD	941875-50	16	16	0					
DUPLICATE	MD	941875-49	11	16	5					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:10/28/94 13:00						QC BATCH NUMBER:312489
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
DUPLICATE	MD	941391-103	438	436	0					
DUPLICATE	MD	941875-35	172	172	0					
DUPLICATE	MD	941875-64	152	151	1					
DUPLICATE	MD	942332-82	50	50	0					
DUPLICATE	MD	942332-91	72	72	0					
DUPLICATE	MD	942332-100	106	106	0					
DUPLICATE	MD	942332-109	1670	1660	1					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/31/94 13:00						QC BATCH NUMBER:312590
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	941031	<10							
BLANK	CCB	941031	<10							
BLANK	CCB	941031	<10							
BLANK	CCB	941031	<10							
STANDARD	ICV/LCS	G940415A	154			150	103			
STANDARD	CCV	S80	80			80	100			
STANDARD	CCV	S80	81			80	101			

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QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/31/94 13:00						QC BATCH NUMBER:312590
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
STANDARD	CCV	S80	78			80	98			
SPIKE	MS	940416-112	80					26	50	108
SPIKE	MS	940416-114	78					27	50	102
SPIKE	MS	940416-115	116					68	50	96
DUPLICATE	MD	940416-112	26	23	3					
DUPLICATE	MD	940416-115	68	66	3					
DUPLICATE	MD	940416-114	27	23	4					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:10/31/94 08:00						QC BATCH NUMBER:312594
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	941031	<5							
STANDARD	LCS	G941007A	160			167	96			
DUPLICATE	MD	942332-106	6	5	1					
DUPLICATE	MD	942332-112	<5	<5	NC					
DUPLICATE	MD	942332-120	23	23	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:10/31/94 08:00						QC BATCH NUMBER:312598
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G941001A	4.00			4.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
DUPLICATE	MD	942332-106	5.32	5.36	1					
DUPLICATE	MD	942332-112	6.32	6.29	0					
DUPLICATE	MD	942332-120	7.40	7.43	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/01/94 12:38						QC BATCH NUMBER:312767
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							

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QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

PARAMETER:Iron, Diss. (Fe) DATE/TIME ANALYZED:11/01/94 12:38 QC BATCH NUMBER:312767
REPORTING LIMIT/DF: 0.03 UNITS:mg/L METHOD REFERENCE :6010 (2) TECHNICIAN:GEF

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
BLANK	CCB	10210	<0.03							
STANDARD	CCV	0714D	9.53			10.0	95			
STANDARD	ISA	09260	175			200	88			
STANDARD	CCV	0714D	9.69			10.0	97			
STANDARD	ISB	09260	168			200	84			
STANDARD	CCV	0714D	9.82			10.0	98			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.70			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	ISB	1004A	178			200	89			
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	CCV	0714D	9.50			10.0	95			
STANDARD	CCV	0714D	9.39			10.0	94			
STANDARD	CCV	0714D	9.40			10.0	94			
STANDARD	CCV	0714D	9.17			10.0	92			
STANDARD	CCV	0714D	9.84			10.0	98			
STANDARD	CCV	0714D	9.05			10.0	90			
STANDARD	ICV	0914E	1.96			2.00	98			
STANDARD	CCV	0714D	9.50			10.0	95			
STANDARD	ISA	09260	170			200	85			
STANDARD	ISB	1004A	169			200	84			
STANDARD	CCV	0714D	9.50			10.0	95			
SPIKE	PDS	942332-102	2.22					<0.03	2.00	111
SPIKE	PDS	942332-112	2.27					0.05	2.00	111
SPIKE	PDS	941691-011	2.02					<0.03	2.00	101
SPIKE	PDS	941922-013	2.13					<0.03	2.00	106
SPIKE	PDS	942332-081	2.45					<0.03	2.00	123
SPIKE	PDS	942332-122	2.18					<0.03	2.00	109
SPIKE	PDS	942332-132	2.20					<0.03	2.00	110
SPIKE	PDS	941875-032	2.09					<0.03	2.00	104
SPIKE	PDS	942332-092	2.18					<0.03	2.00	109
SPIKE	PDS	941391-107	4.59					2.71	2.00	94
DUPLICATE	MD	942332-111	<0.03	<0.03	NC					
DUPLICATE	MD	941691-011	<0.03	<0.03	NC					
DUPLICATE	MD	941922-013	<0.03	<0.03	NC					
DUPLICATE	MD	942332-101	<0.03	<0.03	NC					
DUPLICATE	MD	942332-121	0.11	0.11	0.00					
DUPLICATE	MD	942332-131	<0.03	<0.03	NC					
DUPLICATE	MD	942332-141	<0.03	<0.03	NC					
DUPLICATE	MD	942332-091	0.03	0.04	0.01					
DUPLICATE	MD	941875-031	0.10	0.10	0.00					
DUPLICATE	MD	941391-106	9.06	9.05	0					
DUPLICATE	MD	942332-081	<0.03	<0.03	NC					

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:11/02/94 15:00						QC BATCH NUMBER:312910
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	941102	<1							
BLANK	CCB	941102	<1							
BLANK	CCB	941102	<1							
BLANK	CCB	941102	<1							
STANDARD	ICV/LCS	941319	105			98	107			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
DUPLICATE	MD	941875-69	145	144	1					
DUPLICATE	MD	942332-143	568	565	1					
DUPLICATE	MD	942332-150	408	407	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/02/94 08:00						QC BATCH NUMBER:312959
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
STANDARD	ICV/LCS	G940415A	158			150	105			
STANDARD	CCV	S80	79			80	99			
STANDARD	CCV	S80	76			80	95			
STANDARD	CCV	S80	74			80	92			
STANDARD	CCV	S80	73			80	91			
STANDARD	CCV	S80	78			80	98			
SPIKE	MS	940881-53	97					46	50	102
SPIKE	MS	940881-54	94					54	50	80
SPIKE	MS	940881-56	86					40	50	92
SPIKE	MS	941802-13	64					22	50	84
SPIKE	MS	941922-10	131					88	50	86
DUPLICATE	MD	940881-53	46	44	2					
DUPLICATE	MD	940881-54	54	60	11					
DUPLICATE	MD	940881-56	40	41	1					
DUPLICATE	MD	941802-13	22	22	0					
DUPLICATE	MD	941922-10	88	88	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:11/04/94 10:30						QC BATCH NUMBER:313162
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:MLM
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:313162 TECHNICIAN:MLM
DUPLICATE	MD	942074-168	7.34	7.34	0					
DUPLICATE	MD	941802-14	7.36	7.30	1					
DUPLICATE	MD	941922-13	7.25	7.20	1					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:313163 TECHNICIAN:MLM
BLANK	MB	941104	<5							
STANDARD	LCS	G941007A	153			167	92			
DUPLICATE	MD	942074-168	15	16	1					
DUPLICATE	MD	941802-14	17	17	0					
DUPLICATE	MD	941922-13	15	14	1					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:313164 TECHNICIAN:KDS
BLANK	MB	941104	<10							
DUPLICATE	MD	942074-168	<10	<10	NC					
DUPLICATE	MD	941802-14	<10	<10	NC					
DUPLICATE	MD	941922-13	<10	<10	NC					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:11/04/94 11:00 METHOD REFERENCE :375.2 (1)						QC BATCH NUMBER:313178 TECHNICIAN:DME
BLANK	ICB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
STANDARD	ICV/LCS	G940415A	139			150	93			
STANDARD	CCV	S80	85			80	106			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	86			80	108			
STANDARD	CCV	S80	88			80	110			
STANDARD	CCV	S80	88			80	110			
STANDARD	CCV	S80	88			80	110			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	86			80	108			
SPIKE	MS	941922-13	173					121	50	104
SPIKE	MS	942332-107	78					23	50	110
SPIKE	MS	942332-108	79					29	50	100
SPIKE	MS	942332-116	115					24	100	91

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QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/04/94 11:00						QC BATCH NUMBER:313178
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
SPIKE	MS	942332-125	186					134	50	104
SPIKE	MS	942332-132	68					18	50	100
SPIKE	MS	941391-110	94					45	50	98
SPIKE	MS	941802-14	77					27	50	100
DUPLICATE	MD	941922-13	121	128	6					
DUPLICATE	MD	942332-107	23	27	4					
DUPLICATE	MD	942332-108	29	30	1					
DUPLICATE	MD	942332-116	23	24	1					
DUPLICATE	MD	942332-125	134	138	3					
DUPLICATE	MD	942332-132	18	17	1					
DUPLICATE	MD	941391-110	45	45	0					
DUPLICATE	MD	941802-14	29	27	2					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:11/08/94 08:00						QC BATCH NUMBER:313374
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
STANDARD	ICV/LCS	941319	107			99	108			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	144			147	98			
DUPLICATE	MD	941391-112	541	543	0					
DUPLICATE	MD	941875-71	21	21	0					
DUPLICATE	MD	942074-195	437	439	0					
DUPLICATE	MD	942074-205	273	273	0					
DUPLICATE	MD	942074-207	198	198	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/09/94 12:42						QC BATCH NUMBER:313633
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/09/94 12:42						QC BATCH NUMBER:313633
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	CCB	10210	<0.03							
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	CCV	0714D	9.63			10.0	96			
STANDARD	ISB	1004A	171			200	86			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	CCV	0714D	9.94			10.0	99			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.0			10.0	100			
STANDARD	CCV	0714D	9.92			10.0	99			
STANDARD	ISA	09260	177			200	88			
STANDARD	ISA	09260	183			200	92			
STANDARD	ISB	1004A	179			200	90			
STANDARD	CCV	0714D	10.4			10.0	104			
STANDARD	ISB	1004A	169			200	84			
STANDARD	ICV	0914E	1.90			2.00	95			
SPIKE	PDS	940495-048	2.57					0.42	2.00	108
SPIKE	PDS	940881-046	2.09					0.04	2.00	102
SPIKE	PDS	942799-001	2.16					0.29	2.00	94
SPIKE	PDS	941875-074	2.13					0.22	2.00	96
SPIKE	PDS	941802-015	2.05					<0.03	2.00	102
DUPLICATE	MD	942658-001	0.70	0.68	3					
DUPLICATE	MD	940881-045	<0.03	<0.03	NC					
DUPLICATE	MD	941691-015	<0.03	<0.03	NC					
DUPLICATE	MD	941875-038	0.06	0.05	0.01					
DUPLICATE	MD	940495-046	1.28	1.29	1					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:11/09/94 11:00						QC BATCH NUMBER:313681
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:MLM
BLANK	MB	941109	<5							
STANDARD	LCS	G941007A	168			167	101			
DUPLICATE	MD	941802-15	18	18	0					
DUPLICATE	MD	941875-75	29	29	0					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:11/09/94 11:00						QC BATCH NUMBER:313682
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				METHOD REFERENCE :305.1 (1)						TECHNICIAN:MLM
BLANK	MB	941109	<10							
DUPLICATE	MD	941802-15	<10	<10	NC					
DUPLICATE	MD	941875-75	<10	<10	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:11/09/94 11:00						QC BATCH NUMBER:313683
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:MLM
STANDARD	ICV	G941001A	3.99			4.00	100			

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QUALITY CONTROL REPORT
11/14/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:11/09/94 11:00						QC BATCH NUMBER:313683
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:MLM
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.96			7.00	99			
DUPLICATE	MD	941802-15	7.40	7.35	1					
DUPLICATE	MD	941875-75	8.41	8.52	1					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/10/94 13:10						QC BATCH NUMBER:313760
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
STANDARD	ICV/LCS	G940415A	144			150	96			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	85			80	106			
STANDARD	CCV	S80	80			80	100			
STANDARD	CCV	S80	88			80	110			
SPIKE	MS	940495-46	72					21	50	102
SPIKE	MS	940881-59	87					42	50	90
SPIKE	MS	940881-60	100					50	50	100
SPIKE	MS	941392-55	51					<10	50	102
DUPLICATE	MD	940495-46	21	22	1					
DUPLICATE	MD	940881-59	42	40	2					
DUPLICATE	MD	940881-60	50	51	1					
DUPLICATE	MD	941392-55	<10	<10	NC					

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METHOD REFERENCES

(1) EPA 600/4-79-020, Methods For Chemical Analysis Of Water And Wastes, March 1983

(2) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, November 1986

(3) Standard Methods For The Examination Of Water And Wastewater, 17th Edition, 1989

(4) EPA 600/4-80-032, Prescribed Procedures For Measurement Of Radioactivity In Drinking Water, August 1980

(5) EPA 600/8-78-017, Microbiological Methods For Monitoring The Environment, December 1978

(6) Federal Register, July 1, 1990 (40 CFR Part 136)

(7) EPA 600/4-88-039, Methods For The Determination Of Organics Compounds In Drinking Water, December 1988

(8) U.S.G.S. Methods For The Determination Of Inorganic Substances In Water And Fluvial Sediments, Book 5, Chapter A1, 1985

(9) Federal Register, Friday, June 7, 1991, (40 CFR Parts 141 and 142)

(10) Standard Methods For The Examination Of Water And Wastewater, 16th Edition, 1985

(11) ASTM, Section 11 Water And Environmental Technology, Volume 11.01 Water (1), 1991

(12) Methods Of Soil Analysis, American Society Of Agronomy, Agronomy No. 9, 1965

(13) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, Revision 1, November 1990

(14) ASTM, Section 5, Petroleum Products, Lubricants, and Fossil Fuels, Volume 05.05, Gaseous Fuels, Coal and Coke

(15) EPA 600/2-78-054, Field and Laboratory Methods Applicable To Overburdens and Mine Soils, March 1978

(16) ASTM, Part 19, Soils and Rock; Building Stones, 1981

Comments: Data in QA report may differ from final results due to digestion and/or dilution of sample into analytical ranges. The "Time Analyzed" in the QA report refers to the start time of the analytical batch which may not reflect the actual time of each analysis. The "Date Analyzed" is the actual date of analysis. Results for soil and sludge samples are reported on a wet weight basis (i.e. not corrected for percent moisture) unless otherwise indicated.

NC = Not Calculable Due To Value(s) Lower Than The Detection Limit.

Blank QC Sample Identification

MB	Method Blank
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank

Reference Standard QC Sample Identification

LCS	Laboratory Control Standard
RS	Reference Standard
ICV	Initial Calibration Verification Standard
CCV	Continuing Calibration Verification Standard
ISA/ISB	ICP Interference Check Samples

Spike QC Sample Identification

MS	Method (Matrix) Spike
MSD	Method (Matrix) Spike Duplicate
PDS	Post Digestion Spike
SB	Spiked Blank
SBD	Spiked Blank Duplicate

Duplicate QC Sample Identification

MD	Method (Matrix) Duplicate
ED	Extraction Duplicate
DD	Digestion Duplicate

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Core Laboratories - Corpus Christi, TX	* CC
Core Laboratories - Houston, TX	* HP
Core Laboratories - Lake Charles, LA	* LC
Core Laboratories - Long Beach, CA	* LB
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A N A L Y T I C A L R E P O R T

Job Number: 941802
Prepared For:

HENDRICKS MINING CO, INC.
THOMAS HENDRICKS
P.O. BOX 653-CARIBOU
NEDERLAND, CO 80466-0653

Date: 11/30/94

Signature Patrick J. McEntee

Date: 12-6-94

Name: Patrick J. McEntee

Core Laboratories
10703 East Bethany Drive
Aurora, CO 80014

Title: Laboratory Supervisor

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SUMMARY OF DATA GENERATED FROM HUMIDITY CELL TESTING
HENDRICKS MINING CO, INC.
November 30, 1994

CLIENT SAMPLE I.D...: HEAD
LAB SAMPLE I.D.....: 941802-1

PARAMETER	UNITS	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20
Leachate Quantity	mls	163	162	176	159	159	N/A	N/A	N/A	N/A	N/A
pH	pH Units	7.19	6.83	7.36	7.40	7.34	N/A	N/A	N/A	N/A	N/A
Conductivity	umohs/cm	98	87	109	86	74	N/A	N/A	N/A	N/A	N/A
Sulfate	mg/L	28	12	29	19	18	N/A	N/A	N/A	N/A	N/A
Cumulative Sulfate	Total mg	5	7	12	15	17	17	17	17	17	17
Acidity	mg/L CaCO3	<10	<10	<10	<10	<10	N/A	N/A	N/A	N/A	N/A
Cumulative Acidity	Tot. mg CaCO3	0	0	0	0	0	0	0	0	0	0
Iron (Diss.)	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	N/A	N/A	N/A	N/A	N/A
Cumulative Iron	Total ug	0	0	0	0	0	0	0	0	0	0
Alkalinity	mg/L CaCO3	14	18	17	18	18	N/A	N/A	N/A	N/A	N/A
Cumulative Alkalinity	Tot. mg CaCO3	2	5	8	11	14	14	14	14	14	14
pH of DI H2O	pH Units	5.51	5.73	5.53	6.23	7.26	N/A	N/A	N/A	N/A	N/A

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:08/22/94 07:15						QC BATCH NUMBER:305732
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:SLS
BLANK	MB	940822	<5							
STANDARD	LCS	G940805A	166			167	99			
DUPLICATE	MD	940765-274	<5	<5	NC					
DUPLICATE	MD	940765-283	22	21	1					
DUPLICATE	MD	940936-46	12	12	0					
DUPLICATE	MD	941802-3	17	17	0					
DUPLICATE	MD	940925-60	17	16	1					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:08/22/94 07:15						QC BATCH NUMBER:305737
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:SLS
BLANK	MB	940822	<10							
DUPLICATE	MD	940765-274	406	408	0					
DUPLICATE	MD	940765-283	<10	<10	NC					
DUPLICATE	MD	940936-46	<10	<10	NC					
DUPLICATE	MD	941802-3	<10	<10	NC					
DUPLICATE	MD	940925-60	<10	<10	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:08/22/94 07:15						QC BATCH NUMBER:305739
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:SLS
STANDARD	ICV	G940711C	4.06			4.00	101			
STANDARD	CCV	S7.00	7.05			7.00	101			
STANDARD	CCV	S7.00	7.05			7.00	101			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	7.06			7.00	101			
DUPLICATE	MD	940765-274	3.28	3.27	0					
DUPLICATE	MD	940765-283	7.62	7.50	2					
DUPLICATE	MD	940936-46	6.52	6.59	1					
DUPLICATE	MD	941802-3	6.74	6.75	0					
DUPLICATE	MD	940925-60	7.01	6.97	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:08/23/94 10:50						QC BATCH NUMBER:305935
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	10.6			10.0	106			
STANDARD	ICV	0524F	2.06			2.00	103			
STANDARD	CCV	0714D	10.9			10.0	109			
STANDARD	ISA	0609A	185			200	92			

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe) DATE/TIME ANALYZED:08/23/94 10:50 QC BATCH NUMBER:305935										
REPORTING LIMIT/DF: 0.03 UNITS:mg/L METHOD REFERENCE :6010 (2) TECHNICIAN:GEF										
STANDARD	CCV	0714D	10.5			10.0	105			
STANDARD	ISB	0710A	182			200	91			
STANDARD	CCV	0714D	9.97			10.0	100			
STANDARD	ISA	0609A	178			200	89			
STANDARD	ISB	0710A	172			200	86			
STANDARD	CCV	0714D	9.98			10.0	100			
SPIKE	PDS	941974-002	1.99					0.07	2.00	96
DUPLICATE	MD	941974-001	0.09	0.08	0.01					
PARAMETER:Conductivity (Filt.) DATE/TIME ANALYZED:08/26/94 12:00 QC BATCH NUMBER:306137										
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC METHOD REFERENCE :120.1 (1) TECHNICIAN:RPK										
BLANK	ICB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
STANDARD	ICV/LCS	941319	99			98	101			
STANDARD	CCV	G940711B	151			147	103			
STANDARD	CCV	G940711B	148			147	101			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	148			147	101			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	146			147	99			
STANDARD	CCV	G940711B	146			147	99			
STANDARD	CCV	G940711B	144			147	98			
DUPLICATE	MD	941113-32	2850	2850	0					
DUPLICATE	MD	940673-410	85	85	0					
DUPLICATE	MD	940673-420	26	26	0					
DUPLICATE	MD	940765-284	150	150	0					
DUPLICATE	MD	940765-294	670	670	0					
DUPLICATE	MD	940765-304	1310	1310	0					
DUPLICATE	MD	940925-65	35	35	0					
DUPLICATE	MD	941875-9	242	242	0					
DUPLICATE	MD	941875-19	233	231	1					

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:08/25/94 12:48						QC BATCH NUMBER:306204
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	98			100	98			
SPIKE	MS	940765-277	47					22	25	100
SPIKE	MS	940767-103	27					<10	25	108
SPIKE	MS	940767-108	25					<10	25	100
SPIKE	MS	940765-272	56					33	25	92
SPIKE	MS	940765-273	42					19	25	92
DUPLICATE	MD	940765-277	22	22	0					
DUPLICATE	MD	940767-103	<10	<10	NC					
DUPLICATE	MD	940767-108	<10	<10	NC					
DUPLICATE	MD	940765-272	33	33	0					
DUPLICATE	MD	940765-273	19	18	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:08/31/94 12:37						QC BATCH NUMBER:306639
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	9.68			10.0	97			
STANDARD	ICV	0524F	2.04			2.00	102			
STANDARD	CCV	0714D	9.66			10.0	97			
STANDARD	ISA	0609A	179			200	90			
STANDARD	CCV	0714D	9.64			10.0	96			
STANDARD	ISB	0710A	169			200	84			
STANDARD	CCV	0714D	9.64			10.0	96			
STANDARD	ISA	0609A	173			200	86			
STANDARD	ISB	0710A	165			200	82			
STANDARD	CCV	0714D	9.47			10.0	95			
SPIKE	PDS	942139-012	1.98					0.03	2.00	98
SPIKE	PDS	942139-022	1.98					<0.03	2.00	99
SPIKE	PDS	942139-002	2.01					0.03	2.00	99
SPIKE	PDS	941691-004	1.96					<0.03	2.00	98

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:08/31/94 12:37 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:306639 TECHNICIAN:GEF	
DUPLICATE	MD	942139-021	<0.03	<0.03	NC					
DUPLICATE	MD	941691-004	<0.03	<0.03	NC					
DUPLICATE	MD	942139-011	<0.03	<0.03	NC					
DUPLICATE	MD	942139-001	0.05	0.03	0.02					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:09/04/94 09:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:306972 TECHNICIAN:KDS	
STANDARD	ICV	G940711C	4.00			4.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
DUPLICATE	MD	940765-308	3.54	3.53	0					
DUPLICATE	MD	940767-120	7.83	7.82	0					
DUPLICATE	MD	940925-70	7.98	7.90	1					
DUPLICATE	MD	940936-56	3.24	3.25	0					
DUPLICATE	MD	941391-60	7.34	7.33	0					
DUPLICATE	MD	941875-20	8.96	8.97	0					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:09/04/94 09:00 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:306973 TECHNICIAN:KDS	
BLANK	MB	940904	<5							
STANDARD	LCS	G940805A	162			167	97			
DUPLICATE	MD	940765-308	<5	<5	NC					
DUPLICATE	MD	940767-120	26	26	0					
DUPLICATE	MD	940925-70	20	19	1					
DUPLICATE	MD	940936-56	<5	<5	NC					
DUPLICATE	MD	941391-60	17	16	1					
DUPLICATE	MD	941875-20	62	61	2					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:09/04/94 09:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:306975 TECHNICIAN:KDS	
BLANK	MB	940904	<10							
DUPLICATE	MD	940765-308	500	500	0					
DUPLICATE	MD	940767-120	<10	<10	NC					
DUPLICATE	MD	940925-70	<10	<10	NC					
DUPLICATE	MD	941391-60	<10	<10	NC					
DUPLICATE	MD	941875-20	<10	<10	NC					

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:09/12/94 12:35							QC BATCH NUMBER:307417
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	ICV	0524F	2.00			2.00	100			
STANDARD	CCV	0714D	9.83			10.0	98			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	ISA	0609A	167			200	84			
STANDARD	CCV	0714D	9.47			10.0	95			
STANDARD	CCV	0714D	9.17			10.0	92			
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	CCV	0714D	9.87			10.0	99			
STANDARD	ISA	0609A	184			200	92			
STANDARD	ISB	0710A	180			200	90			
STANDARD	CCV	0714D	9.32			10.0	93			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	ISB	0710A	180			200	90			
SPIKE	PDS	940495-042	2.40					0.55	2.00	92
SPIKE	PDS	941922-004	1.89					<0.03	2.00	94
SPIKE	PDS	941875-030	1.99					0.03	2.00	98
SPIKE	PDS	941391-064	1.51					<0.03	2.00	76
DUPLICATE	MD	941875-030	0.03	0.03	0.00					
DUPLICATE	MD	941391-064	<0.03	<0.03	NC					
DUPLICATE	MD	940495-042	0.55	0.52	6					
DUPLICATE	MD	941922-004	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)			DATE/TIME ANALYZED:09/12/94 06:30							QC BATCH NUMBER:307487
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)							TECHNICIAN:SLS
BLANK	MB	940912	<5							
STANDARD	LCS	G940805A	163			167	98			
DUPLICATE	MD	941391-65	14	14	0					
DUPLICATE	MD	941391-64	6	6	0					
DUPLICATE	MD	940881-40	<5	<5	NC					
DUPLICATE	MD	940936-60	<5	<5	NC					
PARAMETER:Acidity (Filt.)			DATE/TIME ANALYZED:09/12/94 06:30							QC BATCH NUMBER:307488
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)							TECHNICIAN:SLS
BLANK	MB	940912	<10							

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/12/94 06:30						QC BATCH NUMBER:307488
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:SLS
DUPLICATE	MD	941391-65	<10	<10	NC					
DUPLICATE	MD	941391-64	<10	<10	NC					
DUPLICATE	MD	940881-40	79	79	0					
DUPLICATE	MD	940936-60	243	241	1					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/12/94 06:30						QC BATCH NUMBER:307489
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:SLS
STANDARD	ICV	G940711C	4.00			4.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
STANDARD	CCV	S7.00	7.04			7.00	101			
DUPLICATE	MD	941391-65	7.20	7.19	0					
DUPLICATE	MD	941391-64	6.49	6.52	0					
DUPLICATE	MD	940881-40	4.76	4.79	1					
DUPLICATE	MD	940936-60	3.12	3.11	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:09/12/94 08:28						QC BATCH NUMBER:307516
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
STANDARD	ICV/LCS	G940415A	73			75	97			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	98			100	98			
SPIKE	MS	940416-101	40					14	25	104
SPIKE	MS	940767-114	27					<10	25	108
SPIKE	MS	940925-65	27					<10	25	108
SPIKE	MS	941875-15	47					21	25	104
DUPLICATE	MD	940416-101	14	15	1					
DUPLICATE	MD	940767-114	<10	<10	NC					
DUPLICATE	MD	940925-65	<10	<10	NC					
DUPLICATE	MD	941875-15	21	22	1					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/15/94 10:20						QC BATCH NUMBER:307844
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:LM
BLANK	ICB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:09/15/94 10:20 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:307844 TECHNICIAN:LM
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
STANDARD	ICV/LCS	940584	987			987	100			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1410			1410	100			
STANDARD	CCV	G940901A	1410			1410	100			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1420			1410	101			
DUPLICATE	MD	940416-108	123	122	1					
DUPLICATE	MD	940767-124	65	65	0					
DUPLICATE	MD	941802-5	151	150	1					
DUPLICATE	MD	941875-27	104	104	0					
DUPLICATE	MD	942095-14	134	134	0					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:09/18/94 11:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:308099 TECHNICIAN:KDS
STANDARD	ICV	G940711C	3.98			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	941391-70	7.23	7.16	1					
DUPLICATE	MD	941875-30	9.03	8.92	1					
DUPLICATE	MD	942074-30	7.32	7.34	0					
DUPLICATE	MD	942074-38	3.60	3.60	0					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:09/18/94 11:00 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:308100 TECHNICIAN:KDS
BLANK	MB	940918	<5							
STANDARD	LCS	G940805A	163			167	98			
DUPLICATE	MD	941391-70	14	12	2					
DUPLICATE	MD	941875-30	59	59	0					
DUPLICATE	MD	942074-30	22	22	0					
DUPLICATE	MD	942074-38	<5	<5	NC					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:09/18/94 11:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:308101 TECHNICIAN:KDS
BLANK	MB	940918	<10							

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:09/18/94 11:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:308101 TECHNICIAN:KDS	
DUPLICATE	MD	941391-70	<10	<10	NC					
DUPLICATE	MD	941875-30	<10	<10	NC					
DUPLICATE	MD	942074-30	25	24	1					
DUPLICATE	MD	942074-38	250	250	0					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:09/19/94 08:30 METHOD REFERENCE :375.2 (1)						QC BATCH NUMBER:308159 TECHNICIAN:DME	
BLANK	ICB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
STANDARD	ICV/LCS	G940415A	153			150	102			
STANDARD	CCV	S160	162			160	101			
STANDARD	CCV	S160	161			160	101			
STANDARD	CCV	S160	159			160	99			
STANDARD	CCV	S160	158			160	99			
SPIKE	MS	941875-22	81					30	50	102
SPIKE	MS	942200-2	70					20	50	100
SPIKE	MS	942210-1	151					103	50	96
SPIKE	MS	940936-60	113					62	50	102
DUPLICATE	MD	941875-22	30	30	0					
DUPLICATE	MD	942200-2	20	20	0					
DUPLICATE	MD	942210-1	103	103	0					
DUPLICATE	MD	940936-60	62	66	6					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:09/20/94 07:43 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:308394 TECHNICIAN:SLS	
BLANK	ICB	940920	<10							
BLANK	CCB	940920	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	103			100	103			
SPIKE	MS	941802-6	66					42	25	96
DUPLICATE	MD	941802-6	42	41	1					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:09/21/94 09:54 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:308462 TECHNICIAN:WGL	
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/21/94 09:54						QC BATCH NUMBER:308462
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	9.87			10.0	99			
STANDARD	ICV	0914E	1.98			2.00	99			
STANDARD	CCV	0714D	9.62			10.0	96			
STANDARD	ISA	0609A	171			200	86			
STANDARD	CCV	0714D	9.98			10.0	100			
STANDARD	ISB	0710A	176			200	88			
STANDARD	CCV	0714D	9.80			10.0	98			
STANDARD	CCV	0714D	10.3			10.0	103			
STANDARD	CCV	0714D	9.46			10.0	95			
STANDARD	CCV	0714D	9.49			10.0	95			
STANDARD	ISA	0609A	180			200	90			
STANDARD	ISA	0609A	176			200	88			
STANDARD	ISB	0710A	178			200	89			
STANDARD	CCV	0714D	9.76			10.0	98			
STANDARD	ISB	0710A	181			200	90			
SPIKE	PDS	942332-011	2.02					<0.03	2.00	101
SPIKE	PDS	942332-001	2.10					<0.03	2.00	105
SPIKE	PDS	942332-021	2.26					<0.03	2.00	113
SPIKE	PDS	942332-031	2.41					0.07	2.00	117
SPIKE	PDS	942140-003	2.02					0.05	2.00	98
SPIKE	PDS	942332-041	2.01					<0.03	2.00	100
SPIKE	PDS	940925-081	2.11					<0.03	2.00	106
DUPLICATE	MD	942332-011	<0.03	<0.03	NC					
DUPLICATE	MD	942332-021	<0.03	<0.03	NC					
DUPLICATE	MD	942332-031	0.07	0.07	0.00					
DUPLICATE	MD	942140-003	0.05	0.03	0.02					
DUPLICATE	MD	942332-041	<0.03	<0.03	NC					
DUPLICATE	MD	940925-081	<0.03	<0.03	NC					
DUPLICATE	MD	942332-001	<0.03	<0.03	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/25/94 07:00						QC BATCH NUMBER:308719
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G940711C	3.99			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	940925-85	6.98	7.20	3					
DUPLICATE	MD	942074-42	5.96	5.96	0					
DUPLICATE	MD	942074-50	6.72	6.73	0					
DUPLICATE	MD	942074-57	3.95	3.95	0					

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:09/25/94 07:00 METHOD REFERENCE :310.1 (1)							QC BATCH NUMBER:308720 TECHNICIAN:KDS
BLANK	MB	940925	<5							
STANDARD	LCS	G940805A	162			167	97			
DUPLICATE	MD	940925-85	17	17	0					
DUPLICATE	MD	942074-42	<5	<5	NC					
DUPLICATE	MD	942074-50	22	22	0					
DUPLICATE	MD	942074-57	<5	<5	NC					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:09/25/94 07:00 METHOD REFERENCE :305.1 (1)							QC BATCH NUMBER:308721 TECHNICIAN:KDS
BLANK	MB	940925	<10							
DUPLICATE	MD	940925-85	<10	<10	NC					
DUPLICATE	MD	942074-42	31	31	0					
DUPLICATE	MD	942074-50	19	29	10					
DUPLICATE	MD	942074-57	320	302	6					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			DATE/TIME ANALYZED:09/23/94 15:15 METHOD REFERENCE :120.1 (1)							QC BATCH NUMBER:308752 TECHNICIAN:LM
BLANK	ICB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
STANDARD	ICV/LCS	940584	985			987	100			
STANDARD	CCV	G940901B	146			147	99			
STANDARD	CCV	G940901B	146			147	99			
STANDARD	CCV	G940901B	145			147	99			
STANDARD	CCV	G940901B	145			147	99			
DUPLICATE	MD	940925-66	35	35	0					
DUPLICATE	MD	942074-41	1020	1010	1					
DUPLICATE	MD	942074-50	831	829	0					
DUPLICATE	MD	942074-57	1720	1710	1					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:09/27/94 08:00 METHOD REFERENCE :310.1 (1)							QC BATCH NUMBER:309042 TECHNICIAN:RPK
BLANK	MB	940927	<5							
STANDARD	LCS	G940711C	163			167	98			
DUPLICATE	MD	940936-71	39	47	19					
DUPLICATE	MD	941802-8	16	18	2					
DUPLICATE	MD	942074-67	25	25	0					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:09/27/94 08:00 METHOD REFERENCE :150.1 (1)							QC BATCH NUMBER:309044 TECHNICIAN:RPK
STANDARD	ICV	G940711C	3.99			4.00	100			

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309044
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	940936-71	4.36	4.30	1					
DUPLICATE	MD	941802-8	6.79	6.85	1					
DUPLICATE	MD	942074-67	6.99	7.29	4					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309047
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	940927	<10							
DUPLICATE	MD	940936-71	39	47	8					
DUPLICATE	MD	941802-8	<10	<10	NC					
DUPLICATE	MD	942074-67	<10	<10	NC					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/27/94 17:55						QC BATCH NUMBER:309114
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0831F	5.20			5.00	104			
STANDARD	ISB	0710A	182			200	91			
STANDARD	CCV	0831F	5.16			5.00	103			
STANDARD	CCV	0831F	5.11			5.00	102			
STANDARD	CCV	0831F	5.23			5.00	105			
STANDARD	ICV	0914E	1.86			2.00	93			
STANDARD	CCV	0831F	5.21			5.00	104			
STANDARD	CCV	0831F	5.14			5.00	103			
STANDARD	CCV	0831F	5.28			5.00	106			
STANDARD	ISA	09260	188			200	94			
STANDARD	ISA	09260	203			200	101			
STANDARD	ISB	0710A	202			200	101			
SPIKE	PDS	941391-076	5.40					3.37	2.00	102
SPIKE	PDS	941113-037	2.38					<0.03	2.00	119
SPIKE	PDS	942074-046	2.04					<0.03	2.00	102
SPIKE	PDS	942074-054	2.31					<0.03	2.00	116
SPIKE	PDS	940936-067	7.10					5.09	2.00	100
DUPLICATE	MD	941802-008	<0.03	<0.03	NC					
DUPLICATE	MD	941113-035	<0.03	<0.03	NC					
DUPLICATE	MD	942074-045	<0.03	<0.03	NC					

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/27/94 17:55						QC BATCH NUMBER:309114
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
DUPLICATE	MD	940936-066	0.03	<0.03	0.03					
DUPLICATE	MD	942074-053	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:09/28/94 10:57						QC BATCH NUMBER:309125
REPORTING LIMIT/DF: 10 UNITS:mg/L				METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
STANDARD	ICV/LCS	G940415A	74			75	99			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
SPIKE	MS	940936-61	25					<10	25	100
SPIKE	MS	942332-18	40					14	25	104
SPIKE	MS	942332-25	44					19	25	100
SPIKE	MS	942332-28	38					13	25	100
DUPLICATE	MD	940936-61	<10	<10	NC					
DUPLICATE	MD	942332-18	14	14	0					
DUPLICATE	MD	942332-25	19	19	0					
DUPLICATE	MD	942332-28	13	14	1					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/28/94 10:45						QC BATCH NUMBER:309160
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)			DATE/TIME ANALYZED:09/28/94 10:45							QC BATCH NUMBER:309160
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC		METHOD REFERENCE :120.1 (1)							TECHNICIAN:MLM
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
DUPLICATE	MD	940925-90	40	40	0					
DUPLICATE	MD	940936-72	719	717	0					
DUPLICATE	MD	941391-78	512	510	0					
DUPLICATE	MD	941691-9	546	545	0					
DUPLICATE	MD	942074-58	918	919	0					
DUPLICATE	MD	942074-67	879	876	0					
DUPLICATE	MD	942074-76	663	660	0					
DUPLICATE	MD	942074-85	508	507	0					
DUPLICATE	MD	942074-95	599	597	0					
PARAMETER:Alkalinity, Total (Filt.)			DATE/TIME ANALYZED:09/29/94 08:00							QC BATCH NUMBER:309251
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3		METHOD REFERENCE :310.1 (1)							TECHNICIAN:RPK
BLANK	MB	940929	<5							
STANDARD	LCS	G940805A	160			167	96			
DUPLICATE	MD	941691-9	15	14	1					
DUPLICATE	MD	942074-79	20	24	4					
DUPLICATE	MD	942074-83	18	20	2					
PARAMETER:pH (Filt.)			DATE/TIME ANALYZED:09/29/94 08:00							QC BATCH NUMBER:309304
REPORTING LIMIT/DF: 0.01	UNITS:pH Units		METHOD REFERENCE :150.1 (1)							TECHNICIAN:RPK
STANDARD	ICV	G940711C	4.01			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	941691-9	6.76	6.56	3					
DUPLICATE	MD	942074-79	6.60	6.33	4					
DUPLICATE	MD	942074-83	6.57	6.77	3					
PARAMETER:Acidity (Filt.)			DATE/TIME ANALYZED:09/29/94 08:00							QC BATCH NUMBER:309314
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3		METHOD REFERENCE :305.1 (1)							TECHNICIAN:RPK
BLANK	MB	940929	<10							
DUPLICATE	MD	941691-9	<10	<10	NC					
DUPLICATE	MD	942074-79	<10	<10	NC					
DUPLICATE	MD	942074-83	<10	<10	NC					
PARAMETER:Sulfate (Filt.)			DATE/TIME ANALYZED:10/03/94 07:54							QC BATCH NUMBER:309563
REPORTING LIMIT/DF: 10	UNITS:mg/L		METHOD REFERENCE :300.0 (1)							TECHNICIAN:SLS
BLANK	ICB	941003	<10							

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/03/94 07:54						QC BATCH NUMBER:309563
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	CCB	941003	<10							
STANDARD	ICV/LCS	G940415A	80			75	107			
STANDARD	CCV	S100	96			100	96			
SPIKE	MS	941802-9	53					29	25	96
DUPLICATE	MD	941802-9	29	29	0					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:10/06/94 14:50						QC BATCH NUMBER:309882
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1400			1410	99			
STANDARD	CCV	G940926A	1400			1410	99			
DUPLICATE	MD	940925-100	34	34	0					
DUPLICATE	MD	941391-90	203	203	0					
DUPLICATE	MD	941875-48	98	98	0					
DUPLICATE	MD	942074-101	450	448	0					
DUPLICATE	MD	942074-110	490	489	0					
DUPLICATE	MD	942074-114	332	331	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:10/10/94 15:09						QC BATCH NUMBER:310114
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:10/10/94 15:09							QC BATCH NUMBER:310114
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
STANDARD	ICV	0914E	1.81			2.00	90			
STANDARD	CCV	0831F	4.96			5.00	99			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	ISA	09260	181			200	90			
STANDARD	CCV	0831F	4.95			5.00	99			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	CCV	0831F	5.01			5.00	100			
STANDARD	ISB	1004A	175			200	88			
STANDARD	CCV	0831F	4.98			5.00	100			
STANDARD	CCV	0831F	5.05			5.00	101			
STANDARD	CCV	0831F	5.04			5.00	101			
STANDARD	CCV	0831F	4.96			5.00	99			
STANDARD	ISA	09260	185			200	92			
STANDARD	ISB	1004A	184			200	92			
STANDARD	CCV	0831F	4.97			5.00	99			
STANDARD	CCV	0831F	4.92			5.00	98			
SPIKE	PDS	941802-009	2.02					<0.03	2.00	101
SPIKE	PDS	941391-081	6.54					4.58	2.00	98
SPIKE	PDS	940936-073	2.09					<0.03	2.00	104
DUPLICATE	MD	941802-009	<0.03	<0.03	NC					
DUPLICATE	MD	941391-081	4.58	4.60	0					
DUPLICATE	MD	940936-073	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)			DATE/TIME ANALYZED:10/14/94 15:00							QC BATCH NUMBER:310852
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)							TECHNICIAN:KDS
BLANK	MB	941014	<5							
STANDARD	LCS	G941007A	163			167	98			
DUPLICATE	MD	941875-46	13	12	1					
DUPLICATE	MD	941691-10	17	18	1					
DUPLICATE	MD	941802-10	21	22	1					
DUPLICATE	MD	941922-10	12	12	0					
PARAMETER:pH (Filt.)			DATE/TIME ANALYZED:10/14/94 15:00							QC BATCH NUMBER:310853
REPORTING LIMIT/DF: 0.01 UNITS:pH Units			METHOD REFERENCE :150.1 (1)							TECHNICIAN:KDS
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	6.93			7.00	99			
STANDARD	CCV	S7.00	6.95			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	6.98			7.00	100			
DUPLICATE	MD	941875-46	6.94	6.97	0					
DUPLICATE	MD	941691-10	7.18	7.20	0					
DUPLICATE	MD	941802-10	7.23	7.32	1					

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:10/14/94 15:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:310853 TECHNICIAN:KDS	
DUPLICATE	MD	941922-10	7.21	7.22	0					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:10/14/94 15:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:310854 TECHNICIAN:KDS	
BLANK	MB	941014	<10							
DUPLICATE	MD	941875-46	<10	<10	NC					
DUPLICATE	MD	941922-10	<10	<10	NC					
DUPLICATE	MD	941691-10	<10	<10	NC					
DUPLICATE	MD	941802-10	<10	<10	NC					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			DATE/TIME ANALYZED:10/14/94 08:00 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:311082 TECHNICIAN:RPK	
BLANK	ICB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
STANDARD	ICV/LCS	G940926A	1420			1410	101			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	152			147	103			
STANDARD	CCV	G940926B	147			147	100			
DUPLICATE	MD	940416-13	58	58	0					
DUPLICATE	MD	940936-82	26	26	0					
DUPLICATE	MD	941875-51	22	21	5					
DUPLICATE	MD	942074-117	364	367	1					
DUPLICATE	MD	942074-127	399	399	0					
DUPLICATE	MD	942074-133	69	69	0					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			DATE/TIME ANALYZED:10/18/94 13:30 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:311126 TECHNICIAN:RPK	
BLANK	ICB	941018	<1							
BLANK	CCB	941018	<1							
BLANK	CCB	941018	<1							

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.) DATE/TIME ANALYZED:10/18/94 13:30 QC BATCH NUMBER:311126										
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC METHOD REFERENCE :120.1 (1) TECHNICIAN:RPK										
BLANK	CCB	941018	<1							
BLANK	CCB	941018	<1							
STANDARD	ICV/LCS	G940926A	1440			1410	102			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	148			147	101			
DUPLICATE	MD	941875-58	93	93	0					
DUPLICATE	MD	942074-140	290	290	0					
DUPLICATE	MD	942074-150	324	324	0					
DUPLICATE	MD	942074-152	77	77	0					
PARAMETER:Alkalinity, Total (Filt.) DATE/TIME ANALYZED:10/26/94 13:15 QC BATCH NUMBER:312242										
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3 METHOD REFERENCE :310.1 (1) TECHNICIAN:RPK										
BLANK	MB	941026	<5							
STANDARD	LCS	G941007A	162			167	97			
DUPLICATE	MD	941802-12	14	15	1					
DUPLICATE	MD	940881-55	<5	<5	NC					
PARAMETER:pH (Filt.) DATE/TIME ANALYZED:10/26/94 13:15 QC BATCH NUMBER:312243										
REPORTING LIMIT/DF: 0.01 UNITS:pH Units METHOD REFERENCE :150.1 (1) TECHNICIAN:RPK										
STANDARD	ICV	G941001A	3.96			4.00	99			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
DUPLICATE	MD	941802-12	7.19	7.42	3					
DUPLICATE	MD	940881-55	5.33	5.36	1					
PARAMETER:Acidity (Filt.) DATE/TIME ANALYZED:10/26/94 13:15 QC BATCH NUMBER:312244										
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3 METHOD REFERENCE :305.1 (1) TECHNICIAN:RPK										
BLANK	MB	941026	<10							
DUPLICATE	MD	941802-12	<10	<10	NC					
DUPLICATE	MD	940881-55	46	44	2					
PARAMETER:Iron, Diss. (Fe) DATE/TIME ANALYZED:10/27/94 15:30 QC BATCH NUMBER:312298										
REPORTING LIMIT/DF: 0.03 UNITS:mg/L METHOD REFERENCE :6010 (2) TECHNICIAN:GEF										
BLANK	ICB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:10/27/94 15:30							QC BATCH NUMBER:312298
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
STANDARD	ISA	09260	174			200	87			
STANDARD	ISB	1004A	175			200	88			
STANDARD	CCV	0714D	9.72			10.0	97			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.42			10.0	94			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.16			10.0	92			
STANDARD	ICV	0405J	1.91			2.00	96			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	CCV	0714D	9.54			10.0	95			
STANDARD	CCV	0714D	9.39			10.0	94			
STANDARD	ISA	09260	174			200	87			
STANDARD	CCV	0714D	9.91			10.0	99			
STANDARD	CCV	0714D	9.71			10.0	97			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	ISB	1004A	169			200	84			
SPIKE	PDS	941802-011	1.10					<0.03	1.00	110
SPIKE	PDS	941391-092	3.37					1.27	2.00	105
SPIKE	PDS	941391-069	2.80					0.45	2.00	117
SPIKE	PDS	941875-053	2.16					<0.03	2.00	108
DUPLICATE	MD	941922-006	<0.03	<0.03	NC					
DUPLICATE	MD	941391-091	5.64	5.48	3					
DUPLICATE	MD	941875-052	<0.03	<0.03	NC					
DUPLICATE	MD	941802-011	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.)			DATE/TIME ANALYZED:10/27/94 12:56							QC BATCH NUMBER:312453
REPORTING LIMIT/DF: 10 UNITS:mg/L			METHOD REFERENCE :300.0 (1)							TECHNICIAN:SLS
BLANK	ICB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	100			100	100			
SPIKE	MS	940881-50	60					37	25	92
SPIKE	MS	941392-49	29					<10	25	116

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CORE LABORATORIES

QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:10/27/94 12:56 METHOD REFERENCE :300.0 (1)							QC BATCH NUMBER:312453 TECHNICIAN:SLS
SPIKE	MS	941875-48	49					24	25	100
SPIKE	MS	941875-50	41					16	25	100
SPIKE	MS	941875-49	30					11	25	76
DUPLICATE	MD	940881-50	37	39	2					
DUPLICATE	MD	941392-49	<10	<10	NC					
DUPLICATE	MD	941875-48	24	24	0					
DUPLICATE	MD	941875-50	16	16	0					
DUPLICATE	MD	941875-49	11	16	5					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			DATE/TIME ANALYZED:10/28/94 13:00 METHOD REFERENCE :120.1 (1)							QC BATCH NUMBER:312489 TECHNICIAN:MLM
BLANK	ICB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
DUPLICATE	MD	941391-103	438	436	0					
DUPLICATE	MD	941875-35	172	172	0					
DUPLICATE	MD	941875-64	152	151	1					
DUPLICATE	MD	942332-82	50	50	0					
DUPLICATE	MD	942332-91	72	72	0					
DUPLICATE	MD	942332-100	106	106	0					
DUPLICATE	MD	942332-109	1670	1660	1					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:10/31/94 13:00 METHOD REFERENCE :375.2 (1)							QC BATCH NUMBER:312590 TECHNICIAN:DME
BLANK	ICB	941031	<10							
BLANK	CCB	941031	<10							
BLANK	CCB	941031	<10							
BLANK	CCB	941031	<10							
STANDARD	ICV/LCS	G940415A	154			150	103			
STANDARD	CCV	S80	80			80	100			
STANDARD	CCV	S80	81			80	101			

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:10/31/94 13:00 METHOD REFERENCE :375.2 (1)							QC BATCH NUMBER:312590 TECHNICIAN:DME
STANDARD	CCV	S80	78			80	98			
SPIKE	MS	940416-112	80					26	50	108
SPIKE	MS	940416-114	78					27	50	102
SPIKE	MS	940416-115	116					68	50	96
DUPLICATE	MD	940416-112	26	23	3					
DUPLICATE	MD	940416-115	68	66	3					
DUPLICATE	MD	940416-114	27	23	4					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:10/31/94 08:00 METHOD REFERENCE :310.1 (1)							QC BATCH NUMBER:312594 TECHNICIAN:RPK
BLANK	MB	941031	<5							
STANDARD	LCS	G941007A	160			167	96			
DUPLICATE	MD	942332-106	6	5	1					
DUPLICATE	MD	942332-112	<5	<5	NC					
DUPLICATE	MD	942332-120	23	23	0					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:10/31/94 08:00 METHOD REFERENCE :150.1 (1)							QC BATCH NUMBER:312598 TECHNICIAN:RPK
STANDARD	ICV	G941001A	4.00			4.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
DUPLICATE	MD	942332-106	5.32	5.36	1					
DUPLICATE	MD	942332-112	6.32	6.29	0					
DUPLICATE	MD	942332-120	7.40	7.43	0					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:11/01/94 12:38 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:312767 TECHNICIAN:GEF
BLANK	ICB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

PARAMETER:Iron, Diss. (Fe) DATE/TIME ANALYZED:11/01/94 12:38 QC BATCH NUMBER:312767
REPORTING LIMIT/DF: 0.03 UNITS:mg/L METHOD REFERENCE :6010 (2) TECHNICIAN:GEF

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
BLANK	CCB	10210	<0.03							
STANDARD	CCV	0714D	9.53			10.0	95			
STANDARD	ISA	09260	175			200	88			
STANDARD	CCV	0714D	9.69			10.0	97			
STANDARD	ISB	09260	168			200	84			
STANDARD	CCV	0714D	9.82			10.0	98			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.70			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	ISB	1004A	178			200	89			
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	CCV	0714D	9.50			10.0	95			
STANDARD	CCV	0714D	9.39			10.0	94			
STANDARD	CCV	0714D	9.40			10.0	94			
STANDARD	CCV	0714D	9.17			10.0	92			
STANDARD	CCV	0714D	9.84			10.0	98			
STANDARD	CCV	0714D	9.05			10.0	90			
STANDARD	ICV	0914E	1.96			2.00	98			
STANDARD	CCV	0714D	9.50			10.0	95			
STANDARD	ISA	09260	170			200	85			
STANDARD	ISB	1004A	169			200	84			
STANDARD	CCV	0714D	9.50			10.0	95			
SPIKE	PDS	942332-102	2.22					<0.03	2.00	111
SPIKE	PDS	942332-112	2.27					0.05	2.00	111
SPIKE	PDS	941691-011	2.02					<0.03	2.00	101
SPIKE	PDS	941922-013	2.13					<0.03	2.00	106
SPIKE	PDS	942332-081	2.45					<0.03	2.00	123
SPIKE	PDS	942332-122	2.18					<0.03	2.00	109
SPIKE	PDS	942332-132	2.20					<0.03	2.00	110
SPIKE	PDS	941875-032	2.09					<0.03	2.00	104
SPIKE	PDS	942332-092	2.18					<0.03	2.00	109
SPIKE	PDS	941391-107	4.59					2.71	2.00	94
DUPLICATE	MD	942332-111	<0.03	<0.03	NC					
DUPLICATE	MD	941691-011	<0.03	<0.03	NC					
DUPLICATE	MD	941922-013	<0.03	<0.03	NC					
DUPLICATE	MD	942332-101	<0.03	<0.03	NC					
DUPLICATE	MD	942332-121	0.11	0.11	0.00					
DUPLICATE	MD	942332-131	<0.03	<0.03	NC					
DUPLICATE	MD	942332-141	<0.03	<0.03	NC					
DUPLICATE	MD	942332-091	0.03	0.04	0.01					
DUPLICATE	MD	941875-031	0.10	0.10	0.00					
DUPLICATE	MD	941391-106	9.06	9.05	0					
DUPLICATE	MD	942332-081	<0.03	<0.03	NC					

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:11/02/94 15:00						QC BATCH NUMBER:312910
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	941102	<1							
BLANK	CCB	941102	<1							
BLANK	CCB	941102	<1							
BLANK	CCB	941102	<1							
STANDARD	ICV/LCS	941319	105			98	107			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
DUPLICATE	MD	941875-69	145	144	1					
DUPLICATE	MD	942332-143	568	565	1					
DUPLICATE	MD	942332-150	408	407	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/02/94 08:00						QC BATCH NUMBER:312959
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
STANDARD	ICV/LCS	G940415A	158			150	105			
STANDARD	CCV	S80	79			80	99			
STANDARD	CCV	S80	76			80	95			
STANDARD	CCV	S80	74			80	92			
STANDARD	CCV	S80	73			80	91			
STANDARD	CCV	S80	78			80	98			
SPIKE	MS	940881-53	97					46	50	102
SPIKE	MS	940881-54	94					54	50	80
SPIKE	MS	940881-56	86					40	50	92
SPIKE	MS	941802-13	64					22	50	84
SPIKE	MS	941922-10	131					88	50	86
DUPLICATE	MD	940881-53	46	44	2					
DUPLICATE	MD	940881-54	54	60	11					
DUPLICATE	MD	940881-56	40	41	1					
DUPLICATE	MD	941802-13	22	22	0					
DUPLICATE	MD	941922-10	88	88	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:11/04/94 10:30						QC BATCH NUMBER:313162
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:MLM
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:313162 TECHNICIAN:MLM	
DUPLICATE	MD	942074-168	7.34	7.34	0					
DUPLICATE	MD	941802-14	7.36	7.30	1					
DUPLICATE	MD	941922-13	7.25	7.20	1					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:313163 TECHNICIAN:MLM	
BLANK	MB	941104	<5							
STANDARD	LCS	G941007A	153			167	92			
DUPLICATE	MD	942074-168	15	16	1					
DUPLICATE	MD	941802-14	17	17	0					
DUPLICATE	MD	941922-13	15	14	1					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:313164 TECHNICIAN:KDS	
BLANK	MB	941104	<10							
DUPLICATE	MD	942074-168	<10	<10	NC					
DUPLICATE	MD	941802-14	<10	<10	NC					
DUPLICATE	MD	941922-13	<10	<10	NC					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:11/04/94 11:00 METHOD REFERENCE :375.2 (1)						QC BATCH NUMBER:313178 TECHNICIAN:DME	
BLANK	ICB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
STANDARD	ICV/LCS	G940415A	139			150	93			
STANDARD	CCV	S80	85			80	106			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	86			80	108			
STANDARD	CCV	S80	88			80	110			
STANDARD	CCV	S80	88			80	110			
STANDARD	CCV	S80	88			80	110			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	86			80	108			
SPIKE	MS	941922-13	173					121	50	104
SPIKE	MS	942332-107	78					23	50	110
SPIKE	MS	942332-108	79					29	50	100
SPIKE	MS	942332-116	115					24	100	91

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/04/94 11:00						QC BATCH NUMBER:313178
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
SPIKE	MS	942332-125	186					134	50	104
SPIKE	MS	942332-132	68					18	50	100
SPIKE	MS	941391-110	94					45	50	98
SPIKE	MS	941802-14	77					27	50	100
DUPLICATE	MD	941922-13	121	128	6					
DUPLICATE	MD	942332-107	23	27	4					
DUPLICATE	MD	942332-108	29	30	1					
DUPLICATE	MD	942332-116	23	24	1					
DUPLICATE	MD	942332-125	134	138	3					
DUPLICATE	MD	942332-132	18	17	1					
DUPLICATE	MD	941391-110	45	45	0					
DUPLICATE	MD	941802-14	29	27	2					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:11/08/94 08:00						QC BATCH NUMBER:313374
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
STANDARD	ICV/LCS	941319	107			99	108			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	144			147	98			
DUPLICATE	MD	941391-112	541	543	0					
DUPLICATE	MD	941875-71	21	21	0					
DUPLICATE	MD	942074-195	437	439	0					
DUPLICATE	MD	942074-205	273	273	0					
DUPLICATE	MD	942074-207	198	198	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/09/94 12:42						QC BATCH NUMBER:313633
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:11/09/94 12:42							QC BATCH NUMBER:313633
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
BLANK	CCB	10210	<0.03							
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	CCV	0714D	9.63			10.0	96			
STANDARD	ISB	1004A	171			200	86			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	CCV	0714D	9.94			10.0	99			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.0			10.0	100			
STANDARD	CCV	0714D	9.92			10.0	99			
STANDARD	ISA	09260	177			200	88			
STANDARD	ISA	09260	183			200	92			
STANDARD	ISB	1004A	179			200	90			
STANDARD	CCV	0714D	10.4			10.0	104			
STANDARD	ISB	1004A	169			200	84			
STANDARD	ICV	0914E	1.90			2.00	95			
SPIKE	PDS	940495-048	2.57					0.42	2.00	108
SPIKE	PDS	940881-046	2.09					0.04	2.00	102
SPIKE	PDS	942799-001	2.16					0.29	2.00	94
SPIKE	PDS	941875-074	2.13					0.22	2.00	96
SPIKE	PDS	941802-015	2.05					<0.03	2.00	102
DUPLICATE	MD	942658-001	0.70	0.68	3					
DUPLICATE	MD	940881-045	<0.03	<0.03	NC					
DUPLICATE	MD	941691-015	<0.03	<0.03	NC					
DUPLICATE	MD	941875-038	0.06	0.05	0.01					
DUPLICATE	MD	940495-046	1.28	1.29	1					
PARAMETER:Alkalinity, Total (Filt.)			DATE/TIME ANALYZED:11/09/94 11:00							QC BATCH NUMBER:313681
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)							TECHNICIAN:MLM
BLANK	MB	941109	<5							
STANDARD	LCS	G941007A	168			167	101			
DUPLICATE	MD	941802-15	18	18	0					
DUPLICATE	MD	941875-75	29	29	0					
PARAMETER:Acidity (Filt.)			DATE/TIME ANALYZED:11/09/94 11:00							QC BATCH NUMBER:313682
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)							TECHNICIAN:MLM
BLANK	MB	941109	<10							
DUPLICATE	MD	941802-15	<10	<10	NC					
DUPLICATE	MD	941875-75	<10	<10	NC					
PARAMETER:pH (Filt.)			DATE/TIME ANALYZED:11/09/94 11:00							QC BATCH NUMBER:313683
REPORTING LIMIT/DF: 0.01 UNITS:pH Units			METHOD REFERENCE :150.1 (1)							TECHNICIAN:MLM
STANDARD	ICV	G941001A	3.99			4.00	100			

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)			DATE/TIME ANALYZED:11/09/94 11:00							QC BATCH NUMBER:313683
REPORTING LIMIT/DF: 0.01	UNITS:pH Units		METHOD REFERENCE :150.1 (1)							TECHNICIAN:MLM
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.96			7.00	99			
DUPLICATE	MD	941802-15	7.40	7.35	1					
DUPLICATE	MD	941875-75	8.41	8.52	1					
PARAMETER:Sulfate (Filt.)			DATE/TIME ANALYZED:11/10/94 13:10							QC BATCH NUMBER:313760
REPORTING LIMIT/DF: 10	UNITS:mg/L		METHOD REFERENCE :375.2 (1)							TECHNICIAN:DME
BLANK	ICB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
STANDARD	ICV/LCS	G940415A	144			150	96			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	85			80	106			
STANDARD	CCV	S80	80			80	100			
STANDARD	CCV	S80	88			80	110			
SPIKE	MS	940495-46	72					21	50	102
SPIKE	MS	940881-59	87					42	50	90
SPIKE	MS	940881-60	100					50	50	100
SPIKE	MS	941392-55	51					<10	50	102
DUPLICATE	MD	940495-46	21	22	1					
DUPLICATE	MD	940881-59	42	40	2					
DUPLICATE	MD	940881-60	50	51	1					
DUPLICATE	MD	941392-55	<10	<10	NC					
PARAMETER:Sulfate (Filt.)			DATE/TIME ANALYZED:11/15/94 10:00							QC BATCH NUMBER:314157
REPORTING LIMIT/DF: 10	UNITS:mg/L		METHOD REFERENCE :375.2 (1)							TECHNICIAN:DME
BLANK	ICB	941115	<10							
BLANK	CCB	941115	<10							
BLANK	CCB	941115	<10							
BLANK	CCB	941115	<10							
BLANK	CCB	941115	<10							
STANDARD	ICV/LCS	G940415A	154			150	103			
STANDARD	CCV	S160	161			160	101			
STANDARD	CCV	S160	165			160	103			
STANDARD	CCV	S160	160			160	100			
STANDARD	CCV	S160	160			160	100			
SPIKE	MS	940416-117	84					36	50	96
SPIKE	MS	940416-118	80					35	50	90
SPIKE	MS	940416-120	76					30	50	92
SPIKE	MS	940881-62	82					36	50	92
DUPLICATE	MD	940416-117	36	38	2					
DUPLICATE	MD	940416-118	35	33	2					

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:11/15/94 10:00 METHOD REFERENCE :375.2 (1)							QC BATCH NUMBER:314157 TECHNICIAN:DME
DUPLICATE	MD	940416-120	30	28	2					
DUPLICATE	MD	940881-62	36	36	0					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			DATE/TIME ANALYZED:11/16/94 08:00 METHOD REFERENCE :120.1 (1)							QC BATCH NUMBER:314222 TECHNICIAN:RPK
BLANK	ICB	941116	<1							
BLANK	CCB	941116	<1							
BLANK	CCB	941116	<1							
BLANK	CCB	941116	<1							
BLANK	CCB	941116	<1							
STANDARD	ICV/LCS	941319	105			99	106			
STANDARD	CCV	G940926B	143			147	97			
STANDARD	CCV	G940926B	142			147	97			
STANDARD	CCV	G940926B	142			147	97			
STANDARD	CCV	G940926B	141			147	96			
DUPLICATE	MD	941802-16	74	73	1					
DUPLICATE	MD	942074-213	110	111	1					
DUPLICATE	MD	942074-223	586	585	0					
DUPLICATE	MD	942074-228	16	16	0					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:11/16/94 13:56 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:314240 TECHNICIAN:WGL
BLANK	ICB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	ICV	0914E	2.01			2.00	100			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	ISA	09260	182			200	91			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	ISB	1004A	185			200	92			
STANDARD	CCV	0714D	10.0			10.0	100			
STANDARD	CCV	0714D	10.4			10.0	104			
STANDARD	ISA	09260	188			200	94			
STANDARD	ISB	1004A	188			200	94			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.2			10.0	102			
SPIKE	PDS	940416-117	2.12					<0.03	2.00	106
SPIKE	PDS	941391-116	17.9					15.9	2.00	100
SPIKE	PDS	941113-053	2.09					<0.03	2.00	104
DUPLICATE	MD	941391-116	15.9	15.9	0					
DUPLICATE	MD	941113-053	<0.03	<0.03	NC					

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:11/16/94 13:56 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:314240 TECHNICIAN:WGL	
DUPLICATE	MD	940416-117	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:11/17/94 08:45 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:314312 TECHNICIAN:SLS	
BLANK	MB	941117	<5							
STANDARD	LCS	G941007A	168			167	101			
DUPLICATE	MD	941875-80	28	27	4					
DUPLICATE	MD	941875-79	53	52	2					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:11/17/94 08:45 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:314313 TECHNICIAN:SLS	
BLANK	MB	941117	<10							
DUPLICATE	MD	941875-80	<10	<10	NC					
DUPLICATE	MD	941875-79	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:11/17/94 08:45 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:314315 TECHNICIAN:SLS	
STANDARD	ICV	G941001A	4.00			4.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.97			7.00	100			
DUPLICATE	MD	941875-80	7.93	8.04	1					
DUPLICATE	MD	941875-79	9.37	9.32	1					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:11/22/94 08:00 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:314689 TECHNICIAN:RPK	
BLANK	MB	941122	<5							
STANDARD	LCS	G941007A	169			167	101			
DUPLICATE	MD	941802-17	18	17	1					
DUPLICATE	MD	941922-16	12	13	1					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:11/22/94 08:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:314692 TECHNICIAN:RPK	
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.95			7.00	99			
DUPLICATE	MD	941802-17	7.78	7.67	1					
DUPLICATE	MD	941922-16	7.43	7.42	0					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:11/22/94 08:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:314694 TECHNICIAN:RPK	
BLANK	MB	941122	<10							

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:11/22/94 08:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:314694 TECHNICIAN:RPK	
DUPLICATE	MD	941802-17	<10	<10	NC					
DUPLICATE	MD	941922-16	<10	<10	NC					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:11/22/94 13:29 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:314788 TECHNICIAN:SLS	
BLANK	ICB	941122	<10							
BLANK	CCB	941122	<10							
BLANK	CCB	941122	<10							
BLANK	CCB	941122	<10							
BLANK	CCB	941122	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	97			100	97			
SPIKE	MS	940881-64	63					37	25	104
SPIKE	MS	941391-125	47					23	25	96
SPIKE	MS	941802-17	35					11	25	96
SPIKE	MS	941875-81	25					<10	25	100
DUPLICATE	MD	940881-64	37	38	1					
DUPLICATE	MD	941391-125	23	23	0					
DUPLICATE	MD	941802-17	11	10	1					
DUPLICATE	MD	941875-81	<10	<10	NC					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			DATE/TIME ANALYZED:11/22/94 15:50 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:314791 TECHNICIAN:MLM	
BLANK	ICB	941122	<1							
BLANK	CCB	941122	<1							
BLANK	CCB	941122	<1							
BLANK	CCB	941122	<1							
BLANK	CCB	941122	<1							
STANDARD	ICV/LCS	941319	103			98	105			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1390			1410	99			
DUPLICATE	MD	941391-125	87	86	1					
DUPLICATE	MD	942074-230	258	256	1					
DUPLICATE	MD	942074-238	352	351	0					
DUPLICATE	MD	942074-242	570	568	0					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:11/23/94 09:18 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:314820 TECHNICIAN:WGL	
BLANK	ICB	1115A	<0.03							

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:11/23/94 09:18							QC BATCH NUMBER:314820
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	CCV	1114H	5.19			5.00	104			
STANDARD	ICV	0914E	2.07			2.00	103			
STANDARD	CCV	1114H	5.07			5.00	101			
STANDARD	ISA	09260	177			200	88			
STANDARD	CCV	1114H	4.95			5.00	99			
STANDARD	ISB	1004A	170			200	85			
STANDARD	CCV	1114H	4.91			5.00	98			
STANDARD	ISA	09260	173			200	86			
STANDARD	ISB	1004A	168			200	84			
STANDARD	CCV	1114H	4.95			5.00	99			
SPIKE	PDS	942074-240	2.14					<0.03	2.00	107
SPIKE	PDS	942892-001	1.94					0.06	2.00	94
SPIKE	PDS	941691-017	2.05					<0.03	2.00	102
SPIKE	PDS	942074-230	2.24					<0.03	2.00	112
DUPLICATE	MD	942074-240	<0.03	<0.03	NC					
DUPLICATE	MD	941691-017	<0.03	<0.03	NC					
DUPLICATE	MD	942074-230	<0.03	<0.03	NC					
PARAMETER:Conductivity (Filt.)			DATE/TIME ANALYZED:11/28/94 17:30							QC BATCH NUMBER:314995
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)							TECHNICIAN:KDS
BLANK	ICB	941128	<1							
BLANK	CCB	941128	<1							
BLANK	CCB	941128	<1							
BLANK	CCB	941128	<1							
BLANK	CCB	941128	<1							
STANDARD	ICV/LCS	941319	104			98	106			
STANDARD	CCV	G941117A	1420			1410	101			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1380			1410	98			
DUPLICATE	MD	941391-130	89	89	0					
DUPLICATE	MD	941875-90	68	69	1					
DUPLICATE	MD	942074-250	132	133	1					
DUPLICATE	MD	942074-260	275	276	0					
DUPLICATE	MD	942074-266	11	11	0					
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:11/29/94 14:00							QC BATCH NUMBER:315087
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
BLANK	ICB	1115A	<0.03							

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:11/29/94 14:00							QC BATCH NUMBER:315087
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	CCV	1114H	4.86			5.00	97			
STANDARD	ISB	1123J	176			200	88			
STANDARD	CCV	1114H	4.99			5.00	100			
STANDARD	CCV	1114H	5.01			5.00	100			
STANDARD	CCV	1114H	5.04			5.00	101			
STANDARD	ICV	0914E	1.93			2.00	96			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	CCV	1114H	5.10			5.00	102			
STANDARD	CCV	1114H	5.06			5.00	101			
STANDARD	ISA	09260	181			200	90			
STANDARD	ISA	09260	175			200	88			
STANDARD	ISB	1123J	168			200	84			
STANDARD	CCV	1114H	5.15			5.00	103			
SPIKE	PDS	941875-082	1.81					<0.03	2.00	90
SPIKE	PDS	942977-003	2.48					0.96	2.00	76
SPIKE	PDS	941391-127	4.26					2.62	2.00	82
DUPLICATE	MD	941875-082	<0.03	<0.03	NC					
DUPLICATE	MD	942977-003	0.96	0.98	2					
DUPLICATE	MD	941391-127	2.62	2.60	1					
PARAMETER:Sulfate (Filt.)			DATE/TIME ANALYZED:11/29/94 09:07							QC BATCH NUMBER:315136
REPORTING LIMIT/DF: 10 UNITS:mg/L			METHOD REFERENCE :300.0 (1)							TECHNICIAN:SLS
BLANK	ICB	941129	<10							
BLANK	CCB	941129	<10							
BLANK	CCB	941129	<10							
BLANK	CCB	941129	<10							
BLANK	CCB	941129	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	102			100	102			
STANDARD	CCV	S100	97			100	97			
SPIKE	MS	942969-1	54					29	25	100
SPIKE	MS	942969-2	72					48	25	96
SPIKE	MS	940881-66	73					47	25	104
SPIKE	MS	941875-90	29					<10	25	116
DUPLICATE	MD	942969-1	29	29	0					

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QUALITY CONTROL REPORT
11/30/94

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/29/94 09:07						QC BATCH NUMBER:315136
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
DUPLICATE	MD	942969-2	48	48	0					
DUPLICATE	MD	940881-66	47	47	0					
DUPLICATE	MD	941875-90	<10	<10	NC					

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METHOD REFERENCES

(1) EPA 600/4-79-020, Methods For Chemical Analysis Of Water And Wastes, March 1983

(2) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, November 1986

(3) Standerd Methods For The Examination Of Weter And Wastewater, 17th Edition, 1989

(4) EPA 600/4-80-032, Prescribed Procedures For Measurement Of Radioactivity In Drinking Water, August 1980

(5) EPA 600/8-78-017, Microbiological Methods For Monitoring The Environment, December 1978

(6) Federal Register, July 1, 1990 (40 CFR Part 136)

(7) EPA 600/4-88-039, Methods For The Determination Of Organics Compounds In Drinking Water, December 1988

(8) U.S.G.S. Methods For The Determination Of Inorganic Substances In Water And Fluvial Sediments, Book 5, Chapter A1, 1985

(9) Federal Register, Friday, June 7, 1991, (40 CFR Parts 141 and 142)

(10) Standard Methods For The Examination Of Water And Wastewater, 16th Edition, 1985

(11) ASTM, Section 11 Water And Environmental Technology, Volume 11.01 Water (1), 1991

(12) Methods Of Soil Analysis, American Society Of Agronomy, Agronomy No. 9, 1965

(13) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, Revision 1, November 1990

(14) ASTM, Section 5, Petroleum Products, Lubricants, and Fossil Fuels, Volume 05.05, Gaseous Fuels, Coal and Coke

(15) EPA 600/2-78-054, Field and Laboratory Methods Applicable To Overburdens and Mine Soils, March 1978

(16) ASTM, Part 19, Soils and Rock; Building Stones, 1981

Comments: Data in QA report may differ from final results due to digestion and/or dilution of sample into analytical ranges. The "Time Analyzed" in the QA report refers to the start time of the analytical batch which may not reflect the actual time of each analysis. The "Date Analyzed" is the actual date of analysis. Results for soil and sludge samples are reported on a wet weight basis (i.e. not corrected for percent moisture) unless otherwise indicated.

NC = Not Calculable Due To Value(s) Lower Than The Detection Limit.

Blank QC Sample Identification

MB	Method Blank
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank

Reference Standard QC Sample Identification

LCS	Laboratory Control Standard
RS	Reference Standard
ICV	Initial Calibration Verification Standard
CCV	Continuing Calibration Verification Standard
ISA/ISB	ICP Interference Check Samples

Spike QC Sample Identification

MS	Method (Matrix) Spike
MSD	Method (Matrix) Spike Duplicate
PDS	Post Digestion Spike
SB	Spiked Blank
SBD	Spiked Blank Duplicate

Duplicate QC Sample Identification

MD	Method (Matrix) Duplicate
ED	Extraction Duplicate
DD	Digestion Duplicate

Analyses performed by a subcontract laboratory are indicated on the analytical and/or quality control reports under "Technician" using the following codes:

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A N A L Y T I C A L R E P O R T

Job Number: 941802
Prepared For:

HENDRICKS MINING CO, INC.
THOMAS HENDRICKS
P.O. BOX 653-CARIBOU
NEDERLAND, CO 80466-0653

Date: 01/12/95

Signature Patrick J. McEntee Date: 1-13-95

Name: Patrick J. McEntee

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CORE LABORATORIES

SUMMARY OF DATA GENERATED FROM HUMIDITY CELL TESTING

HENDRICKS MINING CO, INC.

January 12, 1995

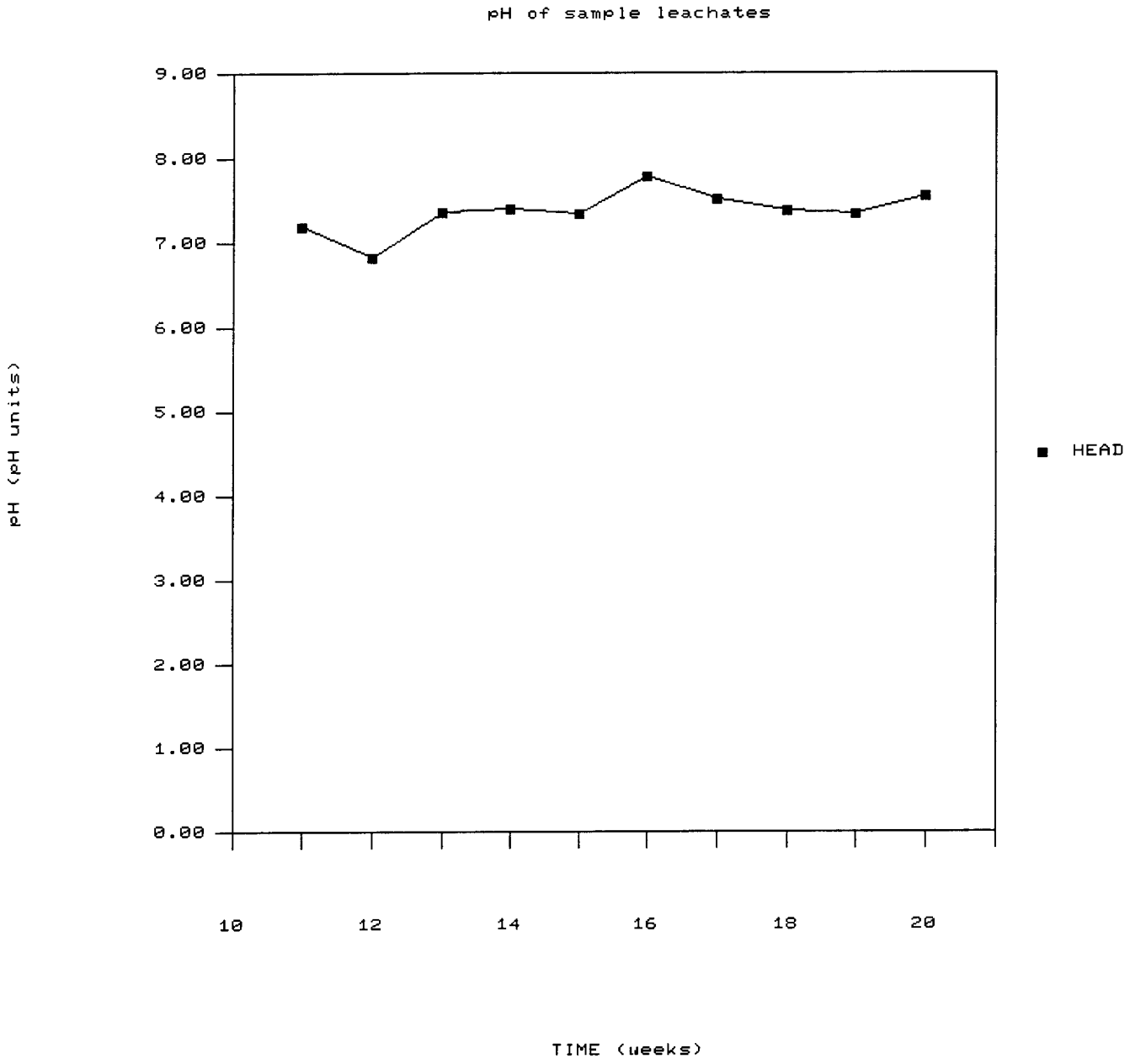
CLIENT SAMPLE I.D...: HEAD

LAB SAMPLE I.D.....: 941802-1

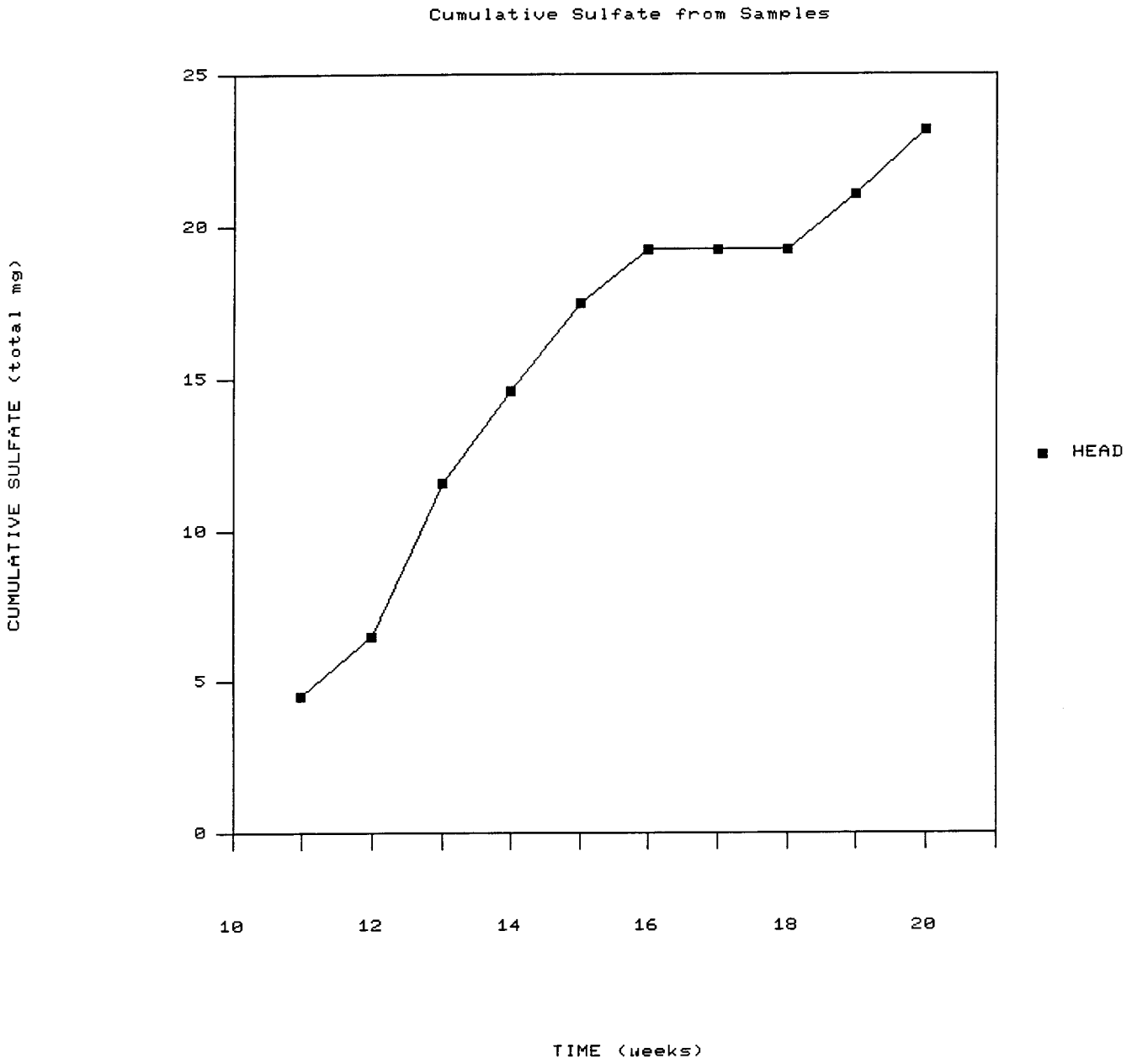
PARAMETER	UNITS	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20
Leachate Quantity	mls	163	162	176	159	159	163	164	161	164	140
pH	pH Units	7.19	6.83	7.36	7.40	7.34	7.78	7.52	7.37	7.33	7.55
Conductivity	umohs/cm	98	87	109	86	74	63	66	61	61	68
Sulfate	mg/L	28	12	29	19	18	11	<10	<10	11	15
Cumulative Sulfate	Total mg	5	7	12	15	17	19	19	19	21	23
Acidity	mg/L CaCO3	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cumulative Acidity	Tot. mg CaCO3	0	0	0	0	0	0	0	0	0	0
Iron (Diss.)	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.05	<0.03	<0.03
Cumulative Iron	Total ug	0	0	0	0	0	0	0	8	8	8
Alkalinity	mg/L CaCO3	14	18	17	18	18	18	17	18	7	18
Cumulative Alkalinity	Tot. mg CaCO3	2	5	8	11	14	17	20	23	24	26
pH of DI H2O	pH Units	5.51	5.73	5.53	6.23	7.26	6.73	7.21	5.85	5.56	5.23

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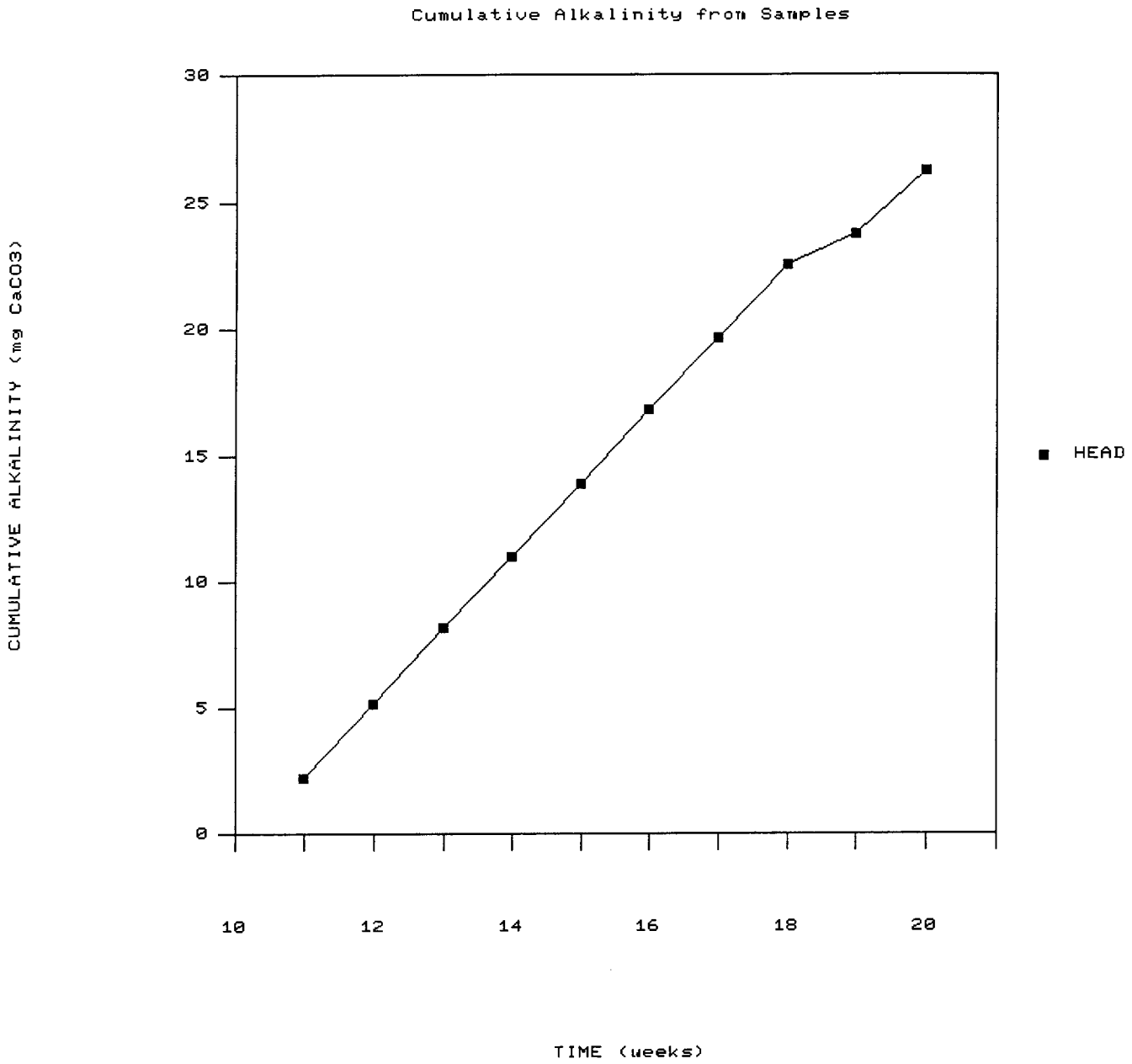
HUMIDITY CELL TESTS



HUMIDITY CELL TESTS



HUMIDITY CELL TESTS



CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:08/22/94 07:15 METHOD REFERENCE :310.1 (1)							QC BATCH NUMBER:305732 TECHNICIAN:SLS
BLANK	MB	940822	<5							
STANDARD	LCS	G940805A	166			167	99			
DUPLICATE	MD	940765-274	<5	<5	NC					
DUPLICATE	MD	940765-283	22	21	1					
DUPLICATE	MD	940936-46	12	12	0					
DUPLICATE	MD	941802-3	17	17	0					
DUPLICATE	MD	940925-60	17	16	1					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:08/22/94 07:15 METHOD REFERENCE :305.1 (1)							QC BATCH NUMBER:305737 TECHNICIAN:SLS
BLANK	MB	940822	<10							
DUPLICATE	MD	940765-274	406	408	0					
DUPLICATE	MD	940765-283	<10	<10	NC					
DUPLICATE	MD	940936-46	<10	<10	NC					
DUPLICATE	MD	941802-3	<10	<10	NC					
DUPLICATE	MD	940925-60	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:08/22/94 07:15 METHOD REFERENCE :150.1 (1)							QC BATCH NUMBER:305739 TECHNICIAN:SLS
STANDARD	ICV	G940711C	4.06			4.00	101			
STANDARD	CCV	S7.00	7.05			7.00	101			
STANDARD	CCV	S7.00	7.05			7.00	101			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	7.06			7.00	101			
DUPLICATE	MD	940765-274	3.28	3.27	0					
DUPLICATE	MD	940765-283	7.62	7.50	2					
DUPLICATE	MD	940936-46	6.52	6.59	1					
DUPLICATE	MD	941802-3	6.74	6.75	0					
DUPLICATE	MD	940925-60	7.01	6.97	1					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:08/23/94 10:50 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:305935 TECHNICIAN:GEF
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	10.6			10.0	106			
STANDARD	ICV	0524F	2.06			2.00	103			
STANDARD	CCV	0714D	10.9			10.0	109			
STANDARD	ISA	0609A	185			200	92			

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:08/23/94 10:50						QC BATCH NUMBER:305935
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
STANDARD	CCV	0714D	10.5			10.0	105			
STANDARD	ISB	0710A	182			200	91			
STANDARD	CCV	0714D	9.97			10.0	100			
STANDARD	ISA	0609A	178			200	89			
STANDARD	ISB	0710A	172			200	86			
STANDARD	CCV	0714D	9.98			10.0	100			
SPIKE	PDS	941974-002	1.99					0.07	2.00	96
DUPLICATE	MD	941974-001	0.09	0.08	0.01					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:08/26/94 12:00						QC BATCH NUMBER:306137
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
STANDARD	ICV/LCS	941319	99			98	101			
STANDARD	CCV	G940711B	151			147	103			
STANDARD	CCV	G940711B	148			147	101			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	148			147	101			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	146			147	99			
STANDARD	CCV	G940711B	146			147	99			
STANDARD	CCV	G940711B	144			147	98			
DUPLICATE	MD	941113-32	2850	2850	0					
DUPLICATE	MD	940673-410	85	85	0					
DUPLICATE	MD	940673-420	26	26	0					
DUPLICATE	MD	940765-284	150	150	0					
DUPLICATE	MD	940765-294	670	670	0					
DUPLICATE	MD	940765-304	1310	1310	0					
DUPLICATE	MD	940925-65	35	35	0					
DUPLICATE	MD	941875-9	242	242	0					
DUPLICATE	MD	941875-19	233	231	1					

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QUALITY CONTROL REPORT
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JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:08/25/94 12:48						QC BATCH NUMBER:306204
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	98			100	98			
SPIKE	MS	940765-277	47					22	25	100
SPIKE	MS	940767-103	27					<10	25	108
SPIKE	MS	940767-108	25					<10	25	100
SPIKE	MS	940765-272	56					33	25	92
SPIKE	MS	940765-273	42					19	25	92
DUPLICATE	MD	940765-277	22	22	0					
DUPLICATE	MD	940767-103	<10	<10	NC					
DUPLICATE	MD	940767-108	<10	<10	NC					
DUPLICATE	MD	940765-272	33	33	0					
DUPLICATE	MD	940765-273	19	18	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:08/31/94 12:37						QC BATCH NUMBER:306639
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	9.68			10.0	97			
STANDARD	ICV	0524F	2.04			2.00	102			
STANDARD	CCV	0714D	9.66			10.0	97			
STANDARD	ISA	0609A	179			200	90			
STANDARD	CCV	0714D	9.64			10.0	96			
STANDARD	ISB	0710A	169			200	84			
STANDARD	CCV	0714D	9.64			10.0	96			
STANDARD	ISA	0609A	173			200	86			
STANDARD	ISB	0710A	165			200	82			
STANDARD	CCV	0714D	9.47			10.0	95			
SPIKE	PDS	942139-012	1.98					0.03	2.00	98
SPIKE	PDS	942139-022	1.98					<0.03	2.00	99
SPIKE	PDS	942139-002	2.01					0.03	2.00	99
SPIKE	PDS	941691-004	1.96					<0.03	2.00	98

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:08/31/94 12:37 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:306639 TECHNICIAN:GEF
DUPLICATE	MD	942139-021	<0.03	<0.03	NC					
DUPLICATE	MD	941691-004	<0.03	<0.03	NC					
DUPLICATE	MD	942139-011	<0.03	<0.03	NC					
DUPLICATE	MD	942139-001	0.05	0.03	0.02					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:09/04/94 09:00 METHOD REFERENCE :150.1 (1)							QC BATCH NUMBER:306972 TECHNICIAN:KDS
STANDARD	ICV	G940711C	4.00			4.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
DUPLICATE	MD	940765-308	3.54	3.53	0					
DUPLICATE	MD	940767-120	7.83	7.82	0					
DUPLICATE	MD	940925-70	7.98	7.90	1					
DUPLICATE	MD	940936-56	3.24	3.25	0					
DUPLICATE	MD	941391-60	7.34	7.33	0					
DUPLICATE	MD	941875-20	8.96	8.97	0					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:09/04/94 09:00 METHOD REFERENCE :310.1 (1)							QC BATCH NUMBER:306973 TECHNICIAN:KDS
BLANK	MB	940904	<5							
STANDARD	LCS	G940805A	162			167	97			
DUPLICATE	MD	940765-308	<5	<5	NC					
DUPLICATE	MD	940767-120	26	26	0					
DUPLICATE	MD	940925-70	20	19	1					
DUPLICATE	MD	940936-56	<5	<5	NC					
DUPLICATE	MD	941391-60	17	16	1					
DUPLICATE	MD	941875-20	62	61	2					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:09/04/94 09:00 METHOD REFERENCE :305.1 (1)							QC BATCH NUMBER:306975 TECHNICIAN:KDS
BLANK	MB	940904	<10							
DUPLICATE	MD	940765-308	500	500	0					
DUPLICATE	MD	940767-120	<10	<10	NC					
DUPLICATE	MD	940925-70	<10	<10	NC					
DUPLICATE	MD	941391-60	<10	<10	NC					
DUPLICATE	MD	941875-20	<10	<10	NC					

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/12/94 12:35						QC BATCH NUMBER:307417
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	ICV	0524F	2.00			2.00	100			
STANDARD	CCV	0714D	9.83			10.0	98			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	ISA	0609A	167			200	84			
STANDARD	CCV	0714D	9.47			10.0	95			
STANDARD	CCV	0714D	9.17			10.0	92			
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	CCV	0714D	9.87			10.0	99			
STANDARD	ISA	0609A	184			200	92			
STANDARD	ISB	0710A	180			200	90			
STANDARD	CCV	0714D	9.32			10.0	93			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	ISB	0710A	180			200	90			
SPIKE	PDS	940495-042	2.40					0.55	2.00	92
SPIKE	PDS	941922-004	1.89					<0.03	2.00	94
SPIKE	PDS	941875-030	1.99					0.03	2.00	98
SPIKE	PDS	941391-064	1.51					<0.03	2.00	76
DUPLICATE	MD	941875-030	0.03	0.03	0.00					
DUPLICATE	MD	941391-064	<0.03	<0.03	NC					
DUPLICATE	MD	940495-042	0.55	0.52	6					
DUPLICATE	MD	941922-004	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/12/94 06:30						QC BATCH NUMBER:307487
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:SLS
BLANK	MB	940912	<5							
STANDARD	LCS	G940805A	163			167	98			
DUPLICATE	MD	941391-65	14	14	0					
DUPLICATE	MD	941391-64	6	6	0					
DUPLICATE	MD	940881-40	<5	<5	NC					
DUPLICATE	MD	940936-60	<5	<5	NC					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/12/94 06:30						QC BATCH NUMBER:307488
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				METHOD REFERENCE :305.1 (1)						TECHNICIAN:SLS
BLANK	MB	940912	<10							

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:09/12/94 06:30 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:307488 TECHNICIAN:SLS
DUPLICATE	MD	941391-65	<10	<10	NC					
DUPLICATE	MD	941391-64	<10	<10	NC					
DUPLICATE	MD	940881-40	79	79	0					
DUPLICATE	MD	940936-60	243	241	1					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:09/12/94 06:30 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:307489 TECHNICIAN:SLS
STANDARD	ICV	G940711C	4.00			4.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
STANDARD	CCV	S7.00	7.04			7.00	101			
DUPLICATE	MD	941391-65	7.20	7.19	0					
DUPLICATE	MD	941391-64	6.49	6.52	0					
DUPLICATE	MD	940881-40	4.76	4.79	1					
DUPLICATE	MD	940936-60	3.12	3.11	0					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:09/12/94 08:28 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:307516 TECHNICIAN:SLS
BLANK	ICB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
STANDARD	ICV/LCS	G940415A	73			75	97			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	98			100	98			
SPIKE	MS	940416-101	40					14	25	104
SPIKE	MS	940767-114	27					<10	25	108
SPIKE	MS	940925-65	27					<10	25	108
SPIKE	MS	941875-15	47					21	25	104
DUPLICATE	MD	940416-101	14	15	1					
DUPLICATE	MD	940767-114	<10	<10	NC					
DUPLICATE	MD	940925-65	<10	<10	NC					
DUPLICATE	MD	941875-15	21	22	1					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:09/15/94 10:20 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:307844 TECHNICIAN:LM
BLANK	ICB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/15/94 10:20						QC BATCH NUMBER:307844
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:LM
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
STANDARD	ICV/LCS	940584	987			987	100			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1410			1410	100			
STANDARD	CCV	G940901A	1410			1410	100			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1420			1410	101			
DUPLICATE	MD	940416-108	123	122	1					
DUPLICATE	MD	940767-124	65	65	0					
DUPLICATE	MD	941802-5	151	150	1					
DUPLICATE	MD	941875-27	104	104	0					
DUPLICATE	MD	942095-14	134	134	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/18/94 11:00						QC BATCH NUMBER:308099
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G940711C	3.98			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	941391-70	7.23	7.16	1					
DUPLICATE	MD	941875-30	9.03	8.92	1					
DUPLICATE	MD	942074-30	7.32	7.34	0					
DUPLICATE	MD	942074-38	3.60	3.60	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/18/94 11:00						QC BATCH NUMBER:308100
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	940918	<5							
STANDARD	LCS	G940805A	163			167	98			
DUPLICATE	MD	941391-70	14	12	2					
DUPLICATE	MD	941875-30	59	59	0					
DUPLICATE	MD	942074-30	22	22	0					
DUPLICATE	MD	942074-38	<5	<5	NC					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/18/94 11:00						QC BATCH NUMBER:308101
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:KDS
BLANK	MB	940918	<10							

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:09/18/94 11:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:308101 TECHNICIAN:KDS
DUPLICATE	MD	941391-70	<10	<10	NC					
DUPLICATE	MD	941875-30	<10	<10	NC					
DUPLICATE	MD	942074-30	25	24	1					
DUPLICATE	MD	942074-38	250	250	0					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:09/19/94 08:30 METHOD REFERENCE :375.2 (1)						QC BATCH NUMBER:308159 TECHNICIAN:DME
BLANK	ICB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
STANDARD	ICV/LCS	G940415A	153			150	102			
STANDARD	CCV	S160	162			160	101			
STANDARD	CCV	S160	161			160	101			
STANDARD	CCV	S160	159			160	99			
STANDARD	CCV	S160	158			160	99			
SPIKE	MS	941875-22	81					30	50	102
SPIKE	MS	942200-2	70					20	50	100
SPIKE	MS	942210-1	151					103	50	96
SPIKE	MS	940936-60	113					62	50	102
DUPLICATE	MD	941875-22	30	30	0					
DUPLICATE	MD	942200-2	20	20	0					
DUPLICATE	MD	942210-1	103	103	0					
DUPLICATE	MD	940936-60	62	66	6					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:09/20/94 07:43 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:308394 TECHNICIAN:SLS
BLANK	ICB	940920	<10							
BLANK	CCB	940920	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	103			100	103			
SPIKE	MS	941802-6	66					42	25	96
DUPLICATE	MD	941802-6	42	41	1					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:09/21/94 09:54 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:308462 TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							

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QUALITY CONTROL REPORT
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JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:09/21/94 09:54							QC BATCH NUMBER:308462
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	9.87			10.0	99			
STANDARD	ICV	0914E	1.98			2.00	99			
STANDARD	CCV	0714D	9.62			10.0	96			
STANDARD	ISA	0609A	171			200	86			
STANDARD	CCV	0714D	9.98			10.0	100			
STANDARD	ISB	0710A	176			200	88			
STANDARD	CCV	0714D	9.80			10.0	98			
STANDARD	CCV	0714D	10.3			10.0	103			
STANDARD	CCV	0714D	9.46			10.0	95			
STANDARD	CCV	0714D	9.49			10.0	95			
STANDARD	ISA	0609A	180			200	90			
STANDARD	ISA	0609A	176			200	88			
STANDARD	ISB	0710A	178			200	89			
STANDARD	CCV	0714D	9.76			10.0	98			
STANDARD	ISB	0710A	181			200	90			
SPIKE	PDS	942332-011	2.02					<0.03	2.00	101
SPIKE	PDS	942332-001	2.10					<0.03	2.00	105
SPIKE	PDS	942332-021	2.26					<0.03	2.00	113
SPIKE	PDS	942332-031	2.41					0.07	2.00	117
SPIKE	PDS	942140-003	2.02					0.05	2.00	98
SPIKE	PDS	942332-041	2.01					<0.03	2.00	100
SPIKE	PDS	940925-081	2.11					<0.03	2.00	106
DUPLICATE	MD	942332-011	<0.03	<0.03	NC					
DUPLICATE	MD	942332-021	<0.03	<0.03	NC					
DUPLICATE	MD	942332-031	0.07	0.07	0.00					
DUPLICATE	MD	942140-003	0.05	0.03	0.02					
DUPLICATE	MD	942332-041	<0.03	<0.03	NC					
DUPLICATE	MD	940925-081	<0.03	<0.03	NC					
DUPLICATE	MD	942332-001	<0.03	<0.03	NC					
PARAMETER:pH (Filt.)			DATE/TIME ANALYZED:09/25/94 07:00							QC BATCH NUMBER:308719
REPORTING LIMIT/DF: 0.01 UNITS:pH Units			METHOD REFERENCE :150.1 (1)							TECHNICIAN:KDS
STANDARD	ICV	G940711C	3.99			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	940925-85	6.98	7.20	3					
DUPLICATE	MD	942074-42	5.96	5.96	0					
DUPLICATE	MD	942074-50	6.72	6.73	0					
DUPLICATE	MD	942074-57	3.95	3.95	0					

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/25/94 07:00						QC BATCH NUMBER:308720
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	940925	<5							
STANDARD	LCS	G940805A	162			167	97			
DUPLICATE	MD	940925-85	17	17	0					
DUPLICATE	MD	942074-42	<5	<5	NC					
DUPLICATE	MD	942074-50	22	22	0					
DUPLICATE	MD	942074-57	<5	<5	NC					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/25/94 07:00						QC BATCH NUMBER:308721
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:KDS
BLANK	MB	940925	<10							
DUPLICATE	MD	940925-85	<10	<10	NC					
DUPLICATE	MD	942074-42	31	31	0					
DUPLICATE	MD	942074-50	19	29	10					
DUPLICATE	MD	942074-57	320	302	6					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/23/94 15:15						QC BATCH NUMBER:308752
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:LM
BLANK	ICB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
STANDARD	ICV/LCS	940584	985			987	100			
STANDARD	CCV	G940901B	146			147	99			
STANDARD	CCV	G940901B	146			147	99			
STANDARD	CCV	G940901B	145			147	99			
STANDARD	CCV	G940901B	145			147	99			
DUPLICATE	MD	940925-66	35	35	0					
DUPLICATE	MD	942074-41	1020	1010	1					
DUPLICATE	MD	942074-50	831	829	0					
DUPLICATE	MD	942074-57	1720	1710	1					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309042
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	940927	<5							
STANDARD	LCS	G940711C	163			167	98			
DUPLICATE	MD	940936-71	39	47	19					
DUPLICATE	MD	941802-8	16	18	2					
DUPLICATE	MD	942074-67	25	25	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309044
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G940711C	3.99			4.00	100			

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309044
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	940936-71	4.36	4.30	1					
DUPLICATE	MD	941802-8	6.79	6.85	1					
DUPLICATE	MD	942074-67	6.99	7.29	4					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309047
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	940927	<10							
DUPLICATE	MD	940936-71	39	47	8					
DUPLICATE	MD	941802-8	<10	<10	NC					
DUPLICATE	MD	942074-67	<10	<10	NC					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/27/94 17:55						QC BATCH NUMBER:309114
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0831F	5.20			5.00	104			
STANDARD	ISB	0710A	182			200	91			
STANDARD	CCV	0831F	5.16			5.00	103			
STANDARD	CCV	0831F	5.11			5.00	102			
STANDARD	CCV	0831F	5.23			5.00	105			
STANDARD	ICV	0914E	1.86			2.00	93			
STANDARD	CCV	0831F	5.21			5.00	104			
STANDARD	CCV	0831F	5.14			5.00	103			
STANDARD	CCV	0831F	5.28			5.00	106			
STANDARD	ISA	09260	188			200	94			
STANDARD	ISA	09260	203			200	101			
STANDARD	ISB	0710A	202			200	101			
SPIKE	PDS	941391-076	5.40					3.37	2.00	102
SPIKE	PDS	941113-037	2.38					<0.03	2.00	119
SPIKE	PDS	942074-046	2.04					<0.03	2.00	102
SPIKE	PDS	942074-054	2.31					<0.03	2.00	116
SPIKE	PDS	940936-067	7.10					5.09	2.00	100
DUPLICATE	MD	941802-008	<0.03	<0.03	NC					
DUPLICATE	MD	941113-035	<0.03	<0.03	NC					
DUPLICATE	MD	942074-045	<0.03	<0.03	NC					

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/27/94 17:55						QC BATCH NUMBER:309114
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
DUPLICATE	MD	940936-066	0.03	<0.03	0.03					
DUPLICATE	MD	942074-053	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:09/28/94 10:57						QC BATCH NUMBER:309125
REPORTING LIMIT/DF: 10 UNITS:mg/L				METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
STANDARD	ICV/LCS	G940415A	74			75	99			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
SPIKE	MS	940936-61	25					<10	25	100
SPIKE	MS	942332-18	40					14	25	104
SPIKE	MS	942332-25	44					19	25	100
SPIKE	MS	942332-28	38					13	25	100
DUPLICATE	MD	940936-61	<10	<10	NC					
DUPLICATE	MD	942332-18	14	14	0					
DUPLICATE	MD	942332-25	19	19	0					
DUPLICATE	MD	942332-28	13	14	1					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/28/94 10:45						QC BATCH NUMBER:309160
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/28/94 10:45						QC BATCH NUMBER:309160
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
DUPLICATE	MD	940925-90	40	40	0					
DUPLICATE	MD	940936-72	719	717	0					
DUPLICATE	MD	941391-78	512	510	0					
DUPLICATE	MD	941691-9	546	545	0					
DUPLICATE	MD	942074-58	918	919	0					
DUPLICATE	MD	942074-67	879	876	0					
DUPLICATE	MD	942074-76	663	660	0					
DUPLICATE	MD	942074-85	508	507	0					
DUPLICATE	MD	942074-95	599	597	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/29/94 08:00						QC BATCH NUMBER:309251
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	940929	<5							
STANDARD	LCS	G940805A	160			167	96			
DUPLICATE	MD	941691-9	15	14	1					
DUPLICATE	MD	942074-79	20	24	4					
DUPLICATE	MD	942074-83	18	20	2					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/29/94 08:00						QC BATCH NUMBER:309304
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G940711C	4.01			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	941691-9	6.76	6.56	3					
DUPLICATE	MD	942074-79	6.60	6.33	4					
DUPLICATE	MD	942074-83	6.57	6.77	3					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/29/94 08:00						QC BATCH NUMBER:309314
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	940929	<10							
DUPLICATE	MD	941691-9	<10	<10	NC					
DUPLICATE	MD	942074-79	<10	<10	NC					
DUPLICATE	MD	942074-83	<10	<10	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/03/94 07:54						QC BATCH NUMBER:309563
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	941003	<10							

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/03/94 07:54						QC BATCH NUMBER:309563
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	CCB	941003	<10							
STANDARD	ICV/LCS	G940415A	80			75	107			
STANDARD	CCV	S100	96			100	96			
SPIKE	MS	941802-9	53					29	25	96
DUPLICATE	MD	941802-9	29	29	0					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:10/06/94 14:50						QC BATCH NUMBER:309882
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1400			1410	99			
STANDARD	CCV	G940926A	1400			1410	99			
DUPLICATE	MD	940925-100	34	34	0					
DUPLICATE	MD	941391-90	203	203	0					
DUPLICATE	MD	941875-48	98	98	0					
DUPLICATE	MD	942074-101	450	448	0					
DUPLICATE	MD	942074-110	490	489	0					
DUPLICATE	MD	942074-114	332	331	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:10/10/94 15:09						QC BATCH NUMBER:310114
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:10/10/94 15:09							QC BATCH NUMBER:310114
REPORTING LIMIT/DF: 0.03	UNITS:mg/L		METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
STANDARD	ICV	0914E	1.81			2.00	90			
STANDARD	CCV	0831F	4.96			5.00	99			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	ISA	09260	181			200	90			
STANDARD	CCV	0831F	4.95			5.00	99			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	CCV	0831F	5.01			5.00	100			
STANDARD	ISB	1004A	175			200	88			
STANDARD	CCV	0831F	4.98			5.00	100			
STANDARD	CCV	0831F	5.05			5.00	101			
STANDARD	CCV	0831F	5.04			5.00	101			
STANDARD	CCV	0831F	4.96			5.00	99			
STANDARD	ISA	09260	185			200	92			
STANDARD	ISB	1004A	184			200	92			
STANDARD	CCV	0831F	4.97			5.00	99			
STANDARD	CCV	0831F	4.92			5.00	98			
SPIKE	PDS	941802-009	2.02					<0.03	2.00	101
SPIKE	PDS	941391-081	6.54					4.58	2.00	98
SPIKE	PDS	940936-073	2.09					<0.03	2.00	104
DUPLICATE	MD	941802-009	<0.03	<0.03	NC					
DUPLICATE	MD	941391-081	4.58	4.60	0					
DUPLICATE	MD	940936-073	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)			DATE/TIME ANALYZED:10/14/94 15:00							QC BATCH NUMBER:310852
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3		METHOD REFERENCE :310.1 (1)							TECHNICIAN:KDS
BLANK	MB	941014	<5							
STANDARD	LCS	G941007A	163			167	98			
DUPLICATE	MD	941875-46	13	12	1					
DUPLICATE	MD	941691-10	17	18	1					
DUPLICATE	MD	941802-10	21	22	1					
DUPLICATE	MD	941922-10	12	12	0					
PARAMETER:pH (Filt.)			DATE/TIME ANALYZED:10/14/94 15:00							QC BATCH NUMBER:310853
REPORTING LIMIT/DF: 0.01	UNITS:pH Units		METHOD REFERENCE :150.1 (1)							TECHNICIAN:KDS
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	6.93			7.00	99			
STANDARD	CCV	S7.00	6.95			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	6.98			7.00	100			
DUPLICATE	MD	941875-46	6.94	6.97	0					
DUPLICATE	MD	941691-10	7.18	7.20	0					
DUPLICATE	MD	941802-10	7.23	7.32	1					

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:10/14/94 15:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:310853 TECHNICIAN:KDS	
DUPLICATE	MD	941922-10	7.21	7.22	0					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:10/14/94 15:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:310854 TECHNICIAN:KDS	
BLANK	MB	941014	<10							
DUPLICATE	MD	941875-46	<10	<10	NC					
DUPLICATE	MD	941922-10	<10	<10	NC					
DUPLICATE	MD	941691-10	<10	<10	NC					
DUPLICATE	MD	941802-10	<10	<10	NC					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			DATE/TIME ANALYZED:10/14/94 08:00 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:311082 TECHNICIAN:RPK	
BLANK	ICB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
STANDARD	ICV/LCS	G940926A	1420			1410	101			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	152			147	103			
STANDARD	CCV	G940926B	147			147	100			
DUPLICATE	MD	940416-13	58	58	0					
DUPLICATE	MD	940936-82	26	26	0					
DUPLICATE	MD	941875-51	22	21	5					
DUPLICATE	MD	942074-117	364	367	1					
DUPLICATE	MD	942074-127	399	399	0					
DUPLICATE	MD	942074-133	69	69	0					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			DATE/TIME ANALYZED:10/18/94 13:30 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:311126 TECHNICIAN:RPK	
BLANK	ICB	941018	<1							
BLANK	CCB	941018	<1							
BLANK	CCB	941018	<1							

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:10/18/94 13:30						QC BATCH NUMBER:311126
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	CCB	941018	<1							
BLANK	CCB	941018	<1							
STANDARD	ICV/LCS	G940926A	1440			1410	102			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	148			147	101			
DUPLICATE	MD	941875-58	93	93	0					
DUPLICATE	MD	942074-140	290	290	0					
DUPLICATE	MD	942074-150	324	324	0					
DUPLICATE	MD	942074-152	77	77	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:10/26/94 13:15						QC BATCH NUMBER:312242
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	941026	<5							
STANDARD	LCS	G941007A	162			167	97			
DUPLICATE	MD	941802-12	14	15	1					
DUPLICATE	MD	940881-55	<5	<5	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:10/26/94 13:15						QC BATCH NUMBER:312243
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G941001A	3.96			4.00	99			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
DUPLICATE	MD	941802-12	7.19	7.42	3					
DUPLICATE	MD	940881-55	5.33	5.36	1					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:10/26/94 13:15						QC BATCH NUMBER:312244
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	941026	<10							
DUPLICATE	MD	941802-12	<10	<10	NC					
DUPLICATE	MD	940881-55	46	44	2					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:10/27/94 15:30						QC BATCH NUMBER:312298
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:10/27/94 15:30							QC BATCH NUMBER:312298
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
STANDARD	ISA	09260	174			200	87			
STANDARD	ISB	1004A	175			200	88			
STANDARD	CCV	0714D	9.72			10.0	97			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.42			10.0	94			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.16			10.0	92			
STANDARD	ICV	0405J	1.91			2.00	96			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	CCV	0714D	9.54			10.0	95			
STANDARD	CCV	0714D	9.39			10.0	94			
STANDARD	ISA	09260	174			200	87			
STANDARD	CCV	0714D	9.91			10.0	99			
STANDARD	CCV	0714D	9.71			10.0	97			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	ISB	1004A	169			200	84			
SPIKE	PDS	941802-011	1.10					<0.03	1.00	110
SPIKE	PDS	941391-092	3.37					1.27	2.00	105
SPIKE	PDS	941391-069	2.80					0.45	2.00	117
SPIKE	PDS	941875-053	2.16					<0.03	2.00	108
DUPLICATE	MD	941922-006	<0.03	<0.03	NC					
DUPLICATE	MD	941391-091	5.64	5.48	3					
DUPLICATE	MD	941875-052	<0.03	<0.03	NC					
DUPLICATE	MD	941802-011	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.)			DATE/TIME ANALYZED:10/27/94 12:56							QC BATCH NUMBER:312453
REPORTING LIMIT/DF: 10 UNITS:mg/L			METHOD REFERENCE :300.0 (1)							TECHNICIAN:SLS
BLANK	ICB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	100			100	100			
SPIKE	MS	940881-50	60					37	25	92
SPIKE	MS	941392-49	29					<10	25	116

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:10/27/94 12:56 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:312453 TECHNICIAN:SLS
SPIKE	MS	941875-48	49					24	25	100
SPIKE	MS	941875-50	41					16	25	100
SPIKE	MS	941875-49	30					11	25	76
DUPLICATE	MD	940881-50	37	39	2					
DUPLICATE	MD	941392-49	<10	<10	NC					
DUPLICATE	MD	941875-48	24	24	0					
DUPLICATE	MD	941875-50	16	16	0					
DUPLICATE	MD	941875-49	11	16	5					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:10/28/94 13:00 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:312489 TECHNICIAN:MLM
BLANK	ICB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
DUPLICATE	MD	941391-103	438	436	0					
DUPLICATE	MD	941875-35	172	172	0					
DUPLICATE	MD	941875-64	152	151	1					
DUPLICATE	MD	942332-82	50	50	0					
DUPLICATE	MD	942332-91	72	72	0					
DUPLICATE	MD	942332-100	106	106	0					
DUPLICATE	MD	942332-109	1670	1660	1					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:10/31/94 13:00 METHOD REFERENCE :375.2 (1)						QC BATCH NUMBER:312590 TECHNICIAN:DME
BLANK	ICB	941031	<10							
BLANK	CCB	941031	<10							
BLANK	CCB	941031	<10							
BLANK	CCB	941031	<10							
STANDARD	ICV/LCS	G940415A	154			150	103			
STANDARD	CCV	S80	80			80	100			
STANDARD	CCV	S80	81			80	101			

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/31/94 13:00						QC BATCH NUMBER:312590
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
STANDARD	CCV	S80	78			80	98			
SPIKE	MS	940416-112	80					26	50	108
SPIKE	MS	940416-114	78					27	50	102
SPIKE	MS	940416-115	116					68	50	96
DUPLICATE	MD	940416-112	26	23	3					
DUPLICATE	MD	940416-115	68	66	3					
DUPLICATE	MD	940416-114	27	23	4					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:10/31/94 08:00						QC BATCH NUMBER:312594
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	941031	<5							
STANDARD	LCS	G941007A	160			167	96			
DUPLICATE	MD	942332-106	6	5	1					
DUPLICATE	MD	942332-112	<5	<5	NC					
DUPLICATE	MD	942332-120	23	23	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:10/31/94 08:00						QC BATCH NUMBER:312598
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G941001A	4.00			4.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
DUPLICATE	MD	942332-106	5.32	5.36	1					
DUPLICATE	MD	942332-112	6.32	6.29	0					
DUPLICATE	MD	942332-120	7.40	7.43	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/01/94 12:38						QC BATCH NUMBER:312767
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:11/01/94 12:38							QC BATCH NUMBER:312767
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
BLANK	CCB	10210	<0.03							
STANDARD	CCV	0714D	9.53			10.0	95			
STANDARD	ISA	09260	175			200	88			
STANDARD	CCV	0714D	9.69			10.0	97			
STANDARD	ISB	09260	168			200	84			
STANDARD	CCV	0714D	9.82			10.0	98			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.70			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	ISB	1004A	178			200	89			
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	CCV	0714D	9.50			10.0	95			
STANDARD	CCV	0714D	9.39			10.0	94			
STANDARD	CCV	0714D	9.40			10.0	94			
STANDARD	CCV	0714D	9.17			10.0	92			
STANDARD	CCV	0714D	9.84			10.0	98			
STANDARD	CCV	0714D	9.05			10.0	90			
STANDARD	ICV	0914E	1.96			2.00	98			
STANDARD	CCV	0714D	9.50			10.0	95			
STANDARD	ISA	09260	170			200	85			
STANDARD	ISB	1004A	169			200	84			
STANDARD	CCV	0714D	9.50			10.0	95			
SPIKE	PDS	942332-102	2.22					<0.03	2.00	111
SPIKE	PDS	942332-112	2.27					0.05	2.00	111
SPIKE	PDS	941691-011	2.02					<0.03	2.00	101
SPIKE	PDS	941922-013	2.13					<0.03	2.00	106
SPIKE	PDS	942332-081	2.45					<0.03	2.00	123
SPIKE	PDS	942332-122	2.18					<0.03	2.00	109
SPIKE	PDS	942332-132	2.20					<0.03	2.00	110
SPIKE	PDS	941875-032	2.09					<0.03	2.00	104
SPIKE	PDS	942332-092	2.18					<0.03	2.00	109
SPIKE	PDS	941391-107	4.59					2.71	2.00	94
DUPLICATE	MD	942332-111	<0.03	<0.03	NC					
DUPLICATE	MD	941691-011	<0.03	<0.03	NC					
DUPLICATE	MD	941922-013	<0.03	<0.03	NC					
DUPLICATE	MD	942332-101	<0.03	<0.03	NC					
DUPLICATE	MD	942332-121	0.11	0.11	0.00					
DUPLICATE	MD	942332-131	<0.03	<0.03	NC					
DUPLICATE	MD	942332-141	<0.03	<0.03	NC					
DUPLICATE	MD	942332-091	0.03	0.04	0.01					
DUPLICATE	MD	941875-031	0.10	0.10	0.00					
DUPLICATE	MD	941391-106	9.06	9.05	0					
DUPLICATE	MD	942332-081	<0.03	<0.03	NC					

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:11/02/94 15:00						QC BATCH NUMBER:312910
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	941102	<1							
BLANK	CCB	941102	<1							
BLANK	CCB	941102	<1							
BLANK	CCB	941102	<1							
STANDARD	ICV/LCS	941319	105			98	107			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
DUPLICATE	MD	941875-69	145	144	1					
DUPLICATE	MD	942332-143	568	565	1					
DUPLICATE	MD	942332-150	408	407	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/02/94 08:00						QC BATCH NUMBER:312959
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
STANDARD	ICV/LCS	G940415A	158			150	105			
STANDARD	CCV	S80	79			80	99			
STANDARD	CCV	S80	76			80	95			
STANDARD	CCV	S80	74			80	92			
STANDARD	CCV	S80	73			80	91			
STANDARD	CCV	S80	78			80	98			
SPIKE	MS	940881-53	97					46	50	102
SPIKE	MS	940881-54	94					54	50	80
SPIKE	MS	940881-56	86					40	50	92
SPIKE	MS	941802-13	64					22	50	84
SPIKE	MS	941922-10	131					88	50	86
DUPLICATE	MD	940881-53	46	44	2					
DUPLICATE	MD	940881-54	54	60	11					
DUPLICATE	MD	940881-56	40	41	1					
DUPLICATE	MD	941802-13	22	22	0					
DUPLICATE	MD	941922-10	88	88	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:11/04/94 10:30						QC BATCH NUMBER:313162
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:MLM
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			

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QUALITY CONTROL REPORT
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JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:313162 TECHNICIAN:MLM
DUPLICATE	MD	942074-168	7.34	7.34	0					
DUPLICATE	MD	941802-14	7.36	7.30	1					
DUPLICATE	MD	941922-13	7.25	7.20	1					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:313163 TECHNICIAN:MLM
BLANK	MB	941104	<5							
STANDARD	LCS	G941007A	153			167	92			
DUPLICATE	MD	942074-168	15	16	1					
DUPLICATE	MD	941802-14	17	17	0					
DUPLICATE	MD	941922-13	15	14	1					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:313164 TECHNICIAN:KDS
BLANK	MB	941104	<10							
DUPLICATE	MD	942074-168	<10	<10	NC					
DUPLICATE	MD	941802-14	<10	<10	NC					
DUPLICATE	MD	941922-13	<10	<10	NC					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:11/04/94 11:00 METHOD REFERENCE :375.2 (1)						QC BATCH NUMBER:313178 TECHNICIAN:DME
BLANK	ICB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
STANDARD	ICV/LCS	G940415A	139			150	93			
STANDARD	CCV	S80	85			80	106			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	86			80	108			
STANDARD	CCV	S80	88			80	110			
STANDARD	CCV	S80	88			80	110			
STANDARD	CCV	S80	88			80	110			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	86			80	108			
SPIKE	MS	941922-13	173					121	50	104
SPIKE	MS	942332-107	78					23	50	110
SPIKE	MS	942332-108	79					29	50	100
SPIKE	MS	942332-116	115					24	100	91

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/04/94 11:00						QC BATCH NUMBER:313178
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
SPIKE	MS	942332-125	186					134	50	104
SPIKE	MS	942332-132	68					18	50	100
SPIKE	MS	941391-110	94					45	50	98
SPIKE	MS	941802-14	77					27	50	100
DUPLICATE	MD	941922-13	121	128	6					
DUPLICATE	MD	942332-107	23	27	4					
DUPLICATE	MD	942332-108	29	30	1					
DUPLICATE	MD	942332-116	23	24	1					
DUPLICATE	MD	942332-125	134	138	3					
DUPLICATE	MD	942332-132	18	17	1					
DUPLICATE	MD	941391-110	45	45	0					
DUPLICATE	MD	941802-14	29	27	2					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:11/08/94 08:00						QC BATCH NUMBER:313374
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
STANDARD	ICV/LCS	941319	107			99	108			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	144			147	98			
DUPLICATE	MD	941391-112	541	543	0					
DUPLICATE	MD	941875-71	21	21	0					
DUPLICATE	MD	942074-195	437	439	0					
DUPLICATE	MD	942074-205	273	273	0					
DUPLICATE	MD	942074-207	198	198	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/09/94 12:42						QC BATCH NUMBER:313633
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:11/09/94 12:42							QC BATCH NUMBER:313633
REPORTING LIMIT/DF: 0.03	UNITS:mg/L		METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
BLANK	CCB	10210	<0.03							
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	CCV	0714D	9.63			10.0	96			
STANDARD	ISB	1004A	171			200	86			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	CCV	0714D	9.94			10.0	99			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.0			10.0	100			
STANDARD	CCV	0714D	9.92			10.0	99			
STANDARD	ISA	09260	177			200	88			
STANDARD	ISA	09260	183			200	92			
STANDARD	ISB	1004A	179			200	90			
STANDARD	CCV	0714D	10.4			10.0	104			
STANDARD	ISB	1004A	169			200	84			
STANDARD	ICV	0914E	1.90			2.00	95			
SPIKE	PDS	940495-048	2.57					0.42	2.00	108
SPIKE	PDS	940881-046	2.09					0.04	2.00	102
SPIKE	PDS	942799-001	2.16					0.29	2.00	94
SPIKE	PDS	941875-074	2.13					0.22	2.00	96
SPIKE	PDS	941802-015	2.05					<0.03	2.00	102
DUPLICATE	MD	942658-001	0.70	0.68	3					
DUPLICATE	MD	940881-045	<0.03	<0.03	NC					
DUPLICATE	MD	941691-015	<0.03	<0.03	NC					
DUPLICATE	MD	941875-038	0.06	0.05	0.01					
DUPLICATE	MD	940495-046	1.28	1.29	1					
PARAMETER:Alkalinity, Total (Filt.)			DATE/TIME ANALYZED:11/09/94 11:00							QC BATCH NUMBER:313681
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3		METHOD REFERENCE :310.1 (1)							TECHNICIAN:MLM
BLANK	MB	941109	<5							
STANDARD	LCS	G941007A	168			167	101			
DUPLICATE	MD	941802-15	18	18	0					
DUPLICATE	MD	941875-75	29	29	0					
PARAMETER:Acidity (Filt.)			DATE/TIME ANALYZED:11/09/94 11:00							QC BATCH NUMBER:313682
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3		METHOD REFERENCE :305.1 (1)							TECHNICIAN:MLM
BLANK	MB	941109	<10							
DUPLICATE	MD	941802-15	<10	<10	NC					
DUPLICATE	MD	941875-75	<10	<10	NC					
PARAMETER:pH (Filt.)			DATE/TIME ANALYZED:11/09/94 11:00							QC BATCH NUMBER:313683
REPORTING LIMIT/DF: 0.01	UNITS:pH Units		METHOD REFERENCE :150.1 (1)							TECHNICIAN:MLM
STANDARD	ICV	G941001A	3.99			4.00	100			

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:11/09/94 11:00 METHOD REFERENCE :150.1 (1)							QC BATCH NUMBER:313683 TECHNICIAN:MLM
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.96			7.00	99			
DUPLICATE	MD	941802-15	7.40	7.35	1					
DUPLICATE	MD	941875-75	8.41	8.52	1					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:11/10/94 13:10 METHOD REFERENCE :375.2 (1)							QC BATCH NUMBER:313760 TECHNICIAN:DME
BLANK	ICB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
STANDARD	ICV/LCS	G940415A	144			150	96			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	85			80	106			
STANDARD	CCV	S80	80			80	100			
STANDARD	CCV	S80	88			80	110			
SPIKE	MS	940495-46	72					21	50	102
SPIKE	MS	940881-59	87					42	50	90
SPIKE	MS	940881-60	100					50	50	100
SPIKE	MS	941392-55	51					<10	50	102
DUPLICATE	MD	940495-46	21	22	1					
DUPLICATE	MD	940881-59	42	40	2					
DUPLICATE	MD	940881-60	50	51	1					
DUPLICATE	MD	941392-55	<10	<10	NC					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:11/15/94 10:00 METHOD REFERENCE :375.2 (1)							QC BATCH NUMBER:314157 TECHNICIAN:DME
BLANK	ICB	941115	<10							
BLANK	CCB	941115	<10							
BLANK	CCB	941115	<10							
BLANK	CCB	941115	<10							
BLANK	CCB	941115	<10							
STANDARD	ICV/LCS	G940415A	154			150	103			
STANDARD	CCV	S160	161			160	101			
STANDARD	CCV	S160	165			160	103			
STANDARD	CCV	S160	160			160	100			
STANDARD	CCV	S160	160			160	100			
SPIKE	MS	940416-117	84					36	50	96
SPIKE	MS	940416-118	80					35	50	90
SPIKE	MS	940416-120	76					30	50	92
SPIKE	MS	940881-62	82					36	50	92
DUPLICATE	MD	940416-117	36	38	2					
DUPLICATE	MD	940416-118	35	33	2					

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/15/94 10:00						QC BATCH NUMBER:314157
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
DUPLICATE	MD	940416-120	30	28	2					
DUPLICATE	MD	940881-62	36	36	0					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:11/16/94 08:00						QC BATCH NUMBER:314222
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	941116	<1							
BLANK	CCB	941116	<1							
BLANK	CCB	941116	<1							
BLANK	CCB	941116	<1							
BLANK	CCB	941116	<1							
STANDARD	ICV/LCS	941319	105			99	106			
STANDARD	CCV	G940926B	143			147	97			
STANDARD	CCV	G940926B	142			147	97			
STANDARD	CCV	G940926B	142			147	97			
STANDARD	CCV	G940926B	141			147	96			
DUPLICATE	MD	941802-16	74	73	1					
DUPLICATE	MD	942074-213	110	111	1					
DUPLICATE	MD	942074-223	586	585	0					
DUPLICATE	MD	942074-228	16	16	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/16/94 13:56						QC BATCH NUMBER:314240
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	ICV	0914E	2.01			2.00	100			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	ISA	09260	182			200	91			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	ISB	1004A	185			200	92			
STANDARD	CCV	0714D	10.0			10.0	100			
STANDARD	CCV	0714D	10.4			10.0	104			
STANDARD	ISA	09260	188			200	94			
STANDARD	ISB	1004A	188			200	94			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.2			10.0	102			
SPIKE	PDS	940416-117	2.12					<0.03	2.00	106
SPIKE	PDS	941391-116	17.9					15.9	2.00	100
SPIKE	PDS	941113-053	2.09					<0.03	2.00	104
DUPLICATE	MD	941391-116	15.9	15.9	0					
DUPLICATE	MD	941113-053	<0.03	<0.03	NC					

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:11/16/94 13:56 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:314240 TECHNICIAN:WGL
DUPLICATE	MD	940416-117	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/17/94 08:45 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:314312 TECHNICIAN:SLS
BLANK	MB	941117	<5							
STANDARD	LCS	G941007A	168			167	101			
DUPLICATE	MD	941875-80	28	27	4					
DUPLICATE	MD	941875-79	53	52	2					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/17/94 08:45 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:314313 TECHNICIAN:SLS
BLANK	MB	941117	<10							
DUPLICATE	MD	941875-80	<10	<10	NC					
DUPLICATE	MD	941875-79	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:11/17/94 08:45 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:314315 TECHNICIAN:SLS
STANDARD	ICV	G941001A	4.00			4.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.97			7.00	100			
DUPLICATE	MD	941875-80	7.93	8.04	1					
DUPLICATE	MD	941875-79	9.37	9.32	1					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/22/94 08:00 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:314689 TECHNICIAN:RPK
BLANK	MB	941122	<5							
STANDARD	LCS	G941007A	169			167	101			
DUPLICATE	MD	941802-17	18	17	1					
DUPLICATE	MD	941922-16	12	13	1					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:11/22/94 08:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:314692 TECHNICIAN:RPK
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.95			7.00	99			
DUPLICATE	MD	941802-17	7.78	7.67	1					
DUPLICATE	MD	941922-16	7.43	7.42	0					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/22/94 08:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:314694 TECHNICIAN:RPK
BLANK	MB	941122	<10							

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/22/94 08:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:314694 TECHNICIAN:RPK
DUPLICATE	MD	941802-17	<10	<10	NC					
DUPLICATE	MD	941922-16	<10	<10	NC					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:11/22/94 13:29 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:314788 TECHNICIAN:SLS
BLANK	ICB	941122	<10							
BLANK	CCB	941122	<10							
BLANK	CCB	941122	<10							
BLANK	CCB	941122	<10							
BLANK	CCB	941122	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	97			100	97			
SPIKE	MS	940881-64	63					37	25	104
SPIKE	MS	941391-125	47					23	25	96
SPIKE	MS	941802-17	35					11	25	96
SPIKE	MS	941875-81	25					<10	25	100
DUPLICATE	MD	940881-64	37	38	1					
DUPLICATE	MD	941391-125	23	23	0					
DUPLICATE	MD	941802-17	11	10	1					
DUPLICATE	MD	941875-81	<10	<10	NC					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:11/22/94 15:50 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:314791 TECHNICIAN:MLM
BLANK	ICB	941122	<1							
BLANK	CCB	941122	<1							
BLANK	CCB	941122	<1							
BLANK	CCB	941122	<1							
BLANK	CCB	941122	<1							
STANDARD	ICV/LCS	941319	103			98	105			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1390			1410	99			
DUPLICATE	MD	941391-125	87	86	1					
DUPLICATE	MD	942074-230	258	256	1					
DUPLICATE	MD	942074-238	352	351	0					
DUPLICATE	MD	942074-242	570	568	0					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:11/23/94 09:18 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:314820 TECHNICIAN:WGL
BLANK	ICB	1115A	<0.03							

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:11/23/94 09:18							QC BATCH NUMBER:314820
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	CCV	1114H	5.19			5.00	104			
STANDARD	ICV	0914E	2.07			2.00	103			
STANDARD	CCV	1114H	5.07			5.00	101			
STANDARD	ISA	09260	177			200	88			
STANDARD	CCV	1114H	4.95			5.00	99			
STANDARD	ISB	1004A	170			200	85			
STANDARD	CCV	1114H	4.91			5.00	98			
STANDARD	ISA	09260	173			200	86			
STANDARD	ISB	1004A	168			200	84			
STANDARD	CCV	1114H	4.95			5.00	99			
SPIKE	PDS	942074-240	2.14					<0.03	2.00	107
SPIKE	PDS	942892-001	1.94					0.06	2.00	94
SPIKE	PDS	941691-017	2.05					<0.03	2.00	102
SPIKE	PDS	942074-230	2.24					<0.03	2.00	112
DUPLICATE	MD	942074-240	<0.03	<0.03	NC					
DUPLICATE	MD	941691-017	<0.03	<0.03	NC					
DUPLICATE	MD	942074-230	<0.03	<0.03	NC					
PARAMETER:Conductivity (Filt.)			DATE/TIME ANALYZED:11/28/94 17:30							QC BATCH NUMBER:314995
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)							TECHNICIAN:KDS
BLANK	ICB	941128	<1							
BLANK	CCB	941128	<1							
BLANK	CCB	941128	<1							
BLANK	CCB	941128	<1							
BLANK	CCB	941128	<1							
STANDARD	ICV/LCS	941319	104			98	106			
STANDARD	CCV	G941117A	1420			1410	101			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1380			1410	98			
DUPLICATE	MD	941391-130	89	89	0					
DUPLICATE	MD	941875-90	68	69	1					
DUPLICATE	MD	942074-250	132	133	1					
DUPLICATE	MD	942074-260	275	276	0					
DUPLICATE	MD	942074-266	11	11	0					
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:11/29/94 14:00							QC BATCH NUMBER:315087
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
BLANK	ICB	1115A	<0.03							

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:11/29/94 14:00							QC BATCH NUMBER:315087
REPORTING LIMIT/DF: 0.03	UNITS:mg/L		METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	CCV	1114H	4.86			5.00	97			
STANDARD	ISB	1123J	176			200	88			
STANDARD	CCV	1114H	4.99			5.00	100			
STANDARD	CCV	1114H	5.01			5.00	100			
STANDARD	CCV	1114H	5.04			5.00	101			
STANDARD	ICV	0914E	1.93			2.00	96			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	CCV	1114H	5.10			5.00	102			
STANDARD	CCV	1114H	5.06			5.00	101			
STANDARD	ISA	09260	181			200	90			
STANDARD	ISA	09260	175			200	88			
STANDARD	ISB	1123J	168			200	84			
STANDARD	CCV	1114H	5.15			5.00	103			
SPIKE	PDS	941875-082	1.81					<0.03	2.00	90
SPIKE	PDS	942977-003	2.48					0.96	2.00	76
SPIKE	PDS	941391-127	4.26					2.62	2.00	82
DUPLICATE	MD	941875-082	<0.03	<0.03	NC					
DUPLICATE	MD	942977-003	0.96	0.98	2					
DUPLICATE	MD	941391-127	2.62	2.60	1					
PARAMETER:Sulfate (Filt.)			DATE/TIME ANALYZED:11/29/94 09:07							QC BATCH NUMBER:315136
REPORTING LIMIT/DF: 10	UNITS:mg/L		METHOD REFERENCE :300.0 (1)							TECHNICIAN:SLS
BLANK	ICB	941129	<10							
BLANK	CCB	941129	<10							
BLANK	CCB	941129	<10							
BLANK	CCB	941129	<10							
BLANK	CCB	941129	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	102			100	102			
STANDARD	CCV	S100	97			100	97			
SPIKE	MS	942969-1	54					29	25	100
SPIKE	MS	942969-2	72					48	25	96
SPIKE	MS	940881-66	73					47	25	104
SPIKE	MS	941875-90	29					<10	25	116
DUPLICATE	MD	942969-1	29	29	0					

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:11/29/94 09:07 METHOD REFERENCE :300.0 (1)							QC BATCH NUMBER:315136 TECHNICIAN:SLS
DUPLICATE	MD	942969-2	48	48	0					
DUPLICATE	MD	940881-66	47	47	0					
DUPLICATE	MD	941875-90	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:11/29/94 16:30 METHOD REFERENCE :150.1 (1)							QC BATCH NUMBER:315385 TECHNICIAN:KDS
STANDARD	ICV	G941001A	3.95			4.00	99			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
DUPLICATE	MD	940881-65	5.67	5.41	5					
DUPLICATE	MD	940881-66	4.99	5.03	1					
DUPLICATE	MD	941113-59	7.48	7.52	1					
DUPLICATE	MD	941922-17	7.38	7.41	0					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:11/29/94 16:30 METHOD REFERENCE :310.1 (1)							QC BATCH NUMBER:315387 TECHNICIAN:KDS
BLANK	MB	941129	<5							
STANDARD	LCS	G941007A	167			167	100			
DUPLICATE	MD	940881-65	<5	<5	NC					
DUPLICATE	MD	940881-66	<5	<5	NC					
DUPLICATE	MD	941113-59	16	16	0					
DUPLICATE	MD	941922-17	14	13	1					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:11/29/94 16:30 METHOD REFERENCE :305.1 (1)							QC BATCH NUMBER:315388 TECHNICIAN:KDS
BLANK	MB	941129	<10							
DUPLICATE	MD	940881-65	46	46	0					
DUPLICATE	MD	940881-66	44	44	0					
DUPLICATE	MD	941113-59	<10	<10	NC					
DUPLICATE	MD	941922-17	<10	<10	NC					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:12/05/94 14:15 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:315647 TECHNICIAN:GEF
BLANK	ICB	1104C	<0.03							
BLANK	CCB	1104C	<0.03							
BLANK	CCB	1104C	<0.03							
BLANK	CCB	1104C	<0.03							
STANDARD	CCV	1017J	5.12			5.00	102			
STANDARD	ICV	1122D	1.91			2.00	96			
STANDARD	CCV	1017J	5.04			5.00	101			

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:12/05/94 14:15							QC BATCH NUMBER:315647
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
STANDARD	ISA	09260	182			200	91			
STANDARD	ISA	09260	172			200	86			
STANDARD	ISB	1123J	163			200	82			
STANDARD	CCV	1017J	4.90			5.00	98			
STANDARD	ISB	1123J	177			200	88			
SPIKE	PDS	941802-012	1.96					<0.03	2.00	98
DUPLICATE	MD	941802-012	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.)			DATE/TIME ANALYZED:12/08/94 11:18							QC BATCH NUMBER:316012
REPORTING LIMIT/DF: 10 UNITS:mg/L			METHOD REFERENCE :300.0 (1)							TECHNICIAN:SLS
BLANK	ICB	941208	<10							
BLANK	CCB	941208	<10							
BLANK	CCB	941208	<10							
BLANK	CCB	941208	<10							
BLANK	CCB	941208	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	105			100	105			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
SPIKE	MS	940881-68	71					45	25	104
SPIKE	MS	941875-93	32					10	25	88
SPIKE	MS	941875-95	28					<10	25	112
SPIKE	MS	941875-94	27					<10	25	108
DUPLICATE	MD	940881-68	45	46	1					
DUPLICATE	MD	941875-93	10	10	0					
DUPLICATE	MD	941875-95	<10	<10	NC					
DUPLICATE	MD	941875-94	<10	<10	NC					
PARAMETER:Alkalinity, Total (Filt.)			DATE/TIME ANALYZED:12/09/94 09:15							QC BATCH NUMBER:316091
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)							TECHNICIAN:SLS
BLANK	MB	941209	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	941113-61	19	19	0					
DUPLICATE	MD	941802-19	18	17	1					
DUPLICATE	MD	942332-156	27	28	4					
DUPLICATE	MD	942866-9	23	23	0					
PARAMETER:Acidity (Filt.)			DATE/TIME ANALYZED:12/09/94 09:15							QC BATCH NUMBER:316092
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)							TECHNICIAN:SLS
BLANK	MB	941209	<10							
DUPLICATE	MD	941113-61	<10	<10	NC					
DUPLICATE	MD	941802-19	<10	<10	NC					

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:12/09/94 09:15						QC BATCH NUMBER:316092
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:SLS
DUPLICATE	MD	942332-156	<10	<10	NC					
DUPLICATE	MD	942866-9	<10	<10	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:12/09/94 09:15						QC BATCH NUMBER:316093
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:SLS
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
DUPLICATE	MD	941113-61	7.14	7.24	1					
DUPLICATE	MD	941802-19	7.37	7.31	1					
DUPLICATE	MD	942332-156	7.62	7.71	1					
DUPLICATE	MD	942866-9	7.50	7.43	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/09/94 13:36						QC BATCH NUMBER:316154
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	CCV	1114H	5.18			5.00	104			
STANDARD	CCV	1114H	5.12			5.00	102			
STANDARD	CCV	1114H	5.27			5.00	105			
STANDARD	ICV	0914E	1.80			2.00	90			
STANDARD	CCV	1114H	5.37			5.00	107			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	ISA	09260	169			200	84			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	CCV	1114H	4.86			5.00	97			
STANDARD	CCV	1114H	4.76			5.00	95			
STANDARD	CCV	1114H	4.80			5.00	96			
STANDARD	CCV	1114H	5.15			5.00	103			
STANDARD	ISA	09260	162			200	81			

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/09/94 13:36						QC BATCH NUMBER:316154
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
STANDARD	ISB	1123J	164			200	82			
STANDARD	CCV	1114H	4.92			5.00	98			
STANDARD	ISB	1123J	166			200	83			
SPIKE	PDS	943101-001	2.32					0.28	2.00	102
SPIKE	PDS	941802-019	2.50					0.42	2.00	104
SPIKE	PDS	942953-001	1.14					0.03	1.00	111
SPIKE	PDS	942866-010	1.90					<0.03	2.00	95
SPIKE	PDS	943070-004	2.67					0.78	2.00	94
SPIKE	PDS	942332-164	1.53					<0.03	2.00	76
DUPLICATE	MD	942332-164	<0.03	<0.03	NC					
DUPLICATE	MD	943101-001	0.28	0.28	0					
DUPLICATE	MD	942866-010	<0.03	<0.03	NC					
DUPLICATE	MD	942953-001	0.03	<0.03	0.03					
DUPLICATE	MD	943070-004	0.78	0.79	1					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:12/13/94 09:00						QC BATCH NUMBER:316287
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:SLS
BLANK	ICB	941213	<1							
BLANK	CCB	941213	<1							
BLANK	CCB	941213	<1							
BLANK	CCB	941213	<1							
BLANK	CCB	941213	<1							
STANDARD	ICV/LCS	941319	104			99	105			
STANDARD	CCV	S147	147			147	100			
STANDARD	CCV	S147	146			147	99			
STANDARD	CCV	S147	145			147	99			
STANDARD	CCV	S147	144			147	98			
DUPLICATE	MD	941691-19	238	236	1					
DUPLICATE	MD	942332-153	107	108	1					
DUPLICATE	MD	942332-163	59	58	2					
DUPLICATE	MD	942332-165	288	284	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/15/94 14:29						QC BATCH NUMBER:316605
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:12/15/94 14:29							QC BATCH NUMBER:316605
REPORTING LIMIT/DF: 0.03	UNITS:mg/L		METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
STANDARD	CCV	1114H	5.06			5.00	101			
STANDARD	ICV	0914E	1.91			2.00	96			
STANDARD	CCV	1114H	5.10			5.00	102			
STANDARD	CCV	1114H	5.12			5.00	102			
STANDARD	CCV	1114H	5.22			5.00	104			
STANDARD	ISA	09260	199			200	100			
STANDARD	CCV	1114H	5.22			5.00	104			
STANDARD	CCV	1114H	5.09			5.00	102			
STANDARD	CCV	1114H	4.78			5.00	96			
STANDARD	ISB	1123J	191			200	96			
STANDARD	CCV	1114H	4.78			5.00	96			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	ISA	09260	185			200	92			
STANDARD	ISB	1123J	185			200	92			
STANDARD	CCV	1114H	4.78			5.00	96			
STANDARD	CCV	1114H	5.04			5.00	101			
SPIKE	PDS	940495-049	2.84					0.90	2.00	97
SPIKE	PDS	942332-099	3.88					1.91	2.00	98
SPIKE	PDS	941875-096	2.29					0.46	2.00	92
DUPLICATE	MD	940495-049	0.90	0.89	1					
DUPLICATE	MD	941875-096	0.46	0.54	16					
PARAMETER:Alkalinity, Total (Filt.)			DATE/TIME ANALYZED:12/22/94 15:00							QC BATCH NUMBER:317117
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3		METHOD REFERENCE :310.1 (1)							TECHNICIAN:KDS
BLANK	MB	941222	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	940881-69	<5	<5	NC					
DUPLICATE	MD	940881-70	<5	<5	NC					
DUPLICATE	MD	941802-20	16	16	0					
PARAMETER:Acidity (Filt.)			DATE/TIME ANALYZED:12/22/94 15:00							QC BATCH NUMBER:317118
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3		METHOD REFERENCE :305.1 (1)							TECHNICIAN:KDS
BLANK	MB	941222	<10							
DUPLICATE	MD	940881-69	39	42	3					
DUPLICATE	MD	940881-70	50	49	1					
DUPLICATE	MD	941802-20	<10	<10	NC					
PARAMETER:pH (Filt.)			DATE/TIME ANALYZED:12/22/94 15:00							QC BATCH NUMBER:317119
REPORTING LIMIT/DF: 0.01	UNITS:pH Units		METHOD REFERENCE :150.1 (1)							TECHNICIAN:KDS
STANDARD	ICV	G941219A	3.99			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:12/22/94 15:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:317119 TECHNICIAN:KDS
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	940881-69	5.35	5.34	0					
DUPLICATE	MD	940881-70	4.94	4.89	1					
DUPLICATE	MD	941802-20	7.33	7.34	0					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:12/29/94 07:00 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:317405 TECHNICIAN:KDS
BLANK	MB	941229	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	940881-72	<5	<5	NC					
DUPLICATE	MD	941113-65	19	18	1					
DUPLICATE	MD	941802-21	18	19	1					
DUPLICATE	MD	942866-28	13	13	0					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:12/29/94 07:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:317406 TECHNICIAN:KDS
BLANK	MB	941229	<10							
DUPLICATE	MD	940881-72	46	44	2					
DUPLICATE	MD	941113-65	<10	<10	NC					
DUPLICATE	MD	942866-22	<10	<10	NC					
DUPLICATE	MD	941802-21	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:12/29/94 07:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:317407 TECHNICIAN:KDS
STANDARD	ICV	G941219A	4.00			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	940881-72	4.80	4.78	0					
DUPLICATE	MD	941113-65	7.58	7.55	0					
DUPLICATE	MD	941802-21	7.55	7.59	1					
DUPLICATE	MD	942866-25	7.33	7.31	0					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:12/28/94 15:40 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:317542 TECHNICIAN:FK
BLANK	ICB	941228	<1							
BLANK	CCB	941228	<1							
BLANK	CCB	941228	<1							
BLANK	CCB	941228	<1							

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:12/28/94 15:40						QC BATCH NUMBER:317542
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:FK
BLANK	CCB	941228	<1							
STANDARD	ICV/LCS	941850	100			99	101			
STANDARD	CCV	G941117B	146			147	99			
STANDARD	CCV	G941117B	146			147	99			
STANDARD	CCV	G941117B	145			147	99			
STANDARD	CCV	G941117B	144			147	98			
DUPLICATE	MD	941391-141	471	469	0					
DUPLICATE	MD	941391-150	82	82	0					
DUPLICATE	MD	941691-21	336	336	0					
DUPLICATE	MD	941802-22	54	54	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:12/30/94 15:26						QC BATCH NUMBER:317573
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	941230	<10							
BLANK	CCB	941230	<10							
BLANK	CCB	941230	<10							
BLANK	CCB	941230	<10							
BLANK	CCB	941230	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	96			100	96			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	96			100	96			
SPIKE	MS	941875-101	24					<10	25	96
SPIKE	MS	941875-105	26					<10	25	104
SPIKE	MS	941875-104	27					<10	25	108
SPIKE	MS	941875-103	36					14	25	88
DUPLICATE	MD	941875-101	<10	<10	NC					
DUPLICATE	MD	941875-105	<10	<10	NC					
DUPLICATE	MD	941875-104	<10	<10	NC					
DUPLICATE	MD	941875-103	14	14	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/30/94 13:01						QC BATCH NUMBER:317616
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/30/94 13:01						QC BATCH NUMBER:317616
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
STANDARD	CCV	1117K	9.59			10.0	96			
STANDARD	ISB	1123J	173			200	86			
STANDARD	CCV	1117K	9.57			10.0	96			
STANDARD	CCV	1117K	9.75			10.0	98			
STANDARD	CCV	1117K	10.4			10.0	104			
STANDARD	ICV	0914E	1.99			2.00	100			
STANDARD	CCV	1117K	10.2			10.0	102			
STANDARD	CCV	1117K	9.75			10.0	98			
STANDARD	CCV	1117K	9.72			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	CCV	1117K	9.34			10.0	93			
STANDARD	ISA	09260	172			200	86			
STANDARD	ISA	09260	172			200	86			
STANDARD	ISB	1123J	161			200	80			
STANDARD	CCV	1117K	10.7			10.0	107			
STANDARD	ISB	1123J	162			200	81			
SPIKE	PDS	943122-001	1.96					0.09	2.00	94
SPIKE	PDS	943233-002	1.85					0.09	2.00	88
SPIKE	PDS	941875-101	1.78					0.06	2.00	86
SPIKE	PDS	941113-067	1.96					<0.03	2.00	98
DUPLICATE	MD	943233-001	<0.03	<0.03	NC					
DUPLICATE	MD	941802-021	<0.03	<0.03	NC					
DUPLICATE	MD	943122-001	0.09	0.09	0.00					
DUPLICATE	MD	941113-065	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:01/04/95 10:15						QC BATCH NUMBER:317805
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:SLS
BLANK	MB	950104	<5							
STANDARD	LCS	G941027A	166			167	99			
DUPLICATE	MD	941802-22	15	15	0					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:01/04/95 10:15						QC BATCH NUMBER:317806
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				METHOD REFERENCE :305.1 (1)						TECHNICIAN:SLS
BLANK	MB	950104	<10							
DUPLICATE	MD	941802-22	<10	<10	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:01/04/95 10:15						QC BATCH NUMBER:317807
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:SLS
STANDARD	ICV	G941027A	3.99			4.00	100			
STANDARD	CCV	S7.00	6.98			7.00	100			
DUPLICATE	MD	941802-22	6.97	7.08	2					

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:01/04/95 09:00						QC BATCH NUMBER:317854
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
STANDARD	ICV/LCS	G940415A	153			150	102			
STANDARD	CCV	S200	200			200	100			
STANDARD	CCV	S200	200			200	100			
STANDARD	CCV	S200	180			200	90			
STANDARD	CCV	S200	180			200	90			
STANDARD	CCV	S200	194			200	97			
STANDARD	CCV	S200	212			200	106			
STANDARD	CCV	S200	217			200	108			
SPIKE	MS	940416-121	73					24	50	98
SPIKE	MS	940881-69	82					34	50	96
SPIKE	MS	941691-21	173					118	50	110
SPIKE	MS	941802-21	68					15	50	106
SPIKE	MS	941113-67	142					93	50	98
SPIKE	MS	942866-17	56					<10	50	112
SPIKE	MS	941391-150	65					23	50	84
DUPLICATE	MD	940416-121	24	25	1					
DUPLICATE	MD	940881-69	34	35	1					
DUPLICATE	MD	941691-21	118	125	6					
DUPLICATE	MD	941802-21	15	14	1					
DUPLICATE	MD	941113-67	93	90	3					
DUPLICATE	MD	942866-17	<10	<10	NC					
DUPLICATE	MD	941391-150	23	21	2					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/04/95 15:48						QC BATCH NUMBER:317897
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
STANDARD	CCV	1117K	10.0			10.0	100			
STANDARD	ICV	0914E	1.96			2.00	98			

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ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/04/95 15:48						QC BATCH NUMBER:317897
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
STANDARD	CCV	1117K	9.87			10.0	99			
STANDARD	CCV	1117K	9.87			10.0	99			
STANDARD	ISA	09260	176			200	88			
STANDARD	CCV	1117K	9.56			10.0	96			
STANDARD	ISB	1123J	173			200	86			
STANDARD	CCV	1117K	10.0			10.0	100			
STANDARD	ISA	09260	183			200	92			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	1117K	10.3			10.0	103			
STANDARD	CCV	1117K	10.2			10.0	102			
STANDARD	CCV	1117K	10.0			10.0	100			
STANDARD	CCV	1117K	10.4			10.0	104			
STANDARD	ISA	09260	178			200	89			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	1117K	10.1			10.0	101			
SPIKE	PDS	943257-010	1.80					0.06	2.00	87
SPIKE	PDS	943251-003	1.83					<0.03	2.00	92
SPIKE	PDS	941802-023	2.09					<0.03	2.00	104
SPIKE	PDS	941875-107	2.06					<0.03	2.00	103
SPIKE	PDS	943243-001	1.84					0.03	2.00	90
SPIKE	PDS	941391-153	3.88					1.95	2.00	96
DUPLICATE	MD	943251-001	0.16	0.16	0					
DUPLICATE	MD	943257-005	0.07	0.07	0.00					
DUPLICATE	MD	943243-001	0.03	<0.03	0.03					
DUPLICATE	MD	941691-024	<0.03	<0.03	NC					
DUPLICATE	MD	943242-010	0.25	0.27	8					
DUPLICATE	MD	941922-022	<0.03	<0.03	NC					
DUPLICATE	MD	941391-153	1.95	1.95	0					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:01/06/95 12:54						QC BATCH NUMBER:318126
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:DME
BLANK	ICB	950106	<1							
BLANK	CCB	950106	<1							
BLANK	CCB	950106	<1							
BLANK	CCB	950106	<1							
BLANK	CCB	950106	<1							
STANDARD	ICV/LCS	941849	1030			1000	103			
STANDARD	CCV	S147	154			147	105			
STANDARD	CCV	S147	149			147	101			
STANDARD	CCV	S147	150			147	102			
STANDARD	CCV	S147	148			147	101			
DUPLICATE	MD	940881-76	84	83	1					
DUPLICATE	MD	941875-111	14	14	0					
DUPLICATE	MD	942074-347	134	135	1					
DUPLICATE	MD	942074-357	126	126	0					

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:01/06/95 12:54						QC BATCH NUMBER:318126
REPORTING LIMIT/DF: 1		UNITS:umhos/cm @25dC		METHOD REFERENCE :120.1 (1)						TECHNICIAN:DME
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:01/10/95 10:10						QC BATCH NUMBER:318362
REPORTING LIMIT/DF: 5		UNITS:mg/L CaCO3		METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	950110	<5							
STANDARD	LCS	G941027A	166			167	99			
DUPLICATE	MD	941875-113	12	11	1					
DUPLICATE	MD	942866-42	10	10	0					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:01/10/95 10:10						QC BATCH NUMBER:318363
REPORTING LIMIT/DF: 10		UNITS:mg/L CaCO3		METHOD REFERENCE :305.1 (1)						TECHNICIAN:KDS
BLANK	MB	950110	<10							
DUPLICATE	MD	941875-113	<10	<10	NC					
DUPLICATE	MD	942866-42	<10	<10	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:01/10/95 10:10						QC BATCH NUMBER:318364
REPORTING LIMIT/DF: 0.01		UNITS:pH Units		METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G941219A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:01/10/95 08:00						QC BATCH NUMBER:318366
REPORTING LIMIT/DF: 1		UNITS:umhos/cm @25dC		METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
STANDARD	ICV/LCS	941849	1029			1004	102			
STANDARD	CCV	G941117B	150			147	102			
STANDARD	CCV	G941117B	149			147	101			
STANDARD	CCV	G941117B	148			147	101			
STANDARD	CCV	G941117B	148			147	101			
STANDARD	CCV	G941117B	148			147	101			
STANDARD	CCV	G941117B	146			147	99			
DUPLICATE	MD	941875-116	17	17	0					
DUPLICATE	MD	942074-366	146	147	1					
DUPLICATE	MD	942074-376	144	143	1					
DUPLICATE	MD	942332-171	89	89	0					
DUPLICATE	MD	942866-43	850	850	0					

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:01/10/95 08:00						QC BATCH NUMBER:318366
REPORTING LIMIT/DF: 1		UNITS:umhos/cm @25dC		METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
DUPLICATE	MD	943080-5	234	234	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/11/95 13:20						QC BATCH NUMBER:318455
REPORTING LIMIT/DF: 0.03		UNITS:mg/L		METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
STANDARD	CCV	1114H	5.19			5.00	104			
STANDARD	ISB	1123J	193			200	96			
STANDARD	CCV	1114H	5.10			5.00	102			
STANDARD	CCV	1114H	5.07			5.00	101			
STANDARD	ISA	09260	175			200	88			
STANDARD	ISB	1123J	167			200	84			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	CCV	1114H	5.09			5.00	102			
STANDARD	CCV	1114H	5.13			5.00	103			
STANDARD	CCV	1114H	5.15			5.00	103			
STANDARD	CCV	1114H	5.03			5.00	101			
STANDARD	ICV	0914E	2.09			2.00	104			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	CCV	1114H	5.24			5.00	105			
STANDARD	ISA	09260	175			200	88			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	1114H	5.18			5.00	104			
STANDARD	ISA	09260	204			200	102			
SPIKE	PDS	942074-362	2.10					<0.03	2.00	105
SPIKE	PDS	950052-001	2.21					<0.03	2.00	110
SPIKE	PDS	941875-116	2.04					<0.03	2.00	102
SPIKE	PDS	941802-024	2.04					<0.03	2.00	102
SPIKE	PDS	941391-160	2.01					0.03	2.00	99
SPIKE	PDS	942332-170	1.91					<0.03	2.00	96
SPIKE	PDS	942074-371	2.00					<0.03	2.00	100
DUPLICATE	MD	941802-024	<0.03	<0.03	NC					
DUPLICATE	MD	941875-116	<0.03	<0.03	NC					

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QUALITY CONTROL REPORT
01/12/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/11/95 13:20						QC BATCH NUMBER:318455
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
DUPLICATE	MD	941391-160	0.03	0.03	0.00					
DUPLICATE	MD	942074-362	<0.03	<0.03	NC					
DUPLICATE	MD	942332-170	<0.03	<0.03	NC					
DUPLICATE	MD	950052-001	<0.03	<0.03	NC					
DUPLICATE	MD	942074-371	<0.03	<0.03	NC					

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METHOD REFERENCES

(1) EPA 600/4-79-020, Methods For Chemical Analysis Of Water And Wastes, March 1983

(2) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, November 1986

(3) Standard Methods For The Examination Of Water And Wastewater, 17th Edition, 1989

(4) EPA 600/4-80-032, Prescribed Procedures For Measurement Of Radioactivity In Drinking Water, August 1980

(5) EPA 600/8-78-017, Microbiological Methods For Monitoring The Environment, December 1978

(6) Federal Register, July 1, 1990 (40 CFR Part 136)

(7) EPA 600/4-88-039, Methods For The Determination Of Organics Compounds In Drinking Water, December 1988

(8) U.S.G.S. Methods For The Determination Of Inorganic Substances In Water And Fluvial Sediments, Book 5, Chapter A1, 1985

(9) Federal Register, Friday, June 7, 1991, (40 CFR Parts 141 and 142)

(10) Standard Methods For The Examination Of Water And Wastewater, 16th Edition, 1985

(11) ASTM, Section 11 Water And Environmental Technology, Volume 11.01 Water (1), 1991

(12) Methods Of Soil Analysis, American Society Of Agronomy, Agronomy No. 9, 1965

(13) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, Revision 1, November 1990

(14) ASTM, Section 5, Petroleum Products, Lubricants, and Fossil Fuels, Volume 05.05, Gaseous Fuels, Coal and Coke

(15) EPA 600/2-78-054, Field and Laboratory Methods Applicable To Overburdens and Mine Soils, March 1978

(16) ASTM, Part 19, Soils and Rock; Building Stones, 1981

Comments: Data in QA report may differ from final results due to digestion and/or dilution of sample into analytical ranges. The "Time Analyzed" in the QA report refers to the start time of the analytical batch which may not reflect the actual time of each analysis. The "Date Analyzed" is the actual date of analysis. Results for soil and sludge samples are reported on a wet weight basis (i.e. not corrected for percent moisture) unless otherwise indicated.

NC = Not Calculable Due To Value(s) Lower Than The Detection Limit.

Blank QC Sample Identification

MB	Method Blank
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank

Reference Standard QC Sample Identification

LCS	Laboratory Control Standard
RS	Reference Standard
ICV	Initial Calibration Verification Standard
CCV	Continuing Calibration Verification Standard
ISA/ISB	ICP Interference Check Samples

Spike QC Sample Identification

MS	Method (Matrix) Spike
MSD	Method (Matrix) Spike Duplicate
PDS	Post Digestion Spike
SB	Spiked Blank
SBD	Spiked Blank Duplicate

Duplicate QC Sample Identification

MD	Method (Matrix) Duplicate
ED	Extraction Duplicate
DD	Digestion Duplicate

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Core Laboratories - Casper, WY	* CA
Core Laboratories - Corpus Christi, TX	* CC
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Core Laboratories - Lake Charles, LA	* LC
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A N A L Y T I C A L R E P O R T

Job Number: 941802
Prepared For:

HENDRICKS MINING CO, INC.
THOMAS HENDRICKS
P.O. BOX 653-CARIBOU
NEDERLAND, CO 80466-0653

Date: 01/27/95

Signature Pat. J. McEntee

Date: 1-30-95

Name: Patrick J. McEntee

Core Laboratories
10703 East Bethany Drive
Aurora, CO 80014

Title: Laboratory Supervisor

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SUMMARY OF DATA GENERATED FROM HUMIDITY CELL TESTING

HENDRICKS MINING CO, INC.

January 27, 1995

CLIENT SAMPLE I.D...: COMP. HEAD

LAB SAMPLE I.D.....: 941802-1

PARAMETER	UNITS	Week 21	Week 22	Week 23	Week 24	Week 25	Week 26	Week 27	Week 28	Week 29	Week 30
Leachate Quantity	mls	175	168	163	166	169	N/A	N/A	N/A	N/A	N/A
pH	pH Units	6.97	7.64	7.43	7.72	7.68	N/A	N/A	N/A	N/A	N/A
Conductivity	umohs/cm	54	54	66	52	57	N/A	N/A	N/A	N/A	N/A
Sulfate	mg/L	11	<10	13	<10	<10	N/A	N/A	N/A	N/A	N/A
Cumulative Sulfate	Total mg	2	2	4	4	4	4	4	4	4	4
Acidity	mg/L CaCO3	<10	<10	<10	<10	<10	N/A	N/A	N/A	N/A	N/A
Cumulative Acidity	Tot. mg CaCO3	0	0	0	0	0	0	0	0	0	0
Iron (Diss.)	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	N/A	N/A	N/A	N/A	N/A
Cumulative Iron	Total ug	0	0	0	0	0	0	0	0	0	0
Alkalinity	mg/L CaCO3	15	19	14	17	15	N/A	N/A	N/A	N/A	N/A
Cumulative Alkalinity	Tot. mg CaCO3	3	6	8	11	13	13	13	13	13	13
pH of DI H2O	pH Units	5.33	5.50	5.22	6.63	5.86	N/A	N/A	N/A	N/A	N/A

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:08/22/94 07:15 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:305732 TECHNICIAN:SLS	
BLANK	MB	940822	<5							
STANDARD	LCS	G940805A	166			167	99			
DUPLICATE	MD	940765-274	<5	<5	NC					
DUPLICATE	MD	940765-283	22	21	1					
DUPLICATE	MD	940936-46	12	12	0					
DUPLICATE	MD	941802-3	17	17	0					
DUPLICATE	MD	940925-60	17	16	1					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:08/22/94 07:15 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:305737 TECHNICIAN:SLS	
BLANK	MB	940822	<10							
DUPLICATE	MD	940765-274	406	408	0					
DUPLICATE	MD	940765-283	<10	<10	NC					
DUPLICATE	MD	940936-46	<10	<10	NC					
DUPLICATE	MD	941802-3	<10	<10	NC					
DUPLICATE	MD	940925-60	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:08/22/94 07:15 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:305739 TECHNICIAN:SLS	
STANDARD	ICV	G940711C	4.06			4.00	101			
STANDARD	CCV	S7.00	7.05			7.00	101			
STANDARD	CCV	S7.00	7.05			7.00	101			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	7.06			7.00	101			
DUPLICATE	MD	940765-274	3.28	3.27	0					
DUPLICATE	MD	940765-283	7.62	7.50	2					
DUPLICATE	MD	940936-46	6.52	6.59	1					
DUPLICATE	MD	941802-3	6.74	6.75	0					
DUPLICATE	MD	940925-60	7.01	6.97	1					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:08/23/94 10:50 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:305935 TECHNICIAN:GEF	
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	10.6			10.0	106			
STANDARD	ICV	0524F	2.06			2.00	103			
STANDARD	CCV	0714D	10.9			10.0	109			
STANDARD	ISA	0609A	185			200	92			

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:08/23/94 10:50							QC BATCH NUMBER:305935
REPORTING LIMIT/DF: 0.03	UNITS:mg/L		METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
STANDARD	CCV	0714D	10.5			10.0	105			
STANDARD	ISB	0710A	182			200	91			
STANDARD	CCV	0714D	9.97			10.0	100			
STANDARD	ISA	0609A	178			200	89			
STANDARD	ISB	0710A	172			200	86			
STANDARD	CCV	0714D	9.98			10.0	100			
SPIKE	PDS	941974-002	1.99					0.07	2.00	96
DUPLICATE	MD	941974-001	0.09	0.08	0.01					
PARAMETER:Conductivity (Filt.)			DATE/TIME ANALYZED:08/26/94 12:00							QC BATCH NUMBER:306137
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC		METHOD REFERENCE :120.1 (1)							TECHNICIAN:RPK
BLANK	ICB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
STANDARD	ICV/LCS	941319	99			98	101			
STANDARD	CCV	G940711B	151			147	103			
STANDARD	CCV	G940711B	148			147	101			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	148			147	101			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	146			147	99			
STANDARD	CCV	G940711B	146			147	99			
STANDARD	CCV	G940711B	144			147	98			
DUPLICATE	MD	941113-32	2850	2850	0					
DUPLICATE	MD	940673-410	85	85	0					
DUPLICATE	MD	940673-420	26	26	0					
DUPLICATE	MD	940765-284	150	150	0					
DUPLICATE	MD	940765-294	670	670	0					
DUPLICATE	MD	940765-304	1310	1310	0					
DUPLICATE	MD	940925-65	35	35	0					
DUPLICATE	MD	941875-9	242	242	0					
DUPLICATE	MD	941875-19	233	231	1					

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:08/25/94 12:48						QC BATCH NUMBER:306204
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	98			100	98			
SPIKE	MS	940765-277	47					22	25	100
SPIKE	MS	940767-103	27					<10	25	108
SPIKE	MS	940767-108	25					<10	25	100
SPIKE	MS	940765-272	56					33	25	92
SPIKE	MS	940765-273	42					19	25	92
DUPLICATE	MD	940765-277	22	22	0					
DUPLICATE	MD	940767-103	<10	<10	NC					
DUPLICATE	MD	940767-108	<10	<10	NC					
DUPLICATE	MD	940765-272	33	33	0					
DUPLICATE	MD	940765-273	19	18	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:08/31/94 12:37						QC BATCH NUMBER:306639
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	9.68			10.0	97			
STANDARD	ICV	0524F	2.04			2.00	102			
STANDARD	CCV	0714D	9.66			10.0	97			
STANDARD	ISA	0609A	179			200	90			
STANDARD	CCV	0714D	9.64			10.0	96			
STANDARD	ISB	0710A	169			200	84			
STANDARD	CCV	0714D	9.64			10.0	96			
STANDARD	ISA	0609A	173			200	86			
STANDARD	ISB	0710A	165			200	82			
STANDARD	CCV	0714D	9.47			10.0	95			
SPIKE	PDS	942139-012	1.98					0.03	2.00	98
SPIKE	PDS	942139-022	1.98					<0.03	2.00	99
SPIKE	PDS	942139-002	2.01					0.03	2.00	99
SPIKE	PDS	941691-004	1.96					<0.03	2.00	98

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:08/31/94 12:37							QC BATCH NUMBER:306639
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
DUPLICATE	MD	942139-021	<0.03	<0.03	NC					
DUPLICATE	MD	941691-004	<0.03	<0.03	NC					
DUPLICATE	MD	942139-011	<0.03	<0.03	NC					
DUPLICATE	MD	942139-001	0.05	0.03	0.02					
PARAMETER:pH (Filt.)			DATE/TIME ANALYZED:09/04/94 09:00							QC BATCH NUMBER:306972
REPORTING LIMIT/DF: 0.01 UNITS:pH Units			METHOD REFERENCE :150.1 (1)							TECHNICIAN:KDS
STANDARD	ICV	G940711C	4.00			4.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
DUPLICATE	MD	940765-308	3.54	3.53	0					
DUPLICATE	MD	940767-120	7.83	7.82	0					
DUPLICATE	MD	940925-70	7.98	7.90	1					
DUPLICATE	MD	940936-56	3.24	3.25	0					
DUPLICATE	MD	941391-60	7.34	7.33	0					
DUPLICATE	MD	941875-20	8.96	8.97	0					
PARAMETER:Alkalinity, Total (Filt.)			DATE/TIME ANALYZED:09/04/94 09:00							QC BATCH NUMBER:306973
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)							TECHNICIAN:KDS
BLANK	MB	940904	<5							
STANDARD	LCS	G940805A	162			167	97			
DUPLICATE	MD	940765-308	<5	<5	NC					
DUPLICATE	MD	940767-120	26	26	0					
DUPLICATE	MD	940925-70	20	19	1					
DUPLICATE	MD	940936-56	<5	<5	NC					
DUPLICATE	MD	941391-60	17	16	1					
DUPLICATE	MD	941875-20	62	61	2					
PARAMETER:Acidity (Filt.)			DATE/TIME ANALYZED:09/04/94 09:00							QC BATCH NUMBER:306975
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)							TECHNICIAN:KDS
BLANK	MB	940904	<10							
DUPLICATE	MD	940765-308	500	500	0					
DUPLICATE	MD	940767-120	<10	<10	NC					
DUPLICATE	MD	940925-70	<10	<10	NC					
DUPLICATE	MD	941391-60	<10	<10	NC					
DUPLICATE	MD	941875-20	<10	<10	NC					

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/12/94 12:35						QC BATCH NUMBER:307417
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	ICV	0524F	2.00			2.00	100			
STANDARD	CCV	0714D	9.83			10.0	98			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	ISA	0609A	167			200	84			
STANDARD	CCV	0714D	9.47			10.0	95			
STANDARD	CCV	0714D	9.17			10.0	92			
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	CCV	0714D	9.87			10.0	99			
STANDARD	ISA	0609A	184			200	92			
STANDARD	ISB	0710A	180			200	90			
STANDARD	CCV	0714D	9.32			10.0	93			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	ISB	0710A	180			200	90			
SPIKE	PDS	940495-042	2.40					0.55	2.00	92
SPIKE	PDS	941922-004	1.89					<0.03	2.00	94
SPIKE	PDS	941875-030	1.99					0.03	2.00	98
SPIKE	PDS	941391-064	1.51					<0.03	2.00	76
DUPLICATE	MD	941875-030	0.03	0.03	0.00					
DUPLICATE	MD	941391-064	<0.03	<0.03	NC					
DUPLICATE	MD	940495-042	0.55	0.52	6					
DUPLICATE	MD	941922-004	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/12/94 06:30						QC BATCH NUMBER:307487
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:SLS
BLANK	MB	940912	<5							
STANDARD	LCS	G940805A	163			167	98			
DUPLICATE	MD	941391-65	14	14	0					
DUPLICATE	MD	941391-64	6	6	0					
DUPLICATE	MD	940881-40	<5	<5	NC					
DUPLICATE	MD	940936-60	<5	<5	NC					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/12/94 06:30						QC BATCH NUMBER:307488
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				METHOD REFERENCE :305.1 (1)						TECHNICIAN:SLS
BLANK	MB	940912	<10							

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/12/94 06:30						QC BATCH NUMBER:307488
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:SLS
DUPLICATE	MD	941391-65	<10	<10	NC					
DUPLICATE	MD	941391-64	<10	<10	NC					
DUPLICATE	MD	940881-40	79	79	0					
DUPLICATE	MD	940936-60	243	241	1					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/12/94 06:30						QC BATCH NUMBER:307489
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:SLS
STANDARD	ICV	G940711C	4.00			4.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
STANDARD	CCV	S7.00	7.04			7.00	101			
DUPLICATE	MD	941391-65	7.20	7.19	0					
DUPLICATE	MD	941391-64	6.49	6.52	0					
DUPLICATE	MD	940881-40	4.76	4.79	1					
DUPLICATE	MD	940936-60	3.12	3.11	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:09/12/94 08:28						QC BATCH NUMBER:307516
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
STANDARD	ICV/LCS	G940415A	73			75	97			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	98			100	98			
SPIKE	MS	940416-101	40					14	25	104
SPIKE	MS	940767-114	27					<10	25	108
SPIKE	MS	940925-65	27					<10	25	108
SPIKE	MS	941875-15	47					21	25	104
DUPLICATE	MD	940416-101	14	15	1					
DUPLICATE	MD	940767-114	<10	<10	NC					
DUPLICATE	MD	940925-65	<10	<10	NC					
DUPLICATE	MD	941875-15	21	22	1					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/15/94 10:20						QC BATCH NUMBER:307844
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:LM
BLANK	ICB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			DATE/TIME ANALYZED:09/15/94 10:20 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:307844 TECHNICIAN:LM	
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
STANDARD	ICV/LCS	940584	987			987	100			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1410			1410	100			
STANDARD	CCV	G940901A	1410			1410	100			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1420			1410	101			
DUPLICATE	MD	940416-108	123	122	1					
DUPLICATE	MD	940767-124	65	65	0					
DUPLICATE	MD	941802-5	151	150	1					
DUPLICATE	MD	941875-27	104	104	0					
DUPLICATE	MD	942095-14	134	134	0					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:09/18/94 11:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:308099 TECHNICIAN:KDS	
STANDARD	ICV	G940711C	3.98			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	941391-70	7.23	7.16	1					
DUPLICATE	MD	941875-30	9.03	8.92	1					
DUPLICATE	MD	942074-30	7.32	7.34	0					
DUPLICATE	MD	942074-38	3.60	3.60	0					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:09/18/94 11:00 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:308100 TECHNICIAN:KDS	
BLANK	MB	940918	<5							
STANDARD	LCS	G940805A	163			167	98			
DUPLICATE	MD	941391-70	14	12	2					
DUPLICATE	MD	941875-30	59	59	0					
DUPLICATE	MD	942074-30	22	22	0					
DUPLICATE	MD	942074-38	<5	<5	NC					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:09/18/94 11:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:308101 TECHNICIAN:KDS	
BLANK	MB	940918	<10							

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/18/94 11:00						QC BATCH NUMBER:308101
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:KDS
DUPLICATE	MD	941391-70	<10	<10	NC					
DUPLICATE	MD	941875-30	<10	<10	NC					
DUPLICATE	MD	942074-30	25	24	1					
DUPLICATE	MD	942074-38	250	250	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:09/19/94 08:30						QC BATCH NUMBER:308159
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
STANDARD	ICV/LCS	G940415A	153			150	102			
STANDARD	CCV	S160	162			160	101			
STANDARD	CCV	S160	161			160	101			
STANDARD	CCV	S160	159			160	99			
STANDARD	CCV	S160	158			160	99			
SPIKE	MS	941875-22	81					30	50	102
SPIKE	MS	942200-2	70					20	50	100
SPIKE	MS	942210-1	151					103	50	96
SPIKE	MS	940936-60	113					62	50	102
DUPLICATE	MD	941875-22	30	30	0					
DUPLICATE	MD	942200-2	20	20	0					
DUPLICATE	MD	942210-1	103	103	0					
DUPLICATE	MD	940936-60	62	66	6					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:09/20/94 07:43						QC BATCH NUMBER:308394
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	940920	<10							
BLANK	CCB	940920	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	103			100	103			
SPIKE	MS	941802-6	66					42	25	96
DUPLICATE	MD	941802-6	42	41	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/21/94 09:54						QC BATCH NUMBER:308462
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:09/21/94 09:54							QC BATCH NUMBER:308462
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	9.87			10.0	99			
STANDARD	ICV	0914E	1.98			2.00	99			
STANDARD	CCV	0714D	9.62			10.0	96			
STANDARD	ISA	0609A	171			200	86			
STANDARD	CCV	0714D	9.98			10.0	100			
STANDARD	ISB	0710A	176			200	88			
STANDARD	CCV	0714D	9.80			10.0	98			
STANDARD	CCV	0714D	10.3			10.0	103			
STANDARD	CCV	0714D	9.46			10.0	95			
STANDARD	CCV	0714D	9.49			10.0	95			
STANDARD	ISA	0609A	180			200	90			
STANDARD	ISA	0609A	176			200	88			
STANDARD	ISB	0710A	178			200	89			
STANDARD	CCV	0714D	9.76			10.0	98			
STANDARD	ISB	0710A	181			200	90			
SPIKE	PDS	942332-011	2.02					<0.03	2.00	101
SPIKE	PDS	942332-001	2.10					<0.03	2.00	105
SPIKE	PDS	942332-021	2.26					<0.03	2.00	113
SPIKE	PDS	942332-031	2.41					0.07	2.00	117
SPIKE	PDS	942140-003	2.02					0.05	2.00	98
SPIKE	PDS	942332-041	2.01					<0.03	2.00	100
SPIKE	PDS	940925-081	2.11					<0.03	2.00	106
DUPLICATE	MD	942332-011	<0.03	<0.03	NC					
DUPLICATE	MD	942332-021	<0.03	<0.03	NC					
DUPLICATE	MD	942332-031	0.07	0.07	0.00					
DUPLICATE	MD	942140-003	0.05	0.03	0.02					
DUPLICATE	MD	942332-041	<0.03	<0.03	NC					
DUPLICATE	MD	940925-081	<0.03	<0.03	NC					
DUPLICATE	MD	942332-001	<0.03	<0.03	NC					
PARAMETER:pH (Filt.)			DATE/TIME ANALYZED:09/25/94 07:00							QC BATCH NUMBER:308719
REPORTING LIMIT/DF: 0.01 UNITS:pH Units			METHOD REFERENCE :150.1 (1)							TECHNICIAN:KDS
STANDARD	ICV	G940711C	3.99			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	940925-85	6.98	7.20	3					
DUPLICATE	MD	942074-42	5.96	5.96	0					
DUPLICATE	MD	942074-50	6.72	6.73	0					
DUPLICATE	MD	942074-57	3.95	3.95	0					

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309044
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	940936-71	4.36	4.30	1					
DUPLICATE	MD	941802-8	6.79	6.85	1					
DUPLICATE	MD	942074-67	6.99	7.29	4					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309047
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	940927	<10							
DUPLICATE	MD	940936-71	39	47	8					
DUPLICATE	MD	941802-8	<10	<10	NC					
DUPLICATE	MD	942074-67	<10	<10	NC					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/27/94 17:55						QC BATCH NUMBER:309114
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0831F	5.20			5.00	104			
STANDARD	ISB	0710A	182			200	91			
STANDARD	CCV	0831F	5.16			5.00	103			
STANDARD	CCV	0831F	5.11			5.00	102			
STANDARD	CCV	0831F	5.23			5.00	105			
STANDARD	ICV	0914E	1.86			2.00	93			
STANDARD	CCV	0831F	5.21			5.00	104			
STANDARD	CCV	0831F	5.14			5.00	103			
STANDARD	CCV	0831F	5.28			5.00	106			
STANDARD	ISA	09260	188			200	94			
STANDARD	ISA	09260	203			200	101			
STANDARD	ISB	0710A	202			200	101			
SPIKE	PDS	941391-076	5.40					3.37	2.00	102
SPIKE	PDS	941113-037	2.38					<0.03	2.00	119
SPIKE	PDS	942074-046	2.04					<0.03	2.00	102
SPIKE	PDS	942074-054	2.31					<0.03	2.00	116
SPIKE	PDS	940936-067	7.10					5.09	2.00	100
DUPLICATE	MD	941802-008	<0.03	<0.03	NC					
DUPLICATE	MD	941113-035	<0.03	<0.03	NC					
DUPLICATE	MD	942074-045	<0.03	<0.03	NC					

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/27/94 17:55						QC BATCH NUMBER:309114
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
DUPLICATE	MD	940936-066	0.03	<0.03	0.03					
DUPLICATE	MD	942074-053	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:09/28/94 10:57						QC BATCH NUMBER:309125
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
STANDARD	ICV/LCS	G940415A	74			75	99			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
SPIKE	MS	940936-61	25					<10	25	100
SPIKE	MS	942332-18	40					14	25	104
SPIKE	MS	942332-25	44					19	25	100
SPIKE	MS	942332-28	38					13	25	100
DUPLICATE	MD	940936-61	<10	<10	NC					
DUPLICATE	MD	942332-18	14	14	0					
DUPLICATE	MD	942332-25	19	19	0					
DUPLICATE	MD	942332-28	13	14	1					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/28/94 10:45						QC BATCH NUMBER:309160
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/28/94 10:45						QC BATCH NUMBER:309160
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
DUPLICATE	MD	940925-90	40	40	0					
DUPLICATE	MD	940936-72	719	717	0					
DUPLICATE	MD	941391-78	512	510	0					
DUPLICATE	MD	941691-9	546	545	0					
DUPLICATE	MD	942074-58	918	919	0					
DUPLICATE	MD	942074-67	879	876	0					
DUPLICATE	MD	942074-76	663	660	0					
DUPLICATE	MD	942074-85	508	507	0					
DUPLICATE	MD	942074-95	599	597	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/29/94 08:00						QC BATCH NUMBER:309251
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	940929	<5							
STANDARD	LCS	G940805A	160			167	96			
DUPLICATE	MD	941691-9	15	14	1					
DUPLICATE	MD	942074-79	20	24	4					
DUPLICATE	MD	942074-83	18	20	2					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/29/94 08:00						QC BATCH NUMBER:309304
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G940711C	4.01			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	941691-9	6.76	6.56	3					
DUPLICATE	MD	942074-79	6.60	6.33	4					
DUPLICATE	MD	942074-83	6.57	6.77	3					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/29/94 08:00						QC BATCH NUMBER:309314
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	940929	<10							
DUPLICATE	MD	941691-9	<10	<10	NC					
DUPLICATE	MD	942074-79	<10	<10	NC					
DUPLICATE	MD	942074-83	<10	<10	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/03/94 07:54						QC BATCH NUMBER:309563
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	941003	<10							

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:10/03/94 07:54 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:309563 TECHNICIAN:SLS
BLANK	CCB	941003	<10							
STANDARD	ICV/LCS	G940415A	80			75	107			
STANDARD	CCV	S100	96			100	96			
SPIKE	MS	941802-9	53					29	25	96
DUPLICATE	MD	941802-9	29	29	0					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:10/06/94 14:50 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:309882 TECHNICIAN:MLM
BLANK	ICB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1400			1410	99			
STANDARD	CCV	G940926A	1400			1410	99			
DUPLICATE	MD	940925-100	34	34	0					
DUPLICATE	MD	941391-90	203	203	0					
DUPLICATE	MD	941875-48	98	98	0					
DUPLICATE	MD	942074-101	450	448	0					
DUPLICATE	MD	942074-110	490	489	0					
DUPLICATE	MD	942074-114	332	331	0					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:10/10/94 15:09 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:310114 TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							

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QUALITY CONTROL REPORT
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JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:10/10/94 15:09						QC BATCH NUMBER:310114
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
STANDARD	ICV	0914E	1.81			2.00	90			
STANDARD	CCV	0831F	4.96			5.00	99			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	ISA	09260	181			200	90			
STANDARD	CCV	0831F	4.95			5.00	99			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	CCV	0831F	5.01			5.00	100			
STANDARD	ISB	1004A	175			200	88			
STANDARD	CCV	0831F	4.98			5.00	100			
STANDARD	CCV	0831F	5.05			5.00	101			
STANDARD	CCV	0831F	5.04			5.00	101			
STANDARD	CCV	0831F	4.96			5.00	99			
STANDARD	ISA	09260	185			200	92			
STANDARD	ISB	1004A	184			200	92			
STANDARD	CCV	0831F	4.97			5.00	99			
STANDARD	CCV	0831F	4.92			5.00	98			
SPIKE	PDS	941802-009	2.02					<0.03	2.00	101
SPIKE	PDS	941391-081	6.54					4.58	2.00	98
SPIKE	PDS	940936-073	2.09					<0.03	2.00	104
DUPLICATE	MD	941802-009	<0.03	<0.03	NC					
DUPLICATE	MD	941391-081	4.58	4.60	0					
DUPLICATE	MD	940936-073	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:10/14/94 15:00						QC BATCH NUMBER:310852
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	941014	<5							
STANDARD	LCS	G941007A	163			167	98			
DUPLICATE	MD	941875-46	13	12	1					
DUPLICATE	MD	941691-10	17	18	1					
DUPLICATE	MD	941802-10	21	22	1					
DUPLICATE	MD	941922-10	12	12	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:10/14/94 15:00						QC BATCH NUMBER:310853
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	6.93			7.00	99			
STANDARD	CCV	S7.00	6.95			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	6.98			7.00	100			
DUPLICATE	MD	941875-46	6.94	6.97	0					
DUPLICATE	MD	941691-10	7.18	7.20	0					
DUPLICATE	MD	941802-10	7.23	7.32	1					

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:10/14/94 15:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:310853 TECHNICIAN:KDS
DUPLICATE	MD	941922-10	7.21	7.22	0					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:10/14/94 15:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:310854 TECHNICIAN:KDS
BLANK	MB	941014	<10							
DUPLICATE	MD	941875-46	<10	<10	NC					
DUPLICATE	MD	941922-10	<10	<10	NC					
DUPLICATE	MD	941691-10	<10	<10	NC					
DUPLICATE	MD	941802-10	<10	<10	NC					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:10/14/94 08:00 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:311082 TECHNICIAN:RPK
BLANK	ICB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
STANDARD	ICV/LCS	G940926A	1420			1410	101			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	152			147	103			
STANDARD	CCV	G940926B	147			147	100			
DUPLICATE	MD	940416-13	58	58	0					
DUPLICATE	MD	940936-82	26	26	0					
DUPLICATE	MD	941875-51	22	21	5					
DUPLICATE	MD	942074-117	364	367	1					
DUPLICATE	MD	942074-127	399	399	0					
DUPLICATE	MD	942074-133	69	69	0					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:10/18/94 13:30 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:311126 TECHNICIAN:RPK
BLANK	ICB	941018	<1							
BLANK	CCB	941018	<1							
BLANK	CCB	941018	<1							

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:10/18/94 13:30						QC BATCH NUMBER:311126
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	CCB	941018	<1							
BLANK	CCB	941018	<1							
STANDARD	ICV/LCS	G940926A	1440			1410	102			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	148			147	101			
DUPLICATE	MD	941875-58	93	93	0					
DUPLICATE	MD	942074-140	290	290	0					
DUPLICATE	MD	942074-150	324	324	0					
DUPLICATE	MD	942074-152	77	77	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:10/26/94 13:15						QC BATCH NUMBER:312242
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	941026	<5							
STANDARD	LCS	G941007A	162			167	97			
DUPLICATE	MD	941802-12	14	15	1					
DUPLICATE	MD	940881-55	<5	<5	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:10/26/94 13:15						QC BATCH NUMBER:312243
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G941001A	3.96			4.00	99			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
DUPLICATE	MD	941802-12	7.19	7.42	3					
DUPLICATE	MD	940881-55	5.33	5.36	1					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:10/26/94 13:15						QC BATCH NUMBER:312244
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	941026	<10							
DUPLICATE	MD	941802-12	<10	<10	NC					
DUPLICATE	MD	940881-55	46	44	2					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:10/27/94 15:30						QC BATCH NUMBER:312298
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:10/27/94 15:30						QC BATCH NUMBER:312298
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
STANDARD	ISA	09260	174			200	87			
STANDARD	ISB	1004A	175			200	88			
STANDARD	CCV	0714D	9.72			10.0	97			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.42			10.0	94			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.16			10.0	92			
STANDARD	ICV	0405J	1.91			2.00	96			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	CCV	0714D	9.54			10.0	95			
STANDARD	CCV	0714D	9.39			10.0	94			
STANDARD	ISA	09260	174			200	87			
STANDARD	CCV	0714D	9.91			10.0	99			
STANDARD	CCV	0714D	9.71			10.0	97			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	ISB	1004A	169			200	84			
SPIKE	PDS	941802-011	1.10					<0.03	1.00	110
SPIKE	PDS	941391-092	3.37					1.27	2.00	105
SPIKE	PDS	941391-069	2.80					0.45	2.00	117
SPIKE	PDS	941875-053	2.16					<0.03	2.00	108
DUPLICATE	MD	941922-006	<0.03	<0.03	NC					
DUPLICATE	MD	941391-091	5.64	5.48	3					
DUPLICATE	MD	941875-052	<0.03	<0.03	NC					
DUPLICATE	MD	941802-011	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/27/94 12:56						QC BATCH NUMBER:312453
REPORTING LIMIT/DF: 10 UNITS:mg/L				METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	100			100	100			
SPIKE	MS	940881-50	60					37	25	92
SPIKE	MS	941392-49	29					<10	25	116

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:10/27/94 12:56 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:312453 TECHNICIAN:SLS
SPIKE	MS	941875-48	49					24	25	100
SPIKE	MS	941875-50	41					16	25	100
SPIKE	MS	941875-49	30					11	25	76
DUPLICATE	MD	940881-50	37	39	2					
DUPLICATE	MD	941392-49	<10	<10	NC					
DUPLICATE	MD	941875-48	24	24	0					
DUPLICATE	MD	941875-50	16	16	0					
DUPLICATE	MD	941875-49	11	16	5					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:10/28/94 13:00 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:312489 TECHNICIAN:MLM
BLANK	ICB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
DUPLICATE	MD	941391-103	438	436	0					
DUPLICATE	MD	941875-35	172	172	0					
DUPLICATE	MD	941875-64	152	151	1					
DUPLICATE	MD	942332-82	50	50	0					
DUPLICATE	MD	942332-91	72	72	0					
DUPLICATE	MD	942332-100	106	106	0					
DUPLICATE	MD	942332-109	1670	1660	1					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:10/31/94 13:00 METHOD REFERENCE :375.2 (1)						QC BATCH NUMBER:312590 TECHNICIAN:DME
BLANK	ICB	941031	<10							
BLANK	CCB	941031	<10							
BLANK	CCB	941031	<10							
BLANK	CCB	941031	<10							
STANDARD	ICV/LCS	G940415A	154			150	103			
STANDARD	CCV	S80	80			80	100			
STANDARD	CCV	S80	81			80	101			

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/31/94 13:00						QC BATCH NUMBER:312590
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
STANDARD	CCV	S80	78			80	98			
SPIKE	MS	940416-112	80					26	50	108
SPIKE	MS	940416-114	78					27	50	102
SPIKE	MS	940416-115	116					68	50	96
DUPLICATE	MD	940416-112	26	23	3					
DUPLICATE	MD	940416-115	68	66	3					
DUPLICATE	MD	940416-114	27	23	4					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:10/31/94 08:00						QC BATCH NUMBER:312594
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	941031	<5							
STANDARD	LCS	G941007A	160			167	96			
DUPLICATE	MD	942332-106	6	5	1					
DUPLICATE	MD	942332-112	<5	<5	NC					
DUPLICATE	MD	942332-120	23	23	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:10/31/94 08:00						QC BATCH NUMBER:312598
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G941001A	4.00			4.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
DUPLICATE	MD	942332-106	5.32	5.36	1					
DUPLICATE	MD	942332-112	6.32	6.29	0					
DUPLICATE	MD	942332-120	7.40	7.43	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/01/94 12:38						QC BATCH NUMBER:312767
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/01/94 12:38						QC BATCH NUMBER:312767
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	CCB	10210	<0.03							
STANDARD	CCV	0714D	9.53			10.0	95			
STANDARD	ISA	09260	175			200	88			
STANDARD	CCV	0714D	9.69			10.0	97			
STANDARD	ISB	09260	168			200	84			
STANDARD	CCV	0714D	9.82			10.0	98			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.70			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	ISB	1004A	178			200	89			
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	CCV	0714D	9.50			10.0	95			
STANDARD	CCV	0714D	9.39			10.0	94			
STANDARD	CCV	0714D	9.40			10.0	94			
STANDARD	CCV	0714D	9.17			10.0	92			
STANDARD	CCV	0714D	9.84			10.0	98			
STANDARD	CCV	0714D	9.05			10.0	90			
STANDARD	ICV	0914E	1.96			2.00	98			
STANDARD	CCV	0714D	9.50			10.0	95			
STANDARD	ISA	09260	170			200	85			
STANDARD	ISB	1004A	169			200	84			
STANDARD	CCV	0714D	9.50			10.0	95			
SPIKE	PDS	942332-102	2.22					<0.03	2.00	111
SPIKE	PDS	942332-112	2.27					0.05	2.00	111
SPIKE	PDS	941691-011	2.02					<0.03	2.00	101
SPIKE	PDS	941922-013	2.13					<0.03	2.00	106
SPIKE	PDS	942332-081	2.45					<0.03	2.00	123
SPIKE	PDS	942332-122	2.18					<0.03	2.00	109
SPIKE	PDS	942332-132	2.20					<0.03	2.00	110
SPIKE	PDS	941875-032	2.09					<0.03	2.00	104
SPIKE	PDS	942332-092	2.18					<0.03	2.00	109
SPIKE	PDS	941391-107	4.59					2.71	2.00	94
DUPLICATE	MD	942332-111	<0.03	<0.03	NC					
DUPLICATE	MD	941691-011	<0.03	<0.03	NC					
DUPLICATE	MD	941922-013	<0.03	<0.03	NC					
DUPLICATE	MD	942332-101	<0.03	<0.03	NC					
DUPLICATE	MD	942332-121	0.11	0.11	0.00					
DUPLICATE	MD	942332-131	<0.03	<0.03	NC					
DUPLICATE	MD	942332-141	<0.03	<0.03	NC					
DUPLICATE	MD	942332-091	0.03	0.04	0.01					
DUPLICATE	MD	941875-031	0.10	0.10	0.00					
DUPLICATE	MD	941391-106	9.06	9.05	0					
DUPLICATE	MD	942332-081	<0.03	<0.03	NC					

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:11/02/94 15:00						QC BATCH NUMBER:312910
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	941102	<1							
BLANK	CCB	941102	<1							
BLANK	CCB	941102	<1							
BLANK	CCB	941102	<1							
STANDARD	ICV/LCS	941319	105			98	107			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
DUPLICATE	MD	941875-69	145	144	1					
DUPLICATE	MD	942332-143	568	565	1					
DUPLICATE	MD	942332-150	408	407	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/02/94 08:00						QC BATCH NUMBER:312959
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
STANDARD	ICV/LCS	G940415A	158			150	105			
STANDARD	CCV	S80	79			80	99			
STANDARD	CCV	S80	76			80	95			
STANDARD	CCV	S80	74			80	92			
STANDARD	CCV	S80	73			80	91			
STANDARD	CCV	S80	78			80	98			
SPIKE	MS	940881-53	97					46	50	102
SPIKE	MS	940881-54	94					54	50	80
SPIKE	MS	940881-56	86					40	50	92
SPIKE	MS	941802-13	64					22	50	84
SPIKE	MS	941922-10	131					88	50	86
DUPLICATE	MD	940881-53	46	44	2					
DUPLICATE	MD	940881-54	54	60	11					
DUPLICATE	MD	940881-56	40	41	1					
DUPLICATE	MD	941802-13	22	22	0					
DUPLICATE	MD	941922-10	88	88	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:11/04/94 10:30						QC BATCH NUMBER:313162
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:MLM
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:313162 TECHNICIAN:MLM
DUPLICATE	MD	942074-168	7.34	7.34	0					
DUPLICATE	MD	941802-14	7.36	7.30	1					
DUPLICATE	MD	941922-13	7.25	7.20	1					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:313163 TECHNICIAN:MLM
BLANK	MB	941104	<5							
STANDARD	LCS	G941007A	153			167	92			
DUPLICATE	MD	942074-168	15	16	1					
DUPLICATE	MD	941802-14	17	17	0					
DUPLICATE	MD	941922-13	15	14	1					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:313164 TECHNICIAN:KDS
BLANK	MB	941104	<10							
DUPLICATE	MD	942074-168	<10	<10	NC					
DUPLICATE	MD	941802-14	<10	<10	NC					
DUPLICATE	MD	941922-13	<10	<10	NC					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:11/04/94 11:00 METHOD REFERENCE :375.2 (1)						QC BATCH NUMBER:313178 TECHNICIAN:DME
BLANK	ICB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
STANDARD	ICV/LCS	G940415A	139			150	93			
STANDARD	CCV	S80	85			80	106			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	86			80	108			
STANDARD	CCV	S80	88			80	110			
STANDARD	CCV	S80	88			80	110			
STANDARD	CCV	S80	88			80	110			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	86			80	108			
SPIKE	MS	941922-13	173					121	50	104
SPIKE	MS	942332-107	78					23	50	110
SPIKE	MS	942332-108	79					29	50	100
SPIKE	MS	942332-116	115					24	100	91

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QUALITY CONTROL REPORT
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JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/04/94 11:00						QC BATCH NUMBER:313178
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
SPIKE	MS	942332-125	186					134	50	104
SPIKE	MS	942332-132	68					18	50	100
SPIKE	MS	941391-110	94					45	50	98
SPIKE	MS	941802-14	77					27	50	100
DUPLICATE	MD	941922-13	121	128	6					
DUPLICATE	MD	942332-107	23	27	4					
DUPLICATE	MD	942332-108	29	30	1					
DUPLICATE	MD	942332-116	23	24	1					
DUPLICATE	MD	942332-125	134	138	3					
DUPLICATE	MD	942332-132	18	17	1					
DUPLICATE	MD	941391-110	45	45	0					
DUPLICATE	MD	941802-14	29	27	2					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:11/08/94 08:00						QC BATCH NUMBER:313374
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
STANDARD	ICV/LCS	941319	107			99	108			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	144			147	98			
DUPLICATE	MD	941391-112	541	543	0					
DUPLICATE	MD	941875-71	21	21	0					
DUPLICATE	MD	942074-195	437	439	0					
DUPLICATE	MD	942074-205	273	273	0					
DUPLICATE	MD	942074-207	198	198	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/09/94 12:42						QC BATCH NUMBER:313633
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/09/94 12:42						QC BATCH NUMBER:313633
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	CCB	10210	<0.03							
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	CCV	0714D	9.63			10.0	96			
STANDARD	ISB	1004A	171			200	86			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	CCV	0714D	9.94			10.0	99			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.0			10.0	100			
STANDARD	CCV	0714D	9.92			10.0	99			
STANDARD	ISA	09260	177			200	88			
STANDARD	ISA	09260	183			200	92			
STANDARD	ISB	1004A	179			200	90			
STANDARD	CCV	0714D	10.4			10.0	104			
STANDARD	ISB	1004A	169			200	84			
STANDARD	ICV	0914E	1.90			2.00	95			
SPIKE	PDS	940495-048	2.57					0.42	2.00	108
SPIKE	PDS	940881-046	2.09					0.04	2.00	102
SPIKE	PDS	942799-001	2.16					0.29	2.00	94
SPIKE	PDS	941875-074	2.13					0.22	2.00	96
SPIKE	PDS	941802-015	2.05					<0.03	2.00	102
DUPLICATE	MD	942658-001	0.70	0.68	3					
DUPLICATE	MD	940881-045	<0.03	<0.03	NC					
DUPLICATE	MD	941691-015	<0.03	<0.03	NC					
DUPLICATE	MD	941875-038	0.06	0.05	0.01					
DUPLICATE	MD	940495-046	1.28	1.29	1					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:11/09/94 11:00						QC BATCH NUMBER:313681
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:MLM
BLANK	MB	941109	<5							
STANDARD	LCS	G941007A	168			167	101			
DUPLICATE	MD	941802-15	18	18	0					
DUPLICATE	MD	941875-75	29	29	0					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:11/09/94 11:00						QC BATCH NUMBER:313682
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:MLM
BLANK	MB	941109	<10							
DUPLICATE	MD	941802-15	<10	<10	NC					
DUPLICATE	MD	941875-75	<10	<10	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:11/09/94 11:00						QC BATCH NUMBER:313683
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:MLM
STANDARD	ICV	G941001A	3.99			4.00	100			

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:11/09/94 11:00						QC BATCH NUMBER:313683
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:MLM
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.96			7.00	99			
DUPLICATE	MD	941802-15	7.40	7.35	1					
DUPLICATE	MD	941875-75	8.41	8.52	1					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/10/94 13:10						QC BATCH NUMBER:313760
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
STANDARD	ICV/LCS	G940415A	144			150	96			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	85			80	106			
STANDARD	CCV	S80	80			80	100			
STANDARD	CCV	S80	88			80	110			
SPIKE	MS	940495-46	72					21	50	102
SPIKE	MS	940881-59	87					42	50	90
SPIKE	MS	940881-60	100					50	50	100
SPIKE	MS	941392-55	51					<10	50	102
DUPLICATE	MD	940495-46	21	22	1					
DUPLICATE	MD	940881-59	42	40	2					
DUPLICATE	MD	940881-60	50	51	1					
DUPLICATE	MD	941392-55	<10	<10	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/15/94 10:00						QC BATCH NUMBER:314157
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	941115	<10							
BLANK	CCB	941115	<10							
BLANK	CCB	941115	<10							
BLANK	CCB	941115	<10							
BLANK	CCB	941115	<10							
STANDARD	ICV/LCS	G940415A	154			150	103			
STANDARD	CCV	S160	161			160	101			
STANDARD	CCV	S160	165			160	103			
STANDARD	CCV	S160	160			160	100			
STANDARD	CCV	S160	160			160	100			
SPIKE	MS	940416-117	84					36	50	96
SPIKE	MS	940416-118	80					35	50	90
SPIKE	MS	940416-120	76					30	50	92
SPIKE	MS	940881-62	82					36	50	92
DUPLICATE	MD	940416-117	36	38	2					
DUPLICATE	MD	940416-118	35	33	2					

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QUALITY CONTROL REPORT
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ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:11/15/94 10:00 METHOD REFERENCE :375.2 (1)						QC BATCH NUMBER:314157 TECHNICIAN:DME
DUPLICATE	MD	940416-120	30	28	2					
DUPLICATE	MD	940881-62	36	36	0					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:11/16/94 08:00 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:314222 TECHNICIAN:RPK
BLANK	ICB	941116	<1							
BLANK	CCB	941116	<1							
BLANK	CCB	941116	<1							
BLANK	CCB	941116	<1							
BLANK	CCB	941116	<1							
STANDARD	ICV/LCS	941319	105			99	106			
STANDARD	CCV	G940926B	143			147	97			
STANDARD	CCV	G940926B	142			147	97			
STANDARD	CCV	G940926B	142			147	97			
STANDARD	CCV	G940926B	141			147	96			
DUPLICATE	MD	941802-16	74	73	1					
DUPLICATE	MD	942074-213	110	111	1					
DUPLICATE	MD	942074-223	586	585	0					
DUPLICATE	MD	942074-228	16	16	0					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:11/16/94 13:56 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:314240 TECHNICIAN:WGL
BLANK	ICB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	ICV	0914E	2.01			2.00	100			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	ISA	09260	182			200	91			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	ISB	1004A	185			200	92			
STANDARD	CCV	0714D	10.0			10.0	100			
STANDARD	CCV	0714D	10.4			10.0	104			
STANDARD	ISA	09260	188			200	94			
STANDARD	ISB	1004A	188			200	94			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.2			10.0	102			
SPIKE	PDS	940416-117	2.12					<0.03	2.00	106
SPIKE	PDS	941391-116	17.9					15.9	2.00	100
SPIKE	PDS	941113-053	2.09					<0.03	2.00	104
DUPLICATE	MD	941391-116	15.9	15.9	0					
DUPLICATE	MD	941113-053	<0.03	<0.03	NC					

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe) DATE/TIME ANALYZED:11/16/94 13:56 QC BATCH NUMBER:314240										
REPORTING LIMIT/DF: 0.03 UNITS:mg/L METHOD REFERENCE :6010 (2) TECHNICIAN:WGL										
DUPLICATE	MD	940416-117	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.) DATE/TIME ANALYZED:11/17/94 08:45 QC BATCH NUMBER:314312										
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3 METHOD REFERENCE :310.1 (1) TECHNICIAN:SLS										
BLANK	MB	941117	<5							
STANDARD	LCS	G941007A	168			167	101			
DUPLICATE	MD	941875-80	28	27	4					
DUPLICATE	MD	941875-79	53	52	2					
PARAMETER:Acidity (Filt.) DATE/TIME ANALYZED:11/17/94 08:45 QC BATCH NUMBER:314313										
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3 METHOD REFERENCE :305.1 (1) TECHNICIAN:SLS										
BLANK	MB	941117	<10							
DUPLICATE	MD	941875-80	<10	<10	NC					
DUPLICATE	MD	941875-79	<10	<10	NC					
PARAMETER:pH (Filt.) DATE/TIME ANALYZED:11/17/94 08:45 QC BATCH NUMBER:314315										
REPORTING LIMIT/DF: 0.01 UNITS:pH Units METHOD REFERENCE :150.1 (1) TECHNICIAN:SLS										
STANDARD	ICV	G941001A	4.00			4.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.97			7.00	100			
DUPLICATE	MD	941875-80	7.93	8.04	1					
DUPLICATE	MD	941875-79	9.37	9.32	1					
PARAMETER:Alkalinity, Total (Filt.) DATE/TIME ANALYZED:11/22/94 08:00 QC BATCH NUMBER:314689										
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3 METHOD REFERENCE :310.1 (1) TECHNICIAN:RPK										
BLANK	MB	941122	<5							
STANDARD	LCS	G941007A	169			167	101			
DUPLICATE	MD	941802-17	18	17	1					
DUPLICATE	MD	941922-16	12	13	1					
PARAMETER:pH (Filt.) DATE/TIME ANALYZED:11/22/94 08:00 QC BATCH NUMBER:314692										
REPORTING LIMIT/DF: 0.01 UNITS:pH Units METHOD REFERENCE :150.1 (1) TECHNICIAN:RPK										
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.95			7.00	99			
DUPLICATE	MD	941802-17	7.78	7.67	1					
DUPLICATE	MD	941922-16	7.43	7.42	0					
PARAMETER:Acidity (Filt.) DATE/TIME ANALYZED:11/22/94 08:00 QC BATCH NUMBER:314694										
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3 METHOD REFERENCE :305.1 (1) TECHNICIAN:RPK										
BLANK	MB	941122	<10							

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:11/22/94 08:00						QC BATCH NUMBER:314694
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
DUPLICATE	MD	941802-17	<10	<10	NC					
DUPLICATE	MD	941922-16	<10	<10	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/22/94 13:29						QC BATCH NUMBER:314788
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	941122	<10							
BLANK	CCB	941122	<10							
BLANK	CCB	941122	<10							
BLANK	CCB	941122	<10							
BLANK	CCB	941122	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	97			100	97			
SPIKE	MS	940881-64	63					37	25	104
SPIKE	MS	941391-125	47					23	25	96
SPIKE	MS	941802-17	35					11	25	96
SPIKE	MS	941875-81	25					<10	25	100
DUPLICATE	MD	940881-64	37	38	1					
DUPLICATE	MD	941391-125	23	23	0					
DUPLICATE	MD	941802-17	11	10	1					
DUPLICATE	MD	941875-81	<10	<10	NC					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:11/22/94 15:50						QC BATCH NUMBER:314791
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	941122	<1							
BLANK	CCB	941122	<1							
BLANK	CCB	941122	<1							
BLANK	CCB	941122	<1							
BLANK	CCB	941122	<1							
STANDARD	ICV/LCS	941319	103			98	105			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1390			1410	99			
DUPLICATE	MD	941391-125	87	86	1					
DUPLICATE	MD	942074-230	258	256	1					
DUPLICATE	MD	942074-238	352	351	0					
DUPLICATE	MD	942074-242	570	568	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/23/94 09:18						QC BATCH NUMBER:314820
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	1115A	<0.03							

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/23/94 09:18						QC BATCH NUMBER:314820
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	CCV	1114H	5.19			5.00	104			
STANDARD	ICV	0914E	2.07			2.00	103			
STANDARD	CCV	1114H	5.07			5.00	101			
STANDARD	ISA	09260	177			200	88			
STANDARD	CCV	1114H	4.95			5.00	99			
STANDARD	ISB	1004A	170			200	85			
STANDARD	CCV	1114H	4.91			5.00	98			
STANDARD	ISA	09260	173			200	86			
STANDARD	ISB	1004A	168			200	84			
STANDARD	CCV	1114H	4.95			5.00	99			
SPIKE	PDS	942074-240	2.14					<0.03	2.00	107
SPIKE	PDS	942892-001	1.94					0.06	2.00	94
SPIKE	PDS	941691-017	2.05					<0.03	2.00	102
SPIKE	PDS	942074-230	2.24					<0.03	2.00	112
DUPLICATE	MD	942074-240	<0.03	<0.03	NC					
DUPLICATE	MD	941691-017	<0.03	<0.03	NC					
DUPLICATE	MD	942074-230	<0.03	<0.03	NC					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:11/28/94 17:30						QC BATCH NUMBER:314995
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				METHOD REFERENCE :120.1 (1)						TECHNICIAN:KDS
BLANK	ICB	941128	<1							
BLANK	CCB	941128	<1							
BLANK	CCB	941128	<1							
BLANK	CCB	941128	<1							
BLANK	CCB	941128	<1							
STANDARD	ICV/LCS	941319	104			98	106			
STANDARD	CCV	G941117A	1420			1410	101			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1380			1410	98			
DUPLICATE	MD	941391-130	89	89	0					
DUPLICATE	MD	941875-90	68	69	1					
DUPLICATE	MD	942074-250	132	133	1					
DUPLICATE	MD	942074-260	275	276	0					
DUPLICATE	MD	942074-266	11	11	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/29/94 14:00						QC BATCH NUMBER:315087
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	1115A	<0.03							

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:11/29/94 14:00							QC BATCH NUMBER:315087
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	CCV	1114H	4.86			5.00	97			
STANDARD	ISB	1123J	176			200	88			
STANDARD	CCV	1114H	4.99			5.00	100			
STANDARD	CCV	1114H	5.01			5.00	100			
STANDARD	CCV	1114H	5.04			5.00	101			
STANDARD	ICV	0914E	1.93			2.00	96			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	CCV	1114H	5.10			5.00	102			
STANDARD	CCV	1114H	5.06			5.00	101			
STANDARD	ISA	09260	181			200	90			
STANDARD	ISA	09260	175			200	88			
STANDARD	ISB	1123J	168			200	84			
STANDARD	CCV	1114H	5.15			5.00	103			
SPIKE	PDS	941875-082	1.81					<0.03	2.00	90
SPIKE	PDS	942977-003	2.48					0.96	2.00	76
SPIKE	PDS	941391-127	4.26					2.62	2.00	82
DUPLICATE	MD	941875-082	<0.03	<0.03	NC					
DUPLICATE	MD	942977-003	0.96	0.98	2					
DUPLICATE	MD	941391-127	2.62	2.60	1					
PARAMETER:Sulfate (Filt.)			DATE/TIME ANALYZED:11/29/94 09:07							QC BATCH NUMBER:315136
REPORTING LIMIT/DF: 10 UNITS:mg/L			METHOD REFERENCE :300.0 (1)							TECHNICIAN:SLS
BLANK	ICB	941129	<10							
BLANK	CCB	941129	<10							
BLANK	CCB	941129	<10							
BLANK	CCB	941129	<10							
BLANK	CCB	941129	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	102			100	102			
STANDARD	CCV	S100	97			100	97			
SPIKE	MS	942969-1	54					29	25	100
SPIKE	MS	942969-2	72					48	25	96
SPIKE	MS	940881-66	73					47	25	104
SPIKE	MS	941875-90	29					<10	25	116
DUPLICATE	MD	942969-1	29	29	0					

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/29/94 09:07						QC BATCH NUMBER:315136
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
DUPLICATE	MD	942969-2	48	48	0					
DUPLICATE	MD	940881-66	47	47	0					
DUPLICATE	MD	941875-90	<10	<10	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:11/29/94 16:30						QC BATCH NUMBER:315385
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G941001A	3.95			4.00	99			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
DUPLICATE	MD	940881-65	5.67	5.41	5					
DUPLICATE	MD	940881-66	4.99	5.03	1					
DUPLICATE	MD	941113-59	7.48	7.52	1					
DUPLICATE	MD	941922-17	7.38	7.41	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:11/29/94 16:30						QC BATCH NUMBER:315387
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	941129	<5							
STANDARD	LCS	G941007A	167			167	100			
DUPLICATE	MD	940881-65	<5	<5	NC					
DUPLICATE	MD	940881-66	<5	<5	NC					
DUPLICATE	MD	941113-59	16	16	0					
DUPLICATE	MD	941922-17	14	13	1					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:11/29/94 16:30						QC BATCH NUMBER:315388
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:KDS
BLANK	MB	941129	<10							
DUPLICATE	MD	940881-65	46	46	0					
DUPLICATE	MD	940881-66	44	44	0					
DUPLICATE	MD	941113-59	<10	<10	NC					
DUPLICATE	MD	941922-17	<10	<10	NC					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/05/94 14:15						QC BATCH NUMBER:315647
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	1104C	<0.03							
BLANK	CCB	1104C	<0.03							
BLANK	CCB	1104C	<0.03							
BLANK	CCB	1104C	<0.03							
STANDARD	CCV	1017J	5.12			5.00	102			
STANDARD	ICV	1122D	1.91			2.00	96			
STANDARD	CCV	1017J	5.04			5.00	101			

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/05/94 14:15						QC BATCH NUMBER:315647
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
STANDARD	ISA	09260	182			200	91			
STANDARD	ISA	09260	172			200	86			
STANDARD	ISB	1123J	163			200	82			
STANDARD	CCV	1017J	4.90			5.00	98			
STANDARD	ISB	1123J	177			200	88			
SPIKE	PDS	941802-012	1.96					<0.03	2.00	98
DUPLICATE	MD	941802-012	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:12/08/94 11:18						QC BATCH NUMBER:316012
REPORTING LIMIT/DF: 10 UNITS:mg/L				METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	941208	<10							
BLANK	CCB	941208	<10							
BLANK	CCB	941208	<10							
BLANK	CCB	941208	<10							
BLANK	CCB	941208	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	105			100	105			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
SPIKE	MS	940881-68	71					45	25	104
SPIKE	MS	941875-93	32					10	25	88
SPIKE	MS	941875-95	28					<10	25	112
SPIKE	MS	941875-94	27					<10	25	108
DUPLICATE	MD	940881-68	45	46	1					
DUPLICATE	MD	941875-93	10	10	0					
DUPLICATE	MD	941875-95	<10	<10	NC					
DUPLICATE	MD	941875-94	<10	<10	NC					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:12/09/94 09:15						QC BATCH NUMBER:316091
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:SLS
BLANK	MB	941209	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	941113-61	19	19	0					
DUPLICATE	MD	941802-19	18	17	1					
DUPLICATE	MD	942332-156	27	28	4					
DUPLICATE	MD	942866-9	23	23	0					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:12/09/94 09:15						QC BATCH NUMBER:316092
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				METHOD REFERENCE :305.1 (1)						TECHNICIAN:SLS
BLANK	MB	941209	<10							
DUPLICATE	MD	941113-61	<10	<10	NC					
DUPLICATE	MD	941802-19	<10	<10	NC					

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:12/09/94 09:15						QC BATCH NUMBER:316092
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				METHOD REFERENCE :305.1 (1)						TECHNICIAN:SLS
DUPLICATE	MD	942332-156	<10	<10	NC					
DUPLICATE	MD	942866-9	<10	<10	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:12/09/94 09:15						QC BATCH NUMBER:316093
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:SLS
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
DUPLICATE	MD	941113-61	7.14	7.24	1					
DUPLICATE	MD	941802-19	7.37	7.31	1					
DUPLICATE	MD	942332-156	7.62	7.71	1					
DUPLICATE	MD	942866-9	7.50	7.43	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/09/94 13:36						QC BATCH NUMBER:316154
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	CCV	1114H	5.18			5.00	104			
STANDARD	CCV	1114H	5.12			5.00	102			
STANDARD	CCV	1114H	5.27			5.00	105			
STANDARD	ICV	0914E	1.80			2.00	90			
STANDARD	CCV	1114H	5.37			5.00	107			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	ISA	09260	169			200	84			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	CCV	1114H	4.86			5.00	97			
STANDARD	CCV	1114H	4.76			5.00	95			
STANDARD	CCV	1114H	4.80			5.00	96			
STANDARD	CCV	1114H	5.15			5.00	103			
STANDARD	ISA	09260	162			200	81			

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/09/94 13:36						QC BATCH NUMBER:316154
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
STANDARD	ISB	1123J	164			200	82			
STANDARD	CCV	1114H	4.92			5.00	98			
STANDARD	ISB	1123J	166			200	83			
SPIKE	PDS	943101-001	2.32					0.28	2.00	102
SPIKE	PDS	941802-019	2.50					0.42	2.00	104
SPIKE	PDS	942953-001	1.14					0.03	1.00	111
SPIKE	PDS	942866-010	1.90					<0.03	2.00	95
SPIKE	PDS	943070-004	2.67					0.78	2.00	94
SPIKE	PDS	942332-164	1.53					<0.03	2.00	76
DUPLICATE	MD	942332-164	<0.03	<0.03	NC					
DUPLICATE	MD	943101-001	0.28	0.28	0					
DUPLICATE	MD	942866-010	<0.03	<0.03	NC					
DUPLICATE	MD	942953-001	0.03	<0.03	0.03					
DUPLICATE	MD	943070-004	0.78	0.79	1					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:12/13/94 09:00						QC BATCH NUMBER:316287
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				METHOD REFERENCE :120.1 (1)						TECHNICIAN:SLS
BLANK	ICB	941213	<1							
BLANK	CCB	941213	<1							
BLANK	CCB	941213	<1							
BLANK	CCB	941213	<1							
BLANK	CCB	941213	<1							
STANDARD	ICV/LCS	941319	104			99	105			
STANDARD	CCV	S147	147			147	100			
STANDARD	CCV	S147	146			147	99			
STANDARD	CCV	S147	145			147	99			
STANDARD	CCV	S147	144			147	98			
DUPLICATE	MD	941691-19	238	236	1					
DUPLICATE	MD	942332-153	107	108	1					
DUPLICATE	MD	942332-163	59	58	2					
DUPLICATE	MD	942332-165	288	284	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/15/94 14:29						QC BATCH NUMBER:316605
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/15/94 14:29						QC BATCH NUMBER:316605
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
STANDARD	CCV	1114H	5.06			5.00	101			
STANDARD	ICV	0914E	1.91			2.00	96			
STANDARD	CCV	1114H	5.10			5.00	102			
STANDARD	CCV	1114H	5.12			5.00	102			
STANDARD	CCV	1114H	5.22			5.00	104			
STANDARD	ISA	09260	199			200	100			
STANDARD	CCV	1114H	5.22			5.00	104			
STANDARD	CCV	1114H	5.09			5.00	102			
STANDARD	CCV	1114H	4.78			5.00	96			
STANDARD	ISB	1123J	191			200	96			
STANDARD	CCV	1114H	4.78			5.00	96			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	ISA	09260	185			200	92			
STANDARD	ISB	1123J	185			200	92			
STANDARD	CCV	1114H	4.78			5.00	96			
STANDARD	CCV	1114H	5.04			5.00	101			
SPIKE	PDS	940495-049	2.84					0.90	2.00	97
SPIKE	PDS	942332-099	3.88					1.91	2.00	98
SPIKE	PDS	941875-096	2.29					0.46	2.00	92
DUPLICATE	MD	940495-049	0.90	0.89	1					
DUPLICATE	MD	941875-096	0.46	0.54	16					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:12/22/94 15:00						QC BATCH NUMBER:317117
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	941222	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	940881-69	<5	<5	NC					
DUPLICATE	MD	940881-70	<5	<5	NC					
DUPLICATE	MD	941802-20	16	16	0					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:12/22/94 15:00						QC BATCH NUMBER:317118
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				METHOD REFERENCE :305.1 (1)						TECHNICIAN:KDS
BLANK	MB	941222	<10							
DUPLICATE	MD	940881-69	39	42	3					
DUPLICATE	MD	940881-70	50	49	1					
DUPLICATE	MD	941802-20	<10	<10	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:12/22/94 15:00						QC BATCH NUMBER:317119
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G941219A	3.99			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:12/22/94 15:00						QC BATCH NUMBER:317119
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	940881-69	5.35	5.34	0					
DUPLICATE	MD	940881-70	4.94	4.89	1					
DUPLICATE	MD	941802-20	7.33	7.34	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:12/29/94 07:00						QC BATCH NUMBER:317405
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	941229	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	940881-72	<5	<5	NC					
DUPLICATE	MD	941113-65	19	18	1					
DUPLICATE	MD	941802-21	18	19	1					
DUPLICATE	MD	942866-28	13	13	0					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:12/29/94 07:00						QC BATCH NUMBER:317406
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:KDS
BLANK	MB	941229	<10							
DUPLICATE	MD	940881-72	46	44	2					
DUPLICATE	MD	941113-65	<10	<10	NC					
DUPLICATE	MO	942866-22	<10	<10	NC					
DUPLICATE	MD	941802-21	<10	<10	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:12/29/94 07:00						QC BATCH NUMBER:317407
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G941219A	4.00			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	940881-72	4.80	4.78	0					
DUPLICATE	MD	941113-65	7.58	7.55	0					
DUPLICATE	MD	941802-21	7.55	7.59	1					
DUPLICATE	MD	942866-25	7.33	7.31	0					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:12/28/94 15:40						QC BATCH NUMBER:317542
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:FK
BLANK	ICB	941228	<1							
BLANK	CCB	941228	<1							
BLANK	CCB	941228	<1							
BLANK	CCB	941228	<1							

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:12/28/94 15:40						QC BATCH NUMBER:317542
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:FK
BLANK	CCB	941228	<1							
STANDARD	ICV/LCS	941850	100			99	101			
STANDARD	CCV	G941117B	146			147	99			
STANDARD	CCV	G941117B	146			147	99			
STANDARD	CCV	G941117B	145			147	99			
STANDARD	CCV	G941117B	144			147	98			
DUPLICATE	MD	941391-141	471	469	0					
DUPLICATE	MD	941391-150	82	82	0					
DUPLICATE	MD	941691-21	336	336	0					
DUPLICATE	MD	941802-22	54	54	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:12/30/94 15:26						QC BATCH NUMBER:317573
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	941230	<10							
BLANK	CCB	941230	<10							
BLANK	CCB	941230	<10							
BLANK	CCB	941230	<10							
BLANK	CCB	941230	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	96			100	96			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	96			100	96			
SPIKE	MS	941875-101	24					<10	25	96
SPIKE	MS	941875-105	26					<10	25	104
SPIKE	MS	941875-104	27					<10	25	108
SPIKE	MS	941875-103	36					14	25	88
DUPLICATE	MD	941875-101	<10	<10	NC					
DUPLICATE	MD	941875-105	<10	<10	NC					
DUPLICATE	MD	941875-104	<10	<10	NC					
DUPLICATE	MD	941875-103	14	14	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/30/94 13:01						QC BATCH NUMBER:317616
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/30/94 13:01						QC BATCH NUMBER:317616
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
STANDARD	CCV	1117K	9.59			10.0	96			
STANDARD	ISB	1123J	173			200	86			
STANDARD	CCV	1117K	9.57			10.0	96			
STANDARD	CCV	1117K	9.75			10.0	98			
STANDARD	CCV	1117K	10.4			10.0	104			
STANDARD	ICV	0914E	1.99			2.00	100			
STANDARD	CCV	1117K	10.2			10.0	102			
STANDARD	CCV	1117K	9.75			10.0	98			
STANDARD	CCV	1117K	9.72			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	CCV	1117K	9.34			10.0	93			
STANDARD	ISA	09260	172			200	86			
STANDARD	ISA	09260	172			200	86			
STANDARD	ISB	1123J	161			200	80			
STANDARD	CCV	1117K	10.7			10.0	107			
STANDARD	ISB	1123J	162			200	81			
SPIKE	PDS	943122-001	1.96					0.09	2.00	94
SPIKE	PDS	943233-002	1.85					0.09	2.00	88
SPIKE	PDS	941875-101	1.78					0.06	2.00	86
SPIKE	PDS	941113-067	1.96					<0.03	2.00	98
DUPLICATE	MD	943233-001	<0.03	<0.03	NC					
DUPLICATE	MD	941802-021	<0.03	<0.03	NC					
DUPLICATE	MD	943122-001	0.09	0.09	0.00					
DUPLICATE	MD	941113-065	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:01/04/95 10:15						QC BATCH NUMBER:317805
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:SLS
BLANK	MB	950104	<5							
STANDARD	LCS	G941027A	166			167	99			
DUPLICATE	MD	941802-22	15	15	0					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:01/04/95 10:15						QC BATCH NUMBER:317806
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				METHOD REFERENCE :305.1 (1)						TECHNICIAN:SLS
BLANK	MB	950104	<10							
DUPLICATE	MD	941802-22	<10	<10	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:01/04/95 10:15						QC BATCH NUMBER:317807
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:SLS
STANDARD	ICV	G941027A	3.99			4.00	100			
STANDARD	CCV	S7.00	6.98			7.00	100			
DUPLICATE	MD	941802-22	6.97	7.08	2					

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:01/04/95 09:00						QC BATCH NUMBER:317854
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
STANDARD	ICV/LCS	G940415A	153			150	102			
STANDARD	CCV	S200	200			200	100			
STANDARD	CCV	S200	200			200	100			
STANDARD	CCV	S200	180			200	90			
STANDARD	CCV	S200	180			200	90			
STANDARD	CCV	S200	194			200	97			
STANDARD	CCV	S200	212			200	106			
STANDARD	CCV	S200	217			200	108			
SPIKE	MS	940416-121	73					24	50	98
SPIKE	MS	940881-69	82					34	50	96
SPIKE	MS	941691-21	173					118	50	110
SPIKE	MS	941802-21	68					15	50	106
SPIKE	MS	941113-67	142					93	50	98
SPIKE	MS	942866-17	56					<10	50	112
SPIKE	MS	941391-150	65					23	50	84
DUPLICATE	MD	940416-121	24	25	1					
DUPLICATE	MD	940881-69	34	35	1					
DUPLICATE	MD	941691-21	118	125	6					
DUPLICATE	MD	941802-21	15	14	1					
DUPLICATE	MD	941113-67	93	90	3					
DUPLICATE	MD	942866-17	<10	<10	NC					
DUPLICATE	MD	941391-150	23	21	2					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/04/95 15:48						QC BATCH NUMBER:317897
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
STANDARD	CCV	1117K	10.0			10.0	100			
STANDARD	ICV	0914E	1.96			2.00	98			

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:01/04/95 15:48							QC BATCH NUMBER:317897
REPORTING LIMIT/DF: 0.03	UNITS:mg/L		METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
STANDARD	CCV	1117K	9.87			10.0	99			
STANDARD	CCV	1117K	9.87			10.0	99			
STANDARD	ISA	09260	176			200	88			
STANDARD	CCV	1117K	9.56			10.0	96			
STANDARD	ISB	1123J	173			200	86			
STANDARD	CCV	1117K	10.0			10.0	100			
STANDARD	ISA	09260	183			200	92			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	1117K	10.3			10.0	103			
STANDARD	CCV	1117K	10.2			10.0	102			
STANDARD	CCV	1117K	10.0			10.0	100			
STANDARD	CCV	1117K	10.4			10.0	104			
STANDARD	ISA	09260	178			200	89			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	1117K	10.1			10.0	101			
SPIKE	PDS	943257-010	1.80					0.06	2.00	87
SPIKE	PDS	943251-003	1.83					<0.03	2.00	92
SPIKE	PDS	941802-023	2.09					<0.03	2.00	104
SPIKE	PDS	941875-107	2.06					<0.03	2.00	103
SPIKE	PDS	943243-001	1.84					0.03	2.00	90
SPIKE	PDS	941391-153	3.88					1.95	2.00	96
DUPLICATE	MD	943251-001	0.16	0.16	0					
DUPLICATE	MD	943257-005	0.07	0.07	0.00					
DUPLICATE	MD	943243-001	0.03	<0.03	0.03					
DUPLICATE	MD	941691-024	<0.03	<0.03	NC					
DUPLICATE	MD	943242-010	0.25	0.27	8					
DUPLICATE	MD	941922-022	<0.03	<0.03	NC					
DUPLICATE	MD	941391-153	1.95	1.95	0					
PARAMETER:Conductivity (Filt.)			DATE/TIME ANALYZED:01/06/95 12:54							QC BATCH NUMBER:318126
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC		METHOD REFERENCE :120.1 (1)							TECHNICIAN:DME
BLANK	ICB	950106	<1							
BLANK	CCB	950106	<1							
BLANK	CCB	950106	<1							
BLANK	CCB	950106	<1							
BLANK	CCB	950106	<1							
STANDARD	ICV/LCS	941849	1030			1000	103			
STANDARD	CCV	S147	154			147	105			
STANDARD	CCV	S147	149			147	101			
STANDARD	CCV	S147	150			147	102			
STANDARD	CCV	S147	148			147	101			
DUPLICATE	MD	940881-76	84	83	1					
DUPLICATE	MD	941875-111	14	14	0					
DUPLICATE	MD	942074-347	134	135	1					
DUPLICATE	MD	942074-357	126	126	0					

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:01/06/95 12:54 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:318126 TECHNICIAN:DME
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:01/10/95 10:10 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:318362 TECHNICIAN:KDS
BLANK	MB	950110	<5							
STANDARD	LCS	G941027A	166			167	99			
DUPLICATE	MD	941875-113	12	11	1					
DUPLICATE	MD	942866-42	10	10	0					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:01/10/95 10:10 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:318363 TECHNICIAN:KDS
BLANK	MB	950110	<10							
DUPLICATE	MD	941875-113	<10	<10	NC					
DUPLICATE	MD	942866-42	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:01/10/95 10:10 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:318364 TECHNICIAN:KDS
STANDARD	ICV	G941219A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	941875-113	7.24	7.29	1					
DUPLICATE	MD	942866-42	7.19	7.15	1					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:01/10/95 08:00 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:318366 TECHNICIAN:RPK
BLANK	ICB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
STANDARD	ICV/LCS	941849	1030			1000	103			
STANDARD	CCV	G941117B	150			147	102			
STANDARD	CCV	G941117B	149			147	101			
STANDARD	CCV	G941117B	148			147	101			
STANDARD	CCV	G941117B	148			147	101			
STANDARD	CCV	G941117B	148			147	101			
STANDARD	CCV	G941117B	146			147	99			
DUPLICATE	MD	941875-116	17	17	0					
DUPLICATE	MD	942074-366	146	147	1					
DUPLICATE	MD	942074-376	144	143	1					

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:01/10/95 08:00						QC BATCH NUMBER:318366
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
DUPLICATE	MO	942332-171	89	89	0					
DUPLICATE	MD	942866-43	850	850	0					
DUPLICATE	MD	943080-5	234	234	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/11/95 13:20						QC BATCH NUMBER:318455
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
STANDARD	CCV	1114H	5.19			5.00	104			
STANDARD	ISB	1123J	193			200	96			
STANDARD	CCV	1114H	5.10			5.00	102			
STANDARD	CCV	1114H	5.07			5.00	101			
STANDARD	ISA	09260	175			200	88			
STANDARD	ISB	1123J	167			200	84			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	CCV	1114H	5.09			5.00	102			
STANDARD	CCV	1114H	5.13			5.00	103			
STANDARD	CCV	1114H	5.15			5.00	103			
STANDARD	CCV	1114H	5.03			5.00	101			
STANDARD	ICV	0914E	2.09			2.00	104			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	CCV	1114H	5.24			5.00	105			
STANDARD	ISA	09260	175			200	88			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	1114H	5.18			5.00	104			
STANDARD	ISA	09260	204			200	102			
SPIKE	PDS	942074-362	2.10					<0.03	2.00	105
SPIKE	PDS	950052-001	2.21					<0.03	2.00	110
SPIKE	PDS	941875-116	2.04					<0.03	2.00	102
SPIKE	PDS	941802-024	2.04					<0.03	2.00	102
SPIKE	PDS	941391-160	2.01					0.03	2.00	99
SPIKE	PDS	942332-170	1.91					<0.03	2.00	96
SPIKE	PDS	942074-371	2.00					<0.03	2.00	100

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/11/95 13:20						QC BATCH NUMBER:318455
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
DUPLICATE	MD	941802-024	<0.03	<0.03	NC					
DUPLICATE	MD	941875-116	<0.03	<0.03	NC					
DUPLICATE	MD	941391-160	0.03	0.03	0.00					
DUPLICATE	MD	942074-362	<0.03	<0.03	NC					
DUPLICATE	MD	942332-170	<0.03	<0.03	NC					
DUPLICATE	MD	950052-001	<0.03	<0.03	NC					
DUPLICATE	MD	942074-371	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:01/16/95 10:20						QC BATCH NUMBER:318767
REPORTING LIMIT/DF: 10 UNITS:mg/L				METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	950116	<10							
BLANK	CCB	950116	<10							
BLANK	CCB	950116	<10							
BLANK	CCB	950116	<10							
BLANK	CCB	950116	<10							
STANDARD	ICV/LCS	G940415A	74			75	99			
STANDARD	CCV	S100	103			100	103			
STANDARD	CCV	S100	104			100	104			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	102			100	102			
SPIKE	MS	940881-77	71					45	25	104
SPIKE	MS	940881-78	60					35	25	100
SPIKE	MS	941802-24	36					13	25	92
SPIKE	MS	941875-116	24					<10	25	96
DUPLICATE	MD	940881-77	45	45	0					
DUPLICATE	MD	940881-78	35	35	0					
DUPLICATE	MD	941802-24	13	13	0					
DUPLICATE	MD	941875-116	<10	<10	NC					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:01/17/95 08:30						QC BATCH NUMBER:318802
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				METHOD REFERENCE :120.1 (1)						TECHNICIAN:SLS
BLANK	ICB	950117	<1							
BLANK	CCB	950117	<1							
BLANK	CCB	950117	<1							
BLANK	CCB	950117	<1							
BLANK	CCB	950117	<1							
BLANK	CCB	950117	<1							
STANDARD	ICV/LCS	941850	104			99	105			
STANDARD	CCV	S147	149			147	101			
STANDARD	CCV	S147	146			147	99			
STANDARD	CCV	S147	145			147	99			
STANDARD	CCV	S147	144			147	98			
STANDARD	CCV	S147	143			147	97			
DUPLICATE	MD	942074-390	445	444	0					

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CORE LABORATORIES

QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:01/17/95 08:30						QC BATCH NUMBER:318802
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:SLS
DUPLICATE	MD	941691-24	242	244	1					
DUPLICATE	MD	941391-165	90	90	0					
DUPLICATE	MD	942866-53	36	36	0					
DUPLICATE	MD	950020-7	20	22	10					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:01/17/95 07:35						QC BATCH NUMBER:318897
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	950117	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	941691-24	18	18	0					
DUPLICATE	MD	941802-24	14	16	2					
DUPLICATE	MD	941922-23	31	32	3					
DUPLICATE	MD	941875-116	10	10	0					
DUPLICATE	MD	941875-117	26	26	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:01/17/95 07:35						QC BATCH NUMBER:318898
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G941219A	3.99			4.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
DUPLICATE	MD	941691-24	7.66	7.66	0					
DUPLICATE	MD	941802-24	7.43	7.48	1					
DUPLICATE	MD	941922-23	7.58	7.58	0					
DUPLICATE	MD	941875-116	6.94	6.90	1					
DUPLICATE	MD	941875-117	8.05	8.04	0					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:01/17/95 07:35						QC BATCH NUMBER:318899
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:KDS
BLANK	MB	950117	<10							
DUPLICATE	MD	941691-24	<10	<10	NC					
DUPLICATE	MD	941802-24	<10	<10	NC					
DUPLICATE	MD	941922-23	<10	<10	NC					
DUPLICATE	MD	941875-116	<10	<10	NC					
DUPLICATE	MD	941875-117	<10	<10	NC					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/17/95 17:21						QC BATCH NUMBER:318920
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/17/95 17:21						QC BATCH NUMBER:318920
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
STANDARD	CCV	0112D	5.15			5.00	103			
STANDARD	ICV	1122D	1.91			2.00	96			
STANDARD	CCV	0112D	4.83			5.00	97			
STANDARD	CCV	0112D	5.07			5.00	101			
STANDARD	CCV	0112D	4.86			5.00	97			
STANDARD	ISA	09260	182			200	91			
STANDARD	CCV	0112D	4.89			5.00	98			
STANDARD	CCV	0112D	5.14			5.00	103			
STANDARD	CCV	0112D	5.23			5.00	105			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	0112D	5.33			5.00	107			
STANDARD	ISA	09260	185			200	92			
STANDARD	ISB	1123J	186			200	93			
STANDARD	CCV	0112D	5.34			5.00	107			
STANDARD	CCV	0112D	5.32			5.00	106			
SPIKE	PDS	943080-006	2.24					<0.03	2.00	112
SPIKE	PDS	941391-165	2.38					<0.03	2.00	119
DUPLICATE	MD	941391-164	<0.03	<0.03	NC					
DUPLICATE	MD	941691-025	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:01/20/95 12:00						QC BATCH NUMBER:319284
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	950120	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	941391-165	10	11	1					
DUPLICATE	MD	943080-6	17	17	0					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:01/20/95 12:00						QC BATCH NUMBER:319285
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				METHOD REFERENCE :305.1 (1)						TECHNICIAN:KDS
BLANK	MB	950120	<10							
DUPLICATE	MD	941391-165	<10	<10	NC					
DUPLICATE	MD	943080-6	<10	<10	NC					

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:01/20/95 12:00						QC BATCH NUMBER:319286
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G941219A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	941391-165	7.29	7.28	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:01/23/95 09:34						QC BATCH NUMBER:319524
REPORTING LIMIT/DF: 10 UNITS:mg/L				METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	950123	<10							
BLANK	CCB	950123	<10							
BLANK	CCB	950123	<10							
BLANK	CCB	950123	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
SPIKE	MS	941802-25	29					<10	25	116
SPIKE	MS	942332-171	39					16	25	92
SPIKE	MS	942866-49	72					46	25	104
DUPLICATE	MD	941802-25	<10	<10	NC					
DUPLICATE	MD	942332-171	16	16	0					
DUPLICATE	MD	942866-49	46	47	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/24/95 00:20						QC BATCH NUMBER:319726
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
STANDARD	ISB	1123J	168			200	84			
STANDARD	CCV	1117K	9.72			10.0	97			
STANDARD	ISA	09260	180			200	90			
STANDARD	CCV	1117K	9.42			10.0	94			
STANDARD	ISB	1123J	173			200	86			
STANDARD	CCV	1117K	9.71			10.0	97			
STANDARD	CCV	1117K	10.2			10.0	102			
STANDARD	CCV	1117K	9.64			10.0	96			
STANDARD	ICV	0914E	1.98			2.00	99			
STANDARD	ISA	09260	176			200	88			
STANDARD	ISB	1123J	168			200	84			
STANDARD	CCV	1117K	9.80			10.0	98			
STANDARD	ISA	09260	186			200	93			

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/24/95 00:20						QC BATCH NUMBER:319726
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
SPIKE	PDS	941391-169	2.03					<0.03	2.00	101
SPIKE	PDS	941691-026	1.88					<0.03	2.00	94
DUPLICATE	MD	943080-007	<0.03	<0.03	NC					
DUPLICATE	MD	941802-026	<0.03	<0.03	NC					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:01/24/95 08:00						QC BATCH NUMBER:319742
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	950124	<1							
BLANK	CCB	950124	<1							
BLANK	CCB	950124	<1							
STANDARD	ICV/LCS	G941850	102			99	103			
STANDARD	CCV	G941117B	145			147	99			
STANDARD	CCV	G941117B	146			147	99			
DUPLICATE	MD	941922-25	217	217	0					
DUPLICATE	MD	941922-2	28	29	4					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:01/25/95 11:50						QC BATCH NUMBER:319754
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:SLS
BLANK	MB	950125	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	941922-25	18	17	1					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:01/25/95 11:50						QC BATCH NUMBER:319755
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:SLS
BLANK	MB	950125	<10							
DUPLICATE	MD	941922-25	<10	<10	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:01/25/95 11:50						QC BATCH NUMBER:319756
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:SLS
STANDARD	ICV	G941219A	3.97			4.00	99			
STANDARD	CCV	S7.00	6.97			7.00	100			
DUPLICATE	MD	941922-25	7.44	7.36	1					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:01/25/95 14:30						QC BATCH NUMBER:319776
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	950125	<10							
BLANK	CCB	950125	<10							
BLANK	CCB	950125	<10							
BLANK	CCB	950125	<10							
STANDARD	ICV/LCS	G940415A	155			150	103			
STANDARD	CCV	S160	154			160	96			

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QUALITY CONTROL REPORT
01/27/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:01/25/95 14:30						QC BATCH NUMBER:319776
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
STANDARD	CCV	S160	144			160	90			
STANDARD	CCV	S160	154			160	96			
SPIKE	MS	941391-170	70					18	50	104
SPIKE	MS	942866-63	87					42	50	90
SPIKE	MS	950161-1	77					30	50	94
DUPLICATE	MD	941391-170	18	21	3					
DUPLICATE	MD	942866-63	42	41	1					
DUPLICATE	MD	950161-1	30	34	4					

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METHOD REFERENCES

(1) EPA 600/4-79-020, Methods For Chemical Analysis Of Water And Wastes, March 1983

(2) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, November 1986

(3) Standard Methods For The Examination Of Water And Wastewater, 17th Edition, 1989

(4) EPA 600/4-80-032, Prescribed Procedures For Measurement Of Radioactivity In Drinking Water, August 1980

(5) EPA 600/8-78-017, Microbiological Methods For Monitoring The Environment, December 1978

(6) Federal Register, July 1, 1990 (40 CFR Part 136)

(7) EPA 600/4-88-039, Methods For The Determination Of Organics Compounds In Drinking Water, December 1988

(8) U.S.G.S. Methods For The Determination Of Inorganic Substances In Water And Fluvial Sediments, Book 5, Chapter A1, 1985

(9) Federal Register, Friday, June 7, 1991, (40 CFR Parts 141 and 142)

(10) Standard Methods For The Examination Of Water And Wastewater, 16th Edition, 1985

(11) ASTM, Section 11 Water And Environmental Technology, Volume 11.01 Water (1), 1991

(12) Methods Of Soil Analysis, American Society Of Agronomy, Agronomy No. 9, 1965

(13) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, Revision 1, November 1990

(14) ASTM, Section 5, Petroleum Products, Lubricants, and Fossil Fuels, Volume 05.05, Gaseous Fuels, Coal and Coke

(15) EPA 600/2-78-054, Field and Laboratory Methods Applicable To Overburdens and Mine Soils, March 1978

(16) ASTM, Part 19, Soils and Rock; Building Stones, 1981

Comments: Data in QA report may differ from final results due to digestion and/or dilution of sample into analytical ranges. The "Time Analyzed" in the QA report refers to the start time of the analytical batch which may not reflect the actual time of each analysis. The "Date Analyzed" is the actual date of analysis. Results for soil and sludge samples are reported on a wet weight basis (i.e. not corrected for percent moisture) unless otherwise indicated.
NC = Not Calculable Due To Value(s) Lower Than The Detection Limit.

Blank QC Sample Identification	
MB	Method Blank
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank

Reference Standard QC Sample Identification	
LCS	Laboratory Control Standard
RS	Reference Standard
ICV	Initial Calibration Verification Standard
CCV	Continuing Calibration Verification Standard
ISA/ISB	ICP Interference Check Samples

Spike QC Sample Identification	
MS	Method (Matrix) Spike
MSD	Method (Matrix) Spike Duplicate
PDS	Post Digestion Spike
SB	Spiked Blank
SBD	Spiked Blank Duplicate

Duplicate QC Sample Identification	
MD	Method (Matrix) Duplicate
ED	Extraction Duplicate
DD	Digestion Duplicate

Analyses performed by a subcontract laboratory are indicated on the analytical and/or quality control reports under "Technician" using the following codes:

Subcontract Laboratory	Code	Subcontract Laboratory	Code
Core Laboratories - Anaheim, CA	* AN	Core Laboratories - Lake Charles, LA	* LC
Core Laboratories - Casper, WY	* CA	Core Laboratories - Long Beach, CA	* LB
Core Laboratories - Corpus Christi, TX	* CC	Other Subcontract Laboratories	* XX
Core Laboratories - Houston, TX	* HP		

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A N A L Y T I C A L R E P O R T

Job Number: 941802
Prepared For:

HENDRICKS MINING CO, INC.
THOMAS HENDRICKS
P.O. BOX 653-CARIBOU
NEDERLAND, CO 80466-0653

Date: 03/09/95

Signature Patrick J. McEntee Date: 3-9-95

Name: Patrick J. McEntee

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Title: Laboratory Supervisor

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SUMMARY OF DATA GENERATED FROM HUMIDITY CELL TESTING

HENDRICKS MINING CO, INC.

March 9, 1995

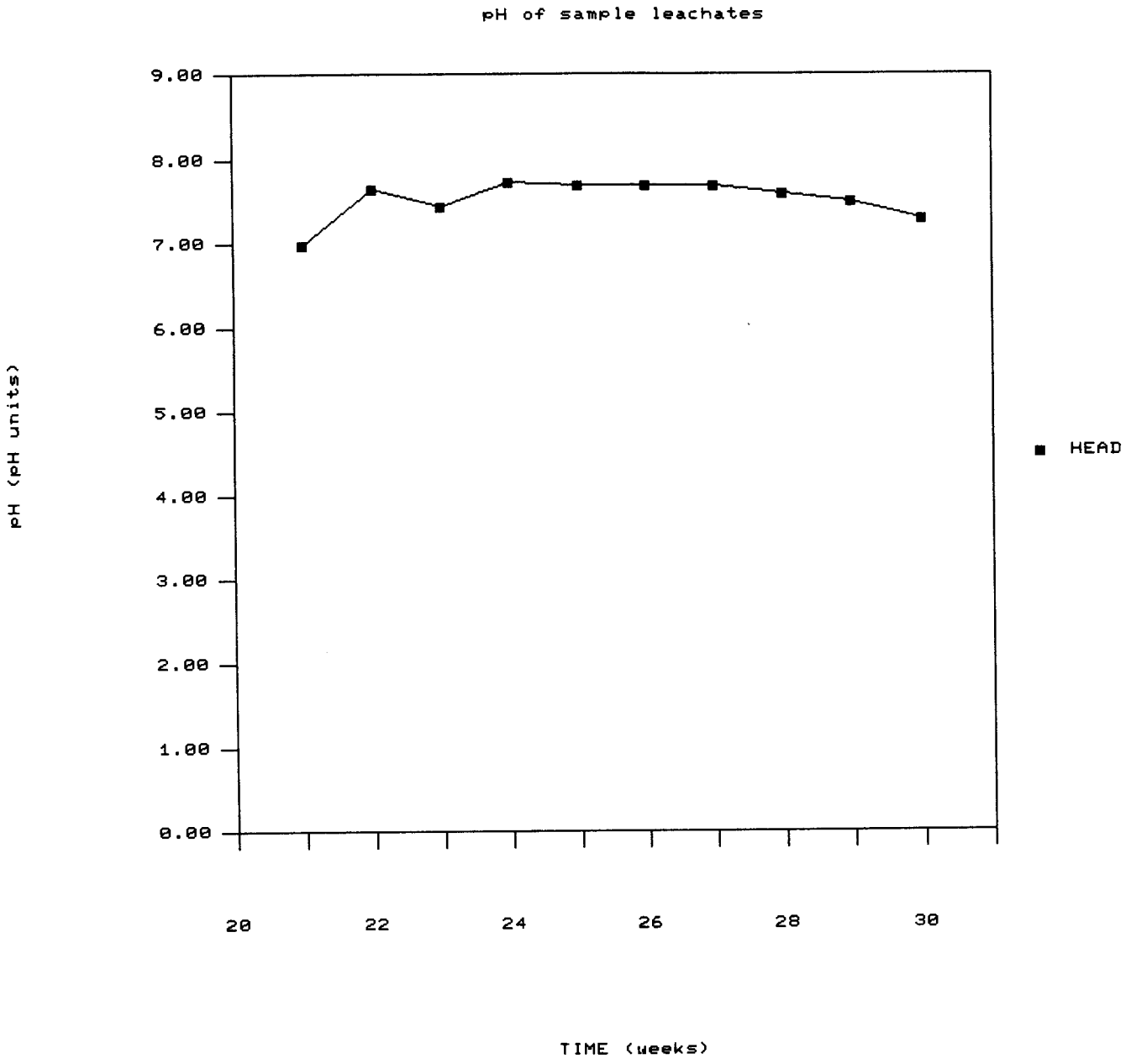
CLIENT SAMPLE I.D...: HEAD

LAB SAMPLE I.D.....: 941802-1

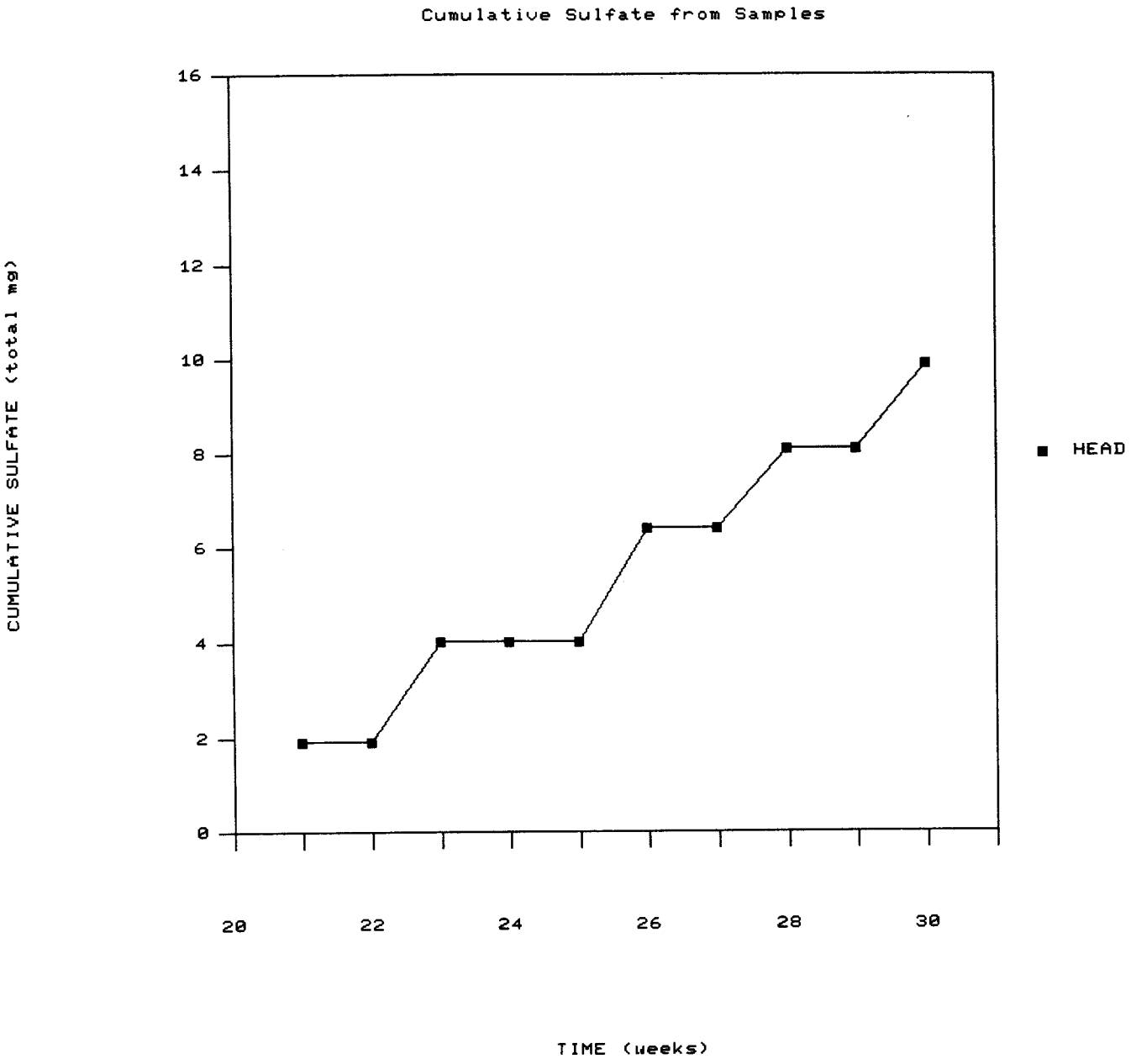
PARAMETER	UNITS	Week 21	Week 22	Week 23	Week 24	Week 25	Week 26	Week 27	Week 28	Week 29	Week 30
Leachate Quantity	mls	175	168	163	166	169	158	179	168	170	166
pH	pH Units	6.97	7.64	7.43	7.72	7.68	7.69	7.69	7.59	7.49	7.29
Conductivity	umohs/cm	54	54	66	52	57	65	53	55	48	49
Sulfate	mg/L	11	<10	13	<10	<10	15	<10	10	<10	11
Cumulative Sulfate	Total mg	2	2	4	4	4	6	6	8	8	10
Acidity	mg/L CaCO3	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cumulative Acidity	Tot. mg CaCO3	0	0	0	0	0	0	0	0	0	0
Iron (Diss.)	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Cumulative Iron	Total ug	0	0	0	0	0	0	0	0	0	0
Alkalinity	mg/L CaCO3	15	19	14	17	15	16	13	20	12	14
Cumulative Alkalinity	Tot. mg CaCO3	3	6	8	11	13	16	18	22	24	26
pH of DI H2O	pH Units	5.33	5.50	5.22	6.63	5.86	6.15	5.57	6.01	6.21	5.25

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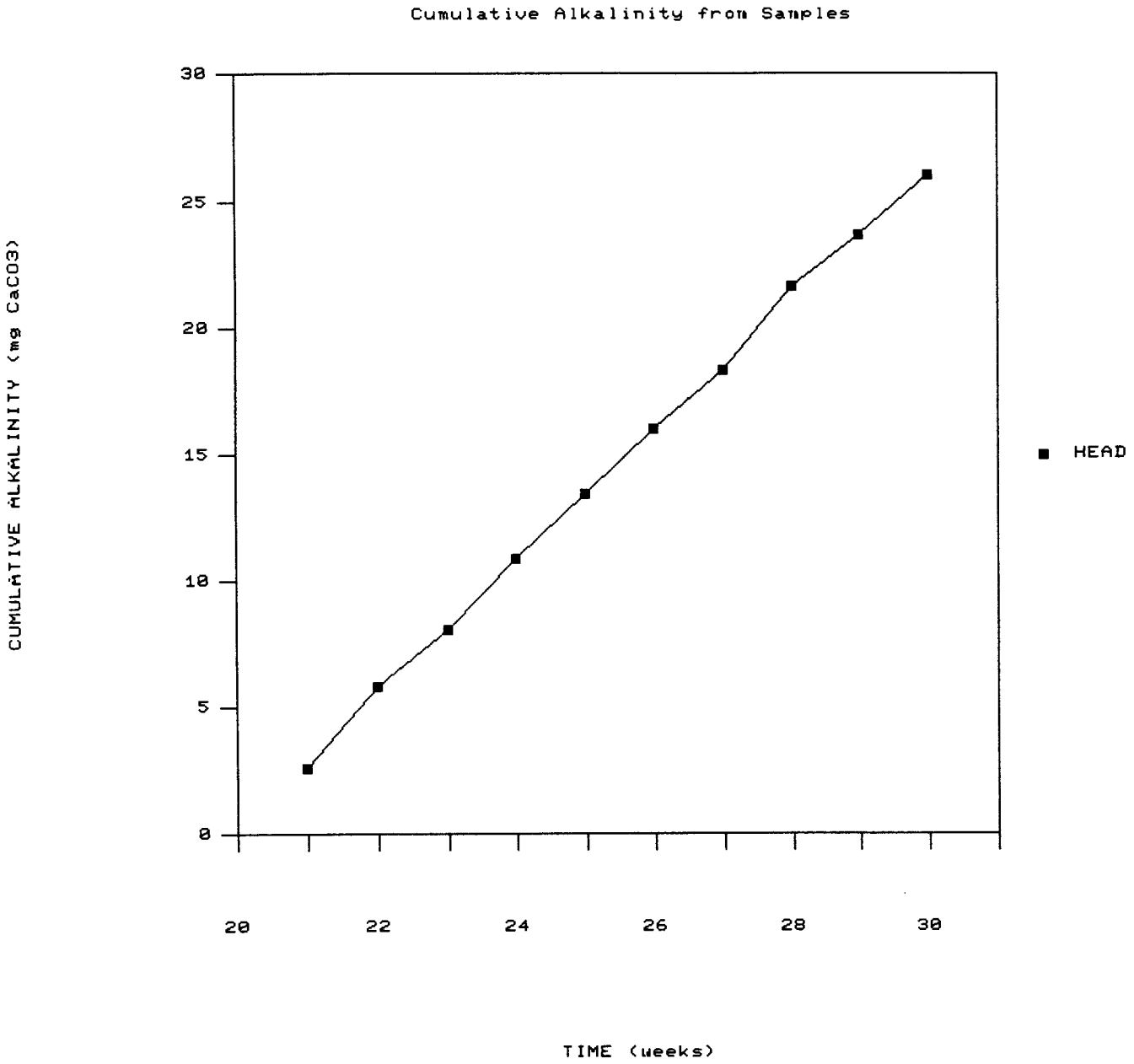
HUMIDITY CELL TESTS



HUMIDITY CELL TESTS



HUMIDITY CELL TESTS



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CORE LABORATORIES

LABORATORY TESTS RESULTS
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

CLIENT I.D.....: CROSS GOLD MINE HCT
DATE SAMPLED.....: 10/10/94
TIME SAMPLED.....: 09:00
WORK DESCRIPTION...: HEAD

LABORATORY I.D...: 941802-0011
DATE RECEIVED....: 07/21/94
TIME RECEIVED....: 12:30
REMARKS.....: WK 10

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Arsenic, Diss. (As)	<0.05	0.05	mg/L	6010 (2)	03/06/95	GAG
Cadmium, Diss. (Cd)	<0.005	0.005	mg/L	6010 (2)	03/06/95	GAG
Copper, Diss. (Cu)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG
Lead, Diss. (Pb)	<0.05	0.05	mg/L	6010 (2)	03/06/95	GAG
Mercury, Diss. (Hg)	<0.002	0.002	mg/L	7470 (2)	03/03/95	BPB
Silver, Diss. (Ag)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG
Zinc, Diss. (Zn)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG

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LABORATORY TESTS RESULTS
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

CLIENT I.D.....: CROSS GOLD MINE HCT
DATE SAMPLED.....: 12/19/94
TIME SAMPLED.....: 09:00
WORK DESCRIPTION...: HEAD

LABORATORY I.D...: 941802-0021
DATE RECEIVED....: / /
TIME RECEIVED....: :
REMARKS.....: WK-20

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Arsenic, Diss. (As)	<0.05	0.05	mg/L	6010 (2)	03/06/95	GAG
Cadmium, Diss. (Cd)	<0.005	0.005	mg/L	6010 (2)	03/06/95	GAG
Copper, Diss. (Cu)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG
Lead, Diss. (Pb)	<0.05	0.05	mg/L	6010 (2)	03/06/95	GAG
Mercury, Diss. (Hg)	<0.002	0.002	mg/L	7470 (2)	03/03/95	BPB
Silver, Diss. (Ag)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG
Zinc, Diss. (Zn)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG

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LABORATORY TESTS RESULTS

03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

CLIENT I.D.....: CROSS GOLD MINE HCT
DATE SAMPLED.....: 02/27/95
TIME SAMPLED.....: 09:00
WORK DESCRIPTION...: COMP. HEAD

LABORATORY I.D...: 941802-0031
DATE RECEIVED....: / /
TIME RECEIVED....: :
REMARKS.....: WK-30

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Arsenic, Diss. (As)	<0.05	0.05	mg/L	6010 (2)	03/06/95	GAG
Cadmium, Diss. (Cd)	<0.005	0.005	mg/L	6010 (2)	03/06/95	GAG
Copper, Diss. (Cu)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG
Lead, Diss. (Pb)	<0.05	0.05	mg/L	6010 (2)	03/06/95	GAG
Mercury, Diss. (Hg)	<0.002	0.002	mg/L	7470 (2)	03/03/95	BPB
Silver, Diss. (Ag)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG
Zinc, Diss. (Zn)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:08/22/94 07:15 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:305732 TECHNICIAN:SLS
BLANK	MB	940822	<5							
STANDARD	LCS	G940805A	166			167	99			
DUPLICATE	MD	940765-274	<5	<5	NC					
DUPLICATE	MD	940765-283	22	21	1					
DUPLICATE	MD	940936-46	12	12	0					
DUPLICATE	MD	941802-3	17	17	0					
DUPLICATE	MD	940925-60	17	16	1					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:08/22/94 07:15 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:305737 TECHNICIAN:SLS
BLANK	MB	940822	<10							
DUPLICATE	MD	940765-274	406	408	0					
DUPLICATE	MD	940765-283	<10	<10	NC					
DUPLICATE	MD	940936-46	<10	<10	NC					
DUPLICATE	MD	941802-3	<10	<10	NC					
DUPLICATE	MD	940925-60	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:08/22/94 07:15 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:305739 TECHNICIAN:SLS
STANDARD	ICV	G940711C	4.06			4.00	101			
STANDARD	CCV	S7.00	7.05			7.00	101			
STANDARD	CCV	S7.00	7.05			7.00	101			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	7.06			7.00	101			
DUPLICATE	MD	940765-274	3.28	3.27	0					
DUPLICATE	MD	940765-283	7.62	7.50	2					
DUPLICATE	MD	940936-46	6.52	6.59	1					
DUPLICATE	MD	941802-3	6.74	6.75	0					
DUPLICATE	MD	940925-60	7.01	6.97	1					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:08/23/94 10:50 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:305935 TECHNICIAN:GEF
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	10.6			10.0	106			
STANDARD	ICV	0524F	2.06			2.00	103			
STANDARD	CCV	0714D	10.9			10.0	109			
STANDARD	ISA	0609A	185			200	92			

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:08/23/94 10:50						QC BATCH NUMBER:305935
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
STANDARD	CCV	0714D	10.5			10.0	105			
STANDARD	ISB	0710A	182			200	91			
STANDARD	CCV	0714D	9.97			10.0	100			
STANDARD	ISA	0609A	178			200	89			
STANDARD	ISB	0710A	172			200	86			
STANDARD	CCV	0714D	9.98			10.0	100			
SPIKE	PDS	941974-002	1.99					0.07	2.00	96
DUPLICATE	MD	941974-001	0.09	0.08	0.01					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:08/26/94 12:00						QC BATCH NUMBER:306137
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
STANDARD	ICV/LCS	941319	99			98	101			
STANDARD	CCV	G940711B	151			147	103			
STANDARD	CCV	G940711B	148			147	101			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	148			147	101			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	146			147	99			
STANDARD	CCV	G940711B	146			147	99			
STANDARD	CCV	G940711B	144			147	98			
DUPLICATE	MD	941113-32	2850	2850	0					
DUPLICATE	MD	940673-410	85	85	0					
DUPLICATE	MD	940673-420	26	26	0					
DUPLICATE	MD	940765-284	150	150	0					
DUPLICATE	MD	940765-294	670	670	0					
DUPLICATE	MD	940765-304	1310	1310	0					
DUPLICATE	MD	940925-65	35	35	0					
DUPLICATE	MD	941875-9	242	242	0					
DUPLICATE	MD	941875-19	233	231	1					

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:08/25/94 12:48						QC BATCH NUMBER:306204
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
BLANK	CCB	940825	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	98			100	98			
SPIKE	MS	940765-277	47					22	25	100
SPIKE	MS	940767-103	27					<10	25	108
SPIKE	MS	940767-108	25					<10	25	100
SPIKE	MS	940765-272	56					33	25	92
SPIKE	MS	940765-273	42					19	25	92
DUPLICATE	MD	940765-277	22	22	0					
DUPLICATE	MD	940767-103	<10	<10	NC					
DUPLICATE	MD	940767-108	<10	<10	NC					
DUPLICATE	MD	940765-272	33	33	0					
DUPLICATE	MD	940765-273	19	18	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:08/31/94 12:37						QC BATCH NUMBER:306639
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	9.68			10.0	97			
STANDARD	ICV	0524F	2.04			2.00	102			
STANDARD	CCV	0714D	9.66			10.0	97			
STANDARD	ISA	0609A	179			200	90			
STANDARD	CCV	0714D	9.64			10.0	96			
STANDARD	ISB	0710A	169			200	84			
STANDARD	CCV	0714D	9.64			10.0	96			
STANDARD	ISA	0609A	173			200	86			
STANDARD	ISB	0710A	165			200	82			
STANDARD	CCV	0714D	9.47			10.0	95			
SPIKE	PDS	942139-012	1.98					0.03	2.00	98
SPIKE	PDS	942139-022	1.98					<0.03	2.00	99
SPIKE	PDS	942139-002	2.01					0.03	2.00	99
SPIKE	PDS	941691-004	1.96					<0.03	2.00	98

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:08/31/94 12:37 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:306639 TECHNICIAN:GEF
DUPLICATE	MD	942139-021	<0.03	<0.03	NC					
DUPLICATE	MD	941691-004	<0.03	<0.03	NC					
DUPLICATE	MD	942139-011	<0.03	<0.03	NC					
DUPLICATE	MD	942139-001	0.05	0.03	0.02					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:09/04/94 09:00 METHOD REFERENCE :150.1 (1)							QC BATCH NUMBER:306972 TECHNICIAN:KDS
STANDARD	ICV	G940711C	4.00			4.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
DUPLICATE	MD	940765-308	3.54	3.53	0					
DUPLICATE	MD	940767-120	7.83	7.82	0					
DUPLICATE	MD	940925-70	7.98	7.90	1					
DUPLICATE	MD	940936-56	3.24	3.25	0					
DUPLICATE	MD	941391-60	7.34	7.33	0					
DUPLICATE	MD	941875-20	8.96	8.97	0					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:09/04/94 09:00 METHOD REFERENCE :310.1 (1)							QC BATCH NUMBER:306973 TECHNICIAN:KDS
BLANK	MB	940904	<5							
STANDARD	LCS	G940805A	162			167	97			
DUPLICATE	MD	940765-308	<5	<5	NC					
DUPLICATE	MD	940767-120	26	26	0					
DUPLICATE	MD	940925-70	20	19	1					
DUPLICATE	MD	940936-56	<5	<5	NC					
DUPLICATE	MD	941391-60	17	16	1					
DUPLICATE	MD	941875-20	62	61	2					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:09/04/94 09:00 METHOD REFERENCE :305.1 (1)							QC BATCH NUMBER:306975 TECHNICIAN:KDS
BLANK	MB	940904	<10							
DUPLICATE	MD	940765-308	500	500	0					
DUPLICATE	MD	940767-120	<10	<10	NC					
DUPLICATE	MD	940925-70	<10	<10	NC					
DUPLICATE	MD	941391-60	<10	<10	NC					
DUPLICATE	MD	941875-20	<10	<10	NC					

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/12/94 12:35						QC BATCH NUMBER:307417
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	ICV	0524F	2.00			2.00	100			
STANDARD	CCV	0714D	9.83			10.0	98			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	ISA	0609A	167			200	84			
STANDARD	CCV	0714D	9.47			10.0	95			
STANDARD	CCV	0714D	9.17			10.0	92			
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	CCV	0714D	9.87			10.0	99			
STANDARD	ISA	0609A	184			200	92			
STANDARD	ISB	0710A	180			200	90			
STANDARD	CCV	0714D	9.32			10.0	93			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	ISB	0710A	180			200	90			
SPIKE	PDS	940495-042	2.40					0.55	2.00	92
SPIKE	PDS	941922-004	1.89					<0.03	2.00	94
SPIKE	PDS	941875-030	1.99					0.03	2.00	98
SPIKE	PDS	941391-064	1.51					<0.03	2.00	76
DUPLICATE	MD	941875-030	0.03	0.03	0.00					
DUPLICATE	MD	941391-064	<0.03	<0.03	NC					
DUPLICATE	MD	940495-042	0.55	0.52	6					
DUPLICATE	MD	941922-004	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/12/94 06:30						QC BATCH NUMBER:307487
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:SLS
BLANK	MB	940912	<5							
STANDARD	LCS	G940805A	163			167	98			
DUPLICATE	MD	941391-65	14	14	0					
DUPLICATE	MD	941391-64	6	6	0					
DUPLICATE	MD	940881-40	<5	<5	NC					
DUPLICATE	MD	940936-60	<5	<5	NC					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/12/94 06:30						QC BATCH NUMBER:307488
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				METHOD REFERENCE :305.1 (1)						TECHNICIAN:SLS
BLANK	MB	940912	<10							

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/12/94 06:30						QC BATCH NUMBER:307488
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:SLS
DUPLICATE	MD	941391-65	<10	<10	NC					
DUPLICATE	MD	941391-64	<10	<10	NC					
DUPLICATE	MD	940881-40	79	79	0					
DUPLICATE	MD	940936-60	243	241	1					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/12/94 06:30						QC BATCH NUMBER:307489
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:SLS
STANDARD	ICV	G940711C	4.00			4.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
STANDARD	CCV	S7.00	7.04			7.00	101			
DUPLICATE	MD	941391-65	7.20	7.19	0					
DUPLICATE	MD	941391-64	6.49	6.52	0					
DUPLICATE	MD	940881-40	4.76	4.79	1					
DUPLICATE	MD	940936-60	3.12	3.11	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:09/12/94 08:28						QC BATCH NUMBER:307516
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
STANDARD	ICV/LCS	G940415A	73			75	97			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	98			100	98			
SPIKE	MS	940416-101	40					14	25	104
SPIKE	MS	940767-114	27					<10	25	108
SPIKE	MS	940925-65	27					<10	25	108
SPIKE	MS	941875-15	47					21	25	104
DUPLICATE	MD	940416-101	14	15	1					
DUPLICATE	MD	940767-114	<10	<10	NC					
DUPLICATE	MD	940925-65	<10	<10	NC					
DUPLICATE	MD	941875-15	21	22	1					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/15/94 10:20						QC BATCH NUMBER:307844
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:LM
BLANK	ICB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/15/94 10:20						QC BATCH NUMBER:307844
REPORTING LIMIT/DF: 1		UNITS:umhos/cm @25dC		METHOD REFERENCE :120.1 (1)						TECHNICIAN:LM
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
STANDARD	ICV/LCS	940584	987			987	100			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1410			1410	100			
STANDARD	CCV	G940901A	1410			1410	100			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1420			1410	101			
DUPLICATE	MD	940416-108	123	122	1					
DUPLICATE	MD	940767-124	65	65	0					
DUPLICATE	MD	941802-5	151	150	1					
DUPLICATE	MD	941875-27	104	104	0					
DUPLICATE	MD	942095-14	134	134	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/18/94 11:00						QC BATCH NUMBER:308099
REPORTING LIMIT/DF: 0.01		UNITS:pH Units		METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G940711C	3.98			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	941391-70	7.23	7.16	1					
DUPLICATE	MD	941875-30	9.03	8.92	1					
DUPLICATE	MD	942074-30	7.32	7.34	0					
DUPLICATE	MD	942074-38	3.60	3.60	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/18/94 11:00						QC BATCH NUMBER:308100
REPORTING LIMIT/DF: 5		UNITS:mg/L CaCO3		METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	940918	<5							
STANDARD	LCS	G940805A	163			167	98			
DUPLICATE	MD	941391-70	14	12	2					
DUPLICATE	MD	941875-30	59	59	0					
DUPLICATE	MD	942074-30	22	22	0					
DUPLICATE	MD	942074-38	<5	<5	NC					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/18/94 11:00						QC BATCH NUMBER:308101
REPORTING LIMIT/DF: 10		UNITS:mg/L CaCO3		METHOD REFERENCE :305.1 (1)						TECHNICIAN:KDS
BLANK	MB	940918	<10							

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:09/18/94 11:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:308101 TECHNICIAN:KDS
DUPLICATE	MD	941391-70	<10	<10	NC					
DUPLICATE	MD	941875-30	<10	<10	NC					
DUPLICATE	MD	942074-30	25	24	1					
DUPLICATE	MD	942074-38	250	250	0					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:09/19/94 08:30 METHOD REFERENCE :375.2 (1)						QC BATCH NUMBER:308159 TECHNICIAN:DME
BLANK	ICB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
STANDARD	ICV/LCS	G940415A	153			150	102			
STANDARD	CCV	S160	162			160	101			
STANDARD	CCV	S160	161			160	101			
STANDARD	CCV	S160	159			160	99			
STANDARD	CCV	S160	158			160	99			
SPIKE	MS	941875-22	81					30	50	102
SPIKE	MS	942200-2	70					20	50	100
SPIKE	MS	942210-1	151					103	50	96
SPIKE	MS	940936-60	113					62	50	102
DUPLICATE	MD	941875-22	30	30	0					
DUPLICATE	MD	942200-2	20	20	0					
DUPLICATE	MD	942210-1	103	103	0					
DUPLICATE	MD	940936-60	62	66	6					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:09/20/94 07:43 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:308394 TECHNICIAN:SLS
BLANK	ICB	940920	<10							
BLANK	CCB	940920	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	103			100	103			
SPIKE	MS	941802-6	66					42	25	96
DUPLICATE	MD	941802-6	42	41	1					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:09/21/94 09:54 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:308462 TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/21/94 09:54						QC BATCH NUMBER:308462
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	9.87			10.0	99			
STANDARD	ICV	0914E	1.98			2.00	99			
STANDARD	CCV	0714D	9.62			10.0	96			
STANDARD	ISA	0609A	171			200	86			
STANDARD	CCV	0714D	9.98			10.0	100			
STANDARD	ISB	0710A	176			200	88			
STANDARD	CCV	0714D	9.80			10.0	98			
STANDARD	CCV	0714D	10.3			10.0	103			
STANDARD	CCV	0714D	9.46			10.0	95			
STANDARD	CCV	0714D	9.49			10.0	95			
STANDARD	ISA	0609A	180			200	90			
STANDARD	ISA	0609A	176			200	88			
STANDARD	ISB	0710A	178			200	89			
STANDARD	CCV	0714D	9.76			10.0	98			
STANDARD	ISB	0710A	181			200	90			
SPIKE	PDS	942332-011	2.02					<0.03	2.00	101
SPIKE	PDS	942332-001	2.10					<0.03	2.00	105
SPIKE	PDS	942332-021	2.26					<0.03	2.00	113
SPIKE	PDS	942332-031	2.41					0.07	2.00	117
SPIKE	PDS	942140-003	2.02					0.05	2.00	98
SPIKE	PDS	942332-041	2.01					<0.03	2.00	100
SPIKE	PDS	940925-081	2.11					<0.03	2.00	106
DUPLICATE	MD	942332-011	<0.03	<0.03	NC					
DUPLICATE	MD	942332-021	<0.03	<0.03	NC					
DUPLICATE	MD	942332-031	0.07	0.07	0.00					
DUPLICATE	MD	942140-003	0.05	0.03	0.02					
DUPLICATE	MD	942332-041	<0.03	<0.03	NC					
DUPLICATE	MD	940925-081	<0.03	<0.03	NC					
DUPLICATE	MD	942332-001	<0.03	<0.03	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/25/94 07:00						QC BATCH NUMBER:308719
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G940711C	3.99			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	940925-85	6.98	7.20	3					
DUPLICATE	MD	942074-42	5.96	5.96	0					
DUPLICATE	MD	942074-50	6.72	6.73	0					
DUPLICATE	MD	942074-57	3.95	3.95	0					

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/25/94 07:00						QC BATCH NUMBER:308720
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	940925	<5							
STANDARD	LCS	G940805A	162			167	97			
DUPLICATE	MD	940925-85	17	17	0					
DUPLICATE	MD	942074-42	<5	<5	NC					
DUPLICATE	MD	942074-50	22	22	0					
DUPLICATE	MD	942074-57	<5	<5	NC					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/25/94 07:00						QC BATCH NUMBER:308721
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:KDS
BLANK	MB	940925	<10							
DUPLICATE	MD	940925-85	<10	<10	NC					
DUPLICATE	MD	942074-42	31	31	0					
DUPLICATE	MD	942074-50	19	29	10					
DUPLICATE	MD	942074-57	320	302	6					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/23/94 15:15						QC BATCH NUMBER:308752
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:LM
BLANK	ICB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
STANDARD	ICV/LCS	940584	985			987	100			
STANDARD	CCV	G940901B	146			147	99			
STANDARD	CCV	G940901B	146			147	99			
STANDARD	CCV	G940901B	145			147	99			
STANDARD	CCV	G940901B	145			147	99			
DUPLICATE	MD	940925-66	35	35	0					
DUPLICATE	MD	942074-41	1020	1010	1					
DUPLICATE	MD	942074-50	831	829	0					
DUPLICATE	MD	942074-57	1720	1710	1					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309042
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	940927	<5							
STANDARD	LCS	G940711C	163			167	98			
DUPLICATE	MD	940936-71	39	47	19					
DUPLICATE	MD	941802-8	16	18	2					
DUPLICATE	MD	942074-67	25	25	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309044
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G940711C	3.99			4.00	100			

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309044
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	940936-71	4.36	4.30	1					
DUPLICATE	MD	941802-8	6.79	6.85	1					
DUPLICATE	MD	942074-67	6.99	7.29	4					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/27/94 08:00						QC BATCH NUMBER:309047
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	940927	<10							
DUPLICATE	MD	940936-71	39	47	8					
DUPLICATE	MD	941802-8	<10	<10	NC					
DUPLICATE	MD	942074-67	<10	<10	NC					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:09/27/94 17:55						QC BATCH NUMBER:309114
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0831F	5.20			5.00	104			
STANDARD	ISB	0710A	182			200	91			
STANDARD	CCV	0831F	5.16			5.00	103			
STANDARD	CCV	0831F	5.11			5.00	102			
STANDARD	CCV	0831F	5.23			5.00	105			
STANDARD	ICV	0914E	1.86			2.00	93			
STANDARD	CCV	0831F	5.21			5.00	104			
STANDARD	CCV	0831F	5.14			5.00	103			
STANDARD	CCV	0831F	5.28			5.00	106			
STANDARD	ISA	09260	188			200	94			
STANDARD	ISA	09260	203			200	101			
STANDARD	ISB	0710A	202			200	101			
SPIKE	PDS	941391-076	5.40					3.37	2.00	102
SPIKE	PDS	941113-037	2.38					<0.03	2.00	119
SPIKE	PDS	942074-046	2.04					<0.03	2.00	102
SPIKE	PDS	942074-054	2.31					<0.03	2.00	116
SPIKE	PDS	940936-067	7.10					5.09	2.00	100
DUPLICATE	MD	941802-008	<0.03	<0.03	NC					
DUPLICATE	MD	941113-035	<0.03	<0.03	NC					
DUPLICATE	MD	942074-045	<0.03	<0.03	NC					

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:09/27/94 17:55 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:309114 TECHNICIAN:GAG
DUPLICATE	MD	940936-066	0.03	<0.03	0.03					
DUPLICATE	MD	942074-053	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:09/28/94 10:57 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:309125 TECHNICIAN:SLS
BLANK	ICB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
STANDARD	ICV/LCS	G940415A	74			75	99			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
SPIKE	MS	940936-61	25					<10	25	100
SPIKE	MS	942332-18	40					14	25	104
SPIKE	MS	942332-25	44					19	25	100
SPIKE	MS	942332-28	38					13	25	100
DUPLICATE	MD	940936-61	<10	<10	NC					
DUPLICATE	MD	942332-18	14	14	0					
DUPLICATE	MD	942332-25	19	19	0					
DUPLICATE	MD	942332-28	13	14	1					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:09/28/94 10:45 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:309160 TECHNICIAN:MLM
BLANK	ICB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:09/28/94 10:45						QC BATCH NUMBER:309160
REPORTING LIMIT/DF: 1		UNITS:umhos/cm @25dC		METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
DUPLICATE	MD	940925-90	40	40	0					
DUPLICATE	MD	940936-72	719	717	0					
DUPLICATE	MD	941391-78	512	510	0					
DUPLICATE	MD	941691-9	546	545	0					
DUPLICATE	MD	942074-58	918	919	0					
DUPLICATE	MD	942074-67	879	876	0					
DUPLICATE	MD	942074-76	663	660	0					
DUPLICATE	MD	942074-85	508	507	0					
DUPLICATE	MD	942074-95	599	597	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:09/29/94 08:00						QC BATCH NUMBER:309251
REPORTING LIMIT/DF: 5		UNITS:mg/L CaCO3		METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	940929	<5							
STANDARD	LCS	G940805A	160			167	96			
DUPLICATE	MD	941691-9	15	14	1					
DUPLICATE	MD	942074-79	20	24	4					
DUPLICATE	MD	942074-83	18	20	2					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:09/29/94 08:00						QC BATCH NUMBER:309304
REPORTING LIMIT/DF: 0.01		UNITS:pH Units		METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G940711C	4.01			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	941691-9	6.76	6.56	3					
DUPLICATE	MD	942074-79	6.60	6.33	4					
DUPLICATE	MD	942074-83	6.57	6.77	3					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:09/29/94 08:00						QC BATCH NUMBER:309314
REPORTING LIMIT/DF: 10		UNITS:mg/L CaCO3		METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	940929	<10							
DUPLICATE	MD	941691-9	<10	<10	NC					
DUPLICATE	MD	942074-79	<10	<10	NC					
DUPLICATE	MD	942074-83	<10	<10	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/03/94 07:54						QC BATCH NUMBER:309563
REPORTING LIMIT/DF: 10		UNITS:mg/L		METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	941003	<10							

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:10/03/94 07:54 METHOD REFERENCE :300.0 (1)							QC BATCH NUMBER:309563 TECHNICIAN:SLS
BLANK	CCB	941003	<10							
STANDARD	ICV/LCS	G940415A	80			75	107			
STANDARD	CCV	S100	96			100	96			
SPIKE	MS	941802-9	53					29	25	96
DUPLICATE	MD	941802-9	29	29	0					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			DATE/TIME ANALYZED:10/06/94 14:50 METHOD REFERENCE :120.1 (1)							QC BATCH NUMBER:309882 TECHNICIAN:MLM
BLANK	ICB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1400			1410	99			
STANDARD	CCV	G940926A	1400			1410	99			
DUPLICATE	MD	940925-100	34	34	0					
DUPLICATE	MD	941391-90	203	203	0					
DUPLICATE	MD	941875-48	98	98	0					
DUPLICATE	MD	942074-101	450	448	0					
DUPLICATE	MD	942074-110	490	489	0					
DUPLICATE	MD	942074-114	332	331	0					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:10/10/94 15:09 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:310114 TECHNICIAN:WGL
BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							

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QUALITY CONTROL REPORT
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JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:10/10/94 15:09						QC BATCH NUMBER:310114
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
STANDARD	ICV	0914E	1.81			2.00	90			
STANDARD	CCV	0831F	4.96			5.00	99			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	ISA	09260	181			200	90			
STANDARD	CCV	0831F	4.95			5.00	99			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	CCV	0831F	5.01			5.00	100			
STANDARD	ISB	1004A	175			200	88			
STANDARD	CCV	0831F	4.98			5.00	100			
STANDARD	CCV	0831F	5.05			5.00	101			
STANDARD	CCV	0831F	5.04			5.00	101			
STANDARD	CCV	0831F	4.96			5.00	99			
STANDARD	ISA	09260	185			200	92			
STANDARD	ISB	1004A	184			200	92			
STANDARD	CCV	0831F	4.97			5.00	99			
STANDARD	CCV	0831F	4.92			5.00	98			
SPIKE	PDS	941802-009	2.02					<0.03	2.00	101
SPIKE	PDS	941391-081	6.54					4.58	2.00	98
SPIKE	PDS	940936-073	2.09					<0.03	2.00	104
DUPLICATE	MD	941802-009	<0.03	<0.03	NC					
DUPLICATE	MD	941391-081	4.58	4.60	0					
DUPLICATE	MD	940936-073	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:10/14/94 15:00						QC BATCH NUMBER:310852
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	941014	<5							
STANDARD	LCS	G941007A	163			167	98			
DUPLICATE	MD	941875-46	13	12	1					
DUPLICATE	MD	941691-10	17	18	1					
DUPLICATE	MD	941802-10	21	22	1					
DUPLICATE	MD	941922-10	12	12	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:10/14/94 15:00						QC BATCH NUMBER:310853
REPORTING LIMIT/DF: 0.01 UNITS:pH Units				METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	6.93			7.00	99			
STANDARD	CCV	S7.00	6.95			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	6.98			7.00	100			
DUPLICATE	MD	941875-46	6.94	6.97	0					
DUPLICATE	MD	941691-10	7.18	7.20	0					
DUPLICATE	MD	941802-10	7.23	7.32	1					

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:10/14/94 15:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:310853 TECHNICIAN:KDS
DUPLICATE	MD	941922-10	7.21	7.22	0					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:10/14/94 15:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:310854 TECHNICIAN:KDS
BLANK	MB	941014	<10							
DUPLICATE	MD	941875-46	<10	<10	NC					
DUPLICATE	MD	941922-10	<10	<10	NC					
DUPLICATE	MD	941691-10	<10	<10	NC					
DUPLICATE	MD	941802-10	<10	<10	NC					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:10/14/94 08:00 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:311082 TECHNICIAN:RPK
BLANK	ICB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
STANDARD	ICV/LCS	G940926A	1420			1410	101			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	152			147	103			
STANDARD	CCV	G940926B	147			147	100			
DUPLICATE	MD	940416-13	58	58	0					
DUPLICATE	MD	940936-82	26	26	0					
DUPLICATE	MD	941875-51	22	21	5					
DUPLICATE	MD	942074-117	364	367	1					
DUPLICATE	MD	942074-127	399	399	0					
DUPLICATE	MD	942074-133	69	69	0					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:10/18/94 13:30 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:311126 TECHNICIAN:RPK
BLANK	ICB	941018	<1							
BLANK	CCB	941018	<1							
BLANK	CCB	941018	<1							

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QUALITY CONTROL REPORT
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ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:10/18/94 13:30						QC BATCH NUMBER:311126
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	CCB	941018	<1							
BLANK	CCB	941018	<1							
STANDARD	ICV/LCS	G940926A	1440			1410	102			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	148			147	101			
DUPLICATE	MD	941875-58	93	93	0					
DUPLICATE	MD	942074-140	290	290	0					
DUPLICATE	MD	942074-150	324	324	0					
DUPLICATE	MD	942074-152	77	77	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:10/26/94 13:15						QC BATCH NUMBER:312242
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	941026	<5							
STANDARD	LCS	G941007A	162			167	97			
DUPLICATE	MD	941802-12	14	15	1					
DUPLICATE	MD	940881-55	<5	<5	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:10/26/94 13:15						QC BATCH NUMBER:312243
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G941001A	3.96			4.00	99			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
DUPLICATE	MD	941802-12	7.19	7.42	3					
DUPLICATE	MD	940881-55	5.33	5.36	1					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:10/26/94 13:15						QC BATCH NUMBER:312244
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	941026	<10							
DUPLICATE	MD	941802-12	<10	<10	NC					
DUPLICATE	MD	940881-55	46	44	2					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:10/27/94 15:30						QC BATCH NUMBER:312298
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:10/27/94 15:30						QC BATCH NUMBER:312298
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
STANDARD	ISA	09260	174			200	87			
STANDARD	ISB	1004A	175			200	88			
STANDARD	CCV	0714D	9.72			10.0	97			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.42			10.0	94			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.16			10.0	92			
STANDARD	ICV	0405J	1.91			2.00	96			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	CCV	0714D	9.54			10.0	95			
STANDARD	CCV	0714D	9.39			10.0	94			
STANDARD	ISA	09260	174			200	87			
STANDARD	CCV	0714D	9.91			10.0	99			
STANDARD	CCV	0714D	9.71			10.0	97			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	ISB	1004A	169			200	84			
SPIKE	PDS	941802-011	1.10					<0.03	1.00	110
SPIKE	PDS	941391-092	3.37					1.27	2.00	105
SPIKE	PDS	941391-069	2.80					0.45	2.00	117
SPIKE	PDS	941875-053	2.16					<0.03	2.00	108
DUPLICATE	MD	941922-006	<0.03	<0.03	NC					
DUPLICATE	MD	941391-091	5.64	5.48	3					
DUPLICATE	MD	941875-052	<0.03	<0.03	NC					
DUPLICATE	MD	941802-011	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/27/94 12:56						QC BATCH NUMBER:312453
REPORTING LIMIT/DF: 10 UNITS:mg/L				METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	100			100	100			
SPIKE	MS	940881-50	60					37	25	92
SPIKE	MS	941392-49	29					<10	25	116

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/27/94 12:56						QC BATCH NUMBER:312453
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
SPIKE	MS	941875-48	49					24	25	100
SPIKE	MS	941875-50	41					16	25	100
SPIKE	MS	941875-49	30					11	25	76
DUPLICATE	MD	940881-50	37	39	2					
DUPLICATE	MD	941392-49	<10	<10	NC					
DUPLICATE	MD	941875-48	24	24	0					
DUPLICATE	MD	941875-50	16	16	0					
DUPLICATE	MD	941875-49	11	16	5					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:10/28/94 13:00						QC BATCH NUMBER:312489
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
DUPLICATE	MD	941391-103	438	436	0					
DUPLICATE	MD	941875-35	172	172	0					
DUPLICATE	MD	941875-64	152	151	1					
DUPLICATE	MD	942332-82	50	50	0					
DUPLICATE	MD	942332-91	72	72	0					
DUPLICATE	MD	942332-100	106	106	0					
DUPLICATE	MD	942332-109	1670	1660	1					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:10/31/94 13:00						QC BATCH NUMBER:312590
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	941031	<10							
BLANK	CCB	941031	<10							
BLANK	CCB	941031	<10							
BLANK	CCB	941031	<10							
STANDARD	ICV/LCS	G940415A	154			150	103			
STANDARD	CCV	S80	80			80	100			
STANDARD	CCV	S80	81			80	101			

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JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:10/31/94 13:00 METHOD REFERENCE :375.2 (1)						QC BATCH NUMBER:312590 TECHNICIAN:DME
STANDARD	CCV	S80	78			80	98			
SPIKE	MS	940416-112	80					26	50	108
SPIKE	MS	940416-114	78					27	50	102
SPIKE	MS	940416-115	116					68	50	96
DUPLICATE	MD	940416-112	26	23	3					
DUPLICATE	MD	940416-115	68	66	3					
DUPLICATE	MD	940416-114	27	23	4					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:10/31/94 08:00 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:312594 TECHNICIAN:RPK
BLANK	MB	941031	<5							
STANDARD	LCS	G941007A	160			167	96			
DUPLICATE	MD	942332-106	6	5	1					
DUPLICATE	MD	942332-112	<5	<5	NC					
DUPLICATE	MD	942332-120	23	23	0					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:10/31/94 08:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:312598 TECHNICIAN:RPK
STANDARD	ICV	G941001A	4.00			4.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
DUPLICATE	MD	942332-106	5.32	5.36	1					
DUPLICATE	MD	942332-112	6.32	6.29	0					
DUPLICATE	MD	942332-120	7.40	7.43	0					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:11/01/94 12:38 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:312767 TECHNICIAN:GEF
BLANK	ICB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							

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QUALITY CONTROL REPORT
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JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/01/94 12:38						QC BATCH NUMBER:312767
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	CCB	10210	<0.03							
STANDARD	CCV	0714D	9.53			10.0	95			
STANDARD	ISA	09260	175			200	88			
STANDARD	CCV	0714D	9.69			10.0	97			
STANDARD	ISB	09260	168			200	84			
STANDARD	CCV	0714D	9.82			10.0	98			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.70			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	ISB	1004A	178			200	89			
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	CCV	0714D	9.50			10.0	95			
STANDARD	CCV	0714D	9.39			10.0	94			
STANDARD	CCV	0714D	9.40			10.0	94			
STANDARD	CCV	0714D	9.17			10.0	92			
STANDARD	CCV	0714D	9.84			10.0	98			
STANDARD	CCV	0714D	9.05			10.0	90			
STANDARD	ICV	0914E	1.96			2.00	98			
STANDARD	CCV	0714D	9.50			10.0	95			
STANDARD	ISA	09260	170			200	85			
STANDARD	ISB	1004A	169			200	84			
STANDARD	CCV	0714D	9.50			10.0	95			
SPIKE	PDS	942332-102	2.22					<0.03	2.00	111
SPIKE	PDS	942332-112	2.27					0.05	2.00	111
SPIKE	PDS	941691-011	2.02					<0.03	2.00	101
SPIKE	PDS	941922-013	2.13					<0.03	2.00	106
SPIKE	PDS	942332-081	2.45					<0.03	2.00	123
SPIKE	PDS	942332-122	2.18					<0.03	2.00	109
SPIKE	PDS	942332-132	2.20					<0.03	2.00	110
SPIKE	PDS	941875-032	2.09					<0.03	2.00	104
SPIKE	PDS	942332-092	2.18					<0.03	2.00	109
SPIKE	PDS	941391-107	4.59					2.71	2.00	94
DUPLICATE	MD	942332-111	<0.03	<0.03	NC					
DUPLICATE	MD	941691-011	<0.03	<0.03	NC					
DUPLICATE	MD	941922-013	<0.03	<0.03	NC					
DUPLICATE	MD	942332-101	<0.03	<0.03	NC					
DUPLICATE	MD	942332-121	0.11	0.11	0.00					
DUPLICATE	MD	942332-131	<0.03	<0.03	NC					
DUPLICATE	MD	942332-141	<0.03	<0.03	NC					
DUPLICATE	MD	942332-091	0.03	0.04	0.01					
DUPLICATE	MD	941875-031	0.10	0.10	0.00					
DUPLICATE	MD	941391-106	9.06	9.05	0					
DUPLICATE	MD	942332-081	<0.03	<0.03	NC					

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:11/02/94 15:00						QC BATCH NUMBER:312910
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	941102	<1							
BLANK	CCB	941102	<1							
BLANK	CCB	941102	<1							
BLANK	CCB	941102	<1							
STANDARD	ICV/LCS	941319	105			98	107			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
DUPLICATE	MD	941875-69	145	144	1					
DUPLICATE	MD	942332-143	568	565	1					
DUPLICATE	MD	942332-150	408	407	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/02/94 08:00						QC BATCH NUMBER:312959
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
BLANK	CCB	941102	<10							
STANDARD	ICV/LCS	G940415A	158			150	105			
STANDARD	CCV	S80	79			80	99			
STANDARD	CCV	S80	76			80	95			
STANDARD	CCV	S80	74			80	92			
STANDARD	CCV	S80	73			80	91			
STANDARD	CCV	S80	78			80	98			
SPIKE	MS	940881-53	97					46	50	102
SPIKE	MS	940881-54	94					54	50	80
SPIKE	MS	940881-56	86					40	50	92
SPIKE	MS	941802-13	64					22	50	84
SPIKE	MS	941922-10	131					88	50	86
DUPLICATE	MD	940881-53	46	44	2					
DUPLICATE	MD	940881-54	54	60	11					
DUPLICATE	MD	940881-56	40	41	1					
DUPLICATE	MD	941802-13	22	22	0					
DUPLICATE	MD	941922-10	88	88	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:11/04/94 10:30						QC BATCH NUMBER:313162
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:MLM
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:313162 TECHNICIAN:MLM
DUPLICATE	MD	942074-168	7.34	7.34	0					
DUPLICATE	MD	941802-14	7.36	7.30	1					
DUPLICATE	MD	941922-13	7.25	7.20	1					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:313163 TECHNICIAN:MLM
BLANK	MB	941104	<5							
STANDARD	LCS	G941007A	153			167	92			
DUPLICATE	MD	942074-168	15	16	1					
DUPLICATE	MD	941802-14	17	17	0					
DUPLICATE	MD	941922-13	15	14	1					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:313164 TECHNICIAN:KDS
BLANK	MB	941104	<10							
DUPLICATE	MD	942074-168	<10	<10	NC					
DUPLICATE	MD	941802-14	<10	<10	NC					
DUPLICATE	MD	941922-13	<10	<10	NC					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:11/04/94 11:00 METHOD REFERENCE :375.2 (1)						QC BATCH NUMBER:313178 TECHNICIAN:DME
BLANK	ICB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
BLANK	CCB	941104	<10							
STANDARD	ICV/LCS	G940415A	139			150	93			
STANDARD	CCV	S80	85			80	106			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	86			80	108			
STANDARD	CCV	S80	88			80	110			
STANDARD	CCV	S80	88			80	110			
STANDARD	CCV	S80	88			80	110			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	86			80	108			
SPIKE	MS	941922-13	173					121	50	104
SPIKE	MS	942332-107	78					23	50	110
SPIKE	MS	942332-108	79					29	50	100
SPIKE	MS	942332-116	115					24	100	91

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/04/94 11:00						QC BATCH NUMBER:313178
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
SPIKE	MS	942332-125	186					134	50	104
SPIKE	MS	942332-132	68					18	50	100
SPIKE	MS	941391-110	94					45	50	98
SPIKE	MS	941802-14	77					27	50	100
DUPLICATE	MD	941922-13	121	128	6					
DUPLICATE	MD	942332-107	23	27	4					
DUPLICATE	MD	942332-108	29	30	1					
DUPLICATE	MD	942332-116	23	24	1					
DUPLICATE	MD	942332-125	134	138	3					
DUPLICATE	MD	942332-132	18	17	1					
DUPLICATE	MD	941391-110	45	45	0					
DUPLICATE	MD	941802-14	29	27	2					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:11/08/94 08:00						QC BATCH NUMBER:313374
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
STANDARD	ICV/LCS	941319	107			99	108			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	144			147	98			
DUPLICATE	MD	941391-112	541	543	0					
DUPLICATE	MD	941875-71	21	21	0					
DUPLICATE	MD	942074-195	437	439	0					
DUPLICATE	MD	942074-205	273	273	0					
DUPLICATE	MD	942074-207	198	198	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/09/94 12:42						QC BATCH NUMBER:313633
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/09/94 12:42						QC BATCH NUMBER:313633
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	CCB	10210	<0.03							
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	CCV	0714D	9.63			10.0	96			
STANDARD	ISB	1004A	171			200	86			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	CCV	0714D	9.94			10.0	99			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.0			10.0	100			
STANDARD	CCV	0714D	9.92			10.0	99			
STANDARD	ISA	09260	177			200	88			
STANDARD	ISA	09260	183			200	92			
STANDARD	ISB	1004A	179			200	90			
STANDARD	CCV	0714D	10.4			10.0	104			
STANDARD	ISB	1004A	169			200	84			
STANDARD	ICV	0914E	1.90			2.00	95			
SPIKE	PDS	940495-048	2.57					0.42	2.00	108
SPIKE	PDS	940881-046	2.09					0.04	2.00	102
SPIKE	PDS	942799-001	2.16					0.29	2.00	94
SPIKE	PDS	941875-074	2.13					0.22	2.00	96
SPIKE	PDS	941802-015	2.05					<0.03	2.00	102
DUPLICATE	MD	942658-001	0.70	0.68	3					
DUPLICATE	MD	940881-045	<0.03	<0.03	NC					
DUPLICATE	MD	941691-015	<0.03	<0.03	NC					
DUPLICATE	MD	941875-038	0.06	0.05	0.01					
DUPLICATE	MD	940495-046	1.28	1.29	1					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:11/09/94 11:00						QC BATCH NUMBER:313681
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:MLM
BLANK	MB	941109	<5							
STANDARD	LCS	G941007A	168			167	101			
DUPLICATE	MD	941802-15	18	18	0					
DUPLICATE	MD	941875-75	29	29	0					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:11/09/94 11:00						QC BATCH NUMBER:313682
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:MLM
BLANK	MB	941109	<10							
DUPLICATE	MD	941802-15	<10	<10	NC					
DUPLICATE	MD	941875-75	<10	<10	NC					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:11/09/94 11:00						QC BATCH NUMBER:313683
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:MLM
STANDARD	ICV	G941001A	3.99			4.00	100			

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:11/09/94 11:00						QC BATCH NUMBER:313683
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:MLM
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.96			7.00	99			
DUPLICATE	MD	941802-15	7.40	7.35	1					
DUPLICATE	MD	941875-75	8.41	8.52	1					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/10/94 13:10						QC BATCH NUMBER:313760
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
STANDARD	ICV/LCS	G940415A	144			150	96			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	85			80	106			
STANDARD	CCV	S80	80			80	100			
STANDARD	CCV	S80	88			80	110			
SPIKE	MS	940495-46	72					21	50	102
SPIKE	MS	940881-59	87					42	50	90
SPIKE	MS	940881-60	100					50	50	100
SPIKE	MS	941392-55	51					<10	50	102
DUPLICATE	MD	940495-46	21	22	1					
DUPLICATE	MD	940881-59	42	40	2					
DUPLICATE	MD	940881-60	50	51	1					
DUPLICATE	MD	941392-55	<10	<10	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/15/94 10:00						QC BATCH NUMBER:314157
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	941115	<10							
BLANK	CCB	941115	<10							
BLANK	CCB	941115	<10							
BLANK	CCB	941115	<10							
BLANK	CCB	941115	<10							
STANDARD	ICV/LCS	G940415A	154			150	103			
STANDARD	CCV	S160	161			160	101			
STANDARD	CCV	S160	165			160	103			
STANDARD	CCV	S160	160			160	100			
STANDARD	CCV	S160	160			160	100			
SPIKE	MS	940416-117	84					36	50	96
SPIKE	MS	940416-118	80					35	50	90
SPIKE	MS	940416-120	76					30	50	92
SPIKE	MS	940881-62	82					36	50	92
DUPLICATE	MD	940416-117	36	38	2					
DUPLICATE	MD	940416-118	35	33	2					

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:11/15/94 10:00 METHOD REFERENCE :375.2 (1)							QC BATCH NUMBER:314157 TECHNICIAN:DME
DUPLICATE	MD	940416-120	30	28	2					
DUPLICATE	MD	940881-62	36	36	0					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			DATE/TIME ANALYZED:11/16/94 08:00 METHOD REFERENCE :120.1 (1)							QC BATCH NUMBER:314222 TECHNICIAN:RPK
BLANK	ICB	941116	<1							
BLANK	CCB	941116	<1							
BLANK	CCB	941116	<1							
BLANK	CCB	941116	<1							
BLANK	CCB	941116	<1							
STANDARD	ICV/LCS	941319	105			99	106			
STANDARD	CCV	G940926B	143			147	97			
STANDARD	CCV	G940926B	142			147	97			
STANDARD	CCV	G940926B	142			147	97			
STANDARD	CCV	G940926B	141			147	96			
DUPLICATE	MD	941802-16	74	73	1					
DUPLICATE	MD	942074-213	110	111	1					
DUPLICATE	MD	942074-223	586	585	0					
DUPLICATE	MD	942074-228	16	16	0					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:11/16/94 13:56 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:314240 TECHNICIAN:WGL
BLANK	ICB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	ICV	0914E	2.01			2.00	100			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	ISA	09260	182			200	91			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	ISB	1004A	185			200	92			
STANDARD	CCV	0714D	10.0			10.0	100			
STANDARD	CCV	0714D	10.4			10.0	104			
STANDARD	ISA	09260	188			200	94			
STANDARD	ISB	1004A	188			200	94			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.2			10.0	102			
SPIKE	PDS	940416-117	2.12					<0.03	2.00	106
SPIKE	PDS	941391-116	17.9					15.9	2.00	100
SPIKE	PDS	941113-053	2.09					<0.03	2.00	104
DUPLICATE	MD	941391-116	15.9	15.9	0					
DUPLICATE	MD	941113-053	<0.03	<0.03	NC					

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:11/16/94 13:56 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:314240 TECHNICIAN:WGL
DUPLICATE	MD	940416-117	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/17/94 08:45 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:314312 TECHNICIAN:SLS
BLANK	MB	941117	<5							
STANDARD	LCS	G941007A	168			167	101			
DUPLICATE	MD	941875-80	28	27	4					
DUPLICATE	MD	941875-79	53	52	2					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/17/94 08:45 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:314313 TECHNICIAN:SLS
BLANK	MB	941117	<10							
DUPLICATE	MD	941875-80	<10	<10	NC					
DUPLICATE	MD	941875-79	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:11/17/94 08:45 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:314315 TECHNICIAN:SLS
STANDARD	ICV	G941001A	4.00			4.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.97			7.00	100			
DUPLICATE	MD	941875-80	7.93	8.04	1					
DUPLICATE	MD	941875-79	9.37	9.32	1					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/22/94 08:00 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:314689 TECHNICIAN:RPK
BLANK	MB	941122	<5							
STANDARD	LCS	G941007A	169			167	101			
DUPLICATE	MD	941802-17	18	17	1					
DUPLICATE	MD	941922-16	12	13	1					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:11/22/94 08:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:314692 TECHNICIAN:RPK
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.95			7.00	99			
DUPLICATE	MD	941802-17	7.78	7.67	1					
DUPLICATE	MD	941922-16	7.43	7.42	0					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/22/94 08:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:314694 TECHNICIAN:RPK
BLANK	MB	941122	<10							

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JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:11/22/94 08:00						QC BATCH NUMBER:314694
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
DUPLICATE	MD	941802-17	<10	<10	NC					
DUPLICATE	MD	941922-16	<10	<10	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:11/22/94 13:29						QC BATCH NUMBER:314788
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	941122	<10							
BLANK	CCB	941122	<10							
BLANK	CCB	941122	<10							
BLANK	CCB	941122	<10							
BLANK	CCB	941122	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	97			100	97			
SPIKE	MS	940881-64	63					37	25	104
SPIKE	MS	941391-125	47					23	25	96
SPIKE	MS	941802-17	35					11	25	96
SPIKE	MS	941875-81	25					<10	25	100
DUPLICATE	MD	940881-64	37	38	1					
DUPLICATE	MD	941391-125	23	23	0					
DUPLICATE	MD	941802-17	11	10	1					
DUPLICATE	MD	941875-81	<10	<10	NC					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:11/22/94 15:50						QC BATCH NUMBER:314791
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:MLM
BLANK	ICB	941122	<1							
BLANK	CCB	941122	<1							
BLANK	CCB	941122	<1							
BLANK	CCB	941122	<1							
BLANK	CCB	941122	<1							
STANDARD	ICV/LCS	941319	103			98	105			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1390			1410	99			
DUPLICATE	MD	941391-125	87	86	1					
DUPLICATE	MD	942074-230	258	256	1					
DUPLICATE	MD	942074-238	352	351	0					
DUPLICATE	MD	942074-242	570	568	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/23/94 09:18						QC BATCH NUMBER:314820
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	1115A	<0.03							

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/23/94 09:18						QC BATCH NUMBER:314820
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	CCV	1114H	5.19			5.00	104			
STANDARD	ICV	0914E	2.07			2.00	103			
STANDARD	CCV	1114H	5.07			5.00	101			
STANDARD	ISA	09260	177			200	88			
STANDARD	CCV	1114H	4.95			5.00	99			
STANDARD	ISB	1004A	170			200	85			
STANDARD	CCV	1114H	4.91			5.00	98			
STANDARD	ISA	09260	173			200	86			
STANDARD	ISB	1004A	168			200	84			
STANDARD	CCV	1114H	4.95			5.00	99			
SPIKE	PDS	942074-240	2.14					<0.03	2.00	107
SPIKE	PDS	942892-001	1.94					0.06	2.00	94
SPIKE	PDS	941691-017	2.05					<0.03	2.00	102
SPIKE	PDS	942074-230	2.24					<0.03	2.00	112
DUPLICATE	MD	942074-240	<0.03	<0.03	NC					
DUPLICATE	MD	941691-017	<0.03	<0.03	NC					
DUPLICATE	MD	942074-230	<0.03	<0.03	NC					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:11/28/94 17:30						QC BATCH NUMBER:314995
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				METHOD REFERENCE :120.1 (1)						TECHNICIAN:KDS
BLANK	ICB	941128	<1							
BLANK	CCB	941128	<1							
BLANK	CCB	941128	<1							
BLANK	CCB	941128	<1							
BLANK	CCB	941128	<1							
STANDARD	ICV/LCS	941319	104			98	106			
STANDARD	CCV	G941117A	1420			1410	101			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1380			1410	98			
DUPLICATE	MD	941391-130	89	89	0					
DUPLICATE	MD	941875-90	68	69	1					
DUPLICATE	MD	942074-250	132	133	1					
DUPLICATE	MD	942074-260	275	276	0					
DUPLICATE	MD	942074-266	11	11	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:11/29/94 14:00						QC BATCH NUMBER:315087
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	1115A	<0.03							

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:11/29/94 14:00							QC BATCH NUMBER:315087
REPORTING LIMIT/DF: 0.03	UNITS:mg/L		METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	CCV	1114H	4.86			5.00	97			
STANDARD	ISB	1123J	176			200	88			
STANDARD	CCV	1114H	4.99			5.00	100			
STANDARD	CCV	1114H	5.01			5.00	100			
STANDARD	CCV	1114H	5.04			5.00	101			
STANDARD	ICV	0914E	1.93			2.00	96			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	CCV	1114H	5.10			5.00	102			
STANDARD	CCV	1114H	5.06			5.00	101			
STANDARD	ISA	09260	181			200	90			
STANDARD	ISA	09260	175			200	88			
STANDARD	ISB	1123J	168			200	84			
STANDARD	CCV	1114H	5.15			5.00	103			
SPIKE	PDS	941875-082	1.81					<0.03	2.00	90
SPIKE	PDS	942977-003	2.48					0.96	2.00	76
SPIKE	PDS	941391-127	4.26					2.62	2.00	82
DUPLICATE	MD	941875-082	<0.03	<0.03	NC					
DUPLICATE	MD	942977-003	0.96	0.98	2					
DUPLICATE	MD	941391-127	2.62	2.60	1					
PARAMETER:Sulfate (Filt.)			DATE/TIME ANALYZED:11/29/94 09:07							QC BATCH NUMBER:315136
REPORTING LIMIT/DF: 10	UNITS:mg/L		METHOD REFERENCE :300.0 (1)							TECHNICIAN:SLS
BLANK	ICB	941129	<10							
BLANK	CCB	941129	<10							
BLANK	CCB	941129	<10							
BLANK	CCB	941129	<10							
BLANK	CCB	941129	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	102			100	102			
STANDARD	CCV	S100	97			100	97			
SPIKE	MS	942969-1	54					29	25	100
SPIKE	MS	942969-2	72					48	25	96
SPIKE	MS	940881-66	73					47	25	104
SPIKE	MS	941875-90	29					<10	25	116
DUPLICATE	MD	942969-1	29	29	0					

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QUALITY CONTROL REPORT
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JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:11/29/94 09:07 METHOD REFERENCE :300.0 (1)							QC BATCH NUMBER:315136 TECHNICIAN:SLS
DUPLICATE	MD	942969-2	48	48	0					
DUPLICATE	MD	940881-66	47	47	0					
DUPLICATE	MD	941875-90	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:11/29/94 16:30 METHOD REFERENCE :150.1 (1)							QC BATCH NUMBER:315385 TECHNICIAN:KDS
STANDARD	ICV	G941001A	3.95			4.00	99			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
DUPLICATE	MD	940881-65	5.67	5.41	5					
DUPLICATE	MD	940881-66	4.99	5.03	1					
DUPLICATE	MD	941113-59	7.48	7.52	1					
DUPLICATE	MD	941922-17	7.38	7.41	0					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:11/29/94 16:30 METHOD REFERENCE :310.1 (1)							QC BATCH NUMBER:315387 TECHNICIAN:KDS
BLANK	MB	941129	<5							
STANDARD	LCS	G941007A	167			167	100			
DUPLICATE	MD	940881-65	<5	<5	NC					
DUPLICATE	MD	940881-66	<5	<5	NC					
DUPLICATE	MD	941113-59	16	16	0					
DUPLICATE	MD	941922-17	14	13	1					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:11/29/94 16:30 METHOD REFERENCE :305.1 (1)							QC BATCH NUMBER:315388 TECHNICIAN:KDS
BLANK	MB	941129	<10							
DUPLICATE	MD	940881-65	46	46	0					
DUPLICATE	MD	940881-66	44	44	0					
DUPLICATE	MD	941113-59	<10	<10	NC					
DUPLICATE	MD	941922-17	<10	<10	NC					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:12/05/94 14:15 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:315647 TECHNICIAN:GEF
BLANK	ICB	1104C	<0.03							
BLANK	CCB	1104C	<0.03							
BLANK	CCB	1104C	<0.03							
BLANK	CCB	1104C	<0.03							
STANDARD	CCV	1017J	5.12			5.00	102			
STANDARD	ICV	1122D	1.91			2.00	96			
STANDARD	CCV	1017J	5.04			5.00	101			

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/05/94 14:15						QC BATCH NUMBER:315647
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
STANDARD	ISA	09260	182			200	91			
STANDARD	ISA	09260	172			200	86			
STANDARD	ISB	1123J	163			200	82			
STANDARD	CCV	1017J	4.90			5.00	98			
STANDARD	ISB	1123J	177			200	88			
SPIKE	PDS	941802-012	1.96					<0.03	2.00	98
DUPLICATE	MD	941802-012	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:12/08/94 11:18						QC BATCH NUMBER:316012
REPORTING LIMIT/DF: 10 UNITS:mg/L				METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	941208	<10							
BLANK	CCB	941208	<10							
BLANK	CCB	941208	<10							
BLANK	CCB	941208	<10							
BLANK	CCB	941208	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	105			100	105			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
SPIKE	MS	940881-68	71					45	25	104
SPIKE	MS	941875-93	32					10	25	88
SPIKE	MS	941875-95	28					<10	25	112
SPIKE	MS	941875-94	27					<10	25	108
DUPLICATE	MD	940881-68	45	46	1					
DUPLICATE	MD	941875-93	10	10	0					
DUPLICATE	MD	941875-95	<10	<10	NC					
DUPLICATE	MD	941875-94	<10	<10	NC					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:12/09/94 09:15						QC BATCH NUMBER:316091
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:SLS
BLANK	MB	941209	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	941113-61	19	19	0					
DUPLICATE	MD	941802-19	18	17	1					
DUPLICATE	MD	942332-156	27	28	4					
DUPLICATE	MD	942866-9	23	23	0					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:12/09/94 09:15						QC BATCH NUMBER:316092
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				METHOD REFERENCE :305.1 (1)						TECHNICIAN:SLS
BLANK	MB	941209	<10							
DUPLICATE	MD	941113-61	<10	<10	NC					
DUPLICATE	MD	941802-19	<10	<10	NC					

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:12/09/94 09:15 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:316092 TECHNICIAN:SLS	
DUPLICATE	MD	942332-156	<10	<10	NC					
DUPLICATE	MD	942866-9	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:12/09/94 09:15 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:316093 TECHNICIAN:SLS	
STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
DUPLICATE	MD	941113-61	7.14	7.24	1					
DUPLICATE	MD	941802-19	7.37	7.31	1					
DUPLICATE	MD	942332-156	7.62	7.71	1					
DUPLICATE	MD	942866-9	7.50	7.43	1					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:12/09/94 13:36 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:316154 TECHNICIAN:WGL	
BLANK	ICB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	CCV	1114H	5.18			5.00	104			
STANDARD	CCV	1114H	5.12			5.00	102			
STANDARD	CCV	1114H	5.27			5.00	105			
STANDARD	ICV	0914E	1.80			2.00	90			
STANDARD	CCV	1114H	5.37			5.00	107			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	ISA	09260	169			200	84			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	CCV	1114H	4.86			5.00	97			
STANDARD	CCV	1114H	4.76			5.00	95			
STANDARD	CCV	1114H	4.80			5.00	96			
STANDARD	CCV	1114H	5.15			5.00	103			
STANDARD	ISA	09260	162			200	81			

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/09/94 13:36						QC BATCH NUMBER:316154
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
STANDARD	ISB	1123J	164			200	82			
STANDARD	CCV	1114H	4.92			5.00	98			
STANDARD	ISB	1123J	166			200	83			
SPIKE	PDS	943101-001	2.32					0.28	2.00	102
SPIKE	PDS	941802-019	2.50					0.42	2.00	104
SPIKE	PDS	942953-001	1.14					0.03	1.00	111
SPIKE	PDS	942866-010	1.90					<0.03	2.00	95
SPIKE	PDS	943070-004	2.67					0.78	2.00	94
SPIKE	PDS	942332-164	1.53					<0.03	2.00	76
DUPLICATE	MD	942332-164	<0.03	<0.03	NC					
DUPLICATE	MD	943101-001	0.28	0.28	0					
DUPLICATE	MD	942866-010	<0.03	<0.03	NC					
DUPLICATE	MD	942953-001	0.03	<0.03	0.03					
DUPLICATE	MD	943070-004	0.78	0.79	1					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:12/13/94 09:00						QC BATCH NUMBER:316287
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				METHOD REFERENCE :120.1 (1)						TECHNICIAN:SLS
BLANK	ICB	941213	<1							
BLANK	CCB	941213	<1							
BLANK	CCB	941213	<1							
BLANK	CCB	941213	<1							
BLANK	CCB	941213	<1							
STANDARD	ICV/LCS	941319	104			99	105			
STANDARD	CCV	S147	147			147	100			
STANDARD	CCV	S147	146			147	99			
STANDARD	CCV	S147	145			147	99			
STANDARD	CCV	S147	144			147	98			
DUPLICATE	MD	941691-19	238	236	1					
DUPLICATE	MD	942332-153	107	108	1					
DUPLICATE	MD	942332-163	59	58	2					
DUPLICATE	MD	942332-165	288	284	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/15/94 14:29						QC BATCH NUMBER:316605
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)			DATE/TIME ANALYZED:12/15/94 14:29							QC BATCH NUMBER:316605
REPORTING LIMIT/DF: 0.03 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:WGL
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
STANDARD	CCV	1114H	5.06			5.00	101			
STANDARD	ICV	0914E	1.91			2.00	96			
STANDARD	CCV	1114H	5.10			5.00	102			
STANDARD	CCV	1114H	5.12			5.00	102			
STANDARD	CCV	1114H	5.22			5.00	104			
STANDARD	ISA	09260	199			200	100			
STANDARD	CCV	1114H	5.22			5.00	104			
STANDARD	CCV	1114H	5.09			5.00	102			
STANDARD	CCV	1114H	4.78			5.00	96			
STANDARD	ISB	1123J	191			200	96			
STANDARD	CCV	1114H	4.78			5.00	96			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	ISA	09260	185			200	92			
STANDARD	ISB	1123J	185			200	92			
STANDARD	CCV	1114H	4.78			5.00	96			
STANDARD	CCV	1114H	5.04			5.00	101			
SPIKE	PDS	940495-049	2.84					0.90	2.00	97
SPIKE	PDS	942332-099	3.88					1.91	2.00	98
SPIKE	PDS	941875-096	2.29					0.46	2.00	92
DUPLICATE	MD	940495-049	0.90	0.89	1					
DUPLICATE	MD	941875-096	0.46	0.54	16					
PARAMETER:Alkalinity, Total (Filt.)			DATE/TIME ANALYZED:12/22/94 15:00							QC BATCH NUMBER:317117
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)							TECHNICIAN:KDS
BLANK	MB	941222	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	940881-69	<5	<5	NC					
DUPLICATE	MD	940881-70	<5	<5	NC					
DUPLICATE	MD	941802-20	16	16	0					
PARAMETER:Acidity (Filt.)			DATE/TIME ANALYZED:12/22/94 15:00							QC BATCH NUMBER:317118
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)							TECHNICIAN:KDS
BLANK	MB	941222	<10							
DUPLICATE	MD	940881-69	39	42	3					
DUPLICATE	MD	940881-70	50	49	1					
DUPLICATE	MD	941802-20	<10	<10	NC					
PARAMETER:pH (Filt.)			DATE/TIME ANALYZED:12/22/94 15:00							QC BATCH NUMBER:317119
REPORTING LIMIT/DF: 0.01 UNITS:pH Units			METHOD REFERENCE :150.1 (1)							TECHNICIAN:KDS
STANDARD	ICV	G941219A	3.99			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:12/22/94 15:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:317119 TECHNICIAN:KDS
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	940881-69	5.35	5.34	0					
DUPLICATE	MD	940881-70	4.94	4.89	1					
DUPLICATE	MD	941802-20	7.33	7.34	0					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:12/29/94 07:00 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:317405 TECHNICIAN:KDS
BLANK	MB	941229	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	940881-72	<5	<5	NC					
DUPLICATE	MD	941113-65	19	18	1					
DUPLICATE	MD	941802-21	18	19	1					
DUPLICATE	MD	942866-28	13	13	0					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:12/29/94 07:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:317406 TECHNICIAN:KDS
BLANK	MB	941229	<10							
DUPLICATE	MD	940881-72	46	44	2					
DUPLICATE	MD	941113-65	<10	<10	NC					
DUPLICATE	MD	942866-22	<10	<10	NC					
DUPLICATE	MD	941802-21	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:12/29/94 07:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:317407 TECHNICIAN:KDS
STANDARD	ICV	G941219A	4.00			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	940881-72	4.80	4.78	0					
DUPLICATE	MD	941113-65	7.58	7.55	0					
DUPLICATE	MD	941802-21	7.55	7.59	1					
DUPLICATE	MD	942866-25	7.33	7.31	0					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:12/28/94 15:40 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:317542 TECHNICIAN:FK
BLANK	ICB	941228	<1							
BLANK	CCB	941228	<1							
BLANK	CCB	941228	<1							
BLANK	CCB	941228	<1							

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:12/28/94 15:40						QC BATCH NUMBER:317542
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:FK
BLANK	CCB	941228	<1							
STANDARD	ICV/LCS	941850	100			99	101			
STANDARD	CCV	G941117B	146			147	99			
STANDARD	CCV	G941117B	146			147	99			
STANDARD	CCV	G941117B	145			147	99			
STANDARD	CCV	G941117B	144			147	98			
DUPLICATE	MD	941391-141	471	469	0					
DUPLICATE	MD	941391-150	82	82	0					
DUPLICATE	MD	941691-21	336	336	0					
DUPLICATE	MD	941802-22	54	54	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:12/30/94 15:26						QC BATCH NUMBER:317573
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	941230	<10							
BLANK	CCB	941230	<10							
BLANK	CCB	941230	<10							
BLANK	CCB	941230	<10							
BLANK	CCB	941230	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	96			100	96			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	96			100	96			
SPIKE	MS	941875-101	24					<10	25	96
SPIKE	MS	941875-105	26					<10	25	104
SPIKE	MS	941875-104	27					<10	25	108
SPIKE	MS	941875-103	36					14	25	88
DUPLICATE	MD	941875-101	<10	<10	NC					
DUPLICATE	MD	941875-105	<10	<10	NC					
DUPLICATE	MD	941875-104	<10	<10	NC					
DUPLICATE	MD	941875-103	14	14	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:12/30/94 13:01						QC BATCH NUMBER:317616
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							

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ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:12/30/94 13:01 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:317616 TECHNICIAN:GEF
STANDARD	CCV	1117K	9.59			10.0	96			
STANDARD	ISB	1123J	173			200	86			
STANDARD	CCV	1117K	9.57			10.0	96			
STANDARD	CCV	1117K	9.75			10.0	98			
STANDARD	CCV	1117K	10.4			10.0	104			
STANDARD	ICV	0914E	1.99			2.00	100			
STANDARD	CCV	1117K	10.2			10.0	102			
STANDARD	CCV	1117K	9.75			10.0	98			
STANDARD	CCV	1117K	9.72			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	CCV	1117K	9.34			10.0	93			
STANDARD	ISA	09260	172			200	86			
STANDARD	ISA	09260	172			200	86			
STANDARD	ISB	1123J	161			200	80			
STANDARD	CCV	1117K	10.7			10.0	107			
STANDARD	ISB	1123J	162			200	81			
SPIKE	PDS	943122-001	1.96					0.09	2.00	94
SPIKE	PDS	943233-002	1.85					0.09	2.00	88
SPIKE	PDS	941875-101	1.78					0.06	2.00	86
SPIKE	PDS	941113-067	1.96					<0.03	2.00	98
DUPLICATE	MD	943233-001	<0.03	<0.03	NC					
DUPLICATE	MD	941802-021	<0.03	<0.03	NC					
DUPLICATE	MD	943122-001	0.09	0.09	0.00					
DUPLICATE	MD	941113-065	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:01/04/95 10:15 METHOD REFERENCE :310.1 (1)							QC BATCH NUMBER:317805 TECHNICIAN:SLS
BLANK	MB	950104	<5							
STANDARD	LCS	G941027A	166			167	99			
DUPLICATE	MD	941802-22	15	15	0					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:01/04/95 10:15 METHOD REFERENCE :305.1 (1)							QC BATCH NUMBER:317806 TECHNICIAN:SLS
BLANK	MB	950104	<10							
DUPLICATE	MD	941802-22	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:01/04/95 10:15 METHOD REFERENCE :150.1 (1)							QC BATCH NUMBER:317807 TECHNICIAN:SLS
STANDARD	ICV	G941027A	3.99			4.00	100			
STANDARD	CCV	S7.00	6.98			7.00	100			
DUPLICATE	MD	941802-22	6.97	7.08	2					

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ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:01/04/95 09:00						QC BATCH NUMBER:317854
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
STANDARD	ICV/LCS	G940415A	153			150	102			
STANDARD	CCV	S200	200			200	100			
STANDARD	CCV	S200	200			200	100			
STANDARD	CCV	S200	180			200	90			
STANDARD	CCV	S200	180			200	90			
STANDARD	CCV	S200	194			200	97			
STANDARD	CCV	S200	212			200	106			
STANDARD	CCV	S200	217			200	108			
SPIKE	MS	940416-121	73					24	50	98
SPIKE	MS	940881-69	82					34	50	96
SPIKE	MS	941691-21	173					118	50	110
SPIKE	MS	941802-21	68					15	50	106
SPIKE	MS	941113-67	142					93	50	98
SPIKE	MS	942866-17	56					<10	50	112
SPIKE	MS	941391-150	65					23	50	84
DUPLICATE	MD	940416-121	24	25	1					
DUPLICATE	MD	940881-69	34	35	1					
DUPLICATE	MD	941691-21	118	125	6					
DUPLICATE	MD	941802-21	15	14	1					
DUPLICATE	MD	941113-67	93	90	3					
DUPLICATE	MD	942866-17	<10	<10	NC					
DUPLICATE	MD	941391-150	23	21	2					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/04/95 15:48						QC BATCH NUMBER:317897
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
STANDARD	CCV	1117K	10.0			10.0	100			
STANDARD	ICV	0914E	1.96			2.00	98			

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/04/95 15:48						QC BATCH NUMBER:317897
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
STANDARD	CCV	1117K	9.87			10.0	99			
STANDARD	CCV	1117K	9.87			10.0	99			
STANDARD	ISA	09260	176			200	88			
STANDARD	CCV	1117K	9.56			10.0	96			
STANDARD	ISB	1123J	173			200	86			
STANDARD	CCV	1117K	10.0			10.0	100			
STANDARD	ISA	09260	183			200	92			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	1117K	10.3			10.0	103			
STANDARD	CCV	1117K	10.2			10.0	102			
STANDARD	CCV	1117K	10.0			10.0	100			
STANDARD	CCV	1117K	10.4			10.0	104			
STANDARD	ISA	09260	178			200	89			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	1117K	10.1			10.0	101			
SPIKE	PDS	943257-010	1.80					0.06	2.00	87
SPIKE	PDS	943251-003	1.83					<0.03	2.00	92
SPIKE	PDS	941802-023	2.09					<0.03	2.00	104
SPIKE	PDS	941875-107	2.06					<0.03	2.00	103
SPIKE	PDS	943243-001	1.84					0.03	2.00	90
SPIKE	PDS	941391-153	3.88					1.95	2.00	96
DUPLICATE	MD	943251-001	0.16	0.16	0					
DUPLICATE	MD	943257-005	0.07	0.07	0.00					
DUPLICATE	MD	943243-001	0.03	<0.03	0.03					
DUPLICATE	MD	941691-024	<0.03	<0.03	NC					
DUPLICATE	MD	943242-010	0.25	0.27	8					
DUPLICATE	MD	941922-022	<0.03	<0.03	NC					
DUPLICATE	MD	941391-153	1.95	1.95	0					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:01/06/95 12:54						QC BATCH NUMBER:318126
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				METHOD REFERENCE :120.1 (1)						TECHNICIAN:DME
BLANK	ICB	950106	<1							
BLANK	CCB	950106	<1							
BLANK	CCB	950106	<1							
BLANK	CCB	950106	<1							
BLANK	CCB	950106	<1							
STANDARD	ICV/LCS	941849	1030			1000	103			
STANDARD	CCV	S147	154			147	105			
STANDARD	CCV	S147	149			147	101			
STANDARD	CCV	S147	150			147	102			
STANDARD	CCV	S147	148			147	101			
DUPLICATE	MD	940881-76	84	83	1					
DUPLICATE	MD	941875-111	14	14	0					
DUPLICATE	MD	942074-347	134	135	1					
DUPLICATE	MD	942074-357	126	126	0					

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:01/06/95 12:54 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:318126 TECHNICIAN:DME
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:01/10/95 10:10 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:318362 TECHNICIAN:KDS
BLANK	MB	950110	<5							
STANDARD	LCS	G941027A	166			167	99			
DUPLICATE	MD	941875-113	12	11	1					
DUPLICATE	MD	942866-42	10	10	0					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:01/10/95 10:10 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:318363 TECHNICIAN:KDS
BLANK	MB	950110	<10							
DUPLICATE	MD	941875-113	<10	<10	NC					
DUPLICATE	MD	942866-42	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:01/10/95 10:10 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:318364 TECHNICIAN:KDS
STANDARD	ICV	G941219A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	941875-113	7.24	7.29	1					
DUPLICATE	MD	942866-42	7.19	7.15	1					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:01/10/95 08:00 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:318366 TECHNICIAN:RPK
BLANK	ICB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
STANDARD	ICV/LCS	941849	1030			1000	103			
STANDARD	CCV	G941117B	150			147	102			
STANDARD	CCV	G941117B	149			147	101			
STANDARD	CCV	G941117B	148			147	101			
STANDARD	CCV	G941117B	148			147	101			
STANDARD	CCV	G941117B	148			147	101			
STANDARD	CCV	G941117B	146			147	99			
DUPLICATE	MD	941875-116	17	17	0					
DUPLICATE	MD	942074-366	146	147	1					
DUPLICATE	MD	942074-376	144	143	1					

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:01/10/95 08:00						QC BATCH NUMBER:318366
REPORTING LIMIT/DF: 1		UNITS:umhos/cm @25dC		METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
DUPLICATE	MD	942332-171	89	89	0					
DUPLICATE	MD	942866-43	850	850	0					
DUPLICATE	MD	943080-5	234	234	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/11/95 13:20						QC BATCH NUMBER:318455
REPORTING LIMIT/DF: 0.03		UNITS:mg/L		METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
STANDARD	CCV	1114H	5.19			5.00	104			
STANDARD	ISB	1123J	193			200	96			
STANDARD	CCV	1114H	5.10			5.00	102			
STANDARD	CCV	1114H	5.07			5.00	101			
STANDARD	ISA	09260	175			200	88			
STANDARD	ISB	1123J	167			200	84			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	CCV	1114H	5.09			5.00	102			
STANDARD	CCV	1114H	5.13			5.00	103			
STANDARD	CCV	1114H	5.15			5.00	103			
STANDARD	CCV	1114H	5.03			5.00	101			
STANDARD	ICV	0914E	2.09			2.00	104			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	CCV	1114H	5.24			5.00	105			
STANDARD	ISA	09260	175			200	88			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	1114H	5.18			5.00	104			
STANDARD	ISA	09260	204			200	102			
SPIKE	PDS	942074-362	2.10					<0.03	2.00	105
SPIKE	PDS	950052-001	2.21					<0.03	2.00	110
SPIKE	PDS	941875-116	2.04					<0.03	2.00	102
SPIKE	PDS	941802-024	2.04					<0.03	2.00	102
SPIKE	PDS	941391-160	2.01					0.03	2.00	99
SPIKE	PDS	942332-170	1.91					<0.03	2.00	96
SPIKE	PDS	942074-371	2.00					<0.03	2.00	100

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/11/95 13:20						QC BATCH NUMBER:318455
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
DUPLICATE	MD	941802-024	<0.03	<0.03	NC					
DUPLICATE	MD	941875-116	<0.03	<0.03	NC					
DUPLICATE	MD	941391-160	0.03	0.03	0.00					
DUPLICATE	MD	942074-362	<0.03	<0.03	NC					
DUPLICATE	MD	942332-170	<0.03	<0.03	NC					
DUPLICATE	MD	950052-001	<0.03	<0.03	NC					
DUPLICATE	MD	942074-371	<0.03	<0.03	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:01/16/95 10:20						QC BATCH NUMBER:318767
REPORTING LIMIT/DF: 10 UNITS:mg/L				METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	950116	<10							
BLANK	CCB	950116	<10							
BLANK	CCB	950116	<10							
BLANK	CCB	950116	<10							
BLANK	CCB	950116	<10							
STANDARD	ICV/LCS	G940415A	74			75	99			
STANDARD	CCV	S100	103			100	103			
STANDARD	CCV	S100	104			100	104			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	102			100	102			
SPIKE	MS	940881-77	71					45	25	104
SPIKE	MS	940881-78	60					35	25	100
SPIKE	MS	941802-24	36					13	25	92
SPIKE	MS	941875-116	24					<10	25	96
DUPLICATE	MD	940881-77	45	45	0					
DUPLICATE	MD	940881-78	35	35	0					
DUPLICATE	MD	941802-24	13	13	0					
DUPLICATE	MD	941875-116	<10	<10	NC					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:01/17/95 08:30						QC BATCH NUMBER:318802
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				METHOD REFERENCE :120.1 (1)						TECHNICIAN:SLS
BLANK	ICB	950117	<1							
BLANK	CCB	950117	<1							
BLANK	CCB	950117	<1							
BLANK	CCB	950117	<1							
BLANK	CCB	950117	<1							
BLANK	CCB	950117	<1							
STANDARD	ICV/LCS	941850	104			99	105			
STANDARD	CCV	S147	149			147	101			
STANDARD	CCV	S147	146			147	99			
STANDARD	CCV	S147	145			147	99			
STANDARD	CCV	S147	144			147	98			
STANDARD	CCV	S147	143			147	97			
DUPLICATE	MD	942074-390	445	444	0					

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ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:01/17/95 08:30 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:318802 TECHNICIAN:SLS
DUPLICATE	MD	941691-24	242	244	1					
DUPLICATE	MD	941391-165	90	90	0					
DUPLICATE	MD	942866-53	36	36	0					
DUPLICATE	MD	950020-7	20	22	10					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:01/17/95 07:35 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:318897 TECHNICIAN:KDS
BLANK	MB	950117	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	941691-24	18	18	0					
DUPLICATE	MD	941802-24	14	16	2					
DUPLICATE	MD	941922-23	31	32	3					
DUPLICATE	MD	941875-116	10	10	0					
DUPLICATE	MD	941875-117	26	26	0					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:01/17/95 07:35 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:318898 TECHNICIAN:KDS
STANDARD	ICV	G941219A	3.99			4.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
DUPLICATE	MD	941691-24	7.66	7.66	0					
DUPLICATE	MD	941802-24	7.43	7.48	1					
DUPLICATE	MD	941922-23	7.58	7.58	0					
DUPLICATE	MD	941875-116	6.94	6.90	1					
DUPLICATE	MD	941875-117	8.05	8.04	0					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:01/17/95 07:35 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:318899 TECHNICIAN:KDS
BLANK	MB	950117	<10							
DUPLICATE	MD	941691-24	<10	<10	NC					
DUPLICATE	MD	941802-24	<10	<10	NC					
DUPLICATE	MD	941922-23	<10	<10	NC					
DUPLICATE	MD	941875-116	<10	<10	NC					
DUPLICATE	MD	941875-117	<10	<10	NC					
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:01/17/95 17:21 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:318920 TECHNICIAN:GAG
BLANK	ICB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							

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ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/17/95 17:21						QC BATCH NUMBER:318920
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
STANDARD	CCV	0112D	5.15			5.00	103			
STANDARD	ICV	1122D	1.91			2.00	96			
STANDARD	CCV	0112D	4.83			5.00	97			
STANDARD	CCV	0112D	5.07			5.00	101			
STANDARD	CCV	0112D	4.86			5.00	97			
STANDARD	ISA	09260	182			200	91			
STANDARD	CCV	0112D	4.89			5.00	98			
STANDARD	CCV	0112D	5.14			5.00	103			
STANDARD	CCV	0112D	5.23			5.00	105			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	0112D	5.33			5.00	107			
STANDARD	ISA	09260	185			200	92			
STANDARD	ISB	1123J	186			200	93			
STANDARD	CCV	0112D	5.34			5.00	107			
STANDARD	CCV	0112D	5.32			5.00	106			
SPIKE	PDS	943080-006	2.24					<0.03	2.00	112
SPIKE	PDS	941391-165	2.38					<0.03	2.00	119
DUPLICATE	MD	941391-164	<0.03	<0.03	NC					
DUPLICATE	MD	941691-025	<0.03	<0.03	NC					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:01/20/95 12:00						QC BATCH NUMBER:319284
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				METHOD REFERENCE :310.1 (1)						TECHNICIAN:KDS
BLANK	MB	950120	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	941391-165	10	11	1					
DUPLICATE	MD	943080-6	17	17	0					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:01/20/95 12:00						QC BATCH NUMBER:319285
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				METHOD REFERENCE :305.1 (1)						TECHNICIAN:KDS
BLANK	MB	950120	<10							
DUPLICATE	MD	941391-165	<10	<10	NC					
DUPLICATE	MD	943080-6	<10	<10	NC					

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:01/20/95 12:00						QC BATCH NUMBER:319286
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
STANDARD	ICV	G941219A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	941391-165	7.29	7.28	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:01/23/95 09:34						QC BATCH NUMBER:319524
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :300.0 (1)						TECHNICIAN:SLS
BLANK	ICB	950123	<10							
BLANK	CCB	950123	<10							
BLANK	CCB	950123	<10							
BLANK	CCB	950123	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
SPIKE	MS	941802-25	29					<10	25	116
SPIKE	MS	942332-171	39					16	25	92
SPIKE	MS	942866-49	72					46	25	104
DUPLICATE	MD	941802-25	<10	<10	NC					
DUPLICATE	MD	942332-171	16	16	0					
DUPLICATE	MD	942866-49	46	47	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/24/95 00:20						QC BATCH NUMBER:319726
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
STANDARD	ISB	1123J	168			200	84			
STANDARD	CCV	1117K	9.72			10.0	97			
STANDARD	ISA	09260	180			200	90			
STANDARD	CCV	1117K	9.42			10.0	94			
STANDARD	ISB	1123J	173			200	86			
STANDARD	CCV	1117K	9.71			10.0	97			
STANDARD	CCV	1117K	10.2			10.0	102			
STANDARD	CCV	1117K	9.64			10.0	96			
STANDARD	ICV	0914E	1.98			2.00	99			
STANDARD	ISA	09260	176			200	88			
STANDARD	ISB	1123J	168			200	84			
STANDARD	CCV	1117K	9.80			10.0	98			
STANDARD	ISA	09260	186			200	93			

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L			DATE/TIME ANALYZED:01/24/95 00:20 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:319726 TECHNICIAN:GEF
SPIKE	PDS	941391-169	2.03					<0.03	2.00	101
SPIKE	PDS	941691-026	1.88					<0.03	2.00	94
DUPLICATE	MD	943080-007	<0.03	<0.03	NC					
DUPLICATE	MD	941802-026	<0.03	<0.03	NC					
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			DATE/TIME ANALYZED:01/24/95 08:00 METHOD REFERENCE :120.1 (1)							QC BATCH NUMBER:319742 TECHNICIAN:RPK
BLANK	ICB	950124	<1							
BLANK	CCB	950124	<1							
BLANK	CCB	950124	<1							
STANDARD	ICV/LCS	G941850	102			99	103			
STANDARD	CCV	G941117B	145			147	99			
STANDARD	CCV	G941117B	146			147	99			
DUPLICATE	MD	941922-25	217	217	0					
DUPLICATE	MD	941922-2	28	29	4					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:01/25/95 11:50 METHOD REFERENCE :310.1 (1)							QC BATCH NUMBER:319754 TECHNICIAN:SLS
BLANK	MB	950125	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	941922-25	18	17	1					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:01/25/95 11:50 METHOD REFERENCE :305.1 (1)							QC BATCH NUMBER:319755 TECHNICIAN:SLS
BLANK	MB	950125	<10							
DUPLICATE	MD	941922-25	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:01/25/95 11:50 METHOD REFERENCE :150.1 (1)							QC BATCH NUMBER:319756 TECHNICIAN:SLS
STANDARD	ICV	G941219A	3.97			4.00	99			
STANDARD	CCV	S7.00	6.97			7.00	100			
DUPLICATE	MD	941922-25	7.44	7.36	1					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:01/25/95 14:30 METHOD REFERENCE :375.2 (1)							QC BATCH NUMBER:319776 TECHNICIAN:DME
BLANK	ICB	950125	<10							
BLANK	CCB	950125	<10							
BLANK	CCB	950125	<10							
BLANK	CCB	950125	<10							
STANDARD	ICV/LCS	G940415A	155			150	103			
STANDARD	CCV	S160	154			160	96			

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:01/25/95 14:30						QC BATCH NUMBER:319776
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
STANDARD	CCV	S160	144			160	90			
STANDARD	CCV	S160	154			160	96			
SPIKE	MS	941391-170	70					18	50	104
SPIKE	MS	942866-63	87					42	50	90
SPIKE	MS	950161-1	77					30	50	94
DUPLICATE	MD	941391-170	18	21	3					
DUPLICATE	MD	942866-63	42	41	1					
DUPLICATE	MD	950161-1	30	34	4					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:01/30/95 21:28						QC BATCH NUMBER:320234
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	1212I	<0.03							
BLANK	CCB	1212I	<0.03							
BLANK	CCB	1212I	<0.03							
BLANK	CCB	1212I	<0.03							
BLANK	CCB	1212I	<0.03							
BLANK	CCB	1212I	<0.03							
STANDARD	CCV	0111B	9.45			10.0	94			
STANDARD	ICV	1101U	1.97			2.00	98			
STANDARD	CCV	0111B	9.35			10.0	94			
STANDARD	ISA	09260	184			200	92			
STANDARD	CCV	0111B	9.53			10.0	95			
STANDARD	ISB	1123J	179			200	90			
STANDARD	CCV	0111B	9.60			10.0	96			
STANDARD	ISA	09260	181			200	90			
STANDARD	ISA	09260	180			200	90			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	0111B	9.48			10.0	95			
STANDARD	ISB	1123J	177			200	88			
SPIKE	PDS	941875-133	2.03					<0.03	2.00	101
SPIKE	PDS	950164-008	1.98					<0.03	2.00	99
SPIKE	PDS	950069-013	2.02					<0.03	2.00	101
SPIKE	PDS	941691-027	2.06					<0.03	2.00	103
DUPLICATE	MD	942866-064	9.18	9.25	1					
DUPLICATE	MD	950069-016	<0.03	<0.03	NC					
DUPLICATE	MD	950164-007	<0.03	<0.03	NC					
DUPLICATE	MD	941875-131	0.03	0.04	0.01					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:01/31/95 08:00						QC BATCH NUMBER:320318
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	950131	<1							
BLANK	CCB	950131	<1							
BLANK	CCB	950131	<1							
BLANK	CCB	950131	<1							

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:01/31/95 08:00						QC BATCH NUMBER:320318
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	CCB	950131	<1							
STANDARD	ICV/LCS	941850	102			99	103			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G941117A	1410			1410	100			
DUPLICATE	MD	941691-27	138	137	1					
DUPLICATE	MD	942866-70	105	105	0					
DUPLICATE	MD	950146-4	79	79	0					
DUPLICATE	MD	950146-6	69	69	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:01/31/95 08:45						QC BATCH NUMBER:320323
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	950131	<10							
BLANK	CCB	950131	<10							
BLANK	CCB	950131	<10							
BLANK	CCB	950131	<10							
STANDARD	ICV/LCS	G940415A	147			150	98			
STANDARD	CCV	S160	160			160	100			
STANDARD	CCV	S160	156			160	98			
STANDARD	CCV	S160	158			160	99			
SPIKE	MS	940881-84	84					34	50	100
SPIKE	MS	941922-26	121					74	50	94
SPIKE	MS	950164-7	78					29	50	98
DUPLICATE	MD	940881-84	34	34	0					
DUPLICATE	MD	941922-26	74	74	0					
DUPLICATE	MD	950164-7	29	29	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:01/31/95 08:00						QC BATCH NUMBER:320342
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	950131	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	941691-27	15	14	1					
DUPLICATE	MD	942866-70	11	11	0					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:01/31/95 08:00						QC BATCH NUMBER:320345
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G941219A	3.99			4.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	941691-27	7.18	7.45	4					
DUPLICATE	MD	942866-70	7.42	7.37	1					

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:01/31/95 08:00						QC BATCH NUMBER:320346
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	950131	<10							
DUPLICATE	MD	941691-27	<10	<10	NC					
DUPLICATE	MD	942866-70	<10	<10	NC					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:02/07/95 08:00						QC BATCH NUMBER:320647
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	950207	<1							
BLANK	CCB	950207	<1							
BLANK	CCB	950207	<1							
BLANK	CCB	950207	<1							
BLANK	CCB	950207	<1							
BLANK	CCB	950207	<1							
BLANK	CCB	950207	<1							
BLANK	CCB	950207	<1							
STANDARD	ICV/LCS	941850	100			99	101			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
DUPLICATE	MD	941691-28	121	121	0					
DUPLICATE	MD	942866-77	102	102	0					
DUPLICATE	MD	950146-4	49	49	0					
DUPLICATE	MD	950146-14	602	602	0					
DUPLICATE	MD	950146-24	101	101	0					
DUPLICATE	MD	950146-34	157	157	0					
DUPLICATE	MD	950164-12	315	316	0					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:02/07/95 08:00						QC BATCH NUMBER:320696
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	950207	<5							
STANDARD	LCS	G951027A	165			167	99			
DUPLICATE	MD	941802-28	13	14	1					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:02/07/95 08:00						QC BATCH NUMBER:320697
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G941219A	3.99			4.00	100			
STANDARD	CCV	S7.00	6.98			7.00	100			
DUPLICATE	MD	941802-28	7.69	7.70	0					

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JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:02/07/95 08:00						QC BATCH NUMBER:320698
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	950207	<10							
DUPLICATE	MD	941802-28	<10	<10	NC					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:02/09/95 10:00						QC BATCH NUMBER:320954
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	950209	<10							
BLANK	CCB	950209	<10							
BLANK	CCB	950209	<10							
BLANK	CCB	950209	<10							
BLANK	CCB	950209	<10							
BLANK	CCB	950209	<10							
BLANK	CCB	950209	<10							
STANDARD	ICV/LCS	G940415A	146			150	97			
STANDARD	CCV	S160	165			160	103			
STANDARD	CCV	S160	171			160	107			
STANDARD	CCV	S160	164			160	102			
STANDARD	CCV	S160	159			160	99			
STANDARD	CCV	S160	163			160	102			
STANDARD	CCV	S160	161			160	101			
SPIKE	MS	950247-1	88					39	50	98
SPIKE	MS	950258-6	108					60	50	96
SPIKE	MS	950251-1	87					38	50	98
SPIKE	MS	942866-74	58					<10	50	116
SPIKE	MS	950164-10	87					34	50	106
SPIKE	MS	950164-12	168					114	50	108
DUPLICATE	MD	950164-12	114	119	4					
DUPLICATE	MD	950164-10	34	34	0					
DUPLICATE	MD	942866-74	<10	<10	NC					
DUPLICATE	MD	950258-6	60	59	2					
DUPLICATE	MD	950251-1	38	37	1					
DUPLICATE	MD	950247-1	39	40	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:02/14/95 11:36						QC BATCH NUMBER:321263
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:02/14/95 11:36						QC BATCH NUMBER:321263
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
STANDARD	ISA	0103A	197			200	98			
STANDARD	CCV	0112E	4.87			5.00	97			
STANDARD	ISB	0131A	187			200	94			
STANDARD	ISA	0103A	194			200	97			
STANDARD	ISB	0131A	179			200	90			
STANDARD	CCV	0112E	4.89			5.00	98			
STANDARD	CCV	0112E	4.82			5.00	96			
STANDARD	CCV	0112E	4.87			5.00	97			
STANDARD	ICV	0914E	2.06			2.00	103			
STANDARD	CCV	0112E	4.83			5.00	97			
STANDARD	ISA	0103A	193			200	96			
STANDARD	CCV	0112E	4.85			5.00	97			
STANDARD	ISB	0131A	180			200	90			
STANDARD	ISA	0103A	198			200	99			
STANDARD	ISB	0131A	195			200	98			
STANDARD	CCV	0112E	4.85			5.00	97			
STANDARD	CCV	0112E	5.04			5.00	101			
STANDARD	ISA	0103A	199			200	100			
STANDARD	ISB	0131A	200			200	100			
STANDARD	CCV	0112E	5.01			5.00	100			
SPIKE	PDS	950146-031	1.93					<0.03	2.00	96
SPIKE	PDS	941875-136	2.01					<0.03	2.00	100
SPIKE	PDS	941391-176	5.77					3.85	2.00	96
SPIKE	PDS	950146-043	1.96					<0.03	2.00	98
DUPLICATE	MD	941875-136	<0.03	<0.03	NC					
DUPLICATE	MD	950146-031	<0.03	<0.03	NC					
DUPLICATE	MD	950146-043	<0.03	<0.03	NC					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:02/14/95 08:00						QC BATCH NUMBER:321271
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	950214	<1							
BLANK	CCB	950214	<1							
BLANK	CCB	950214	<1							
BLANK	CCB	950214	<1							
BLANK	CCB	950214	<1							
BLANK	CCB	950214	<1							
BLANK	CCB	950214	<1							
STANDARD	ICV/LCS	941850	99			99	100			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1390			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1390			1410	99			
DUPLICATE	MD	941691-29	98	98	0					

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.) REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				DATE/TIME ANALYZED:02/14/95 08:00 METHOD REFERENCE :120.1 (1)						QC BATCH NUMBER:321271 TECHNICIAN:RPK
DUPLICATE	MD	942332-183	94	94	0					
DUPLICATE	MD	942332-193	53	53	0					
DUPLICATE	MD	950069-24	17	17	0					
DUPLICATE	MD	950256-2	36	35	3					
DUPLICATE	MD	950287-1	12	12	0					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:02/14/95 11:05 METHOD REFERENCE :300.0 (1)						QC BATCH NUMBER:321315 TECHNICIAN:SLS
BLANK	ICB	950214	<10							
BLANK	CCB	950214	<10							
BLANK	CCB	950214	<10							
BLANK	CCB	950214	<10							
STANDARD	ICV/LCS	G940415A	74			75	99			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	102			100	102			
STANDARD	CCV	S100	102			100	102			
SPIKE	MS	941691-29	52					28	25	96
SPIKE	MS	941875-145	26					<10	25	104
SPIKE	MS	942332-191	51					28	25	92
DUPLICATE	MD	941691-29	28	28	0					
DUPLICATE	MD	941875-145	<10	<10	NC					
DUPLICATE	MD	942332-191	28	28	0					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:02/14/95 10:00 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:321353 TECHNICIAN:KDS
BLANK	MB	950214	<5							
STANDARD	LCS	G950208B	167			167	100			
DUPLICATE	MD	941802-29	20	16	4					
DUPLICATE	MD	941922-28	18	18	0					
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:02/14/95 10:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:321354 TECHNICIAN:KDS
BLANK	MB	950214	<10							
DUPLICATE	MD	941802-29	<10	<10	NC					
DUPLICATE	MD	941922-28	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:02/14/95 10:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:321355 TECHNICIAN:KDS
STANDARD	ICV	G941219A	3.99			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:02/14/95 10:00						QC BATCH NUMBER:321355
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:KDS
DUPLICATE	MD	941802-29	7.59	7.57	0					
DUPLICATE	MD	941922-28	7.69	7.69	0					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:02/17/95 10:40						QC BATCH NUMBER:321584
REPORTING LIMIT/DF: 0.03	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:WGL
BLANK	ICB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
STANDARD	CCV	0112E	5.12			5.00	102			
STANDARD	ICV	0914E	1.82			2.00	91			
STANDARD	CCV	0112E	5.06			5.00	101			
STANDARD	ISA	0103A	219			200	110			
STANDARD	ISB	0131A	202			200	101			
STANDARD	ISA	0103A	229			200	114			
STANDARD	ISB	0131A	220			200	110			
STANDARD	CCV	0112E	5.26			5.00	105			
SPIKE	PDS	950256-002	2.17					<0.03	2.00	108
DUPLICATE	MD	950256-002	<0.03	<0.03	NC					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:02/21/95 08:00						QC BATCH NUMBER:321789
REPORTING LIMIT/DF: 1	UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	950221	<1							
BLANK	CCB	950221	<1							
BLANK	CCB	950221	<1							
BLANK	CCB	950221	<1							
BLANK	CCB	950221	<1							
STANDARD	ICV/LCS	941850	101			99	102			
STANDARD	CCV	950221	1410			1410	100			
STANDARD	CCV	950221	1410			1410	100			
STANDARD	CCV	950221	1400			1410	99			
STANDARD	CCV	950221	1400			1410	99			
DUPLICATE	MD	941391-190	85	85	0					
DUPLICATE	MD	942866-88	24	24	0					
DUPLICATE	MD	950146-82	56	56	0					
DUPLICATE	MD	950256-3	42	42	0					
DUPLICATE	MD	950287-1	12100	12100	0					
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:02/21/95 09:00						QC BATCH NUMBER:321799
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	ICB	950221	<10							
BLANK	CCB	950221	<10							
BLANK	CCB	950221	<10							

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:02/21/95 09:00						QC BATCH NUMBER:321799
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
BLANK	CCB	950221	<10							
STANDARD	ICV/LCS	G940415A	154			150	103			
STANDARD	CCV	S160	154			160	96			
STANDARD	CCV	S160	151			160	94			
STANDARD	CCV	S160	154			160	96			
SPIKE	MS	950379-2	58					12	50	92
SPIKE	MS	950379-3	59					13	50	92
SPIKE	MS	950069-25	101					58	50	86
DUPLICATE	MD	950379-2	12	12	0					
DUPLICATE	MD	950379-3	13	12	1					
DUPLICATE	MD	950069-25	58	57	2					
PARAMETER:Alkalinity, Total (Filt.)				DATE/TIME ANALYZED:02/21/95 08:00						QC BATCH NUMBER:321818
REPORTING LIMIT/DF: 5	UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)						TECHNICIAN:RPK
BLANK	MB	950221	<5							
STANDARD	LCS	G941219A	166			167	99			
DUPLICATE	MD	941691-30	12	12	0					
DUPLICATE	MD	942866-91	10	10	0					
DUPLICATE	MD	950164-16	22	22	0					
DUPLICATE	MD	950256-3	11	10	1					
PARAMETER:pH (Filt.)				DATE/TIME ANALYZED:02/21/95 08:00						QC BATCH NUMBER:321822
REPORTING LIMIT/DF: 0.01	UNITS:pH Units			METHOD REFERENCE :150.1 (1)						TECHNICIAN:RPK
STANDARD	ICV	G941219A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	941691-30	6.51	7.53	15					
DUPLICATE	MD	942866-91	7.00	7.02	0					
DUPLICATE	MD	950164-16	7.90	7.80	1					
DUPLICATE	MD	950256-3	7.06	6.99	1					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:02/21/95 08:00						QC BATCH NUMBER:321823
REPORTING LIMIT/DF: 10	UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	950221	<10							
DUPLICATE	MD	941691-30	<10	<10	NC					
DUPLICATE	MD	942866-91	<10	<10	NC					
DUPLICATE	MD	950164-16	<10	<10	NC					
DUPLICATE	MD	950256-3	<10	<10	NC					

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:02/21/95 14:11						QC BATCH NUMBER:321871
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:LMT
BLANK	ICB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
STANDARD	ISA	0103A	195			200	98			
STANDARD	ISB	0131A	195			200	98			
STANDARD	CCV	1117K	10.1			10.0	101			
STANDARD	ISB	0131A	191			200	96			
STANDARD	CCV	1117K	9.92			10.0	99			
STANDARD	CCV	1117K	9.92			10.0	99			
STANDARD	CCV	1117K	9.62			10.0	96			
STANDARD	CCV	1117K	10.0			10.0	100			
STANDARD	CCV	1117K	9.60			10.0	96			
STANDARD	CCV	1117K	9.52			10.0	95			
STANDARD	CCV	1117K	9.71			10.0	97			
STANDARD	ISA	0103A	195			200	98			
STANDARD	ISA	0103A	193			200	96			
STANDARD	ISB	0131A	201			200	100			
STANDARD	CCV	1117K	9.85			10.0	98			
STANDARD	ICV	0914E	1.92			2.00	96			
SPIKE	PDS	941691-030	2.32					<0.03	2.00	116
SPIKE	PDS	942866-088	2.02					0.04	2.00	99
SPIKE	PDS	950069-027	2.04					<0.03	2.00	102
SPIKE	PDS	942332-183	2.89					0.97	2.00	96
SPIKE	PDS	940881-086	1.99					<0.03	2.00	100
SPIKE	PDS	942332-194	1.86					<0.03	2.00	93
SPIKE	PDS	941391-182	10.2					7.77	2.00	121
DUPLICATE	MD	941691-030	<0.03	<0.03	NC					
DUPLICATE	MD	940881-085	<0.03	<0.03	NC					
DUPLICATE	MD	950069-025	<0.03	<0.03	NC					
DUPLICATE	MD	942866-085	8.15	8.03	1					
DUPLICATE	MD	942332-182	<0.03	<0.03	NC					
DUPLICATE	MD	942332-193	<0.03	<0.03	NC					
DUPLICATE	MD	941391-181	9.24	9.40	2					
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:02/28/95 08:00						QC BATCH NUMBER:322269
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC				METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	ICB	950228	<1							

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QUALITY CONTROL REPORT
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JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Conductivity (Filt.)				DATE/TIME ANALYZED:02/28/95 08:00						QC BATCH NUMBER:322269
REPORTING LIMIT/DF: 1		UNITS:umhos/cm @25dC		METHOD REFERENCE :120.1 (1)						TECHNICIAN:RPK
BLANK	CCB	950228	<1							
BLANK	CCB	950228	<1							
BLANK	CCB	950228	<1							
STANDARD	ICV/LCS	951850	105			99	106			
STANDARD	CCV	G941117A	1420			1410	101			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G951117A	1400			1410	99			
DUPLICATE	MD	941391-192	520	520	0					
DUPLICATE	MD	941875-155	46	46	0					
DUPLICATE	MD	940142-7	85	86	1					
PARAMETER:Iron, Diss. (Fe)				DATE/TIME ANALYZED:02/28/95 23:55						QC BATCH NUMBER:322374
REPORTING LIMIT/DF: 0.03		UNITS:mg/L		METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0914H	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
STANDARD	CCV	1215H	9.89			10.0	99			
STANDARD	CCV	1215H	9.24			10.0	92			
STANDARD	ICV	1122D	1.95			2.00	98			
STANDARD	ISA	0103A	191			200	96			
STANDARD	ISB	0131A	183			200	92			
STANDARD	CCV	1215H	9.34			10.0	93			
STANDARD	CCV	1215H	9.68			10.0	97			
STANDARD	CCV	1215H	9.22			10.0	92			
STANDARD	ISB	0131A	196			200	98			
STANDARD	ISA	0103A	187			200	94			
STANDARD	CCV	1215H	9.21			10.0	92			
STANDARD	CCV	1215H	9.32			10.0	93			
SPIKE	PDS	941802-031	1.98					<0.03	2.00	99
SPIKE	PDS	943080-012	2.04					0.05	2.00	100
DUPLICATE	MD	943080-012	0.05	0.05	0.00					
DUPLICATE	MD	941802-031	<0.03	<0.03	NC					
PARAMETER:Acidity (Filt.)				DATE/TIME ANALYZED:02/28/95 08:00						QC BATCH NUMBER:322416
REPORTING LIMIT/DF: 10		UNITS:mg/L CaCO3		METHOD REFERENCE :305.1 (1)						TECHNICIAN:RPK
BLANK	MB	950228	<10							
DUPLICATE	MD	941691-31	<10	<10	NC					
DUPLICATE	MD	941875-153	<10	<10	NC					
DUPLICATE	MD	950256-4	<10	<10	NC					

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:02/28/95 08:00 METHOD REFERENCE :305.1 (1)						QC BATCH NUMBER:322416 TECHNICIAN:RPK	
DUPLICATE	MD	942866-98	<10	<10	NC					
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units			DATE/TIME ANALYZED:02/28/95 08:00 METHOD REFERENCE :150.1 (1)						QC BATCH NUMBER:322417 TECHNICIAN:RPK	
STANDARD	ICV	G941219A	3.98			4.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
DUPLICATE	MD	941691-31	7.09	7.59	7					
DUPLICATE	MD	941875-153	7.39	7.33	1					
DUPLICATE	MD	942866-98	7.27	7.21	1					
DUPLICATE	MD	950256-4	6.81	6.85	1					
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			DATE/TIME ANALYZED:02/28/95 08:00 METHOD REFERENCE :310.1 (1)						QC BATCH NUMBER:322422 TECHNICIAN:RPK	
BLANK	MB	950228	<5							
STANDARD	LCS	G950208B	166			167	99			
DUPLICATE	MD	941691-31	15	14	1					
DUPLICATE	MD	941875-153	14	14	0					
DUPLICATE	MD	942866-98	11	12	1					
DUPLICATE	MD	950256-4	<5	<5	NC					
PARAMETER:Mercury, Diss. (Hg) REPORTING LIMIT/DF: 0.0002 UNITS:mg/L			DATE/TIME ANALYZED:03/03/95 09:00 METHOD REFERENCE :7470 (2)						QC BATCH NUMBER:322572 TECHNICIAN:BPB	
BLANK	ICB	03035	<0.0002							
BLANK	CCB	03035	<0.0002							
BLANK	CCB	03035	<0.0002							
STANDARD	ICV	1121H	0.0040			0.0040	100			
STANDARD	CCV	1013P	0.0026			0.0025	104			
STANDARD	CCV	1013P	0.0027			0.0025	108			
SPIKE	MS	940881-092	0.0050					<0.0002	0.0050	100
DUPLICATE	MD	950881-091	<0.0002	<0.0002	NC					
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L			DATE/TIME ANALYZED:03/02/95 10:00 METHOD REFERENCE :375.2 (1)						QC BATCH NUMBER:322673 TECHNICIAN:DME	
BLANK	ICB	950302	<10							
BLANK	CCB	950302	<10							
BLANK	CCB	950302	<10							
STANDARD	ICV/LCS	G940415A	145			150	97			
STANDARD	CCV	S160	158			160	99			
STANDARD	CCV	S160	164			160	102			

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Sulfate (Filt.)				DATE/TIME ANALYZED:03/02/95 10:00						QC BATCH NUMBER:322673
REPORTING LIMIT/DF: 10	UNITS:mg/L			METHOD REFERENCE :375.2 (1)						TECHNICIAN:DME
SPIKE	MS	950423-3	156					104	50	104
SPIKE	MS	941391-194	113					66	50	94
DUPLICATE	MD	950423-3	104	108	4					
DUPLICATE	MD	941391-194	66	66	0					
PARAMETER:Silver, Diss. (Ag)				DATE/TIME ANALYZED:03/06/95 16:43						QC BATCH NUMBER:322779
REPORTING LIMIT/DF: 0.01	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
STANDARD	CCV	0302C	2.26			2.50	90			
STANDARD	ICV	0729L	1.93			2.00	96			
STANDARD	CCV	0302C	2.33			2.50	93			
STANDARD	ISB	0131A	0.87			1.00	87			
STANDARD	CCV	0302C	2.37			2.50	95			
STANDARD	CCV	0302C	2.45			2.50	98			
STANDARD	ISB	0131A	0.93			1.00	93			
STANDARD	CCV	0302C	2.47			2.50	99			
SPIKE	PDS	950400-001	0.79					<0.01	1.00	79
SPIKE	PDS	950459-003	0.84					<0.01	1.00	84
SPIKE	PDS	941802-021	0.83					<0.01	1.00	83
DUPLICATE	MD	950459-002	<0.01	<0.01	NC					
DUPLICATE	MD	950400-001	<0.01	<0.01	NC					
DUPLICATE	MD	941802-011	<0.01	<0.01	NC					
PARAMETER:Arsenic, Diss. (As)				DATE/TIME ANALYZED:03/06/95 16:43						QC BATCH NUMBER:322781
REPORTING LIMIT/DF: 0.05	UNITS:mg/L			METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
STANDARD	CCV	0112E	2.50			2.50	100			
STANDARD	ICV	0302N	2.07			2.00	103			
STANDARD	CCV	0112E	2.54			2.50	102			
STANDARD	ISB	0131A	1.00			1.00	100			
STANDARD	CCV	0112E	2.62			2.50	105			
STANDARD	CCV	0112E	2.69			2.50	108			
STANDARD	ISB	0131A	1.06			1.00	106			
STANDARD	CCV	0112E	2.70			2.50	108			

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Arsenic, Diss. (As)				DATE/TIME ANALYZED:03/06/95 16:43						QC BATCH NUMBER:322781
REPORTING LIMIT/DF: 0.05 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
SPIKE	PDS	950400-001	1.01					<0.05	1.00	101
SPIKE	PDS	950459-003	1.05					<0.05	1.00	105
SPIKE	PDS	941802-021	1.06					<0.05	1.00	106
DUPLICATE	MD	950459-002	<0.05	<0.05	NC					
DUPLICATE	MD	950400-001	<0.05	<0.05	NC					
DUPLICATE	MD	941802-011	<0.05	<0.05	NC					
PARAMETER:Cadmium, Diss. (Cd)				DATE/TIME ANALYZED:03/06/95 16:43						QC BATCH NUMBER:322784
REPORTING LIMIT/DF: 0.005 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0112C	<0.005							
BLANK	CCB	0112C	<0.005							
BLANK	CCB	0112C	<0.005							
BLANK	CCB	0112C	<0.005							
BLANK	CCB	0112C	<0.005							
BLANK	CCB	0112C	<0.005							
STANDARD	CCV	0112E	0.926			1.00	93			
STANDARD	ICV	0302N	1.95			2.00	98			
STANDARD	CCV	0112E	0.934			1.00	93			
STANDARD	ISB	0131A	0.832			1.00	83			
STANDARD	CCV	0112E	0.972			1.00	97			
STANDARD	CCV	0112E	0.991			1.00	99			
STANDARD	ISB	0131A	0.873			1.00	87			
STANDARD	CCV	0112E	0.990			1.00	99			
SPIKE	PDS	950400-001	0.851					<0.005	1.00	85
SPIKE	PDS	950459-003	0.883					<0.005	1.00	88
SPIKE	PDS	941802-021	0.908					<0.005	1.00	91
DUPLICATE	MD	950459-002	<0.005	<0.005	NC					
DUPLICATE	MD	950400-001	<0.005	<0.005	NC					
DUPLICATE	MD	941802-011	<0.005	<0.005	NC					
PARAMETER:Copper, Diss. (Cu)				DATE/TIME ANALYZED:03/06/95 16:43						QC BATCH NUMBER:322786
REPORTING LIMIT/DF: 0.01 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
STANDARD	CCV	0112E	2.55			2.50	102			
STANDARD	ICV	0302N	2.08			2.00	104			
STANDARD	CCV	0112E	2.62			2.50	105			
STANDARD	ISB	0131A	0.50			0.50	100			
STANDARD	CCV	0112E	2.68			2.50	107			
STANDARD	CCV	0112E	2.64			2.50	106			

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Copper, Diss. (Cu)				DATE/TIME ANALYZED:03/06/95 16:43						QC BATCH NUMBER:322786
REPORTING LIMIT/DF: 0.01 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
STANDARD	ISB	0131A	0.52			0.50	104			
STANDARD	CCV	0112E	2.65			2.50	106			
SPIKE	PDS	950400-001	0.97					<0.01	1.00	97
SPIKE	PDS	950459-003	1.07					0.03	1.00	104
SPIKE	PDS	941802-021	0.98					<0.01	1.00	98
DUPLICATE	MD	950459-002	0.02	0.02	0.00					
DUPLICATE	MD	950400-001	<0.01	<0.01	NC					
DUPLICATE	MD	941802-011	<0.01	<0.01	NC					
PARAMETER:Lead, Diss. (Pb)				DATE/TIME ANALYZED:03/06/95 16:43						QC BATCH NUMBER:322792
REPORTING LIMIT/DF: 0.05 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
STANDARD	CCV	0112E	0.92			1.00	92			
STANDARD	ICV	0302N	1.90			2.00	95			
STANDARD	CCV	0112E	0.93			1.00	93			
STANDARD	ISB	0131A	0.81			1.00	81			
STANDARD	CCV	0112E	0.96			1.00	96			
STANDARD	CCV	0112E	0.98			1.00	98			
STANDARD	ISB	0131A	0.87			1.00	87			
STANDARD	CCV	0112E	0.98			1.00	98			
SPIKE	PDS	950400-001	0.88					<0.05	1.00	88
SPIKE	PDS	950459-003	0.90					<0.05	1.00	90
SPIKE	PDS	941802-021	0.92					<0.05	1.00	92
DUPLICATE	MD	950459-002	<0.05	<0.05	NC					
DUPLICATE	MD	950400-001	<0.05	<0.05	NC					
DUPLICATE	MD	941802-011	<0.05	<0.05	NC					
PARAMETER:Zinc, Diss. (Zn)				DATE/TIME ANALYZED:03/06/95 16:43						QC BATCH NUMBER:322794
REPORTING LIMIT/DF: 0.01 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
STANDARD	CCV	0112E	2.56			2.50	102			
STANDARD	ICV	0302N	2.13			2.00	106			
STANDARD	CCV	0112E	2.59			2.50	104			
STANDARD	ISB	0131A	1.01			1.00	101			

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QUALITY CONTROL REPORT
03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Zinc, Diss. (Zn)			DATE/TIME ANALYZED:03/06/95 16:43							QC BATCH NUMBER:322794
REPORTING LIMIT/DF: 0.01 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:GAG
STANDARD	CCV	0112E	2.71			2.50	108			
STANDARD	CCV	0112E	2.64			2.50	106			
STANDARD	ISB	0131A	1.03			1.00	103			
STANDARD	CCV	0112E	2.63			2.50	105			
SPIKE	PDS	950400-001	1.01					<0.01	1.00	101
SPIKE	PDS	950459-003	1.07					<0.01	1.00	107
SPIKE	PDS	941802-021	1.02					<0.01	1.00	102
DUPLICATE	MD	950459-002	<0.01	<0.01	NC					
DUPLICATE	MD	950400-001	<0.01	<0.01	NC					
DUPLICATE	MD	941802-011	<0.01	<0.01	NC					

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METHOD REFERENCES

(1) EPA 600/4-79-020, Methods For Chemical Analysis Of Water And Wastes, March 1983

(2) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, November 1986

(3) Standard Methods For The Examination Of Water And Wastewater, 17th Edition, 1989

(4) EPA 600/4-80-032, Prescribed Procedures For Measurement Of Radioactivity In Drinking Water, August 1980

(5) EPA 600/8-78-017, Microbiological Methods For Monitoring The Environment, December 1978

(6) Federal Register, July 1, 1990 (40 CFR Part 136)

(7) EPA 600/4-88-039, Methods For The Determination Of Organics Compounds In Drinking Water, December 1988

(8) U.S.G.S. Methods For The Determination Of Inorganic Substances In Water And Fluvial Sediments, Book 5, Chapter A1, 1985

(9) Federal Register, Friday, June 7, 1991, (40 CFR Parts 141 and 142)

(10) Standard Methods For The Examination Of Water And Wastewater, 16th Edition, 1985

(11) ASTM, Section 11 Water And Environmental Technology, Volume 11.01 Water (1), 1991

(12) Methods Of Soil Analysis, American Society Of Agronomy, Agronomy No. 9, 1965

(13) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, Revision 1, November 1990

(14) ASTM, Section 5, Petroleum Products, Lubricants, and Fossil Fuels, Volume 05.05, Gaseous Fuels, Coal and Coke

(15) EPA 600/2-78-054, Field and Laboratory Methods Applicable To Overburdens and Mine Soils, March 1978

(16) ASTM, Part 19, Soils and Rock; Building Stones, 1981

Comments: Data in QA report may differ from final results due to digestion and/or dilution of sample into analytical ranges. The "Time Analyzed" in the QA report refers to the start time of the analytical batch which may not reflect the actual time of each analysis. The "Date Analyzed" is the actual date of analysis. Results for soil and sludge samples are reported on a wet weight basis (i.e. not corrected for percent moisture) unless otherwise indicated.

NC = Not Calculable Due To Value(s) Lower Than The Detection Limit.

Blank QC Sample Identification

MB	Method Blank
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank

Reference Standerd QC Sample Identification

LCS	Laboratory Control Standard
RS	Reference Standard
ICV	Initial Calibration Verification Standard
CCV	Continuing Calibration Verification Standard
ISA/ISB	ICP Interference Check Samples

Spike QC Sample Identification

MS	Method (Matrix) Spike
MSD	Method (Matrix) Spike Duplicate
PDS	Post Digestion Spike
SB	Spiked Blank
SBD	Spiked Blank Duplicate

Duplicate QC Sample Identification

MD	Method (Matrix) Duplicate
ED	Extraction Duplicate
DD	Digestion Duplicate

Analyses performed by a subcontract laboratory are indicated on the analytical and/or quality control reports under "Technician" using the following codes:

Subcontract Laboratory	Code
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Core Laboratories - Casper, WY	* CA
Core Laboratories - Corpus Christi, TX	* CC
Core Laboratories - Houston, TX	* HP
Core Laboratories - Lake Charles, LA	* LC
Core Laboratories - Long Beach, CA	* LB
Other Subcontract Laboratories	* XX

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A N A L Y T I C A L R E P O R T

Job Number: 941801
Prepared For:

HENDRICKS MINING CO, INC.
THOMAS HENDRICKS
P.O. BOX 653-CARIBOU
NEDERLAND, CO 80466-0653

Date: 03/24/95

ADDITIONAL DATA

Signature Patrick J. McEntee Date: 3-27-95

Name: Patrick J. McEntee

Core Laboratories
10703 East Bethany Drive
Aurora, CO 80014

Title: Laboratory Supervisor

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LABORATORY TESTS RESULTS
03/24/95

JOB NUMBER: 941801 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

CLIENT I.D.....: CROSS GOLD MINE
DATE SAMPLED.....: / /
TIME SAMPLED.....: :
WORK DESCRIPTION...: COMPOSITE HEAD

LABORATORY I.D...: 941801-0001
DATE RECEIVED....: 06/15/94
TIME RECEIVED....: 14:15
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Total Sulfur (as S)	0.92	0.01	%	D 4239-85 C (14)	08/04/94	*SL
Pyritic Sulfur (as S)	0.53	0.01	%	D 2492-90 (14)	08/02/94	RPK
Sulfur, Unidentified (as S)	0.39	0.01	%	D 2492-90 (14)	08/19/94	PJM
Sulfate Sulfur (as S)	<0.01	0.01	%	D 2492-90 (14)	08/05/94	RPK
APP/Peroxide (as S)	0.19	0.01	%	3.2.11 (15)	08/17/94	SLS
Total Sulfur (Tons CaCO3/Kt)	28.8	0.3	Tons CaCO3/Kt	D 4239-85 C (14)	08/04/94	*SL
Pyritic Sulfur (Tons CaCO3/Kt)	16.5	0.3	Tons CaCO3/Kt	D 2492-90 (14)	08/02/94	RPK
APP/Peroxide (Tons CaCO3/Kt)	5.9	0.3	Tons CaCO3/Kt	3.2.11 (15)	08/17/94	KDS
Acid Neutralizing Potential	89.6	0.1	Tons CaCO3/Kt	3.2.3 (15)	07/28/94	KDS
Aluminum, Total (Al)	76200	1000	mg/Kg	6010 (2)	08/25/94	GEF
Arsenic, Total (As)	4.5	0.5	mg/Kg	6010 (2)	03/16/95	GEF
Cadmium, Total (Cd)	28.3	0.05	mg/Kg	6010 (2)	03/16/95	GEF
Calcium, Total (Ca)	35200	1000	mg/Kg	6010 (2)	08/25/94	GEF
Copper, Total (Cu)	265	0.1	mg/Kg	6010 (2)	03/16/95	GEF
Iron, Total (Fe)	66400	600	mg/Kg	6010 (2)	08/25/94	GEF
Lead, Total (Pb)	2190	3	mg/Kg	6010 (2)	03/16/95	GEF
Mercury, Total (Hg)	0.38	0.10	mg/Kg	7471 (2)	03/07/95	BPB
Magnesium, Total (Mg)	13300	100	mg/Kg	6010 (2)	08/25/94	GEF
Manganese, Total (Mn)	2060	10	mg/Kg	6010 (2)	08/25/94	GEF
Phosphorous, Total (P)	4190	200	mg/Kg	6010 (2)	08/25/94	GEF
Potassium, Total (K)	57000	5000	mg/Kg	6010 (2)	08/25/94	GEF
Silica, Total (SiO2)	<10	10	mg/Kg	6010 (2)	08/30/94	
Silver, Total (Ag)	48.1	0.5	mg/Kg	6010 (2)	03/16/95	GEF

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LABORATORY TESTS RESULTS
03/24/95

JOB NUMBER: 941801 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

CLIENT I.D.....: CROSS GOLD MINE
DATE SAMPLED.....: / /
TIME SAMPLED.....: :
WORK DESCRIPTION...: COMPOSITE HEAD

LABORATORY I.D...: 941801-0001
DATE RECEIVED....: 06/15/94
TIME RECEIVED....: 14:15
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Sodium, Total (Na)	4000	1000	mg/Kg	6010 (2)	08/25/94	GEF
Titanium, Total (Ti)	4760	50	mg/Kg	6010 (2)	08/25/94	GEF
Zinc, Total (Zn)	6400	10	mg/Kg	6010 (2)	03/16/95	GEF

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LABORATORY TESTS RESULTS
03/24/95

JOB NUMBER: 941801 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

CLIENT I.D.....: CROSS GOLD MINE
DATE SAMPLED.....: / /
TIME SAMPLED.....: :
WORK DESCRIPTION...: COMPOSITE TAILS

LABORATORY I.D...: 941801-0002
DATE RECEIVED....: 06/15/94
TIME RECEIVED....: 14:15
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Aluminum, Total (Al)	79000	1000	mg/Kg	6010 (2)	08/25/94	GEF
Arsenic, Total (As)	24.5	0.5	mg/Kg	6010 (2)	03/16/95	GEF
Cadmium, Total (Cd)	7.30	0.05	mg/Kg	6010 (2)	03/16/95	GEF
Calcium, Total (Ca)	31900	500	mg/Kg	6010 (2)	08/25/94	GEF
Copper, Total (Cu)	70.8	0.1	mg/Kg	6010 (2)	03/16/95	GEF
Iron, Total (Fe)	62300	600	mg/Kg	6010 (2)	08/25/94	GEF
Lead, Total (Pb)	898	3	mg/Kg	6010 (2)	03/16/95	GEF
Mercury, Total (Hg)	0.20	0.10	mg/Kg	7471 (2)	03/07/95	BPB
Magnesium, Total (Mg)	13600	100	mg/Kg	6010 (2)	08/25/94	GEF
Manganese, Total (Mn)	2270	10	mg/Kg	6010 (2)	08/25/94	GEF
Phosphorous, Total (P)	4900	1000	mg/Kg	6010 (2)	08/25/94	GEF
Potassium, Total (K)	56000	5000	mg/Kg	6010 (2)	08/25/94	GEF
Silica, Total (SiO2)	<10	10	mg/Kg	6010 (2)	08/30/94	
Silver, Total (Ag)	20.9	0.5	mg/Kg	6010 (2)	03/16/95	GEF
Sodium, Total (Na)	9000	1000	mg/Kg	6010 (2)	08/25/94	GEF
Titanium, Total (Ti)	5040	50	mg/Kg	6010 (2)	08/25/94	GEF
Zinc, Total (Zn)	1690	3	mg/Kg	6010 (2)	03/16/95	GEF

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QUALITY CONTROL REPORT
03/24/95

JOB NUMBER: 941801 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acid Neutralizing Potential		DATE/TIME ANALYZED:07/28/94 18:05								QC BATCH NUMBER:303381
REPORTING LIMIT/DF: 0.1 UNITS:Tons CaCO3/Kt		METHOD REFERENCE :3.2.3 (15)								TECHNICIAN:KDS
BLANK	MB	940728	<0.1							
DUPLICATE	MD	941706-10	31.2	31.8	2					
PARAMETER:Nitrogen, Nitrate (Filt.)		DATE/TIME ANALYZED:07/29/94 10:30								QC BATCH NUMBER:303385
REPORTING LIMIT/DF: 0.1 UNITS:mg/L (as N)		METHOD REFERENCE :353.2 (1)								TECHNICIAN:DME
BLANK	ICB	940729	<0.1							
BLANK	CCB	940729	<0.1							
BLANK	EB	940727	<0.1							
STANDARD	ICV/LCS	G931013B	1.0			1.0	100			
STANDARD	CCV	S3.0	3.0			3.0	100			
SPIKE	MS	941801-3	1.4					0.3	1.0	110
DUPLICATE	MD	941801-3	0.3	0.3	0.0					
DUPLICATE	ED	941801-3	0.3	0.4	0.1					
PARAMETER:Nitrogen, Nitrite (Filt.)		DATE/TIME ANALYZED:07/29/94 10:30								QC BATCH NUMBER:303392
REPORTING LIMIT/DF: 0.01 UNITS:mg/L (as N)		METHOD REFERENCE :353.2 (1)								TECHNICIAN:DME
BLANK	ICB	940729	<0.01							
BLANK	CCB	940729	<0.01							
BLANK	EB	940727	<0.01							
STANDARD	ICV/LCS	G931013C	0.98			1.00	98			
STANDARD	CCV	S2.00	2.00			2.00	100			
SPIKE	MS	941801-1	1.08					0.03	1.00	105
DUPLICATE	MD	941801-3	0.03	0.02	0.01					
DUPLICATE	ED	941801-3	0.03	0.03	0.00					
PARAMETER:Fluoride (Filt.)		DATE/TIME ANALYZED:08/01/94 13:05								QC BATCH NUMBER:304118
REPORTING LIMIT/DF: 0.1 UNITS:mg/L		METHOD REFERENCE :340.3 (1)								TECHNICIAN:SLS
BLANK	ICB	940801	<0.1							
BLANK	CCB	940801	<0.1							
BLANK	EB-DI	940727	<0.1							
STANDARD	ICV/LCS	G940317B	1.0			1.0	100			
STANDARD	CCV	S0.8	0.8			0.8	100			
SPIKE	MS	941696-5	0.9					0.4	0.5	100
DUPLICATE	MD	941696-5	0.4	0.4	0.0					
DUPLICATE	ED	941801-3	0.8	0.8	0					
PARAMETER:Sulfate Sulfur (as S)		DATE/TIME ANALYZED:08/05/94 08:00								QC BATCH NUMBER:304173
REPORTING LIMIT/DF: 0.01 UNITS:%		METHOD REFERENCE :D 2492-90 (14)								TECHNICIAN:RPK
BLANK	MB	940805	<0.01							
DUPLICATE	MD	941869-2	<0.01	<0.01	NC					
DUPLICATE	MD	941869-5	<0.01	<0.01	NC					

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/24/95

JOB NUMBER: 941801 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Total Sulfur (as S) REPORTING LIMIT/DF: 0.01 UNITS:%			DATE/TIME ANALYZED:08/04/94 09:00 METHOD REFERENCE :D 4239-85 C (14)							QC BATCH NUMBER:304255 TECHNICIAN:*SL
STANDARD	RS	S0.42	0.40			0.42	95			
STANDARD	RS	S2.96	2.95			2.96	100			
PARAMETER:Total Sulfur (Tons CaCO3/Kt) REPORTING LIMIT/DF: 0.3 UNITS:Tons CaCO3/Kt			DATE/TIME ANALYZED:08/04/94 09:00 METHOD REFERENCE :D 4239-85 C (14)							QC BATCH NUMBER:304257 TECHNICIAN:*SL
STANDARD	RS	S13.1	12.5			13.1	95			
STANDARD	RS	S92.5	92.2			92.5	100			
PARAMETER:Cyanide, Free (Filt.) REPORTING LIMIT/DF: 0.02 UNITS:mg/L			DATE/TIME ANALYZED:08/09/94 17:31 METHOD REFERENCE :USGS I-1300-85 (8)							QC BATCH NUMBER:304331 TECHNICIAN:SLS
BLANK	ICB	S0	<0.02							
BLANK	CCB	S0	<0.02							
BLANK	EB-DI	940727	<0.02							
STANDARD	ICV/LCS	G940720A	0.26			0.25	104			
STANDARD	CCV	S0.30	0.28			0.30	93			
SPIKE	MS	941801-3	0.27					<0.02	0.25	108
DUPLICATE	MD	941801-3	<0.02	<0.02	NC					
DUPLICATE	ED	941801-3	<0.02	<0.02	NC					
PARAMETER:Silver, Diss. (Ag) REPORTING LIMIT/DF: 0.01 UNITS:mg/L			DATE/TIME ANALYZED:08/10/94 19:30 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:304586 TECHNICIAN:GAG
BLANK	ICB	0729M	<0.01							
BLANK	MB	MWMP	<0.01							
BLANK	CCB	0729M	<0.01							
BLANK	CCB	0729M	<0.01							
BLANK	CCB	0729M	<0.01							
STANDARD	CCV	0511J	2.59			2.50	104			
STANDARD	ISB	0710A	0.90			1.00	90			
STANDARD	CCV	0511J	2.66			2.50	106			
STANDARD	ICV	0729L	1.99			2.00	100			
STANDARD	ISB	0710A	1.14			1.00	114			
STANDARD	CCV	0511J	2.72			2.50	109			
SPIKE	PDS	941839-003	1.18					<0.01	1.00	118
SPIKE	PDS	941801-003	0.87					<0.01	1.00	87
DUPLICATE	MD	941839-001	<0.01	<0.01	NC					
DUPLICATE	MD	941801-003	<0.01	<0.01	NC					
DUPLICATE	MD	941839-017	<0.01	<0.01	NC					
PARAMETER:Arsenic, Diss. (As) REPORTING LIMIT/DF: 0.05 UNITS:mg/L			DATE/TIME ANALYZED:08/10/94 19:30 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:304587 TECHNICIAN:GAG
BLANK	ICB	0729M	<0.05							
BLANK	MB	MWMP	<0.05							

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/24/95

JOB NUMBER: 941801 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Arsenic, Diss. (As)				DATE/TIME ANALYZED:08/10/94 19:30						QC BATCH NUMBER:304587
REPORTING LIMIT/DF: 0.05 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	CCB	0729M	<0.05							
BLANK	CCB	0729M	<0.05							
BLANK	CCB	0729M	<0.05							
STANDARD	CCV	0712E	2.49			2.50	100			
STANDARD	ISB	0710A	0.90			1.00	90			
STANDARD	CCV	0712E	2.57			2.50	103			
STANDARD	ICV	0524F	2.08			2.00	104			
STANDARD	ISB	0710A	0.92			1.00	92			
STANDARD	CCV	0712E	2.55			2.50	102			
SPIKE	PDS	941801-003	0.93					<0.05	1.00	93
SPIKE	PDS	941839-003	0.96					<0.05	1.00	96
DUPLICATE	MD	941839-001	<0.05	<0.05	NC					
DUPLICATE	MD	941801-003	<0.05	<0.05	NC					
DUPLICATE	MD	941839-017	<0.05	<0.05	NC					
PARAMETER:Barium, Diss. (Ba)				DATE/TIME ANALYZED:08/10/94 19:30						QC BATCH NUMBER:304589
REPORTING LIMIT/DF: 0.01 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0729M	<0.01							
BLANK	MB	MWMP	<0.01							
BLANK	CCB	0729M	<0.01							
BLANK	CCB	0729M	<0.01							
BLANK	CCB	0729M	<0.01							
STANDARD	CCV	0712E	4.62			5.00	92			
STANDARD	ISB	0710A	0.48			0.50	96			
STANDARD	CCV	0712E	4.83			5.00	97			
STANDARD	ICV	0729L	1.95			2.00	98			
STANDARD	ISB	0710A	0.48			0.50	96			
STANDARD	CCV	0712E	4.77			5.00	95			
SPIKE	PDS	941801-003	1.10					0.15	1.00	95
SPIKE	PDS	941839-003	1.00					0.03	1.00	97
DUPLICATE	MD	941839-001	0.02	0.02	0.00					
DUPLICATE	MD	941801-003	0.15	0.14	7					
DUPLICATE	MD	941839-017	0.16	0.16	0					
PARAMETER:Cadmium, Diss. (Cd)				DATE/TIME ANALYZED:08/10/94 19:30						QC BATCH NUMBER:304591
REPORTING LIMIT/DF: 0.005 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0729M	<0.005							
BLANK	MB	MWMP	<0.005							
BLANK	CCB	0729M	<0.005							
BLANK	CCB	0729M	<0.005							
BLANK	CCB	0729M	<0.005							
STANDARD	CCV	0712E	0.998			1.00	100			
STANDARD	ISB	0710A	0.867			1.00	87			
STANDARD	CCV	0712E	1.05			1.00	105			

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/24/95

JOB NUMBER: 941801 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Cadmium, Diss. (Cd) REPORTING LIMIT/DF: 0.005 UNITS:mg/L			DATE/TIME ANALYZED:08/10/94 19:30 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:304591 TECHNICIAN:GAG
STANDARD	ICV	0524F	2.00			2.00	100			
STANDARD	ISB	0710A	0.905			1.00	90			
STANDARD	CCV	0712E	1.04			1.00	104			
SPIKE	PDS	941801-003	0.912					<0.005	1.00	91
SPIKE	PDS	941839-003	0.965					<0.005	1.00	96
DUPLICATE	MD	941839-001	<0.005	<0.005	NC					
DUPLICATE	MD	941801-003	<0.005	<0.005	NC					
DUPLICATE	MD	941839-017	<0.005	<0.005	NC					
PARAMETER:Chromium, Diss. (Cr) REPORTING LIMIT/DF: 0.01 UNITS:mg/L			DATE/TIME ANALYZED:08/10/94 19:30 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:304592 TECHNICIAN:GAG
BLANK	ICB	0729M	<0.01							
BLANK	MB	MWMP	<0.01							
BLANK	CCB	0729M	<0.01							
BLANK	CCB	0729M	<0.01							
BLANK	CCB	0729M	<0.01							
STANDARD	CCV	0712E	2.54			2.50	102			
STANDARD	ISB	0710A	0.47			0.50	94			
STANDARD	CCV	0712E	2.45			2.50	98			
STANDARD	ICV	0524F	2.04			2.00	102			
STANDARD	ISB	0710A	0.45			0.50	90			
STANDARD	CCV	0712E	2.45			2.50	98			
SPIKE	PDS	941801-003	0.94					<0.01	1.00	94
SPIKE	PDS	941839-003	0.99					<0.01	1.00	99
DUPLICATE	MD	941839-001	<0.01	<0.01	NC					
DUPLICATE	MD	941801-003	<0.01	<0.01	NC					
DUPLICATE	MD	941839-017	<0.01	<0.01	NC					
PARAMETER:Lead, Diss. (Pb) REPORTING LIMIT/DF: 0.05 UNITS:mg/L			DATE/TIME ANALYZED:08/10/94 19:30 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:304601 TECHNICIAN:GAG
BLANK	ICB	0729M	<0.05							
BLANK	MB	MWMP	<0.05							
BLANK	CCB	0729M	<0.05							
BLANK	CCB	0729M	<0.05							
BLANK	CCB	0729M	<0.05							
STANDARD	CCV	0712E	1.01			1.00	101			
STANDARD	ISB	0710A	0.91			1.00	91			
STANDARD	CCV	0712E	1.05			1.00	105			
STANDARD	ICV	0524F	2.01			2.00	100			
STANDARD	ISB	0710A	0.93			1.00	93			
STANDARD	CCV	0712E	1.04			1.00	104			
SPIKE	PDS	941801-003	0.97					<0.05	1.00	97
SPIKE	PDS	941839-003	1.00					<0.05	1.00	100
DUPLICATE	MD	941839-001	<0.05	<0.05	NC					

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/24/95

JOB NUMBER: 941801 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Lead, Diss. (Pb)				DATE/TIME ANALYZED:08/10/94 19:30						QC BATCH NUMBER:304601
REPORTING LIMIT/DF: 0.05 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
DUPLICATE	MD	941801-003	<0.05	<0.05	NC					
DUPLICATE	MD	941839-017	<0.05	<0.05	NC					
PARAMETER:Selenium, Diss. (Se)				DATE/TIME ANALYZED:08/10/94 19:30						QC BATCH NUMBER:304602
REPORTING LIMIT/DF: 0.1 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GAG
BLANK	ICB	0729M	<0.1							
BLANK	MB	MWMP	<0.1							
BLANK	CCB	0729M	<0.1							
BLANK	CCB	0729M	<0.1							
BLANK	CCB	0729M	<0.1							
STANDARD	CCV	0712E	2.5			2.5	100			
STANDARD	ISB	0710A	0.9			1.0	90			
STANDARD	CCV	0712E	2.5			2.5	100			
STANDARD	ICV	0524F	2.0			2.0	100			
STANDARD	ISB	0710A	0.9			1.0	90			
STANDARD	CCV	0712E	2.5			2.5	100			
SPIKE	PDS	941801-003	1.0					<0.1	1.0	100
SPIKE	PDS	941839-003	1.0					<0.1	1.0	100
DUPLICATE	MD	941839-001	<0.1	<0.1	NC					
DUPLICATE	MD	941801-003	<0.1	<0.1	NC					
DUPLICATE	MD	941839-017	<0.1	<0.1	NC					
PARAMETER:Pyritic Sulfur (as S)				DATE/TIME ANALYZED:08/02/94 07:30						QC BATCH NUMBER:304975
REPORTING LIMIT/DF: 0.01 UNITS:%				METHOD REFERENCE :D 2492-90 (14)						TECHNICIAN:RPK
BLANK	MB	940802	<0.01							
DUPLICATE	MD	941869-5	0.32	0.31	3					
PARAMETER:Pyritic Sulfur (Tons CaCO3/Kt)				DATE/TIME ANALYZED:08/02/94 07:30						QC BATCH NUMBER:304976
REPORTING LIMIT/DF: 0.3 UNITS:Tons CaCO3/Kt				METHOD REFERENCE :D 2492-90 (14)						TECHNICIAN:RPK
BLANK	MB	940802	<0.3							
DUPLICATE	MD	941869-5	10.1	9.7	4					
PARAMETER:Mercury, Diss. (Hg)				DATE/TIME ANALYZED:08/16/94 14:00						QC BATCH NUMBER:305109
REPORTING LIMIT/DF: 0.0002 UNITS:mg/L				METHOD REFERENCE :7470 (2)						TECHNICIAN:LMT
BLANK	ICB	08164	<0.0002							
BLANK	CCB	08164	<0.0002							
BLANK	CCB	08164	<0.0002							
BLANK	CCB	08164	<0.0002							
BLANK	CCB	08164	<0.0002							
BLANK	CCB	08164	<0.0002							
BLANK	CCB	08164	<0.0002							
BLANK	CCB	08164	<0.0002							

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/24/95

JOB NUMBER: 941801 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Mercury, Diss. (Hg)				DATE/TIME ANALYZED:08/16/94 14:00						QC BATCH NUMBER:305109
REPORTING LIMIT/DF: 0.0002	UNITS:mg/L			METHOD REFERENCE :7470 (2)						TECHNICIAN:LMT
BLANK	CCB	08164	<0.0002							
BLANK	CCB	08164	<0.0002							
BLANK	CCB	08164	<0.0002							
BLANK	MB	MWMP	<0.0002							
BLANK	MB	MWMP	<0.0002							
BLANK	MB	CAL WET	<0.0002							
BLANK	MB	CAL WET	<0.0002							
BLANK	MB	CAL WET	<0.0002							
STANDARD	ICV	0815H	0.0042			0.0040	105			
STANDARD	CCV	1228Q	0.0023			0.0025	92			
STANDARD	CCV	1228Q	0.0025			0.0025	100			
STANDARD	CCV	1228Q	0.0023			0.0025	92			
STANDARD	CCV	1228Q	0.0023			0.0025	92			
STANDARD	CCV	1228Q	0.0023			0.0025	92			
STANDARD	CCV	1228Q	0.0023			0.0025	92			
STANDARD	CCV	1228Q	0.0023			0.0025	92			
STANDARD	CCV	1228Q	0.0024			0.0025	96			
STANDARD	CCV	1228Q	0.0023			0.0025	92			
STANDARD	CCV	1228Q	0.0025			0.0025	100			
SPIKE	MS	941869-007	0.0050					<0.0002	0.0050	100
SPIKE	PDS	941828-010	0.0023					<0.0002	0.0025	92
SPIKE	PDS	941828-019	0.0023					<0.0002	0.0025	92
SPIKE	PDS	941828-028	0.0024					<0.0002	0.0025	96
DUPLICATE	MD	941828-011	0.0002	<0.0002	0.0002					
DUPLICATE	MD	941828-020	<0.0002	<0.0002	NC					
DUPLICATE	MD	941828-029	0.0002	<0.0002	0.0002					
DUPLICATE	MD	941801-003	<0.0002	<0.0002	NC					
DUPLICATE	MD	941869-006	<0.0002	<0.0002	NC					
PARAMETER:APP/Peroxide (as S)				DATE/TIME ANALYZED:08/17/94 09:32						QC BATCH NUMBER:305722
REPORTING LIMIT/DF: 0.01	UNITS:%			METHOD REFERENCE :3.2.11 (15)						TECHNICIAN:SLS
BLANK	MB	940817	<0.01							
DUPLICATE	MD	941869-5	0.15	0.15	0					
DUPLICATE	MD	941938-5	0.01	0.02	0.01					
PARAMETER:APP/Peroxide (Tons CaCO3/Kt)				DATE/TIME ANALYZED:08/17/94 09:32						QC BATCH NUMBER:305723
REPORTING LIMIT/DF: 0.3	UNITS:Tons CaCO3/Kt			METHOD REFERENCE :3.2.11 (15)						TECHNICIAN:KDS
BLANK	MB	940817	<0.3							
DUPLICATE	MD	941869-5	4.7	4.7	0					
DUPLICATE	MD	941938-5	0.3	0.6	0.3					

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QUALITY CONTROL REPORT
03/24/95

JOB NUMBER: 941801 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Aluminum, Total (Al)			DATE/TIME ANALYZED:08/25/94 10:57							QC BATCH NUMBER:306138
REPORTING LIMIT/DF: 0.05 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
BLANK	ICB	0819H	<0.05							
BLANK	MB	0824	0.08							
BLANK	CCB	0819H	<0.05							
BLANK	CCB	0819H	<0.05							
BLANK	CCB	0819H	<0.05							
STANDARD	CCV	0602J	10.2			10.0	102			
STANDARD	ISA	0609A	468			500	94			
STANDARD	ISA	0609A	472			500	94			
STANDARD	ISB	0710A	447			500	89			
STANDARD	CCV	0602J	10.1			10.0	101			
STANDARD	ISB	0710A	439			500	88			
STANDARD	ICV	0801S	0.97			1.00	97			
SPIKE	PDS	941801-002	5.78					4.03	2.00	88
DUPLICATE	MD	941801-001	3.82	3.80	1					
PARAMETER:Calcium, Total (Ca)			DATE/TIME ANALYZED:08/25/94 10:57							QC BATCH NUMBER:306139
REPORTING LIMIT/DF: 0.1 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
BLANK	ICB	0819H	<0.1							
BLANK	MB	0824	0.1							
BLANK	CCB	0819H	<0.1							
BLANK	CCB	0819H	<0.1							
BLANK	CCB	0819H	<0.1							
STANDARD	CCV	0602J	9.8			10.0	98			
STANDARD	CCV	0602J	9.9			10.0	99			
STANDARD	ICV	D0426	19.8			20.0	99			
DUPLICATE	MD	941801-001	1.5	1.5	0					
PARAMETER:Calcium, Total (Ca)			DATE/TIME ANALYZED:08/25/94 11:02							QC BATCH NUMBER:306140
REPORTING LIMIT/DF: 1.0 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
BLANK	ICB	0819H	<1.0							
BLANK	CCB	0819H	<1.0							
BLANK	CCB	0819H	<1.0							
BLANK	CCB	0819H	<1.0							
STANDARD	CCV	0222K	268			250	107			
STANDARD	ISA	0609A	519			500	104			
STANDARD	ISB	0710A	497			500	99			
STANDARD	ISA	0609A	528			500	106			
STANDARD	ISB	0710A	511			500	102			
STANDARD	CCV	0222K	265			250	106			
STANDARD	ICV	0426D	204			200	102			
STANDARD	CCV	0222K	257			250	103			
SPIKE	PDS	941801-002	94.1					36.3	50.0	116

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JOB NUMBER: 941801 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Iron, Total (Fe)				DATE/TIME ANALYZED:08/25/94 10:57						QC BATCH NUMBER:306141
REPORTING LIMIT/DF: 0.03 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	0819H	<0.03							
BLANK	MB	0824	0.18							
BLANK	CCB	0819H	<0.03							
BLANK	CCB	0819H	<0.03							
BLANK	CCB	0819H	<0.03							
STANDARD	CCV	0602J	10.4			10.0	104			
STANDARD	ISA	0609A	186			200	93			
STANDARD	ISA	0609A	191			200	96			
STANDARD	ISB	0710A	185			200	92			
STANDARD	CCV	0602J	10.5			10.0	105			
STANDARD	ISB	0710A	178			200	89			
STANDARD	ICV	0511A	2.01			2.00	100			
SPIKE	PDS	941801-002	4.99					3.18	2.00	90
DUPLICATE	MD	941801-001	3.33	3.30	1					
PARAMETER:Potassium, Total (K)				DATE/TIME ANALYZED:08/25/94 10:57						QC BATCH NUMBER:306142
REPORTING LIMIT/DF: 5 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	0819H	<5							
BLANK	MB	0824	<5							
BLANK	CCB	0819H	<5							
BLANK	CCB	0819H	<5							
BLANK	CCB	0819H	<5							
STANDARD	CCV	0222K	226			250	90			
STANDARD	ISB	0710A	10			10	100			
STANDARD	CCV	0222K	256			250	102			
STANDARD	ISB	0710A	8			10	80			
STANDARD	CCV	0222K	231			250	92			
STANDARD	ICV	0426D	94			100	94			
SPIKE	PDS	941801-002	54					12	50	84
DUPLICATE	MD	941801-001	<5	<5	NC					
PARAMETER:Magnesium, Total (Mg)				DATE/TIME ANALYZED:08/25/94 10:57						QC BATCH NUMBER:306143
REPORTING LIMIT/DF: 0.1 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	0819H	<0.1							
BLANK	MB	0824	<0.1							
BLANK	CCB	0819H	<0.1							
BLANK	CCB	0819H	<0.1							
BLANK	CCB	0819H	<0.1							
STANDARD	CCV	0602J	25.4			25.0	102			
STANDARD	CCV	0602J	25.6			25.0	102			
STANDARD	ICV	D0426	20.2			20.0	101			
SPIKE	PDS	941801-002	67.3					13.9	50.0	107
DUPLICATE	MD	941801-001	0.7	0.7	0					

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ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Manganese, Total (Mn) REPORTING LIMIT/DF: 0.01 UNITS:mg/L			DATE/TIME ANALYZED:08/25/94 10:57 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:306144 TECHNICIAN:GEF	
BLANK	ICB	0819H	<0.01							
BLANK	MB	0824	<0.01							
BLANK	CCB	0819H	<0.01							
BLANK	CCB	0819H	<0.01							
BLANK	CCB	0819H	<0.01							
STANDARD	CCV	0602J	4.97			5.00	99			
STANDARD	ISB	0710A	0.45			0.50	90			
STANDARD	ISB	0710A	0.47			0.50	94			
STANDARD	CCV	0602J	5.00			5.00	100			
STANDARD	ICV	0511A	1.92			2.00	96			
SPIKE	PDS	941801-002	1.10					0.12	1.00	98
DUPLICATE	MD	941801-001	0.11	0.11	0					
PARAMETER:Sodium, Total (Na) REPORTING LIMIT/DF: 1 UNITS:mg/L			DATE/TIME ANALYZED:08/25/94 10:57 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:306145 TECHNICIAN:GEF	
BLANK	ICB	0819H	<1							
BLANK	MB	0824	<1							
BLANK	CCB	0819H	<1							
BLANK	CCB	0819H	<1							
BLANK	CCB	0819H	<1							
STANDARD	CCV	0602J	52			50	104			
STANDARD	CCV	0602J	52			50	104			
STANDARD	ICV	D0426	21			20	105			
SPIKE	PDS	941801-002	53					2	50	102
DUPLICATE	MD	941801-001	<1	<1	NC					
PARAMETER:Titanium, Total (Ti) REPORTING LIMIT/DF: 0.05 UNITS:mg/L			DATE/TIME ANALYZED:08/25/94 10:57 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:306146 TECHNICIAN:GEF	
BLANK	ICB	0819H	<0.05							
BLANK	MB	0824	<0.05							
BLANK	CCB	0819H	<0.05							
BLANK	CCB	0819H	<0.05							
BLANK	CCB	0819H	<0.05							
STANDARD	CCV	0602J	2.72			2.50	109			
STANDARD	ISB	0710A	0.99			1.00	99			
STANDARD	ISB	0710A	1.03			1.00	103			
STANDARD	CCV	0602J	2.72			2.50	109			
STANDARD	ICV	0511A	2.08			2.00	104			
SPIKE	PDS	941801-002	1.31					0.26	1.00	105
DUPLICATE	MD	941801-001	0.24	0.24	0.00					
PARAMETER:Phosphorous, Total (P) REPORTING LIMIT/DF: 0.2 UNITS:mg/L			DATE/TIME ANALYZED:08/25/94 10:57 METHOD REFERENCE :6010 (2)						QC BATCH NUMBER:306148 TECHNICIAN:GEF	
BLANK	ICB	0819H	<0.2							

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ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Phosphorous, Total (P) REPORTING LIMIT/DF: 0.2 UNITS:mg/L			DATE/TIME ANALYZED:08/25/94 10:57 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:306148 TECHNICIAN:GEF
BLANK	MB	0824	1.5							
BLANK	CCB	0819H	<0.2							
BLANK	CCB	0819H	<0.2							
BLANK	CCB	0819H	<0.2							
STANDARD	ISB	0710A	1.0			1.0	100			
STANDARD	ISB	0710A	1.0			1.0	100			
STANDARD	ICV	0812S	2.1			2.0	105			
STANDARD	CCV	0222K	2.7			2.5	108			
STANDARD	CCV	0222K	2.7			2.5	108			
SPIKE	PDS	941801-002	2.1					1.0	1.0	110
DUPLICATE	MD	941801-001	4.2	4.4	5					
PARAMETER:Mercury, Total (Hg) REPORTING LIMIT/DF: 0.0002 UNITS:mg/L			DATE/TIME ANALYZED:03/07/95 11:00 METHOD REFERENCE :7471 (2)							QC BATCH NUMBER:322837 TECHNICIAN:BPB
BLANK	ICB	03075	<0.0002							
BLANK	CCB	03075	<0.0002							
STANDARD	ICV	1121H	0.0041			0.0040	103			
STANDARD	CCV	1013P	0.0025			0.0025	100			
STANDARD	LCS	950223D	0.0014			0.0024	58			
SPIKE	PDS	941801-002	0.0049					0.0004	0.0050	90
DUPLICATE	MD	941801-001	0.0009	0.0008	0.0001					
PARAMETER:Silver, Total (Ag) REPORTING LIMIT/DF: 0.005 UNITS:mg/L			DATE/TIME ANALYZED:03/16/95 22:22 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:323675 TECHNICIAN:GEF
BLANK	ICB	0220F	<0.005							
BLANK	MB	0314	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	MB	0316	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
STANDARD	CCV	0302D	2.34			2.50	94			
STANDARD	ISB	0309F	0.985			1.00	98			
STANDARD	LCS	0223D	1.06			0.850	125			
STANDARD	CCV	0302D	2.32			2.50	93			
STANDARD	ICV	1206H	2.02			2.00	101			
STANDARD	CCV	0302D	2.37			2.50	95			
STANDARD	CCV	0302D	2.37			2.50	95			
STANDARD	LCS	0223D	0.856			0.850	101			
STANDARD	CCV	0302D	2.37			2.50	95			
STANDARD	CCV	0302D	2.38			2.50	95			
STANDARD	ISB	0309F	0.999			1.00	100			

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CORE LABORATORIES

QUALITY CONTROL REPORT
03/24/95

JOB NUMBER: 941801 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Silver, Total (Ag)				DATE/TIME ANALYZED:03/16/95 22:22						QC BATCH NUMBER:323675
REPORTING LIMIT/DF: 0.005 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
STANDARD	CCV	0302D	2.37			2.50	95			
SPIKE	MS	950588-002	0.439					0.005	1.00	43
SPIKE	MS	950565-005	0.458					<0.005	0.500	92
SPIKE	PDS	950588-002	0.958					<0.005	1.00	96
DUPLICATE	MD	950588-001	<0.005	<0.005	NC					
DUPLICATE	MD	950565-004	0.020	0.022	0.002					
PARAMETER:Arsenic, Total (As)				DATE/TIME ANALYZED:03/16/95 22:22						QC BATCH NUMBER:323676
REPORTING LIMIT/DF: 0.005 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	0220F	<0.005							
BLANK	MB	0314	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	MB	0316	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
STANDARD	CCV	1101T	2.59			2.50	104			
STANDARD	ISB	0309F	1.10			1.00	110			
STANDARD	LCS	0223D	0.781			0.651	120			
STANDARD	CCV	1101T	2.62			2.50	105			
STANDARD	ICV	1101U	2.08			2.00	104			
STANDARD	CCV	1101T	2.63			2.50	105			
STANDARD	LCS	0223D	0.691			0.651	106			
STANDARD	CCV	1101T	2.62			2.50	105			
STANDARD	ISB	0309F	1.10			1.00	110			
SPIKE	MS	950588-002	0.980					0.478	0.500	100
SPIKE	MS	950565-005	0.958					0.480	0.500	96
SPIKE	PDS	950588-002	1.11					0.016	1.00	109
DUPLICATE	MD	950502-001	0.020	0.016	0.004					
DUPLICATE	MD	950588-001	0.097	0.102	5					
DUPLICATE	MD	950565-004	1.41	1.32	7					
PARAMETER:Cadmium, Total (Cd)				DATE/TIME ANALYZED:03/16/95 22:22						QC BATCH NUMBER:323678
REPORTING LIMIT/DF: 0.0005UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
BLANK	ICB	0220F	<0.0005							
BLANK	MB	0314	<0.0005							
BLANK	CCB	0220F	<0.0005							
BLANK	MB	0316	<0.0005							
BLANK	CCB	0220F	<0.0005							
BLANK	CCB	0220F	<0.0005							
BLANK	CCB	0220F	<0.0005							
BLANK	CCB	0220F	<0.0005							

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QUALITY CONTROL REPORT
03/24/95

JOB NUMBER: 941801 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Cadmium, Total (Cd) REPORTING LIMIT/DF: 0.0005 UNITS:mg/L			DATE/TIME ANALYZED:03/16/95 22:22 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:323678 TECHNICIAN:GEF
BLANK	CCB	0220F	<0.0005							
STANDARD	CCV	1101T	0.964			1.00	96			
STANDARD	ISB	0309F	0.916			1.00	92			
STANDARD	LCS	0223D	1.01			0.815	124			
STANDARD	CCV	1101T	0.971			1.00	97			
STANDARD	ICV	1101U	1.93			2.00	96			
STANDARD	CCV	1101T	0.970			1.00	97			
STANDARD	LCS	0223D	0.825			0.815	101			
STANDARD	CCV	1101T	0.973			1.00	97			
STANDARD	ISB	0309F	0.926			1.00	93			
SPIKE	MS	950588-002	0.419					0.0016	0.500	83
SPIKE	MS	950565-005	0.587					0.141	0.500	89
DUPLICATE	MD	950502-001	0.0009	0.0008	0.0001					
DUPLICATE	MD	950588-001	0.0048	0.0047	2					
DUPLICATE	MD	950565-004	0.0650	0.0619	5					
PARAMETER:Copper, Total (Cu) REPORTING LIMIT/DF: 0.001 UNITS:mg/L			DATE/TIME ANALYZED:03/16/95 22:22 METHOD REFERENCE :6010 (2)							QC BATCH NUMBER:323679 TECHNICIAN:GEF
BLANK	ICB	0220F	<0.001							
BLANK	MB	0314	<0.001							
BLANK	CCB	0220F	<0.001							
BLANK	MB	0316	<0.001							
BLANK	CCB	0220F	<0.001							
BLANK	CCB	0220F	<0.001							
BLANK	CCB	0220F	<0.001							
BLANK	CCB	0220F	<0.001							
BLANK	CCB	0220F	<0.001							
STANDARD	CCV	1101T	2.65			2.50	106			
STANDARD	ISB	0309F	0.550			0.500	110			
STANDARD	LCS	0223D	1.86			1.46	127			
STANDARD	CCV	1101T	2.62			2.50	105			
STANDARD	ICV	1101U	2.08			2.00	104			
STANDARD	CCV	1101T	2.65			2.50	106			
STANDARD	LCS	0223D	1.59			1.46	109			
STANDARD	CCV	1101T	2.66			2.50	106			
STANDARD	ISB	0309F	0.558			0.500	112			
SPIKE	MS	950588-002	0.586					0.132	0.500	91
SPIKE	MS	950565-005	0.662					0.163	0.500	100
SPIKE	PDS	950588-002	1.05					0.002	1.00	105
DUPLICATE	MD	950502-001	0.253	0.253	0					
DUPLICATE	MD	950588-001	0.150	0.151	1					
DUPLICATE	MD	950565-004	0.785	0.746	5					

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QUALITY CONTROL REPORT
03/24/95

JOB NUMBER: 941801 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Lead, Total (Pb)			DATE/TIME ANALYZED:03/16/95 22:22							QC BATCH NUMBER:323682
REPORTING LIMIT/DF: 0.005 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
BLANK	ICB	0220F	<0.005							
BLANK	MB	0314	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	MB	0316	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
STANDARD	CCV	1101T	0.949			1.00	95			
STANDARD	ISB	0309F	0.919			1.00	92			
STANDARD	LCS	0223D	1.41			1.28	110			
STANDARD	CCV	1101T	0.958			1.00	96			
STANDARD	ICV	1101U	1.90			2.00	95			
STANDARD	CCV	1101T	0.954			1.00	95			
STANDARD	LCS	0223D	1.23			1.28	96			
STANDARD	CCV	1101T	0.959			1.00	96			
STANDARD	ISB	0309F	0.933			1.00	93			
SPIKE	MS	950588-002	1.76					1.22	0.50	108
SPIKE	PDS	950588-002	1.06					0.053	1.00	101
SPIKE	MS	950565-005	0.530					0.085	0.500	89
DUPLICATE	MD	950588-001	0.191	0.191	0					
DUPLICATE	MD	950502-001	0.015	0.012	0.003					
DUPLICATE	MD	950565-004	2.32	2.13	9					
PARAMETER:Zinc, Total (Zn)			DATE/TIME ANALYZED:03/16/95 23:15							QC BATCH NUMBER:323683
REPORTING LIMIT/DF: 0.005 UNITS:mg/L			METHOD REFERENCE :6010 (2)							TECHNICIAN:GEF
BLANK	ICB	0220F	<0.005							
BLANK	MB	0314	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	MB	0316	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
BLANK	CCB	0220F	<0.005							
STANDARD	ISB	0309F	1.08			1.00	108			
STANDARD	LCS	0223D	0.878			0.765	115			
STANDARD	CCV	1101T	2.64			2.50	106			
STANDARD	ICV	1101U	2.10			2.00	105			
STANDARD	CCV	1101T	2.66			2.50	106			
STANDARD	LCS	0223D	0.763			0.765	100			
STANDARD	CCV	1101T	2.66			2.50	106			
STANDARD	ISB	0309F	1.09			1.00	109			
STANDARD	CCV	1101T	2.64			2.50	106			

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QUALITY CONTROL REPORT
03/24/95

JOB NUMBER: 941801 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (|A-B|)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Zinc, Total (Zn)				DATE/TIME ANALYZED:03/16/95 23:15						QC BATCH NUMBER:323683
REPORTING LIMIT/DF: 0.005 UNITS:mg/L				METHOD REFERENCE :6010 (2)						TECHNICIAN:GEF
SPIKE	MS	950588-002	1.03					0.496	1.00	53
SPIKE	PDS	950588-002	1.16					0.023	1.00	114
SPIKE	MS	950565-005	3.39					2.95	0.500	88
DUPLICATE	MD	950588-001	0.614	0.619	1					
DUPLICATE	MD	950565-004	1.04	1.06	2					
DUPLICATE	MD	950502-001	0.091	0.090	1					

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ENVIRONMENTAL
RESOURCE ASSOCIATES
Arvada, Colorado 80002 303-431-8454

Certification

PriorityPollutnT™/CLP Quality Control Standards

Inorganics in Soil

Parameter	Lot No. 221 Certified Value	Performance Acceptance Limits™
Trace Metals PriorityPollutnT™	mg/Kg	mg/Kg
Aluminum	4660	2470 - 6520
Antimony	54.1	17.8 - 210
Arsenic	65.1	31.9 - 97.0
Barium	319	213 - 415
Beryllium	152	97.3 - 211
Cadmium	81.5	40.7 - 114
Calcium	2920	2040 - 3970
Chromium	57.4	33.9 - 80.4
Cobalt	128	80.5 - 178
Copper	146	88.8 - 205
Iron	9500	5700 - 13300
Lead	128	88.9 - 179
Magnesium	3170	2000 - 4470
Manganese	162	114 - 219
Mercury	23.7	9.98 - 36.7
Molybdenum	198	109 - 325
Nickel	35.8	21.1 - 51.2
Potassium	3100	1950 - 4120
Selenium	47.6	24.3 - 69.5
Silver	85.0	34.0 - 125
Sodium	146	80.0 - 212
Thallium	90.8	45.4 - 139
Vanadium	57.5	40.3 - 78.3
Zinc	76.5	43.6 - 116
Cyanide PriorityPollutnT™	mg/Kg	mg/Kg
Total cyanide	238	100 - 391

The ***Trace Metals Certified Values*** are equal to the mean recoveries for each parameter as determined in an interlaboratory round robin study. The standard was digested using Method 3050, SW-846 and the digest analyzed by ICP and atomic absorption spectroscopy.

The ***Cyanide Certified Value*** is equal to the mean recovery as determined in an interlaboratory round robin study. The standard was digested and analyzed following the procedure outlined in Method 9010, SW-846.

The ***Performance Acceptance Limits*** (PALs™) are listed as guidelines for acceptable analytical results given the limitations of the USEPA methodologies commonly used to determine these parameters and closely approximate the 95% confidence interval. The PALs™ are based on data generated by your peer laboratories in ERA's InterLaB™ program using the same samples you are analyzing and data from USEPA methods, WP, WS and CLP interlaboratory studies. If your result falls outside of the PALs™, ERA recommends that you investigate potential sources of error in your preparation and/or analytical procedures. For futher technical assistance, call ERA at 1-800-372-0122.

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QUALITY CONTROL FOOTER

METHOD REFERENCES

(1) EPA 600/4-79-020, Methods For Chemical Analysis Of Water And Wastes, March 1983

(2) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, November 1986

(3) Standard Methods For The Examination Of Water And Wastewater, 17th Edition, 1989

(4) EPA 600/4-80-032, Prescribed Procedures For Measurement Of Radioactivity In Drinking Water, August 1980

(5) EPA 600/8-78-017, Microbiological Methods For Monitoring The Environment, December 1978

(6) Federal Register, July 1, 1990 (40 CFR Part 136)

(7) EPA 600/4-88-039, Methods For The Determination Of Organics Compounds In Drinking Water, December 1988

(8) U.S.G.S. Methods For The Determination Of Inorganic Substances In Water And Fluvial Sediments, Book 5, Chapter A1, 1985

(9) Federal Register, Friday, June 7, 1991, (40 CFR Parts 141 and 142)

(10) Standard Methods For The Examination Of Water And Wastewater, 16th Edition, 1985

(11) ASTM, Section 11 Water And Environmental Technology, Volume 11.01 Water (1), 1991

(12) Methods Of Soil Analysis, American Society Of Agronomy, Agronomy No. 9, 1965

(13) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, Revision 1, November 1990

(14) ASTM, Section 5, Petroleum Products, Lubricants, and Fossil Fuels, Volume 05.05, Gaseous Fuels, Coal and Coke

(15) EPA 600/2-78-054, Field and Laboratory Methods Applicable To Overburdens and Mine Soils, March 1978

(16) ASTM, Part 19, Soils and Rock; Building Stones, 1981

Comments: Data in QA report may differ from final results due to digestion and/or dilution of sample into analytical ranges. The "Time Analyzed" in the QA report refers to the start time of the analytical batch which may not reflect the actual time of each analysis. The "Date Analyzed" is the actual date of analysis. Results for soil and sludge samples are reported on a wet weight basis (i.e. not corrected for percent moisture) unless otherwise indicated.
NC = Not Calculable Due To Value(s) Lower Than The Detection Limit.

Blank QC Sample Identification		Spike QC Sample Identification	
MB	Method Blank	MS	Method (Matrix) Spike
ICB	Initial Calibration Blank	MSD	Method (Matrix) Spike Duplicate
CCB	Continuing Calibration Blank	PDS	Post Digestion Spike
Reference Standard QC Sample Identification		SB	Spiked Blank
LCS	Laboratory Control Standard	SBD	Spiked Blank Duplicate
RS	Reference Standard	**Duplicate QC Sample Identification**	
ICV	Initial Calibration Verification Standard	MD	Method (Matrix) Duplicate
CCV	Continuing Calibration Verification Standard	ED	Extraction Duplicate
ISA/ISB	ICP Interference Check Samples	DD	Digestion Duplicate

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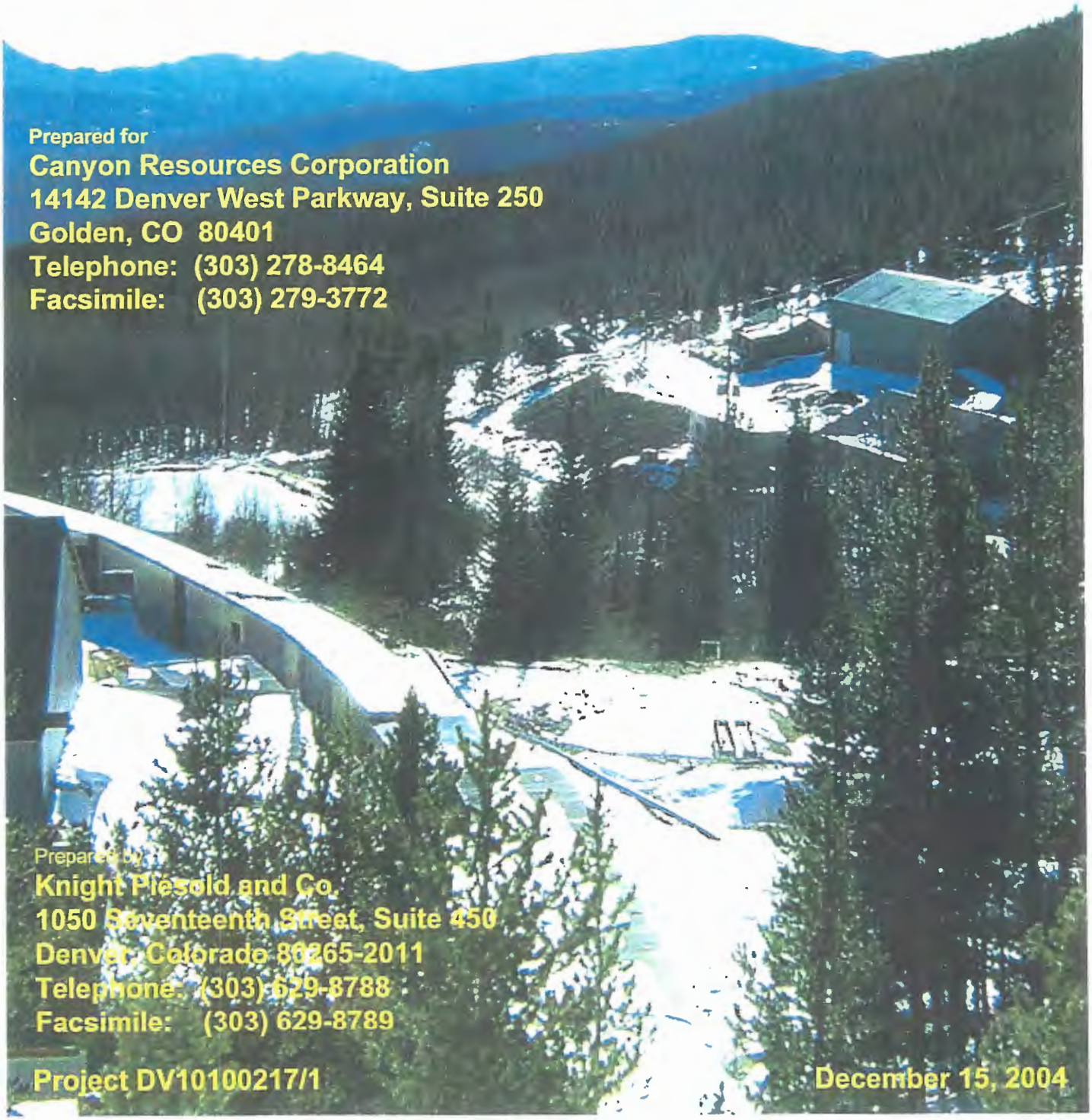
Subcontract Laboratory	Code	Subcontract Laboratory	Code
Core Laboratories - Anaheim, CA	* AN	Core Laboratories - Lake Charles, LA	* LC
Core Laboratories - Casper, WY	* CA	Core Laboratories - Long Beach, CA	* LB
Core Laboratories - Corpus Christi, TX	* CC	Other Subcontract Laboratories	* XX
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Knight Piésold
CONSULTING

Preliminary Environmental Due Diligence of Calais Resources Consolidated Caribou Mining District



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Project DV10100217/1

December 15, 2004

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Canyon Resources Corporation
Preliminary Environmental Due Diligence
of Calais Resources
Consolidated Caribou Mining District
Report of Findings

December 15, 2004

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Knight Piésold
CONSULTING

Canyon Resources Corporation
Preliminary Environmental Due Diligence
of Calais Resources
Consolidated Caribou Mining District
Report of Findings

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Appendix - Qualifications of Investigators

Canyon Resources Corporation
Preliminary Environmental Due Diligence
of Calais Resources
Consolidated Caribou Mining District
Report of Findings

1.0 Introduction

Canyon Resources Corporation (Canyon) is considering a potential business association with Calais Resources (Calais). Calais is a Canadian company, incorporated in British Columbia (OTC-BB, symbol CAAUF), which is headquartered in Greenwood Village, Colorado. Calais' primary assets include the Consolidated Caribou Mining District in Boulder County Colorado; the Manhattan Gold District in Nye County, Nevada; and the Faja de Oro Concessions in the Republic of Panama.

The Consolidated Caribou District is a 3.5 square mile historic mining district located about 5 miles west of Nederland, Colorado in the Roosevelt National Forest. Gold and silver production in the district dates back to the late 1800s with most of the historical production coming from the Cross or Caribou Mines. Calais' land position consists of 2,205 acres of patented and unpatented mining and mineral claims which include both the Cross and Caribou Mines and proximate areas. The claims are held either directly or controlled through operating agreements by Calais. The surface facilities associated with the underground mine are reportedly located on patented mining or mill site claims and thus are removed from management purview of the U.S. Forest Service.

The Caribou, or Grand Island, mining district is located near the northeastern exposed limit of the Colorado Mineral Belt. Deposits in the district have been described by the U.S. Geological Survey as "polymetallic veins with abundant carbonates or that occur in wallrock altered to contain carbonates". The veins in the Caribou District, including those exploited by the Cross Mine underground workings, occur near the contact of a Tertiary-aged intrusion and PreCambrian-aged, non-calcareous meta-sediments.

Historic gold and silver production in the district has been sourced from northeast striking veins that cut east-west striking veins. The vein mineralization was emplaced during multiple phases (up to seven in the case of the Cross veins) and include early and persistent pyrite, copper, zinc, lead and silver sulfides and gold. A relatively early carbonate-rich phase resulted in common dolomite, calcite, rhodochrosite and other carbonate minerals in the veins, but the extent of carbonation of the wall rock alteration required further investigation. In addition to simple sulfides, a variety of arsenic and antimony sulfosalts have been identified as well as pitchblende.

Canyon is evaluating the assets of Calais to determine if a formal business relationship with Calais is in its interest. Canyon requested Knight Piésold and Co. (Knight Piésold) to assist with a preliminary due diligence assessment of the environmental conditions and permit status of the Consolidated Caribou Mining District. The Nevada and Panama properties were not included in the work scope requested.

Focusing only on the Caribou District operations, Knight Piésold representatives Ron Schmiermund and Barbara Filas visited the Cross and Caribou mine sites on December 7, 2004 and met with Mr. Tom Hendricks, President and CEO of Calais. This report presents Knight Piésold's findings based on direct site observations; information available in the Division of Minerals and Geology files; discussions with Mr. Hendricks, Canyon representatives and others; and our substantial experience in the environmental aspects of mining and the Colorado regulatory programs affecting mining.

2.0 Regulatory and Permit Background

Canyon provided Knight Piésold with excerpts from what appears to be a prospectus provided to Canyon by Calais profiling the Calais assets. On page 27 of that report, in the section presenting the detailed property descriptions, the permits listed for the Consolidated Caribou Mining District include:

- Permit M-77-410 with the Colorado Division of Minerals and Geology (DMG)
- Permit CO-0032751 with the Colorado Water Quality Control Division (WQCD)
- ID Number 0502730 with the Mine Safety and Health Administration (MSHA)

The DMG regulatory program is a comprehensive program affecting all surface aspects of mining activities within the state. The presence of a discharge permit from WQCD under the Colorado Discharge Permit System (CDPS) suggests that the mine must discharge water off site into receiving waters of the State. The MSHA ID is used for tracking occupational safety and health compliance issues at mines. For the purposes of this preliminary environmental diligence effort, Knight Piésold did not review the Mine Safety and Health Administration (MSHA) compliance records.

The project is located in the Forestry zoning district in Boulder County. The Boulder County Zoning Division issued a letter to the DMG dated February 19, 1980 stating that subsurface mining is considered a "use by right in the Forestry zone," thereby not requiring land use permits from the County at the time. In 1997, however, Boulder County changed its zoning codes to require that underground mines submit to special use reviews at the County level. This is discussed in further detail in Section 4.1.

It is noted that air quality and stormwater permits associated with any land disturbance are often required for mining operations. In a telephone conversation with Mr. Hendricks on December 10, Mr. Hendricks advised that the Cross Mine is included under the statewide stormwater permit and that Walsh Environmental Engineers and Scientists (Walsh) manages reporting and compliance issues associated with this permit. Ms. Christine LeBerge of Walsh confirmed this in a telephone conversation that same day.

Mining projects involving land disturbance are typically required to file an Air Pollution Emission Notice (APEN) associated with their activities. Mr. Hendricks indicated that the Cross Gold Mine has not held an air quality permit in the past. To our knowledge, there are no point source discharges to air, and the potential for fugitive dust from land disturbance is minimal. Recommencing operating activities at this site will require the filing of an APEN and air quality permitting if the facility produces more than 70,000 tons of material per year. This permitting process is relatively straightforward.

2.1 Mining and Reclamation Permit

Hard rock and metal mining in Colorado is regulated by the DMG pursuant to the Colorado Mined Land Reclamation Act of 1976. Administrative rules were originally developed for hard rock and metal mining operations in May 1977 and have been through a number of modifications over the years. These rules require all new mines within the State, and active existing mines at the time the law was passed, to submit applications for permits.

2.1.1 Permit M-77-410

Hendricks Mining Company (HMC) was the owner and operator of the Cross Mine when the hard rock regulations were promulgated in 1977. On October 1, 1977, HMC submitted an application for a Limited Impact Permit under the newly passed Law. A Two-Acre Limited Impact Permit (Permit No. M-77-410) was issued to HMC on November 3, 1980.

Administrative responsibility for implementing the Mined Land Reclamation Act was assigned to the Colorado Department of Natural Resources, Mined Land Reclamation Division (MLRD), which name has subsequently been changed to the DMG. For the purposes of this report, we will refer to DMG as the regulatory authority, regardless of whether the action occurred when the agency name was MLRD or DMG.

A Two-Acre Limited Impact Operation (Rule 1.1(55)) applies to "any mining operation, other than a Designated Mining Operation, (DMO) which: (1) affects less than two acres for the life of the mine; (2) extracts less than 70,000 tons of mineral, overburden, or combination thereof per calendar year; (3) does not extract sand, gravel or quarry aggregate for sale; (4) is not located in or adjacent to a stream channel; and (5) does not use designated chemicals, cause acid mine drainage, or does not have toxic or acid-forming materials within the Permit area."

The DMO classification for mining operations was introduced into the Colorado mineral rules and regulations in the early 1990s, in the aftermath of the Summitville bankruptcy. With the changes in the administrative rules, HMC was required to, and successfully demonstrated that it did not use designated chemicals, have the potential to cause acid mine drainage, or does not have toxic or acid-forming materials within the Permit area. This demonstration is discussed further in Section 4.3.2.

2.1.2 Authorized Activities

Activities authorized under the original M-77-410 permit include underground mining and surface support facilities. The surface facilities consist of historic home sites, buildings, track haulage housing, and an office trailer. Underground activities consist of shrink stoping and backfilling on base-metal replacement veins. Tunnels, adits, and ore haulageways are generally driven on vein material, resulting in a minimum of waste rock production. Waste rock that is generated has typically been backfilled within the underground mined-out workings or used as construction materials. The original mine plan anticipated a production rate of 20 tons per day, increasing to up to 50 tons per day. The total authorized land disturbance under the permit is one acre and the maximum annual production volume is 70,000 tons.

2.1.3 Reporting

DMG program requirements oblige mine permit holders to provide annual reports documenting activities at the site for the preceding year. These annual reports are required on the anniversary date of the permit, which for M-77-410 is November 3 (the date of the original permit issue). Annual reports provide an overview of the activities during the previous year, an update on any required monitoring activities, and revisit the adequacy of the financial surety posted. Annual reports have consistently been submitted in a timely manner for the Cross Mine as required by the approved permit.

Knight Piésold reviewed the five most recent annual reports to better understand the ongoing activities at the Cross Mine. The reports document that the mine has been in a care and maintenance mode during those years. The reports typically state that water quality is monitored in accordance with the discharge permit issued by the WQCD. While most of the reports expressly state that monitoring was within compliance limits, the 2002 report does not include such a statement. When asked about this, Mr. Hendricks indicated that a sampling event exhibited an elevated contaminant concentration, but when another sample was taken and

analyzed, it was within the allowable limits, suggesting that the elevated reading was probably laboratory error. Ms. Filas asked John Henderson, Calais' attorney, the same question and his answer was similar to Mr. Hendricks' explanation. With Canyon's concurrence, we did not follow up on this in the WQCD files as we expect the public records would confirm this.

The 1999 to 2003 annual reports cite that the water discharge system is maintained seven days per week. The 1999 report indicates the construction of the water treatment system and anticipates system completion in 2000. Subsequent reports cite daily water treatment at a dosage of about 10 pounds of lime per day.

The 2000 annual report documents the "Mudfest" which occurred on September 23, 2000. This event resulted after a local radio station encouraged local 4-wheel-drive enthusiasts to convene in the area for a rally. This event resulted in significant damage to the peat bog wetland area in Caribou Park within the area owned or controlled by Calais. While wetland damage occurred, we found no evidence of regulatory action against Calais associated with this incident. Rather, the records indicate that Mr. Hendricks was proactive in helping to remediate the damage done by others.

Commencement of reclamation work on the Cross Mine waste dump was documented in the 2001 annual report and completed in 2003 under a Supplemental Environmental Project (SEP) required by the WQCD of the Colorado Department of Public Health and Environment (CDPHE). CDPHE established the SEP program as a settlement alternative to enforcement actions wherein monetary penalties associated with permit violations can be reduced if a violator is willing to commit to implement an environmentally beneficial project. SEPs are used to offset some or all of a civil penalty, but must provide significant benefit to public health and/or the environment. This SEP was associated with the noncompliance situation in 1986 discussed in Section 2.2.4.

The annual reports do not directly address the surety amount and its adequacy as required by Rule 1.15(1)(a). However, the annual reports submitted by HMC and Calais have followed a similar format for many years. DMG has not taken exception to the reports on file. If Canyon and Calais enter into a future business arrangement, we recommend that a statement regarding surety adequacy be included in future annual reports as a matter of completeness.

The Permit has been modified on three occasions to accommodate ongoing activities at the site. Those activities included the expansion of an existing water settlement pond, construction of a new settlement pond, leaving the site buildings intact following reclamation, and exploration drilling activities. DMG records suggest that all permit activities and technical revisions to the permit have been submitted and approved without difficulty.

2.1.4 Permit Transfer and Bonding

Permit No. M-77-410 was transferred from Hendricks Mining Company to Calais Resources Colorado, Inc. in August of 1999. Apparently catalyzed by the request for permit transfer, the reclamation bond estimate was re-evaluated in 1999 and increased to $15,400 based on the following calculation detail:

Slope grading	$ 246
Adit sealing	$9,657
Mobilization, seeding, fencing and demobilization	$2,783
Public liability insurance (1.55% of direct cost)	$ 197
Contractors performance bond (1.55% of direct cost)	$ 197
Contractor profit (10% of direct cost)	$2,169
DMG administration (5% of direct plus indirect cost)	$ 717
Total Bond Amount:	$15,065

The current reclamation surety amount of $15,400 is provided by Travelers Casualty and Surety Company of America under bond number 19S206374552BCM on behalf of Calais Resources.

It is evident by the bond calculation that no building demolition and disposal or access road reclamation is included as part of the reclamation obligations. This issue was addressed by Technical Revision in 1999.

2.1.5 Compliance History

Knight Piésold reviewed the DMG case file with regard to the compliance history for the Cross Mine. Operator's Annual Reports and DMG field inspection reports were reviewed. The DMG files indicate no history of non-compliance for Permit M-77-410, and only four inspection events since the permit was issued in 1980. The most recent inspection was conducted on June 18, 2004.

The June 2004 inspection report expressly references one acre of authorized disturbance and the $15,400 posted surety. Since the last inspection in June 1999, the operator has processed technical revisions for drilling, confirmed that the buildings will remain after final site reclamation, completed the construction of the water treatment plant, and completed a significant amount of reclamation at the Cross and Smuggler mines associated with the SEP commitment. The inspector noted that "the operator has done an excellent job of going well beyond the required reclamation activities and has made a significant contribution toward reclaiming historic mining disturbance in the Caribou area."

2.2 Water Discharge Permit

Waste water discharges in the United States are regulated at the federal level pursuant to the Water Pollution Control Act of 1972, commonly known as the Clean Water Act. This Act establishes the National Pollutant Discharge Elimination System for water discharges and is administered by the U.S. Environmental Protection Agency (EPA). The EPA has the authority to delegate program level responsibility to the states for its NPDES program. Colorado has an EPA-approved delegate program assigned to the WQCD of the CDPHE.

2.2.1 Permit CO-0032751

DMG records indicate that the CO-0032751 permit authorizes water discharge into Coon Track Creek, a tributary to North Beaver Creek. Segment 3 is the main stem of Middle Boulder Creek, including all tributaries, lakes and reservoirs from the source to the outlet at Barker Reservoir. Discharge permit originally obtained September 9, 1976.

2.2.2 Mine Water Management System

The water management system at the Cross Mine is comprised of two lined ponds and a small water treatment plant located down gradient of the lower pond. The treatment plant allows the addition of approximately 10 pounds of lime per day to adjust the pH of mine water from approximately 7.5 standard units (s.u.) to about 8.5 s.u. This pH adjustment is reportedly sufficient to reduce metal concentrations in the effluent to consistently acceptable levels, which is then discharged offsite under the approved CO-0032751 permit.

2.2.3 Monitoring and Reporting

Calais is required to monitor and submit monthly discharge monitoring reports (DMRs) to the WQCD. Annual reports to DMG indicate that these DMRs are prepared and submitted by Walsh Environmental Engineers and Scientists of Boulder, Colorado. According to Ms. Christine LeBerge of Walsh, monthly monitoring consists of pH, total hardness, dissolved zinc, and dissolved cadmium; as well as an expanded analytical profile on a quarterly basis.

2.2.4 Compliance History

The file review indicated some significant compliance issues associated with the WQCD discharge permit CO-0032751 in the late 1980s. Records indicate that mine discharge waters exceeded the allowable 30 day limits as well as daily maximums for total recoverable cadmium, copper, lead and zinc in early 1986, resulting in a cease and desist order being issued on March 7, 1986 for elevated concentrations of cadmium and zinc.

Knight Piésold did not review the WQCD case files, but we understand from discussions with Mr. Hendricks and Mr. Henderson that subsequent discharge permits reflected modified receiving water standards that influenced the effluent limits imposed on the Cross Mine. In addition, when Mr. Hendricks acquired rights to the historic Caribou Mine, the WQCD allowed the water from the Caribou Mine to be commingled with the Cross Mine effluent for discharge as a single point source. These, coupled with the installation of the water treatment system in 1999, have resulted in what DMG records suggest to be substantial compliance with the discharge permit over the past five years.

3.0 Walsh Environmental Audit Results

During our discussions with Mr. Hendricks, he mentioned that most of the concentrate from the Cross Mine had been shipped to Cominco's Trail smelter in British Columbia, Canada; as well as some (he intimated a much lesser volume) to the East Helena smelter in Montana. Knight Piésold is aware that the East Helena smelter is a Superfund site and as such, there is some potential for the mine owner(s) to be identified as a "potentially responsible parties" for cleanup cost under the joint and several liability aspects of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

Knight Piésold did not conduct a comprehensive environmental assessment into potential environmental liabilities at the site. We understand that Walsh did a Phase 1 Site Assessment at the Cross Mine in 2001. Since the DMG records suggest that only site care and maintenance activities have been ongoing at the site since that time, Knight Piésold thought it reasonable to acknowledge the findings with regard to potential liabilities that were presented in the Walsh report, since no significant environmental issues were identified by our site inspection and records review at DMG. While we understand that this document exists, we were not able to obtain a copy by the time that this report was issued. While we have no reason to expect any significant environmental liabilities to be identified in this report, as a matter of completeness, we recommend that Canyon obtain and review a copy of this report and incorporate the significant findings into their considerations as appropriate.

4.0 Considerations for Future Mining Activities

Knight Piésold has conducted its review of the Cross Mine and Consolidated Caribou Mining District under the auspices that Canyon is interested to reopen the mine and potentially introduce mineral beneficiation processes at the site. Based on the existing condition at the site and current permit status, our assessment then focuses on two areas:

- The ability obtain the authorizations required to accommodate limited impact and full-scale mining operations
- The effects that larger-scale mining activities are likely to have on water quality emanating from the mine in the future

Knight Piésold was provided a copy of a letter to Mr. Hendricks and Mr. Matthew Witt, both of Calais, dated July 26, 2004 from Mr. John Henderson of Vranesh and Raisch, LLP of Boulder, Colorado. The letter presents Mr. Henderson's opinion on the "permit-ability" of a new 1,000 ton-per-day mine in the Consolidated Caribou District. In our opinion, the salient points of Mr. Henderson's letter include:

- *"The two known, primary permits will be those obtained through the State of Colorado and Boulder County"*
- *"Each of these permitting proceedings has defined criteria which must be met. Permit applications meeting those criteria must be approved, or approved with conditions allowing the operational permits to meet the criteria. Permit applications meeting the criteria may not be arbitrarily denied."*
- *"There is no legal bar to obtaining the 112 and development permits at the state and local level, respectively, and no informational requirements that cannot be met by the application of diligent, professional planning effort."*

4.1 Obtaining Boulder County Use Permits

As stated in Section 2.0, Boulder County had previously managed underground mining as a use by right within the county. In the previously-mentioned opinion letter from John Henderson dated July 26, 2004, Mr. Henderson confirms that *"subsurface mining was a use by right in Boulder County until 1997, when a development plan was required for new operations. The County submittal requirements generally track those of the State 112 permit. The County plan*

must meet delineated development criteria and may not be arbitrarily denied. County building permits and grading permits will not be issued until approval of the development plan."

Knight Piésold accessed the Boulder County website at http://www.co.boulder.co.us to check the zoning district requirements to collaborate the opinion presented in Mr. Henderson's letter. Article 4-101 of the Zoning District Regulations pertains to the Forestry (F) District and Mining Uses under this zoning are subject to Article 4-508, which was modified on June 10, 1997 to allow the extraction of natural mineral deposits, except uranium, by underground methods, including the milling and processing of the ore produced and the reprocessing of tailings. Our cursory review of the Boulder County requirements suggests that a special use review (instead of a development plan review) will be required for projects that produce more than 70,000 tons per year and disturb more than 10 acres over the life of the project. We agree that Mr. Henderson's opinion that the County requirements will likely be analogous to the DMG 112 program.

It is noted that the Boulder County zoning requirements accommodate Limited Impact Mining Operations (less than 10 acres and 70,000 tons of annual production) analogous to the DMG 110 permit program. Development plans appear to be restricted by production tonnage and traffic limits, but limited impact special use reviews can be used for 110-type permits. It is also noted that open pit mining is allowed in the County zoning code by special use review.

Except for the permitting review process, which appears to require a limited impact special use review or a special use review for underground or open pit mining instead of a development plan, we believe that a reasonable pathway exists in Boulder County to obtain the required permits to reopen and operate the Consolidated Caribou Mining District. While we do not believe the possibility of open pit mining is fatally flawed, it is our opinion that the public and county review processes will be significantly more streamlined if underground mining methods with minimal surface impacts are proposed.

4.2 Obtaining DMG Mining and Reclamation Permits

The Cross Mine is currently permitted as a Two-Acre Limited Impact Permit with the DMG. Conversion of such a permit to a 110 or 112 permit will follow the processes described in the Mineral Rules and Regulations for Hardrock, Metal and Designated Mining Operations. Depending on the extent of surface disturbance associated with the future development plan, the 110 or 112 permit programs would be relevant.

With the introduction of mineral processing operations, it will again be necessary to revisit whether the operation will qualify as a designated mining operation. A DMO is a mining operation that uses designated chemicals in the metallurgical process, exposes or disturbs toxic or acid-forming materials, or exposes materials that have the potential to generate acid mine drainage during the operation and reclamation of the mine. We made an inquiry with DMG regarding whether flotation chemicals such as xanthate or pine oil are considered a designated chemical under the rules. Rule 1.1(13) defines designated chemicals as "toxic or acidic chemicals used within the permit area in extractive metallurgy, the use of which, at certain concentrations, represents a potential threat to human health, property or the environment." According to the Material Safety Data Sheet (MSDS), xanthate has a "harmful," not "toxic," chemical risk phrase (http://physchem.ox.ac.uk/MSDS/PO/potassium_ethyl_xanthate.html). Pine oil is not listed as harmful or toxic (http://www.essentialoil.com/msdspine.html). Neither xanthate nor pine oil are listed as hazardous substances under CERCLA. Mr. Harry Posey of DMG advised on December 14, 2004 that flotation chemicals are typically not included on the DMG list of designated chemicals that would cause a project to be permitted as a DMO. Specifically, xanthate and pine oil are not DMG designated chemicals. However, he did say that if cyanide is used, even in small amounts, the whole project would require permitting as a DMO.

Both 110 and 112 permits can accommodate DMOs. Additional information as described in Rules 7 and 8 of the mineral rules and regulations must be supplied to DMG as part of the permitting process if the project is classified as a DMO.

4.3 Obtaining WQCD Water Discharge Permits

Knight Piésold believes that perhaps the most significant risk associated with acquiring a mining operation that has an active water discharge is the potential need for long-term water treatment. Perpetual water treatment can be very costly and can sometimes change the economics of the overall project. In the case of the Consolidated Caribou Mining District, we observed very clean water emanating from the underground workings, and observed no geologic materials in the underground openings visited or in the core samples observed that would suggest that the water quality character will change significantly in the future.

4.3.1 Field Observations

Knight Piésold personnel toured the Cross Mine tunnel level (9692 feet AMSL) on December 7, 2004 to the furthest limit of the Apache vein system development and was shown the entries to the Cross, Crown Point and Rare Metals veins as well as the Juliet stockwork. Lower levels of the mine were flooded at the time of our visit. Water samples were collected at various points from seeps and plugged drill holes, both in the Precambrian metasediments and the monzonite intrusive. In all cases the pHs were consistently about 7.5 with electrical conductivities ranging between 100 and 200 µS/cm (equivalent to between 60 and 140 mg/L total dissolved solids). Iron staining was observed at the several seep sites indicating the precipitation of iron derived from the oxidation iron sulfide minerals.

The extent of observed iron staining normally suggests an acid rock drainage (ARD) condition and would be consistent with a lower-than-observed pH and higher conductivity. In this case, it must be concluded that the extent of pyrite oxidation is actually quite minimal and the precipitation of the resultant oxidized iron very efficient. In addition, dilution by pristine surface waters may be an important factor in the observed water quality. Any acidity that may result from sulfide oxidation is totally neutralized, presumably through reaction with calcite vein material.

4.3.2 Laboratory Data and Interpretation

Knight Piésold reviewed the results from the following laboratory analyses contained in the DMG files. This test work was conducted in 1994 by Core Laboratories, apparently in support of the non-DMO classification of the mine:

- One acid-base accounting (ABA) analysis and a whole-rock elemental analysis performed on a composite head sample (Laboratory No. 941801-0001)
- One 30-week humidity cell test, apparently conducted on the same composite head sample (Laboratory Nos. 941802-0011, -0021 and –0031)
- Partial data from a whole-rock analysis on a composite tail sample. (Laboratory No. 941801-0002)

We did not identify the specifics on the source or method of preparation of the composite head sample except that it was from the Cross Mine. DMG acknowledged receipt of these data on February 2, 1995 (noting some missing data) and made some favorable interpretations regarding

their content. In that letter, reference was made to the results of a Meteoric Water Mobility Procedure (MWMP), but the corresponding data was not found in the file (it may be in the file; we did not conduct an exhaustive review).

The composite head sample ran 1.5 oz/T Ag, 0.64 wt% Zn, 0.22 wt% Pb, 0.026 wt% Cu. No gold values were provided. It is presumed that this head sample (and the contained sulfides) is representative of what might be typical of future ore or waste material grades, including ore at depth. Whole rock analysis also confirms Calais' assertion that the ore is low in arsenic, but antimony was not determined. Since a variety of arsenic and antimony sulfosalts have been identified in these geologic occurrences, we recommend that antimony be included in future characterization evaluations if such information does not exist.

The ABA data reveals a relatively low total sulfur concentration in the head material although there is likely an underestimation of the sulfide-sulfur content. Based on the total sulfur (worst case), the acid–producing potential (APP) is about 30 kg $CaCO_3$/Tonne. Conversely, the acid-neutralizing potential (ANP) determined by the standard (most aggressive and least conservative) Sobek method, is about three times higher (90 kg $CaCO_3$/Tonne). The ANP value is supported by the total calcium content revealed by whole-rock analysis, which, if interpreted as calcite, is also equivalent to about 90 kg $CaCO_3$/Tonne. This result agrees with the mineralogical report of hydrothermal calcite in the Cross Mine veins, although no calcite was observed by Knight Piésold during our cursory field visit. Clearly, the material in this composite head is not indicated to produce ARD based on the data provided.

Humidity cell tests indicate a consistent pH of about 7.5 over the course of the 30-week test, which is in agreement with underground water quality determined by Knight Piésold. Sulfate slowly increased during the test, as did alkalinity. The molar ratio of $SO_4^=$ to $HCO_3^=$ is very close to 1:2 which indicates sulfide mineral (as pyrite) oxidation and concurrent dissolution of a carbonate mineral (calcite), thus supporting the presumed mechanism of ARD neutralization in the system. As (0.05), Cd (0.005), Cu (0.01), Pb (0.05), Hg (0.002), Ag (0.01) and Zn (0.01) were determined (with indicated detection limits in mg/L) in the humidity cell effluent at 10, 20 and 30 weeks. No detections were found for any of the contaminants reported. This data is indicative of the probability that future mine drainage will not contain elevated metal concentrations.

4.3.3 Predictions for Future Mine Discharge Quality

No information was received, and no observations were made on site, that would indicate a significant change in vein and/or wall rock mineralogy with depth. Specifically, sulfide concentrations are not reported to increase dramatically and carbonate alteration does not appear to be restricted to the upper parts of the vein systems. Consequently, there is currently no reason to believe that the ARD potential or metal concentrations would increase significantly with future mining.

4.4 Other Considerations

It is our opinion that establishing a defensible environmental baseline is important to a successful permitting process. Adequate background information, particularly with regard to water quality data and waste characterization, is important to a streamlined permitting process in order to predict the long-term impacts of project development. Water and waste characterization results can also significantly affect the cost of reclamation and surety required.

Sometimes even more important than the physical and scientific aspects of the process is the disposition of the local communities and regulatory authorities with regard to a proposed project. Understanding the issues and concerns of the project stakeholders and integrating those concerns into the development planning process can be key to building and maintaining alliances with local communities and regulatory agencies. Maintaining open and proactive communications with all interested stakeholders is very important to any permitting process and it is our impression that, to date, Calais has done a good job in building favorable community and regulatory relations.

5.0 Permitting Strategy for Possible Consideration

Conventional thinking and regulatory past practice in Colorado suggests that a mining operation that produces in excess of 70,000 tons per year (nominally 200 tons per day) of ore and waste rock will be considered a "mining operation" under the DMG mineral rules. However, it is our opinion that the Consolidated Caribou Mining District may offer a unique opportunity to consider full-scale mine permitting beyond conventional thought.

The current Cross Mine land disturbance is only about one acre. Expansion of the surface facilities to accommodate limited impact or full-scale mining operations does not appear to require a significant amount of additional land disturbance if void space in the underground workings is utilized for the disposal of mine wastes and process tailings. Calais has stated in its environmental policy that it is planning for the placement of the mineral process tailings in the underground workings.

It seems that Calais has assumed that full-scale mining and processing operations, whether accomplished on the surface or underground, will require a 112 permit under the DMG rules. It appears to us that the spirit of the 110 limited impact permit program under the DMG hardrock rules and the new Boulder County zoning requirements (which define terms relating to mining activities very similarly to the DMG rules) is to offer a permit option that is environmentally protective, but less rigorous than those required for full scale mining operations if an operator will limit the surface extent of mine disturbance. The Colorado Mined Land Reclamation Act regulates the surface effects of mining, not the act of mining itself.

The DMG mineral program rules and regulations define a limited impact operation (Rule 1.1(27)) as "any mining operation which that affects less than ten acres for the life of the mine; and extracts less than 70,000 tons of mineral, overburden, or combination thereof per calendar year [emphasis added]." A mining operation (Rule 1.1(31)) is defined as "the development or extraction of a mineral from its natural occurrences on affected land [emphasis added]. Extraction (Rule 1.1(17) is defined as "the removal of minerals and/or overburden from places of natural occurrence to surface locations [emphasis added]. Affected land (Rule 1.1(4)) "means the surface of an area within the state where a mining operation is being or will be conducted, which surface disturbance is disturbed as a result of such operation [emphasis added]."

We understand that there may be sufficient void space in the existing underground workings of the Cross and Caribou underground mines that would allow for some or all of the mineral processing to be accomplished in the underground. Presuming that the mining, processing and tailings disposal can all be accomplished in the underground, then materials "extracted to the surface" from the mine would be limited only to the concentrate produced, and any waste rock that may need to be removed from the underground. Mr. Hendricks has advised that the Boulder County road department is interested to procure rock product from the mine for use on County road projects. This would limit the need to dispose of excess waste at the surface, thereby reducing the land disturbance required to support operations. Mr. Hendricks has also indicated that the Consolidated Caribou ore has about a 25:1 ore to concentrate ratio, which suggests that if this strategy is permit-able with the state and county regulators, milling capacity could be considerably greater than 200 tons per day and still meet the spirit of the limited impact permit program.

In light of the conventional thinking and regulatory past practice, if Canyon and/or Calais is interested to pursue this permit strategy concept, we recommend approaching DMG and Boulder County early in the process in order to determine if this approach is an acceptable permitting option.

6.0 Summary and Conclusion

Knight Piésold appreciates the opportunity to assist Canyon with their assessment of Calais and the Consolidated Caribou Mining District. We have visited the surface and underground workings at the Cross Mine and the surface working at the Caribou Mine; met with key Calais representatives; reviewed public records on file with the Colorado Division of Minerals and Geology; and spoken with Calais' environmental consultant and legal counsel relative to the environmental permit and compliance status of the district. The following summarizes our opinion with regard to the Consolidated Caribou Mining District:

- Appropriate permits appear to be in place and in good standing with the regulatory agencies for the existing small-scale limited impact mining operation
- No compliance difficulties or unmitigated history of chronic violations were noted
- Records suggest that favorable relationships exist between Calais with the regulatory authorities
- Water discharges within and emanating from the underground workings are of good quality, with circum-neutral pH and low dissolved solids content
- Water is treated with lime on a daily basis to raise the pH and drop out heavy metals to levels that consistently meet effluent limits under the water discharge permit
- Within the limits of the exploration core drilling samples observed, the rock types appear to be geochemically similar to those observed in the underground workings that were visited, suggesting that we have no reason to expect that the good water quality will change significantly as these exploration targets are exploited
- If future operations anticipate using designated chemicals such as cyanide, even in very small quantities as a flotation depressant, the facility may require permitting as a Designated Mining Operation
- Given the apparent good relations with the regulatory agencies and the local communities, we believe that the necessary permits for future mining and processing ores in the district can be obtained
- Underground mining with limited surface disturbing activities is much easier to permit than open pit mining
- Establishing defensible environmental baselines early on will streamline the permitting process

- Proactively maintaining open communications with the regulatory authorities, community leaders and the public is critical to a successful permitting process
- It is conceivable that full-scale mining and processing activities could continue to be permitted as a limited impact mining operation if processing and tailings disposal can be accomplished in the underground

While we believe that permitting a mining operation in Boulder County, Colorado through both the County and DMG will be challenging, we have identified no fatal flaws from an environmental or permitting perspective, and believe that plausible pathways exist to obtain the needed permits authorizing recommencement of mining in the Consolidated Caribou Mining District.

Respectfully submitted,

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Barbara A. Filas, P.E., C.E.M.
Environmental and Permitting Specialist

Appendix
Qualifications of Investigators

Ronald L. Schmiermund, Ph.D. is a geologist and environmental geochemist with over 25 years of experience in the application of geochemistry to the mining and mineral-processing industries. Dr. Schmiermund's expertise is based on his combined backgrounds in general geology, economic geology of ore deposits, aqueous environmental geochemistry, and his familiarity with modern and historic mining techniques. His approach is to combine these backgrounds with elements of the scientific method to provide defensible and holistic environmental analyses. He has applied geochemical methods to mine waste, tailings disposal and stabilization issues, process waste treatment and management, and mine site remediation. He has considerable experience in performing predictions of long-term pit lake, waste rock and tailings performance for a wide variety of ore deposit types and applied those predictions to water quality impact analyses. He has substantial expertise with geochemical modeling includes Geochemist's Workbench, PHREEQE, SOLMINEQ, MINTEQA2, NETPATH, and similar programs. He is experienced with source code and thermodynamic database modification and validation in connection with technical and legal defensibility issues and has worked with two- and three- dimensional flow modeling and solute transport modeling, laboratory-scale static and dynamic modeling of coupled processes, and reactor flow modeling. Dr. Schmiermund participated in the field visit, geologic and geochemical assessment, water quality assessment, and prepared those components of this report.

Barbara A. Filas, P.E., C.E.M. is a registered professional mining engineer and a certified environmental manager with more than 25 years of experience in a variety of operations, engineering, and regulatory support capacities for surface and underground mining projects in hardrock, coal and industrial minerals. Her efforts have included development plans, waste containment facility designs, reclamation planning and costing, project permitting, environmental site and compliance audits, multi-disciplinary environmental evaluations, and storm water and sedimentation control designs. Ms. Filas has in-depth experience in environmental and social impact analyses and closure and reclamation design and has substantial experience with the regulatory processes in Colorado, the United States and with major international lending institutions through her familiarity with World Bank Group policies and guidelines and the Equator Principles. She has participated in the development of numerous laws and rule making processes in Colorado, the United States and internationally affecting the mining industry and has developed many designs and permitting documents which have successfully passed the scrutiny of the regulatory community and the international lending institutions. Ms. Filas participated in the site visit, DMG document review and assessment of the permitting and compliance status. She developed the Knight Piésold opinion on the ability to permit the expanded operations and is responsible for the overall content of this report.

State of the Watershed: Water Quality of Boulder Creek, Colorado

By Sheila F. Murphy

Prepared in cooperation with the City of Boulder, Colorado

U.S. Geological Survey Circular 1284

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Gale A. Norton, Secretary

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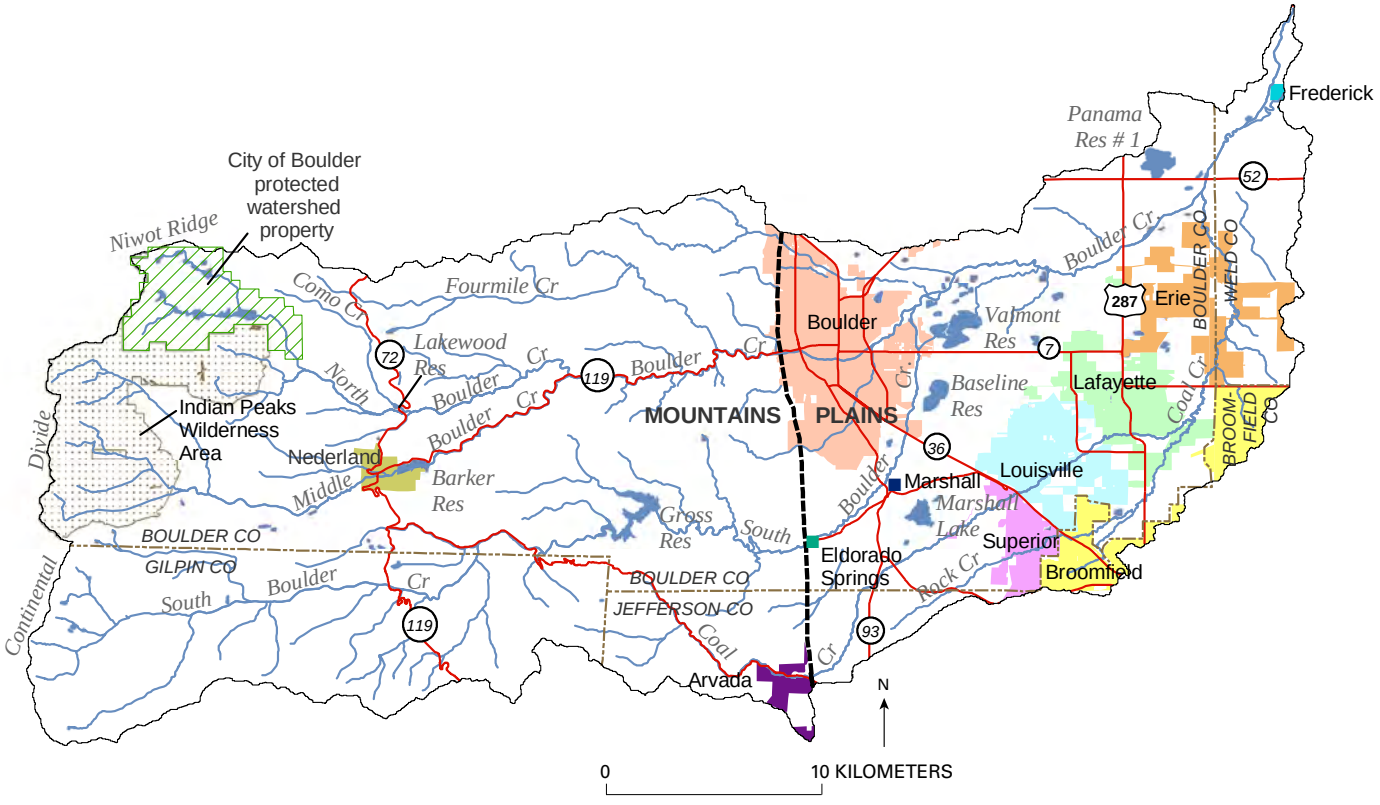
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Welcome to the Boulder Creek Watershed

The Boulder Creek Watershed is approximately 1,160 square kilometers (447 square miles) in area and is located in the Front Range of the Colorado Rocky Mountains, east of the Continental Divide. The watershed includes all the land area that drains water into Boulder Creek. The watershed has great variation in geology, climate, and land cover. Tributaries of Boulder Creek include North, Middle, and South Boulder Creeks, Fourmile Creek, Coal Creek, and Rock Creek, along with several smaller streams. These streams generally flow from west to east. Boulder Creek empties into Saint Vrain Creek, which empties into the South Platte River. The water in Boulder Creek eventually reaches the Mississippi River and the Gulf of Mexico. The communities of Boulder, Louisville, Lafayette, Erie, Superior, and Nederland are in the watershed, along with parts of Arvada, Broomfield, and Frederick. In 2000, about 185,000 people lived in the Boulder Creek Watershed (U.S. Census Bureau, 2001).

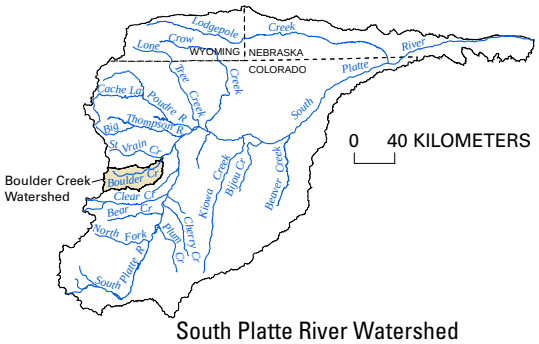
A reliable source of high-quality water is important for drinking-water supply, recreation, aquatic life, and agriculture. In the semiarid environment of the Colorado Front Range, water resources are limited, and waterways are subject to stress by competing uses. The population of the five largest communities in the watershed (Boulder, Lafayette, Louisville, Superior, and Erie) grew by 36 percent from 1990 to 2000, increasing demands on water resources. This report, prepared by the U.S. Geological Survey in cooperation with the City of Boulder, presents the state of water quality in the Boulder Creek Watershed in 2005 and how it has changed over the past 160 years, and identifies potential future water-quality concerns.



Boulder Creek Watershed (from Murphy and others, 2003)



Mississippi River Watershed



South Platte River Watershed

Environmental Setting

The Boulder Creek Watershed lies within two physiographic provinces. The mountainous upper watershed is part of the Southern Rocky Mountains Province and is characterized by deep, steeply sloping valleys. The flatter, lower watershed is part of the Colorado Piedmont Section of the Great Plains Province and slopes gently to the northeast. The two regions differ substantially in geology, climate, and land cover.



Near the Continental Divide



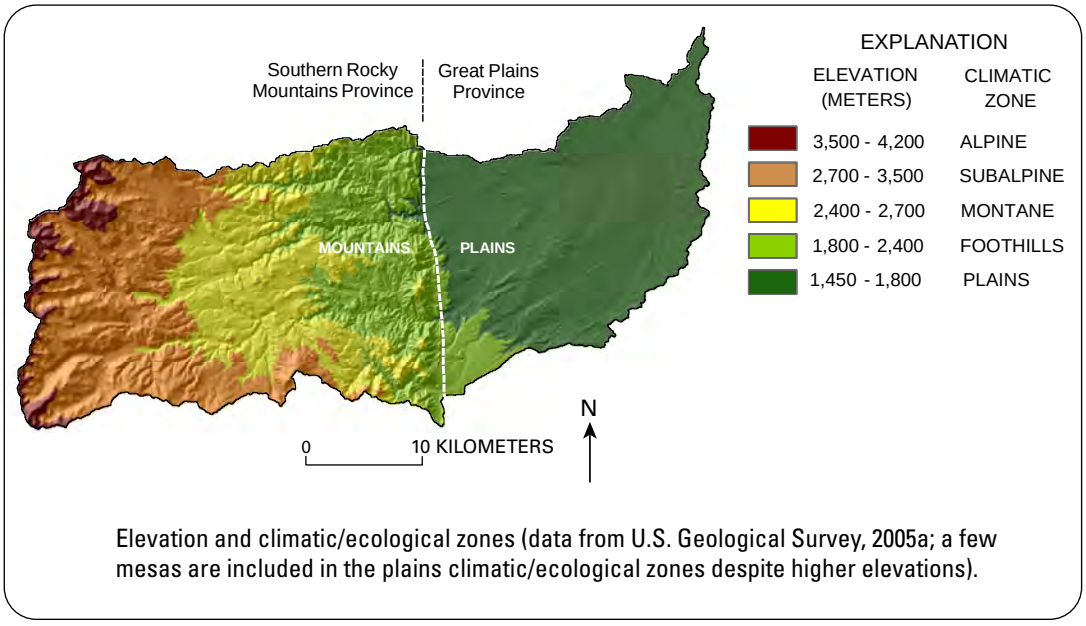
Urban corridor



Agricultural reach of Boulder Creek

Physiography

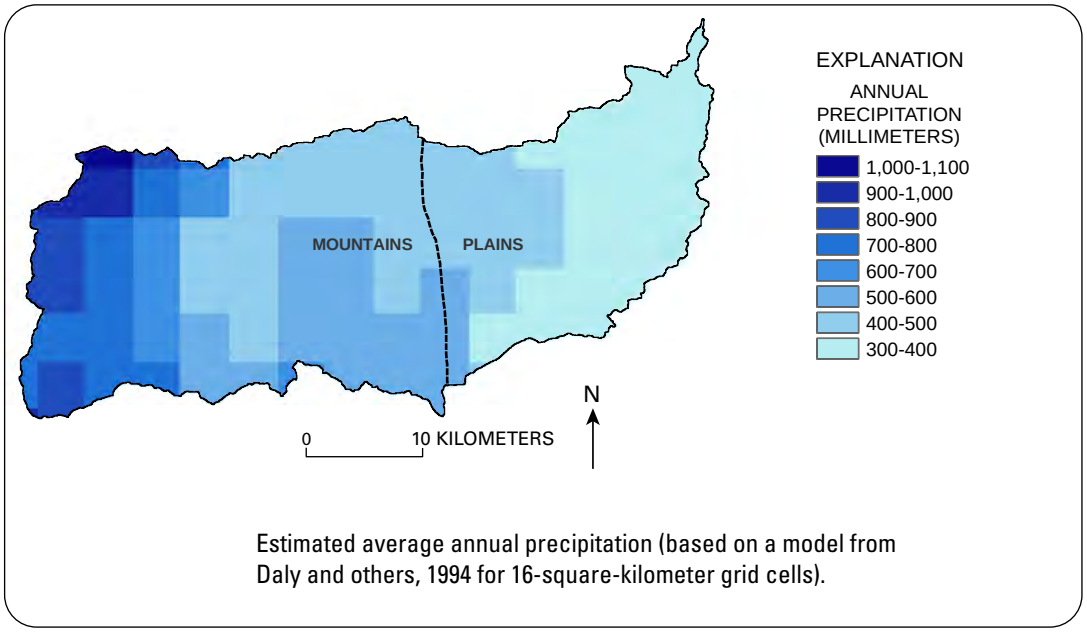
Elevations in the watershed range from 4,120 meters (13,520 feet) at the Continental Divide to 1,480 meters (4,860 feet) at the confluence of Boulder Creek and Saint Vrain Creek. The great variation in topography produces five distinct climatic/ecological zones: alpine, subalpine, montane, foothills, and plains.



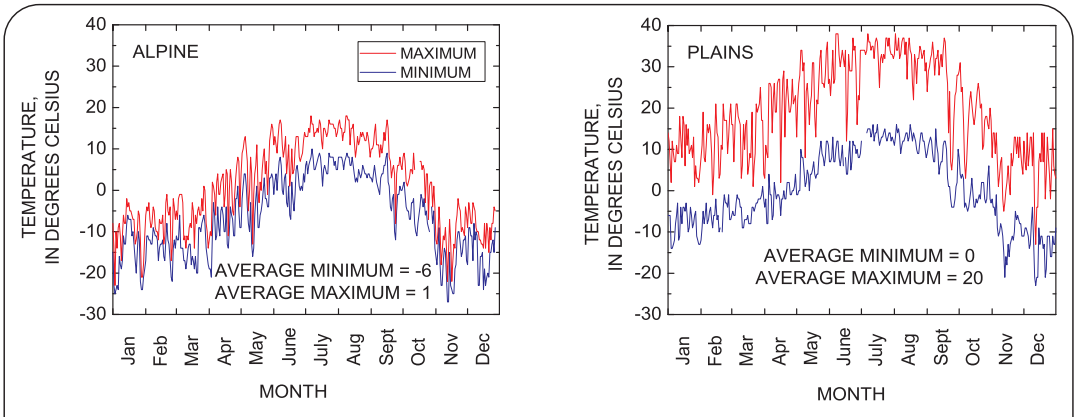
Elevation and climatic/ecological zones (data from U.S. Geological Survey, 2005a; a few mesas are included in the plains climatic/ecological zones despite higher elevations).

Climate

Temperatures vary widely across the climatic/ecological zones of the watershed; generally, temperature increases and the difference between minimum and maximum temperatures increases with decreasing elevation. Most precipitation falls as snow in the mountains during winter and spring. Melting of snow produces high flows in Boulder Creek and its tributaries in spring and summer.



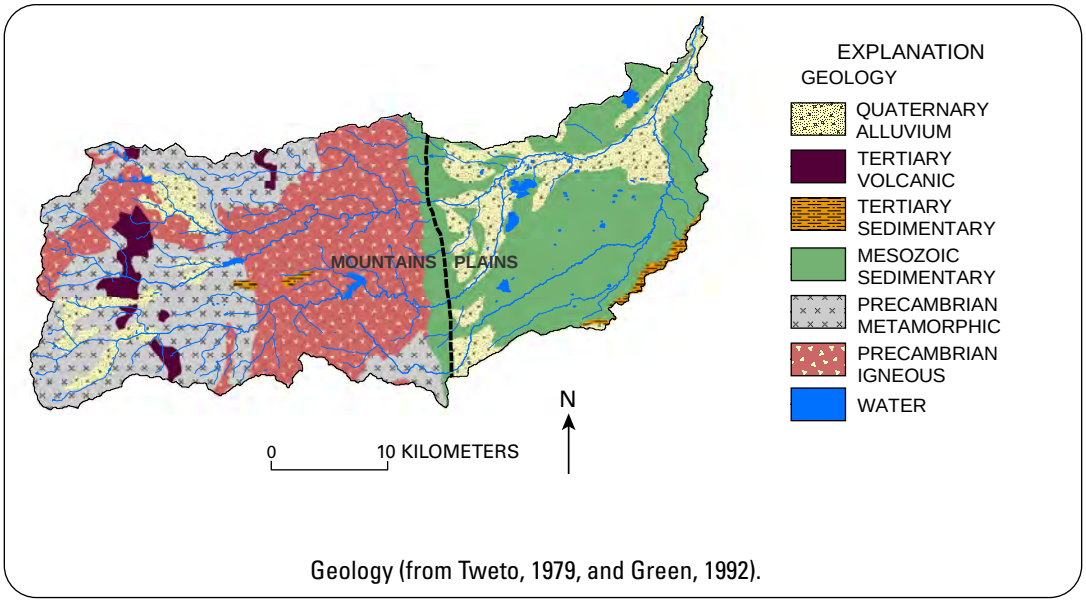
Estimated average annual precipitation (based on a model from Daly and others, 1994 for 16-square-kilometer grid cells).



Air temperatures in the alpine and plains in 2000 (data from Niwot Ridge Long-Term Ecological Research Program, 2002, and National Oceanic and Atmospheric Administration, 2002).

Geology

The upper watershed is underlain by 1.4–1.8 billion-year-old metamorphic and granitic bedrock, with deposits of gold, silver, tungsten, and other metals that were emplaced 30–60 million years ago. The lower watershed is underlain by 65–300 million-year-old sedimentary rocks, including shale, sandstone, limestone, and coal-bearing deposits (Murphy and others, 2003). Mountain-building events that occurred about 70 million years ago caused steeply dipping rock layers at the edge of the mountain front. Ridges and valleys reflect subsequent erosional processes. Metal and coal mining fueled settlement of the watershed in the 1860s. Today, sand and gravel is mined along Boulder Creek, and oil and natural gas are extracted in the eastern part of the watershed.



Geology (from Tweto, 1979, and Green, 1992).

Land Cover

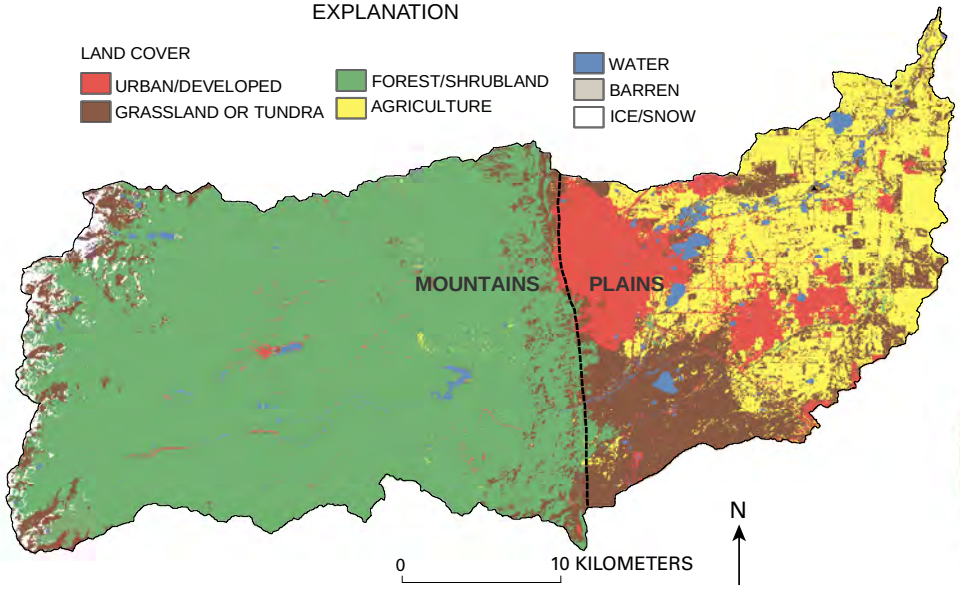
The upper watershed consists primarily of forest, shrubs, and alpine tundra. The lower watershed consists of grassland, agricultural land, and urban/developed land. Agricultural lands primarily consist of pasture and fields of alfalfa, wheat, corn, and barley. Urbanized land of the plains and foothills has increased substantially in the past 30 years in areas that were previously forest, grassland, or agricultural land. Reservoirs have increased in number and size, and sand and gravel quarries along Boulder Creek have filled with water and formed ponds.



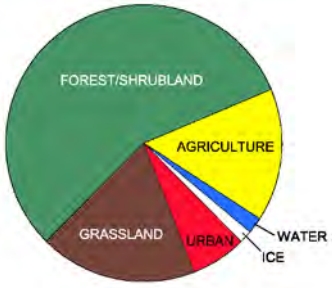
Upper watershed



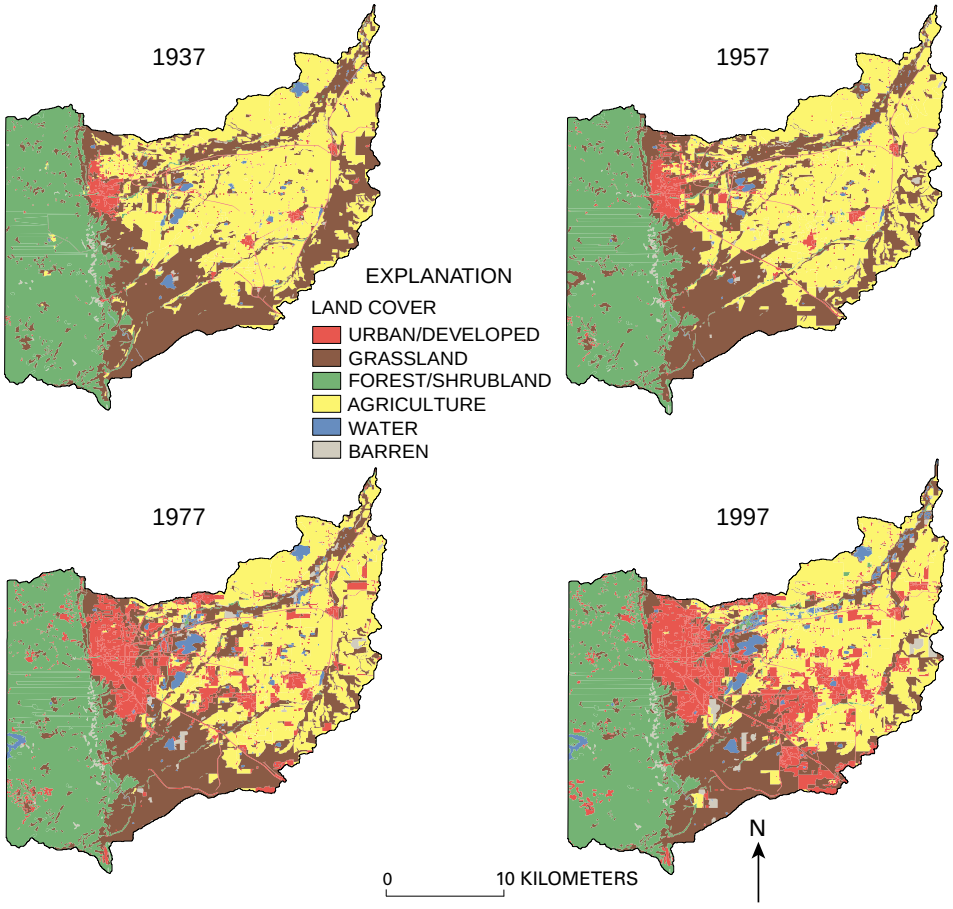
Lower watershed



Land cover in 1992 (data from USGS, 2003).



Relative percentages of land cover in 1992 (data from USGS, 2003).



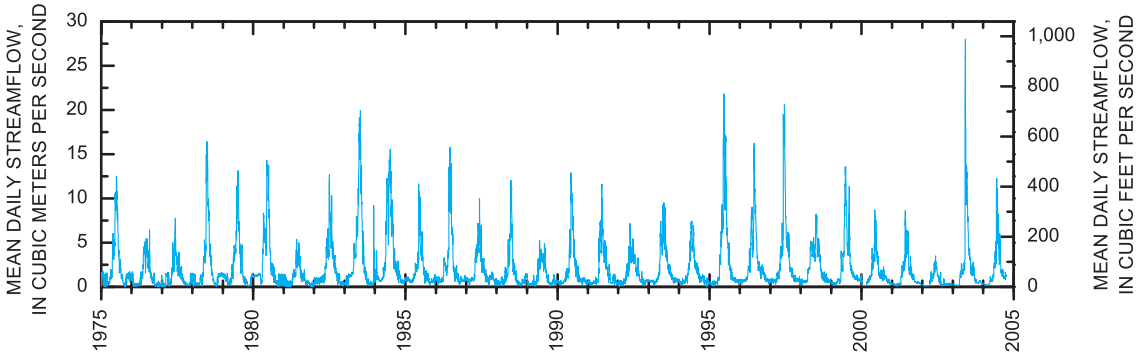
Land cover of the plains and foothills over time (data from USGS, 1998).

Hydrology

Streamflow in Boulder Creek originates primarily as snowmelt near the Continental Divide, so discharge varies seasonally and annually depending on snowpack depth and air temperature. Low-flow conditions occur from October to March; high-flow conditions occur from May to July and usually peak in June. Discharge (flow rate) of Boulder Creek and its tributaries is recorded by several streamflow-gaging stations. Stream discharge data are important in allocating water rights, estimating flood potential, and evaluating long-term changes in hydrology and water quality. The Orodell streamflow-gaging station, located on Boulder Creek in Boulder Canyon, has been recording discharge since 1906.



Orodell streamflow-gaging station on Boulder Creek

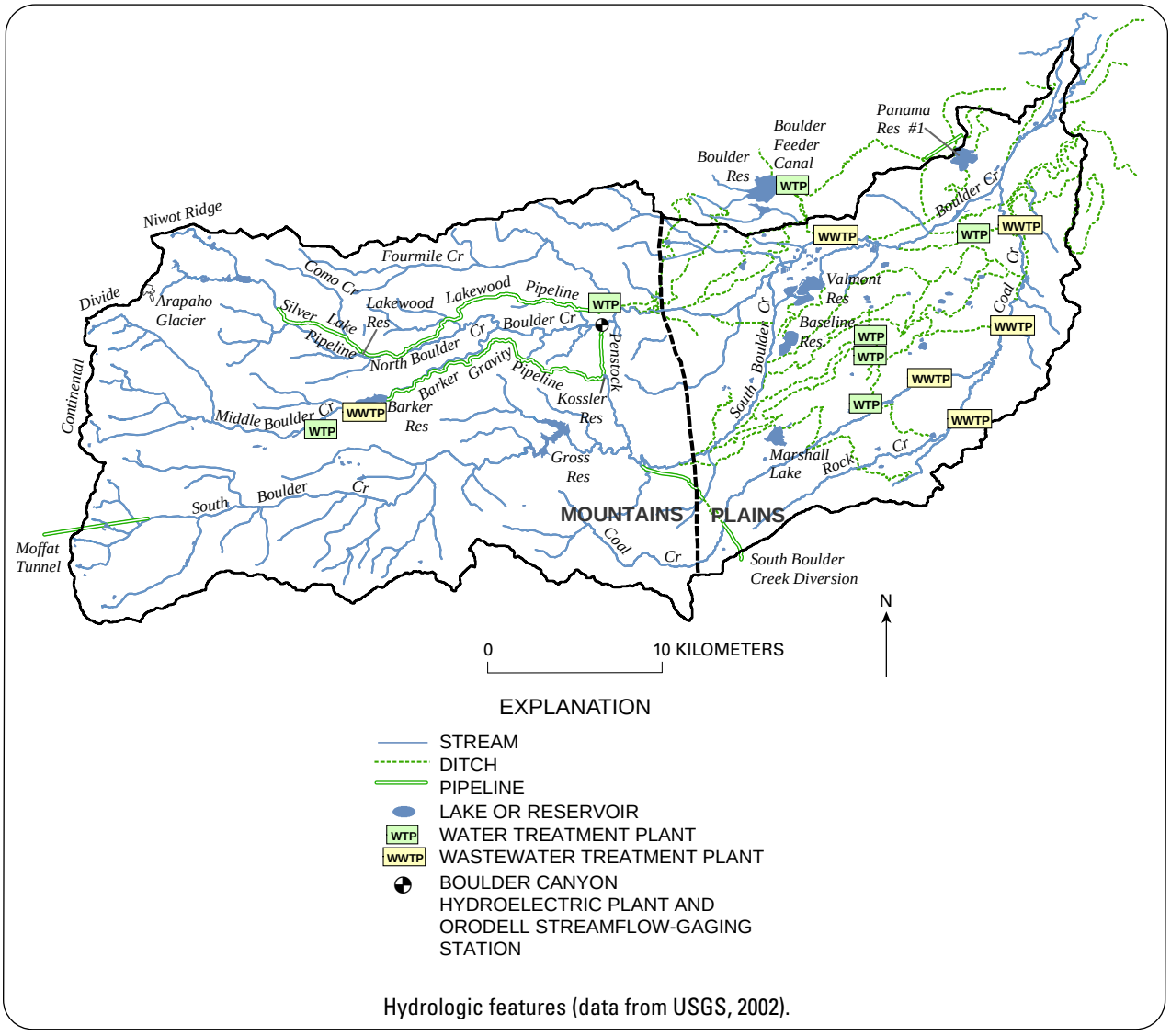


Discharge of Boulder Creek at the Orodell streamflow-gaging station, 1975–2004 (data from USGS, 2004, and Colorado Division of Water Resources, 2005).

Boulder Creek and its tributaries are part of a complex water-management system. Diversions remove water from streams for municipal, industrial, and agricultural use. Reservoirs store water for a reliable year-round supply. Water is brought into and out of the watershed by transbasin diversions. Wastewater treatment plants contribute treated effluent that can account for a substantial portion of flow in streams in the lower watershed during low-flow conditions.



Boulder Creek at Idaho Creek Ditch



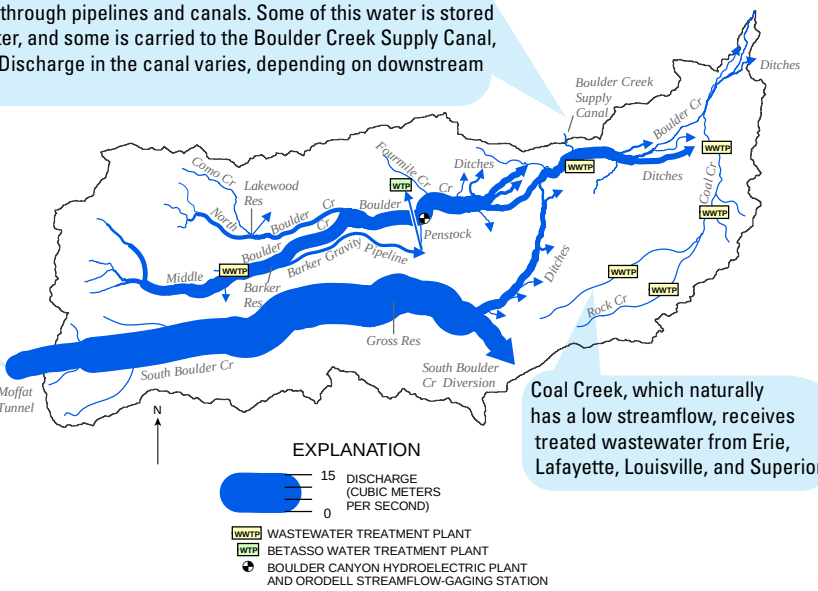
Hydrologic features (data from USGS, 2002).

How does water management affect the flow of Boulder Creek?

The many water diversions and returns in the watershed lead to complex temporal and spatial variations in discharge, affecting both the quantity and quality of water in Boulder Creek and its tributaries.

The Colorado-Big Thompson Project conveys water from the Colorado River Basin to many Front Range communities and farms through pipelines and canals. Some of this water is stored in Boulder Reservoir for drinking water, and some is carried to the Boulder Creek Supply Canal, which discharges to Boulder Creek. Discharge in the canal varies, depending on downstream delivery requests.

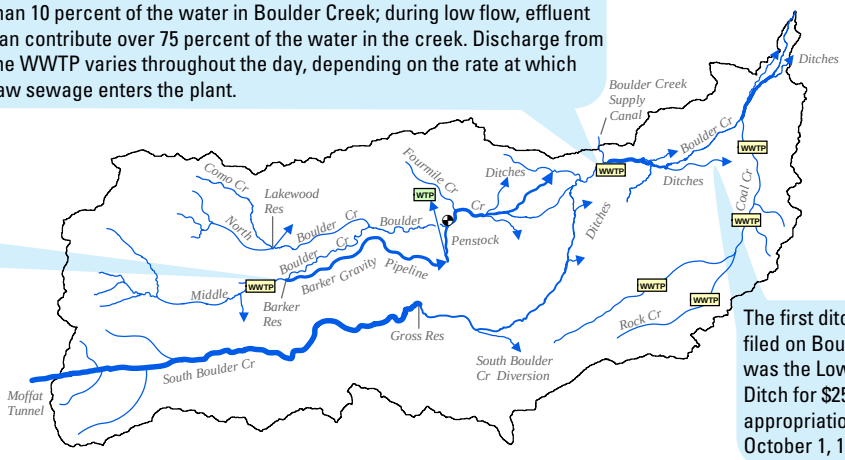
The City of Denver diverts water from the Williams Fork and Fraser River Basins to South Boulder Creek through the Moffat Tunnel. The diverted water, along with some native water, is stored in Gross Reservoir and then conveyed by South Boulder Creek and the South Boulder Creek Diversion Canal out of the watershed to Denver's Moffat Water Treatment Plant.



Coal Creek, which naturally has a low streamflow, receives treated wastewater from Erie, Lafayette, Louisville, and Superior.

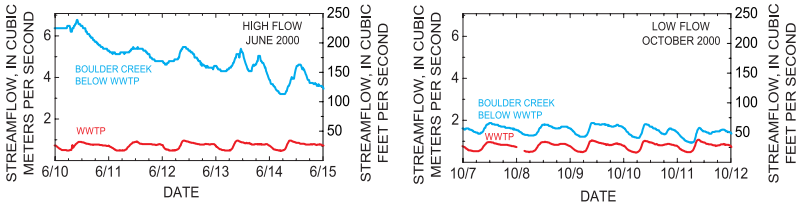
The Boulder Wastewater Treatment Plant (WWTP) discharges about 0.74 m^3/s (17 million gallons/day) of treated effluent to Boulder Creek. During high flow, effluent from the Boulder WWTP can account for less than 10 percent of the water in Boulder Creek; during low flow, effluent can contribute over 75 percent of the water in the creek. Discharge from the WWTP varies throughout the day, depending on the rate at which raw sewage enters the plant.

Water stored in Barker Reservoir is diverted to the City of Boulder's Betasso Water Treatment Plant or the Boulder Canyon Hydroelectric Plant. Prior to 2001, Middle Boulder Creek was often dry for some distance downstream from the reservoir; hydroelectric plant discharge would make up most of the water in Boulder Creek downstream from the plant during low flow. Since being purchased by the City of Boulder in 2001, less water is being used by the hydroelectric plant, which has been in operation since 1910. Boulder now releases some water from Barker Reservoir to maintain a minimum flow in Boulder and Middle Boulder Creeks.



The first ditch decree filed on Boulder Creek was the Lower Boulder Ditch for $25, with an appropriation date of October 1, 1859.

Estimated discharge in the watershed during high flow (June 2000, top) and low flow (October 2000, bottom) (width of blue line represents discharge; data from Murphy and others, 2003, and Colorado Division of Water Resources, 2005).



Measured discharge of Boulder Creek and WWTP during high flow (June 2000) and low flow (October 2000) (data from Murphy and others, 2003).

How clean is the water in Boulder Creek?

The answer to this question depends on what one means by "clean." Water that is considered good quality for aquatic life may not be considered suitable for human consumption, and vice versa. Water that is esthetically appealing may contain invisible water contaminants. One way to assess water quality is to compare it to established standards.

Water-quality standards

The Federal Clean Water Act requires States to establish water-quality standards, which are approved by the U.S. Environmental Protection Agency (USEPA). Standards have three main components: designated use classifications, water-quality criteria, and policies to protect against degradation of water quality.

Designated uses are human and ecological uses that are officially recognized and protected. Colorado's designated use categories are:

Recreation:
Class 1 - Primary Contact: Waters suitable for recreational activities when ingestion of water is likely, such as swimming, kayaking, and tubing. There are two subcategories: Class 1A (existing use) and Class 1B (potential use). ***Class 2 - Secondary Contact:*** Waters not suitable for primary contact, but suitable for recreational uses such as wading and fishing.
Agriculture:
Waters suitable for crop irrigation and for livestock drinking water.
Aquatic Life:
Class 1: Waters capable of sustaining a wide variety of aquatic life, including sensitive species. There are two subcategories: cold water and warm water. ***Class 2:*** Waters not capable of sustaining a wide variety of cold-water or warm-water aquatic life, including sensitive species, due to physical habitat, water flows, or uncorrectable water-quality conditions.
Domestic Water Supply:
Surface waters suitable for drinking-water supplies. After standard treatment, these waters will meet Colorado drinking-water regulations.

(Complete versions of Colorado standards are available from the Colorado Department of Public Health and Environment (CDPHE; 2005a)

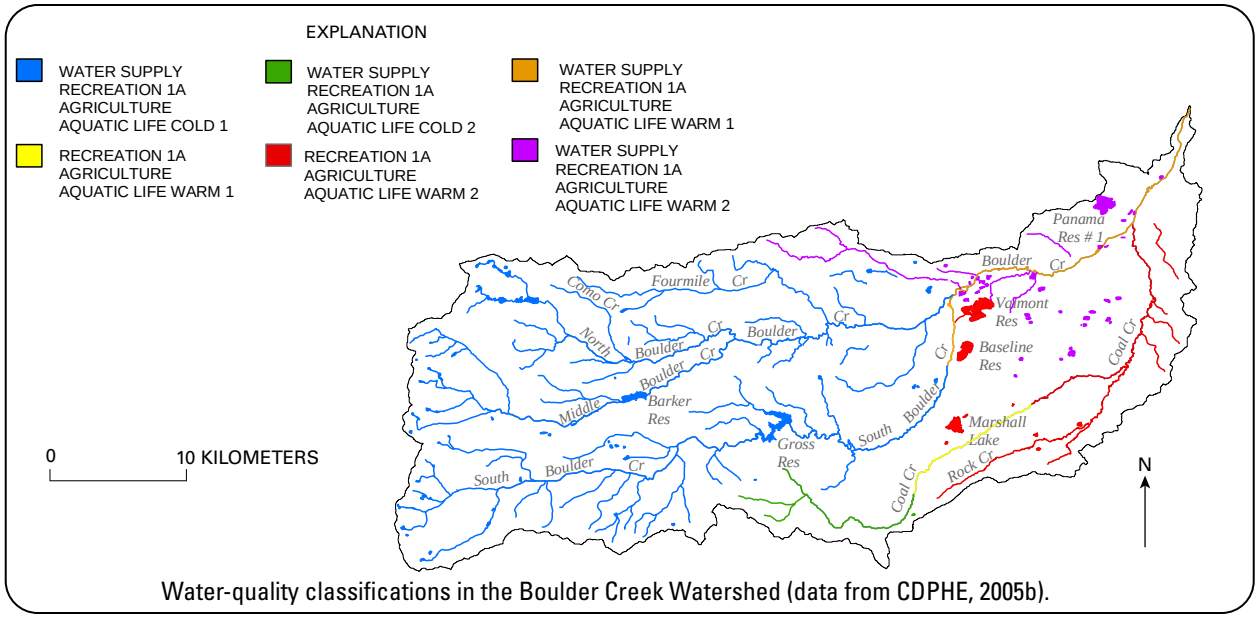




Surface waters within a watershed are divided into segments, which are then assigned designated uses based on how the waters are currently used and what uses are desired for the future. Several designated uses have been applied to waters in the Boulder Creek Watershed. All of the waters have been classified for recreation 1A and agricultural use, and all except for parts of Coal Creek have been classified for domestic water supply (CDPHE, 2005b). Aquatic-life classifications vary, depending on water temperature and discharge.

Water-quality criteria are descriptions of the chemical, physical, and biological conditions necessary to achieve and protect a water body's designated uses. For waters with multiple designations, the criteria must support the most sensitive use (CDPHE, 2005a). There are both narrative and numerical criteria. Narrative criteria describe water-quality goals and provide protection against contaminants that do not have specific numerical standards. Numerical standards set the acceptable concentrations of specific contaminants in streams, lakes, and reservoirs. Water-quality variables for which criteria exist include physical and biological constituents (such as dissolved oxygen and fecal coliform), inorganic constituents (such as ammonia and chloride), and metals (such as arsenic and lead).

Anti-degradation policies are used to protect water quality. Colorado provides three levels of provisions: outstanding waters, for which no degradation is allowed; use-protected waters, for which degradation is allowed so long as water-quality standards are still met; and reviewable waters, for which degradation is allowed so long as no reasonable alteratives are available and water-quality standards are still met (Colorado Foundation for Water Education, 2003). In the Boulder Creek Watershed, all of the tributaries within the Indian Peaks Wilderness Area are designated as outstanding waters. In general, Boulder Creek and other tributaries in the mountains are reviewable waters, while surface waters on the plains are mostly use-protected waters (CDPHE, 2005b).



Water-quality classifications in the Boulder Creek Watershed (data from CDPHE, 2005b).

Water-quality assessment

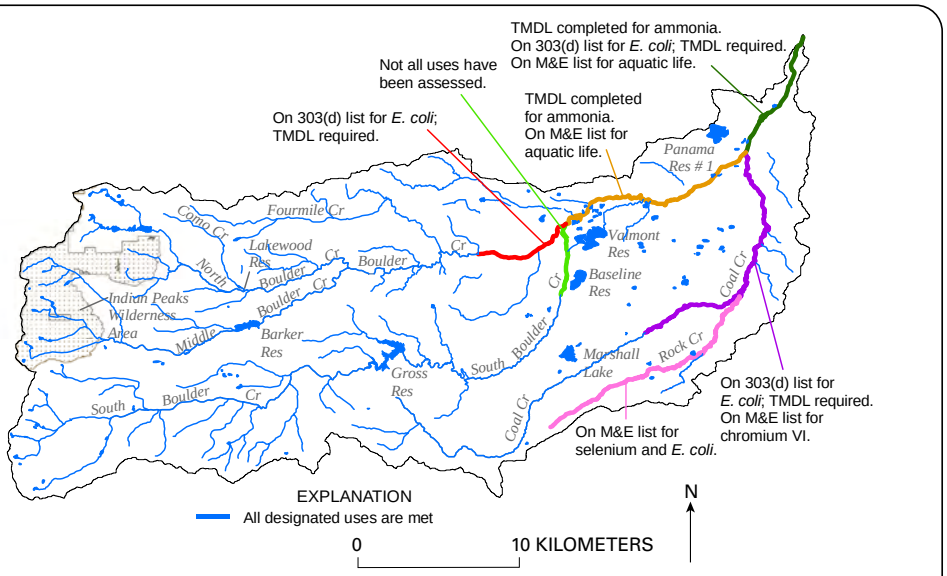
States are required by section 305(b) of the Federal Clean Water Act to assess and report on the quality of the State's waters to Congress through the USEPA. Section 305(b) reports describe the ways a State measures water quality, the quality of water bodies in the State, and pollution-control programs. The State of Colorado 305(b) report is available from the CDPHE (2005c, d).

When credible data on the water quality of a stream or lake indicate that a standard is not met, the State proposes that the stream segment be placed on a list of impaired segments, called the "303(d) list." The Colorado Water Quality Control Commission has a public hearing to consider recommendations and adopts Colorado's 303(d) list as a State regulation. The USEPA accepts the 303(d) list from the State or can list additional segments. The 303(d) list identifies the component(s) (such as nitrate, lead, or sediment) that is (are) causing water-quality concerns for that water body. Some stream segments in the Boulder Creek Watershed have been on the 303(d) list for ammonia and *E. coli* (CDPHE, 2005c, d).

The State is required to prioritize water bodies on the 303(d) list on the basis of the severity of impairment and other factors. It will then determine the causes of the water-quality concern and allocate responsibility for the impairment. This analysis is called the Total Maximum Daily Load (TMDL) process. The State of Colorado also identifies water bodies where there is reason to suspect water-quality impairment, but uncertainty exists about data quality or the cause of impairment. These waters are placed on the Monitoring and Evaluation (M&E) List (CDPHE, 2005c, d). Some stream segments in the Boulder Creek Watershed have been on the M&E list for aquatic life, *E. coli*, selenium, and chromium VI.



Monitoring water quality of Boulder Creek



Segments not meeting designated uses in the Boulder Creek Watershed in 2005 (data from CDPHE, 2005c).

Water Quality of Boulder Creek from Top to Bottom

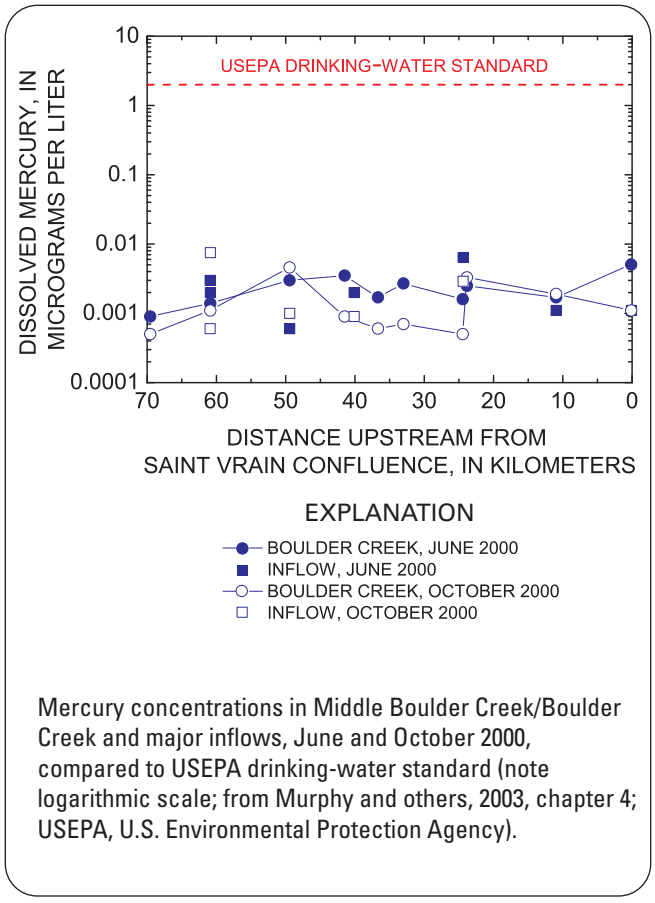
Water quality in the Boulder Creek Watershed varies substantially. In general, water quality is best in the high-elevation headwaters, where human activity is limited and there are few contaminant sources. Water quality declines downstream as diversions remove water from streams, population density increases, and there are more potential contaminant sources. In lower Boulder Creek, several factors affect water quality, including wastewater, urbanization, and agriculture.

Headwaters and mountains

The headwaters of the Boulder Creek Watershed originate primarily from snowmelt and ground water that has flowed through relatively unreactive bedrock and soil. Therefore, these waters typically have very low concentrations of dissolved solids, alkalinity, and nutrients compared to downstream waters (Murphy and others, 2003, chapters 3, 4, and 8; Verplanck and others, 2003). Surface waters generally have near-neutral pH values, and dissolved oxygen is at or near saturation. The City of Boulder owns a 30-km^2 (12 mi^2) protected watershed property in the headwaters of North Boulder Creek (see map on page 1); public entry is prohibited to protect this high-quality water source. Much of the headwaters of Middle Boulder Creek are within the Indian Peaks Wilderness Area, where motorized vehicles are not permitted. While direct human disturbance is limited, the headwaters are within the "airshed" of the Denver metropolitan area, where coal-fired powerplants, automobiles, and agricultural activities release contaminants (such as sulfate and nitrate) to the atmosphere. These contaminants are carried in the atmosphere to the headwaters area, and returned to the Earth in rain and snow. Deposition of nitrate and sulfate, even in low concentrations, may decrease the pH of the poorly buffered headwaters, causing changes in aquatic ecosystems (Williams and Tonnessen, 2000). Nitrate also can act as a fertilizer, changing the growth rates of plants.



Headwaters of North Boulder Creek (Arapaho Glacier at far left)



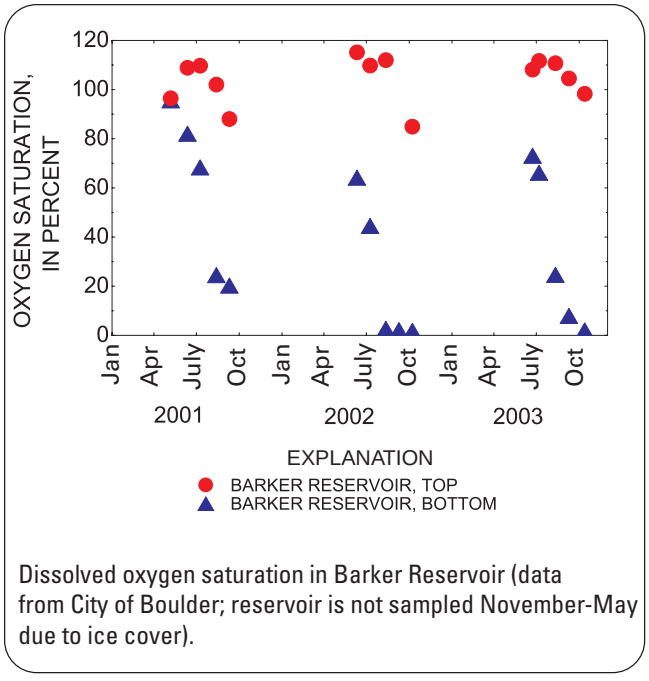
Mercury concentrations in Middle Boulder Creek/Boulder Creek and major inflows, June and October 2000, compared to USEPA drinking-water standard (note logarithmic scale; from Murphy and others, 2003, chapter 4; USEPA, U.S. Environmental Protection Agency).

The upper watershed was mined intensively in the past for gold, silver, tungsten, and other metals. Mining can affect water quality when sulfide minerals in waste rock and tailings interact with water and oxygen to produce sulfuric acid, which leaches metals from rock and increases metal toxicity to aquatic organisms. The ore deposits in the Boulder Creek Watershed usually contain small amounts of sulfides, so runoff from old mines and tailings piles is typically not acidic or metal-rich. Metal concentrations in North Boulder and Middle Boulder Creeks, such as mercury and lead, are usually low (Murphy and others, 2003, chapter 4). Some tributaries of South Boulder Creek are acidic and have elevated metal concentrations, but flow in these tributaries is too small to have a substantial effect on the main stem of South Boulder Creek (Asher-Bolinder, 1995; Colorado Riverwatch, 2001).

Barker Reservoir, on Middle Boulder Creek downstream from the town of Nederland, stores as much as 14,426,000 m^3 (11,700 acre-feet) of water and provides up to 40 percent of the city of Boulder's drinking-water supply (City of Boulder, 2002). The reservoir is usually filled during spring runoff and then drawn off gradually until the next spring. The degree of drawdown varies from year to year depending on water availability and demand. Barker Reservoir generally has near-neutral pH and very low dissolved and suspended solids, ranging from 15 to 40 mg/L and from 0 to 4 mg/L, respectively (City of Boulder, unpub. data, 2004). Dissolved oxygen (DO) concentrations near the surface of the reservoir are typically near saturation because of photosynthesis and contact with the atmosphere. The DO concentrations at the bottom of the reservoir are lower than near the top, reaching their lowest point in late summer when the reservoir becomes stratified and the bottom waters do not mix with surface waters. Low DO can cause release of manganese, iron, and other metals from bottom sediments into the water, which can cause problems for drinking-water treatment.



Barker Reservoir



Dissolved oxygen saturation in Barker Reservoir (data from City of Boulder; reservoir is not sampled November-May due to ice cover).

Nutrients, such as nitrogen and phosphorus, increase rates of plant growth. This increases the amount of organic matter produced and consumed and can contribute to the decline in DO at the bottom of a reservoir. Nederland's Wastewater Treatment Plant (WWTP), an aerated lagoon facility, discharges up to 0.0083 m^3/s (189,000 gallons/day) of treated wastewater to Barker Reservoir (USEPA, 2005). The WWTP is required by a permit from CDPHE to meet certain water-quality standards, such as concentrations of suspended solids, oil and grease, and ammonia. The Nederland WWTP contributes less than 1 percent of the total flow into the reservoir but contributes about 66 percent of the phosphorus and 40 percent of the inorganic nitrogen entering the reservoir (City of Boulder, 2002). In addition, homes using individual sewage disposal systems (ISDSs) are situated on both the north and south sides of the reservoir (Flynn and Barber, 2000). Malfunctioning ISDSs can be a source of nitrate, phosphorus, pathogens, and other constituents to ground water and surface water.

Water-quality data for the Boulder Creek Watershed are available from the Boulder Area Sustainability Information Network (BASIN) Web site, www.BASIN.org

Downstream from Barker Reservoir and Lakewood Reservoir (located on North Boulder Creek and used by the City of Boulder to store water; see location map on page 1), flow in Middle Boulder, North Boulder, and Boulder Creeks can be very low during parts of the year due to diversions. These streams have near-neutral pH values and DO concentrations near saturation (Murphy and Waterman, 2005). Dissolved and suspended solids are generally very low, ranging from 20 to 100 mg/L and from 0 to 10 mg/L, respectively. However, runoff from Highway 119, which parallels Middle Boulder and Boulder Creeks, is a potential source of sediment, automobile fluids, road salts, and debris, and ISDSs in the region are potential sources of bacteria, nutrients, and consumer products to ground water and surface water. Historical mining sites also are potential sources of contaminants; slightly elevated levels of dissolved solids have been detected in Fourmile Creek, which was once at the heart of gold-mining activity in the watershed (Murphy and others, 2003, chapter 4).



Boulder Creek in Boulder Canyon





Abandoned mines and mill near Fourmile Creek

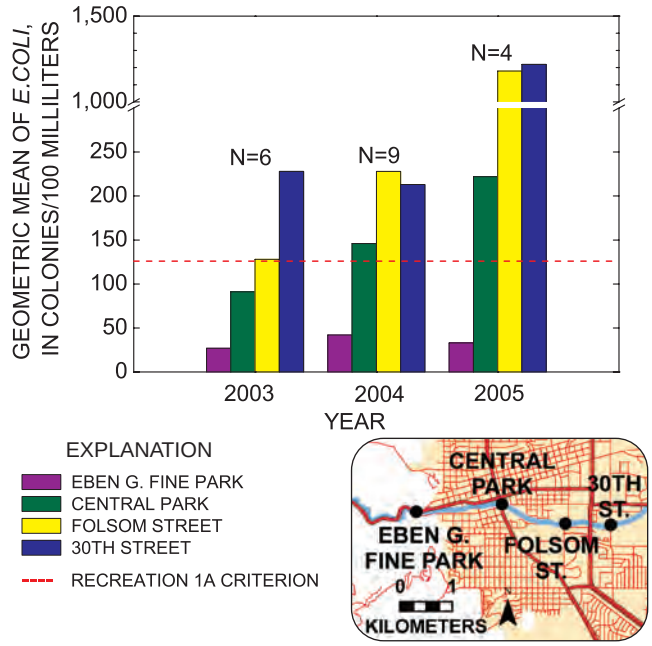
Urban

After water in Boulder Creek and its tributaries leaves the mountains, temperature, pH, and dissolved solids increase due to natural and human-related factors. The underlying geology transitions from igneous and metamorphic rocks to more easily eroded sedimentary rocks, increasing dissolved-solids concentrations. Potential contaminant sources increase. Much of the water in South Boulder and Boulder Creeks is diverted in this area, leaving less water for dilution.

Areas of urban development contain many impervious surfaces, such as streets, parking lots, sidewalks, and roofs. Rain and snow cannot percolate into the ground, so large volumes of water enter streams rapidly. This can erode banks, damage stream-side vegetation, and widen stream channels. Also, contaminants from human activities settle and remain on impervious surfaces until a storm washes them, untreated, into nearby storm drains and then into waterways. Common contaminants in urban areas include oil, grease, metals, and road salt from transportation, sediment from construction, and nutrients and pesticides from landscaping. Paulson (1994) found that the metals arsenic, lead, and copper were highest in Boulder Creek during large storms.



Recreation on Boulder Creek



Geometric means of *E. coli* concentrations in Boulder Creek within the City of Boulder, 2003–2005, and CDPHE recreation 1A criterion (data from City of Boulder; N, number of samples; criterion based on a geometric mean of representative samples).

Is it safe to swim in Boulder Creek?

Swimming in any water body involves some degree of risk. During snowmelt runoff, Boulder Creek discharge can be dangerously high; values over 30 m^3/s (1,050 ft^3/s) have been recorded (USGS, 2004). All of the waters in the Boulder Creek Watershed are classified as recreation class 1A, which includes swimming, kayaking, and tubing (CDPHE, 2005b). Water-quality criteria for this classification include dissolved oxygen (DO), pH, fecal coliform, and *Escherichia coli (E. coli)*. DO and pH in surface waters in the watershed are usually within the criteria. Parts of Boulder and Coal Creeks were included on the State of Colorado's 2004 list of water-quality-impaired streams (the 303[d] list) because of high levels of *E. coli* (CDPHE, 2005c).

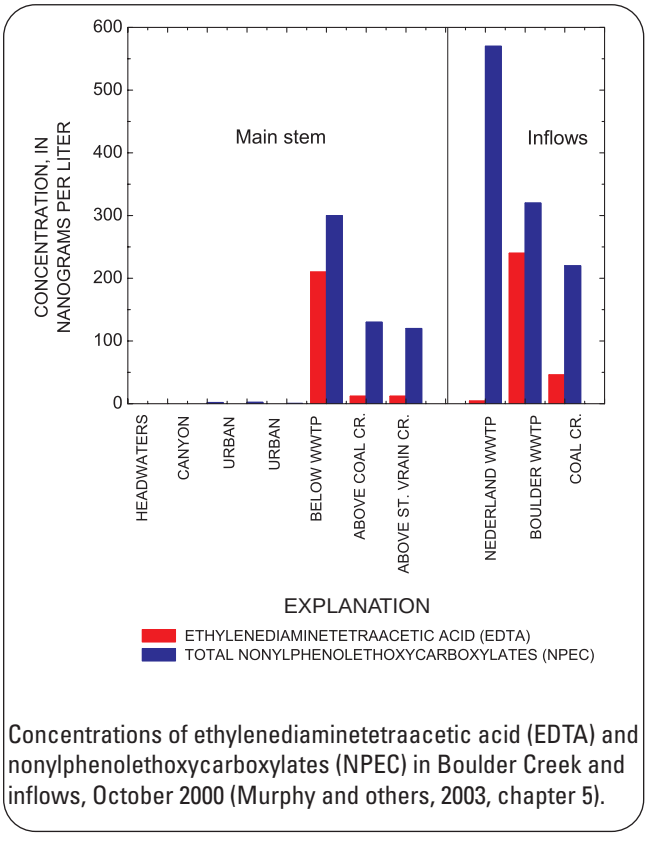
E. coli and fecal coliform by themselves usually do not cause disease; they are used as indicators, which means they may indicate the presence of other disease-causing microbes. These microbes are typically present in such small amounts that they are difficult and expensive to detect but may cause hepatitis, gastroenteritis, and dysentery. Potential sources of *E. coli* are human (from instream recreation, leaky sanitary sewer lines, and failing septic systems) and animal (raccoons in storm drains, pet waste along the creek, waterfowl). Hundreds of people swim in Boulder Creek each year; Boulder County Public Health has had no reports of serious waterborne illness from this use (written commun., 2005). To minimize contact with bacteria, the USEPA recommends avoiding swimming after a heavy rain, near storm-drain outlets, and in areas with trash or oil slicks in the water (USEPA, 1997).

Lower Boulder Creek

East of the city of Boulder, the Boulder WWTP is permitted to discharge as much as 77,600 m^3 (20.5 million gallons) per day of treated wastewater to Boulder Creek (USEPA, 2005). The wastewater is treated using a trickling filter/solids contact and nitrification process. The amount of wastewater discharged varies over 24 hours, depending on water usage within the city of Boulder. The WWTP is required by a permit from CDPHE to meet certain water-quality standards. However, the WWTP effluent does cause a substantial change in the water quality of Boulder Creek. The effluent contains higher concentrations of dissolved solids and nutrients than Boulder Creek, so these constituents increase downstream from the WWTP (Murphy and Waterman, 2005). Concentrations of suspended solids and fecal coliform in the effluent are often lower than concentrations in Boulder Creek (due to permit requirements), so concentrations of these constituents often decrease downstream from the WWTP.



Discharge point for the Boulder Wastewater Treatment Plant

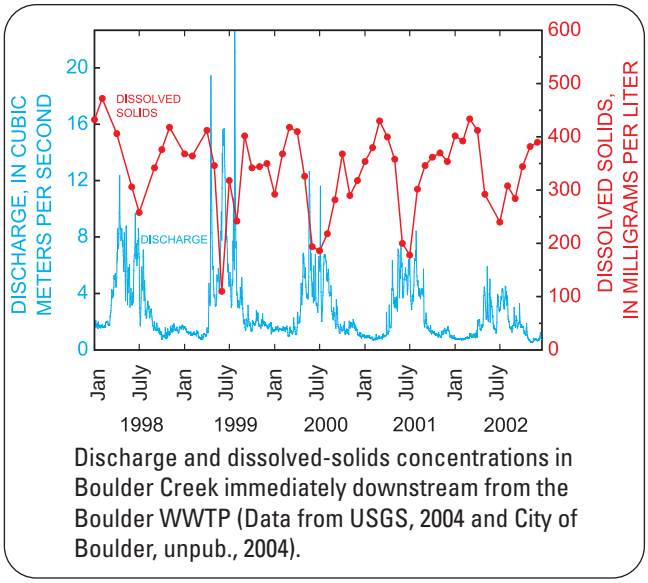


Concentrations of ethylenediaminetetraacetic acid (EDTA) and nonylphenolethoxycarboxylates (NPEC) in Boulder Creek and inflows, October 2000 (Murphy and others, 2003, chapter 5).

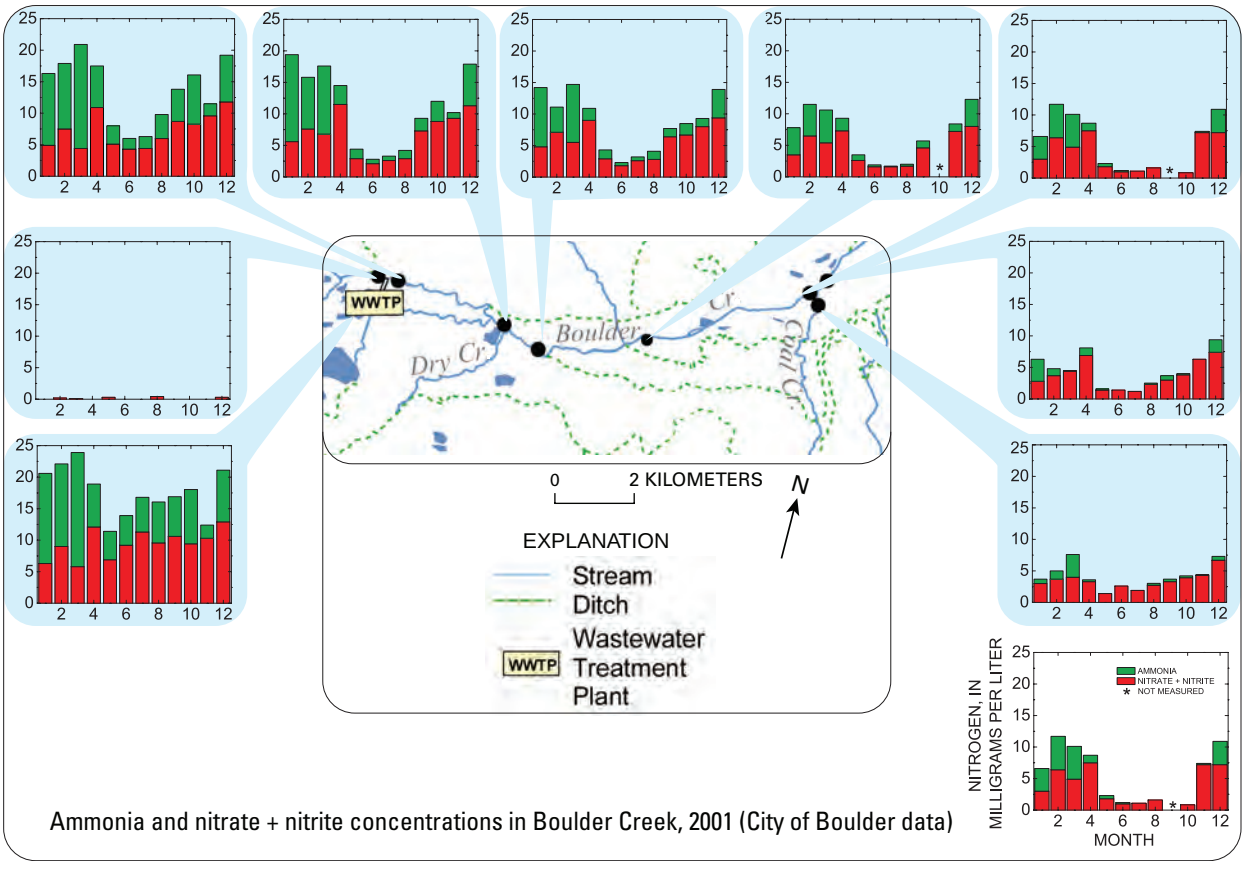
Studies of Boulder Creek downstream from the Boulder WWTP have detected trace organic wastewater compounds such as steroids, hormones, prescription and nonprescription drugs, surfactants, and pesticides (Murphy and others, 2003, chapters 5 and 6; Barber and others, 2006). Recent technological advances have allowed the detection of these compounds at very low levels; some of these compounds were detected at only a few parts per trillion. WWTPs are not required by law to remove these compounds, and their environmental and public health significance is not well understood. The most abundant wastewater compounds detected in 2000 were ethylenediaminetetraacetic acid (EDTA), a metal complexing agent found in shampoo, mayonnaise, and vitamins, and nonylphenolethoxycarboxylates (NPEC), breakdown products from surfactants, which are components of detergents. Concentrations of organic wastewater compounds were highest in Boulder Creek directly downstream from the Boulder WWTP and in Coal Creek; concentrations decreased downstream. In addition to organic wastewater compounds, the rare earth element gadolinium was found to be enriched in the Boulder WWTP effluent and Boulder Creek downstream from the Boulder WWTP (Murphy and others, 2003, chapter 4; Verplanck and others, 2005). Gadolinium has several industrial and medical uses. Because of its magnetic properties, gadolinium is used as a contrasting agent in magnetic resonance imaging (MRI). Organic gadolinium complexes are extremely stable in the human body and in the environment; because of this stability, they are not easily removed during wastewater treatment or instream processes (Bau and Dulski, 1996).

Water quality of Boulder Creek downstream from the Boulder WWTP is affected by a complex combination of sources and processes. The degree of effects from the Boulder WWTP on Boulder Creek depends on the ratio of wastewater effluent to background streamflow. Wastewater effluent has a greater effect on water quality when background streamflow in Boulder Creek is low. During high-flow conditions, snowmelt runoff provides dilution for dissolved constituents. Therefore, concentrations of dissolved solids, nitrogen, and phosphorus in Boulder Creek downstream from the WWTP are typically lowest during late spring and early summer (Murphy and Waterman, 2005).

Several diversions downstream from the WWTP remove a substantial amount of water from Boulder Creek. During some times of the year, the creek is virtually dry in places. These diversions remove much of the wastewater chemical load from the creek. The creek gains water from agricultural irrigation return flows, tributaries, and ground water. These inflows provide dilution for nutrients, metals, and wastewater compounds but can increase some ions, such as sodium, magnesium, and sulfate (Murphy and others, 2003, chapter 4). Nitrogen (nitrate, nitrite, ammonia, and organic nitrogen) and phosphorus also are removed from the water by vegetation uptake, sorption to sediment and organic matter, and bacterial processes. The level of ammonia concentrations that the Boulder WWTP is permitted to discharge varies throughout the year, and typically is highest from November to March and lowest in June (City of Boulder, written commun., 2005).



Discharge and dissolved-solids concentrations in Boulder Creek immediately downstream from the Boulder WWTP (Data from USGS, 2004 and City of Boulder, unpub., 2004).



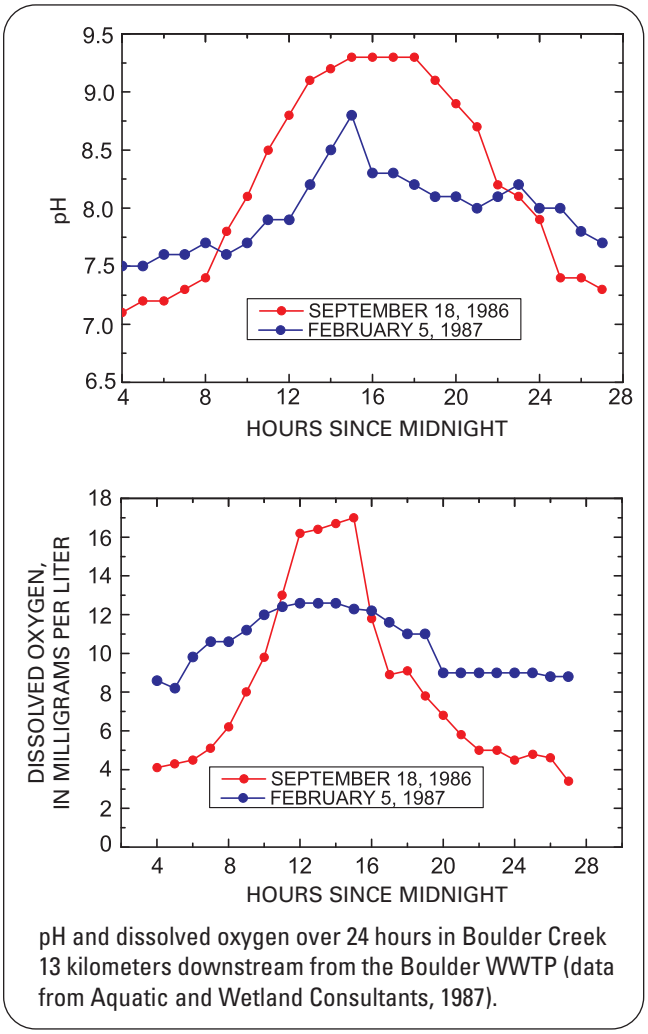
Ammonia and nitrate + nitrite concentrations in Boulder Creek, 2001 (City of Boulder data)

Much of lower Boulder Creek has been channelized and has little riparian vegetation to provide shade, so waters can reach temperatures as high as 30 degrees Celsius in summer months (Murphy and Waterman, 2005). Direct sunlight on the shallow, slow-moving, nutrient-rich water leads to accelerated algal growth and high rates of photosynthesis.

The high rate of photosynthesis during daylight hours produces oxygen and consumes carbon dioxide, causing pH and DO to increase during the day. Respiration and decomposition, which occur 24 hours a day, consume oxygen and produce carbon dioxide, causing lower pH values and DO concentrations at night. Over a 24-hour period, DO and pH have fluctuated as much as 12 mg/L and 2.1 pH units, respectively (Aquatic and Wetland Consultants, 1987).



Boulder Creek near Highway 287



pH and dissolved oxygen over 24 hours in Boulder Creek 13 kilometers downstream from the Boulder WWTP (data from Aquatic and Wetland Consultants, 1987).

In water with high pH and temperature values, ammonia takes the form of un-ionized ammonia, which is toxic to fish. Boulder Creek from South Boulder Creek to Saint Vrain Creek was included in Colorado's 303(d) list of impaired waters in 1992 because of un-ionized ammonia (CDPHE, 2005c, d). The City of Boulder attempted to improve water quality by restoring streambank stability, planting vegetation, and deepening channels, but high un-ionized ammonia concentrations continued. In 2003, a TMDL analysis quantified the amount of ammonia that can be discharged to Boulder Creek without exceeding standards. The analysis was used to assign allowable contaminant loads among ammonia dischargers (CDPHE, 2005e). Some WWTPs in the watershed, including the Boulder and Lafayette WWTPs, have been or will be upgraded to decrease the amount of ammonia discharged (Floyd Bebler, City of Boulder, written commun., 2005; Douglas Short, City of Lafayette, oral commun., 2005).



Lower Boulder Ditch near diversion from Boulder Creek

Coal Creek merges with Boulder Creek about 13 km (8 mi) downstream from the Boulder WWTP. Coal Creek receives wastewater effluent from Erie, Lafayette, Louisville, and Superior WWTPs, which are permitted to discharge a total of 40,882 m^3 (10.8 million gallons) per day of effluent to Coal Creek or its tributary, Rock Creek (USEPA, 2005). Because the natural flow of Coal Creek is very small, the creek is composed almost entirely of wastewater effluent when it enters Boulder Creek. Therefore, concentrations of dissolved solids, nutrients, and organic contaminants in Coal Creek often are elevated relative to Boulder Creek and cause an increase in these contaminants in Boulder Creek (Murphy and others, 2003, chapters 3, 4, and 5; Murphy and Waterman, 2005). Coal Creek also may be affected by agricultural return flows.



Coal Creek near Lafayette



Sunflowers near lower Boulder Creek

Lower Boulder Creek flows through what has historically been an agriculturally dominated area. About 7,890 kilograms (17,400 pounds) of pesticides (active ingredient) were applied to agricultural land in Boulder County in 1997 (Murphy and others, 2003, chapter 6). Samples from Boulder Creek were analyzed for 84 pesticides in June and October 2000. Seven pesticides, including diazinon and atrazine, were detected at one or both of the sampling locations on lower Boulder Creek (upstream from Coal Creek and upstream from Saint Vrain Creek). Agricultural lands in the watershed have rapidly been converted to urban areas in the past decade; one-third (202 square kilometers, or 50,000 acres) of the farm land in Boulder County was converted to nonagricultural uses between 1992 and 2002 (U.S. Department of Agriculture, 2005).



Construction of new housing development near Erie



Rock Creek

What fish species live in Boulder Creek?

Natural conditions in the Boulder Creek Watershed can be harsh for fish and other aquatic life. Streamflow originates primarily as snowmelt and thus varies widely both seasonally and annually. Mountain streams are cold year-round, flow rapidly and turbulently, are low in nutrients, and have little or no aquatic shore vegetation (Ellis, 1914). Plains streams are slower moving and subjected to intense sunlight, causing temperature, dissolved oxygen, and pH to vary drastically, particularly in late summer. These conditions lead to a relatively low number of native fish species able to survive in the watershed (Fausch and Bestgen, 1996). Humans have substantially altered the natural hydrologic regime by diverting water from streams and building reservoirs, straightening stream channels, decreasing flow during high-flow periods, increasing flow during low-flow periods, and causing daily and hourly flow variations. In addition, nutrient loading is higher due to wastewater effluent, habitat has been fragmented, and non-native fish have been introduced.

Much of lower Boulder Creek was channelized for flood control. Channelization removes pools and riffles, which are important habitat for fish. In the 1980s the City of Boulder restored much of Boulder Creek within the city for recreation, esthetics, and fish habitat. About 75 fish habitat structures were built as part of this project, the majority being boulder drops with excavated pools (Steinberger and Wohl, 2003). Banks were stabilized, and riparian areas were revegetated.

About 50 fish species, of which about 18 are non-native, now inhabit the South Platte River Watershed (Fausch and Bestgen, 1996). Introduced species usually fare best in man-made reservoirs; in streams, they generally are not successful because they must compete with species adapted to the watershed (Bluestein and Hendricks, 1974) and fluctuating hydrologic conditions. Non-native trout are an exception. Rainbow trout (*Salmo gairdneri*), brown trout (*Salmo trutta*), and brook trout (*Salvelinus fontinalis*) were stocked in Boulder Creek soon after settlement and are now the principal fish species in the mountain streams of the watershed and within the city of Boulder (Thorne Ecological Institute, 1972). These fish outcompete the native greenback cutthroat trout (*Oncorhynchus clarki stomias*), a federally listed threatened species. In lower Boulder Creek, native white suckers (*Catostomus commersoni*) and fathead minnows (*Pimephales promelas*), along with non-native common carp (*Cyprinus carpio*), are the most abundant species downstream from the Boulder WWTP (Windell and Rink, 1987). These fish tolerate extreme variations of temperature, dissolved oxygen, and turbidity. Studies of Coal Creek found that native creek chub (*Semotilus atromaculatus*) and fathead minnow were most abundant (Bureau of Reclamation, 1981).



Greenback cutthroat trout (courtesy Colorado Division of Wildlife)



White sucker (courtesy Colorado Division of Wildlife)

Several non-native species are threatening ecosystems in Boulder Creek, including the New Zealand mudsnail (*Potamopyrgus antipodarum*) and the Eurasian watermilfoil (*Myriophyllum spicatum*), an aquatic plant. These species were accidentally introduced, have no natural predators in the watershed, and spread rapidly (City of Boulder, written commun., 2005). They negatively affect aquatic ecosystems by outcompeting native species and reducing biodiversity. A native species of algae, the diatom *Didymosphenia geminata*, also is affecting Boulder Creek. This diatom was once rare and restricted to pristine lakes and streams. In recent years, however, it has formed excessive growths in Boulder Creek, as well as many streams of Western North America (Sarah Spaulding, USGS, oral commun., 2005). Loss of native species and biodiversity can lead to a decline in population and diversity of fish, because their food supply has been affected.



New Zealand mudsnail (left, approximate size; right, magnified; courtesy Colorado Division of Wildlife)

What is the quality of ground water in the Boulder Creek Watershed?

Surface water and ground water are closely connected; contamination of ground water can affect water quality of Boulder Creek and its tributaries.

The mountainous part of the watershed is underlain by crystalline bedrock with generally low water-storage capacity. Ground water is present in fracture zones, with depth to ground water ranging from tens to hundreds of feet (Bruce and McMahon, 1998). Most homes in the mountains are served by wells and individual sewage disposal systems (ISDSs).

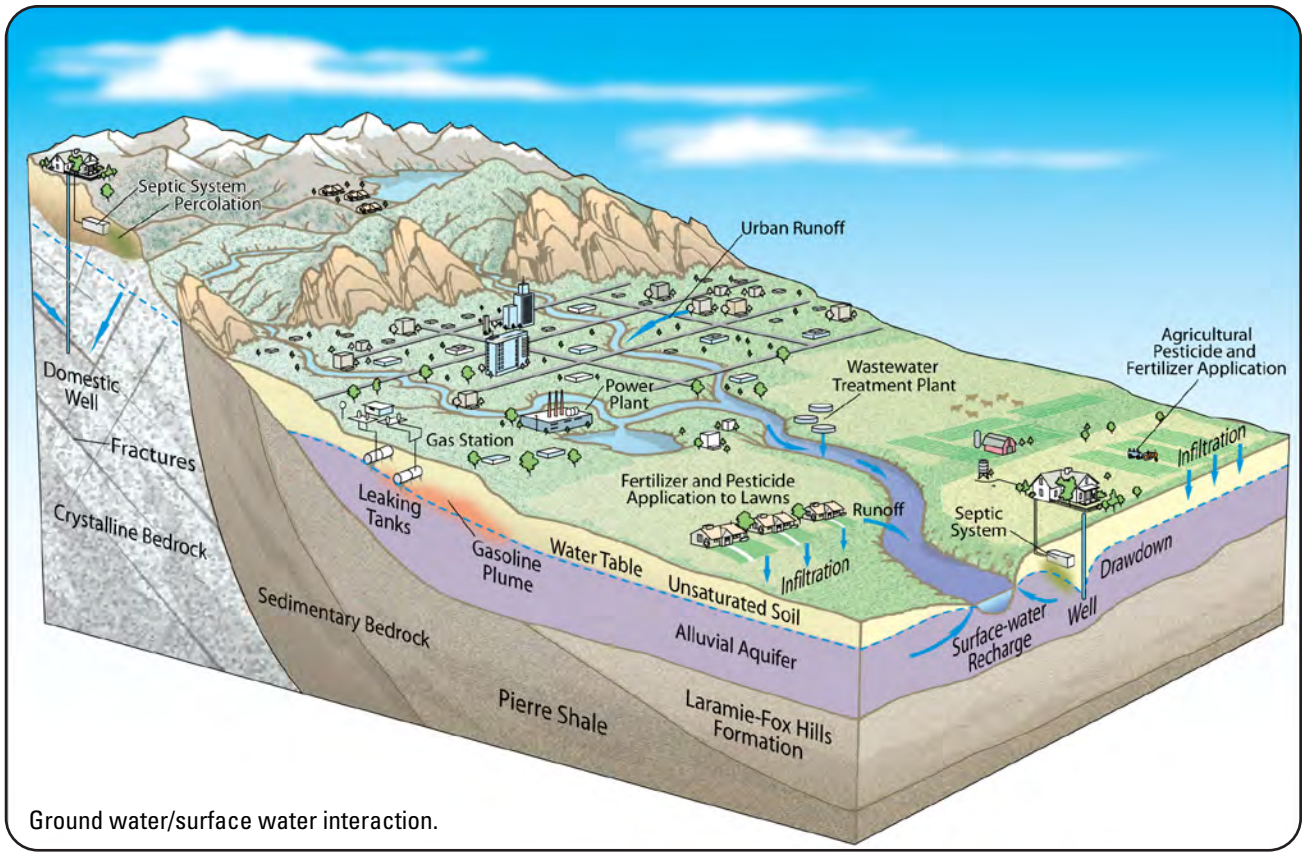
The plains part of the watershed is underlain by sedimentary rock, and ground-water sources are the alluvial aquifer, which underlies valley bottoms, and the Laramie-Fox Hills aquifer (Romero, 1973). The alluvial aquifer is closely connected to surface water.

Ground-water quality in the Boulder Creek Watershed is not well known. Dissolved-solids concentrations generally are lower in the upper watershed because crystalline bedrock is more resistant to dissolution by ground water (Bruce and McMahon, 1998). Ground-water quality can be affected by overlying land use, malfunctioning ISDSs, leaking underground storage tanks (LUSTs), and landfills. Application of pesticides and fertilizers in agricultural or urban settings can introduce these compounds to ground water; the pesticides atrazine and prometon, along with nitrate, have been detected in ground water in the lower watershed (Bruce and O'Riley, 1997). Application of chlorinated drinking water to lawns can introduce chloroform, a byproduct of drinking-water disinfection, to ground water.

Approximately 14,400 onsite wastewater systems (OWSs), which include ISDSs and other systems that treat sewage on a property instead of discharging to a wastewater treatment plant, are in use in Boulder County (Boulder County Public Health, written commun., 2005). About one-half of Boulder County is in the Boulder Creek Watershed. Approximately 6,000 of these OWSs are unapproved, and 8,400 are more than 23 years old. Leaking OWSs have the potential to contribute bacteria, nutrients, and consumer products to ground water and surface water.

There are dozens of underground storage tanks in the Boulder Creek Watershed. After many years, these steel tanks can corrode and leak contents to ground water. These LUSTs can contain gasoline, diesel, and other petroleum products. Methyl tertiary butyl ether (MTBE), which has been added to gasoline since the 1970s and is a potential carcinogen, has been found to be widespread in alluvial ground water of the Denver metropolitan area (Bruce and McMahon, 1998).

Landfills also can be sources of ground-water contamination. The Marshall landfill, which operated from 1965 to 1992, was found to be leaching polychlorinated biphenyls (PCBs), toluene and other organics, and arsenic and other metals to ground and surface water (U.S. Bureau of Reclamation, 1981). The site was added to the USEPA's Superfund List in 1983. A ground-water collection system and water-treatment facility were installed in 1993 and closed in 2004, with monitoring ongoing (Floyd Bebler, City of Boulder, written commun., 2005).

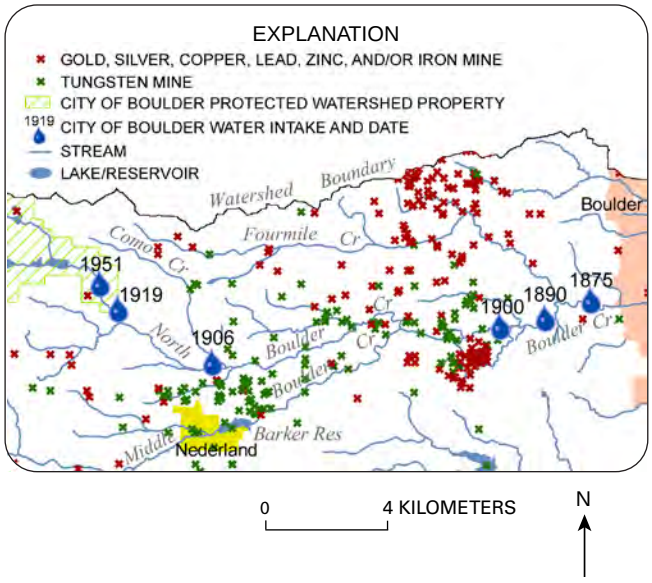


Ground water/surface water interaction.

What was the quality of water in the Boulder Creek Watershed in the past?

Pre-1858

Prior to European-American settlement in 1858, the Boulder Creek Watershed was sparsely populated by Native Americans, who had little effect on the landscape except perhaps in altering fire regimes, leading to changes in erosion from hillsides and channels (Wohl, 2001). Before extensive water management and reservoir development, which began in 1859, streamwater discharge in much of the watershed would have been higher during much of the year. Dissolved solids in surface water would have been low in the mountains, due to crystalline bedrock, and higher on the plains, where bedrock is sedimentary. Dissolved solids would have been lowest during snowmelt runoff. Boulder and Coal Creeks on the plains would have had large temperature variations, as they do today. Bacteria levels in the streams would have been low unless many people or animals were nearby. The first white settlers described streams in the watershed as "pure" and "full of fish" (O.L. Baskin and Company, 1880). Drinking water typically came directly out of streams, shallow wells, or ditches and was not treated.

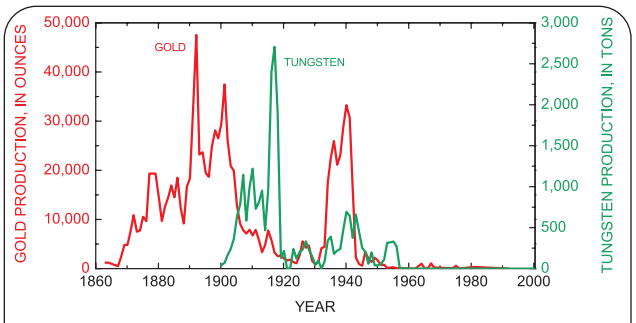


Mine sites and City of Boulder drinking-water intakes (mine data from USGS, 2005b).

1859 to 1920

By 1880, dozens of gold and silver mines were operating in the upper watershed. The first types of mines were placer mines, where sediment was dumped into rocker boxes or sluices, broken apart with water, and processed with mercury. Lode mining followed; this involved crushing chunks of bedrock and processing it with chlorine, mercury, cyanide, and bromide in mills (Cobb, 1988). Lode mining, primarily along Fourmile Creek, allowed much greater production; gold production reached its peak in 1892. Toxic chemicals used in processing were disposed of on the ground or in streams. Mill tailings caused the water in Boulder Creek downstream from Fourmile Creek to have a "milk-like turbidity" (Colorado State Board of Health, 1878) which, when consumed, gave the "sensation of swallowing rope" (Boulder Daily Camera, 1905a). Mining was closely followed by timber harvesting. Boulder Creek was used to deliver lumber downstream, and large boulders and streamside vegetation were blasted to improve passage (Wohl, 2001). Forest fire frequency increased, leading to erosion and release of sediment and dissolved solids to streams.

The City of Boulder fought mines and mills to reduce the discharge of waste to streams (Boulder Daily Camera, 1905b), but in 1890 avoided most contamination by moving its water intake upstream from Fourmile Creek. In 1900, however, tungsten was discovered in the watershed, and many mines operated along Middle and North Boulder Creeks. The population of the upper watershed swelled. In 1907, all of the fish in several miles of Boulder Creek were killed by mill waste (Ellis, 1914). To avoid contamination by mining and sewage, Boulder moved its intake to North Boulder Creek in 1906 and built Lakewood Reservoir and Pipeline. Bacterial contamination continued from work camps and cottages, so in 1919 Boulder added additional water intakes at higher elevations, purchased much of the headwater area of North Boulder Creek, and eventually closed the area to the public (Phelps, 1916; Burns and McDonnell Engineering Co., 1921).



Annual gold and tungsten production in Boulder County (data from Henderson, 1926; Lovering and Tweto, 1953; USGS, 1882–1931, 1933–2000).



Placer mining on Fourmile Creek, circa 1890–1900 (by J.B. Sturtevant; courtesy Carnegie Branch Library for Local History, Boulder Historical Society Collection)

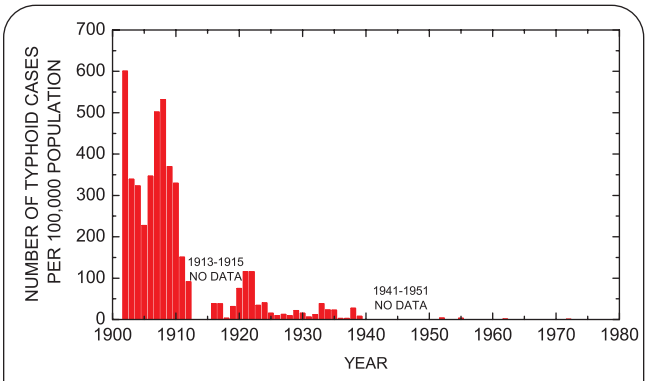


In the Marshall Coal Mine, near Langford (now Marshall), circa 1880–1893 (by Ira Kneeland; courtesy Carnegie Branch Library for Local History)

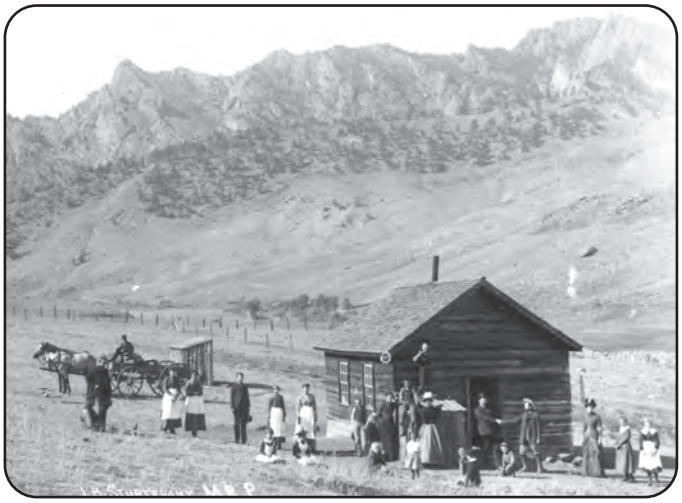
In the eastern part of the watershed, the towns of Erie, Lafayette, Louisville, Marshall, and Superior were founded to support underground coal mines. These communities first obtained drinking water from wells. Eventually, Lafayette, Louisville, and Erie diverted water from South Boulder Creek.

Early in Colorado history, inadequate disposal of human waste was a problem. In 1877, the newly established Colorado State Board of Health reported that "This beautiful land… blessed with good water… free from all contaminations less than two decades since, is now, in many places, sadly changed. The crowded habitations which have sprung up… are in imminent danger of losing their healthfulness… by atmospheric and water pollution" (Colorado State Board of Health, 1877). Outhouses and cesspools were used throughout the Boulder Creek Watershed; many of these were close to drinking-water wells (University of Colorado Extension studies, 1921).

In 1895, the City of Boulder installed its first sewer pipes, which directed sewage to a settling basin and then to Boulder Creek. However, the settling basin had little effect; for a mile downstream, water in the creek resembled sewage, fish were absent, and cattle and horses refused to drink (Bishop, 1908). In 1905, at the same time that Boulder sought an injunction against mill pollution of Boulder Creek, farmers downstream complained about Boulder emptying untreated sewage into the creek (Boulder Daily Camera, 1905b). South Boulder Creek was contaminated by bacterial pollution from the resort community of Eldorado Springs (University of Colorado Extension studies, 1921). High incidence of typhoid, which is carried by water contaminated with human waste, was recorded in Boulder County in the early 1900s.



Annual typhoid cases (including deaths) in Boulder County, 1902–1980 (data from Colorado State Board of Health reports, 1902–1947 and U.S. Public Health Service, 1952–1980).

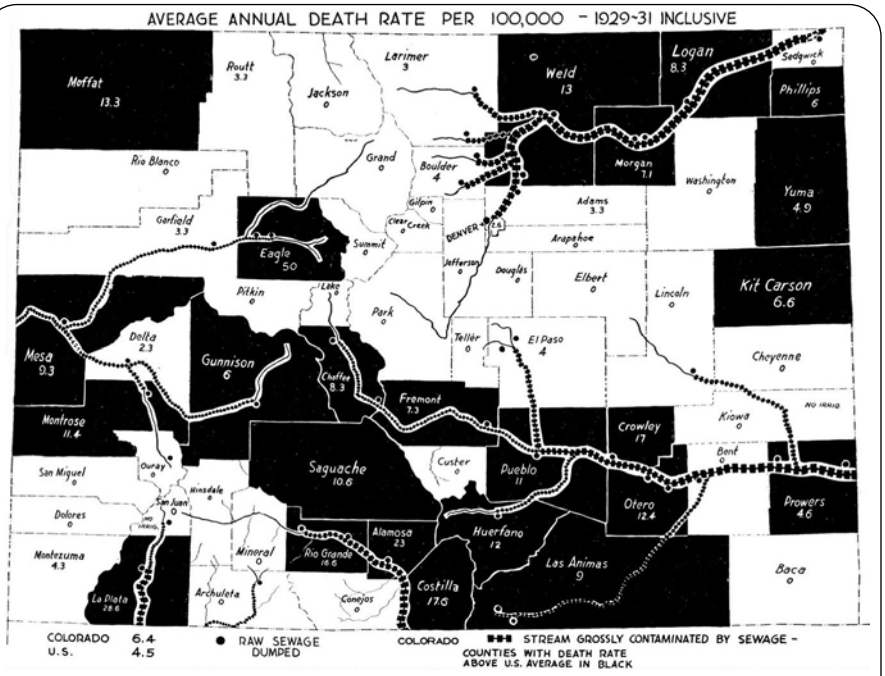


South Boulder School, Eldorado Springs, circa 1886–1890, with outhouse in background (by J.B. Sturtevant, courtesy Boulder Carnegie Branch Library, Boulder Historical Society Collection)

1920 to 1950

When World War I ended, tungsten mining decreased in the Boulder Creek Watershed, and many mining communities became ghost towns. Forest fire suppression began in about 1920 (Wohl, 2001). These factors likely led to an improvement in water quality of the upper watershed. Simultaneously, National and State water-quality regulations, including the first Federal drinking-water standards, were being enacted. Towns and cities within the watershed began to treat drinking-water supplies with chlorination and (or) filtration (U.S. Public Health Service, 1950). However, poor wastewater disposal practices continued to result in contamination of the watershed. Statewide, the practice of discharging untreated sewage to rivers, which were then used to irrigate crops, was tied to typhoid fever and dysentery when people consumed the crops. This led several neighboring States to boycott produce from the South Platte Valley (Colorado State Board of Health, 1930, 1960; Chapman, 1934). Between 1934 and 1939, the population in Colorado served by sewage-treatment facilities increased from 6 to 84 percent (Colorado State Board of Health, 1939). The City of Boulder built its first WWTP in 1934, but it did little to treat sewage effectively (U.S. Public Health Service, 1950). Gold and tungsten mining in the upper watershed boomed again when the price of gold rose in 1934 and World War II began in 1939.

Contamination of water resources nationwide led to the Water Pollution Control Act of 1948, which established that States were primarily responsible for water-pollution control and that the Federal government would provide financial and technical assistance (Stoddard and others, 2002). That same year, a study of the South Platte River Basin found that Boulder Creek, like most streams in the basin, contained high amounts of coliform bacteria, high biological oxygen demand (BOD), and low dissolved oxygen downstream from the two existing WWTPs in the watershed (Boulder and Lafayette), particularly during low-flow conditions (U.S. Public Health Service, 1950). Erie, Louisville, Nederland, and Superior were still using outhouses and septic systems.

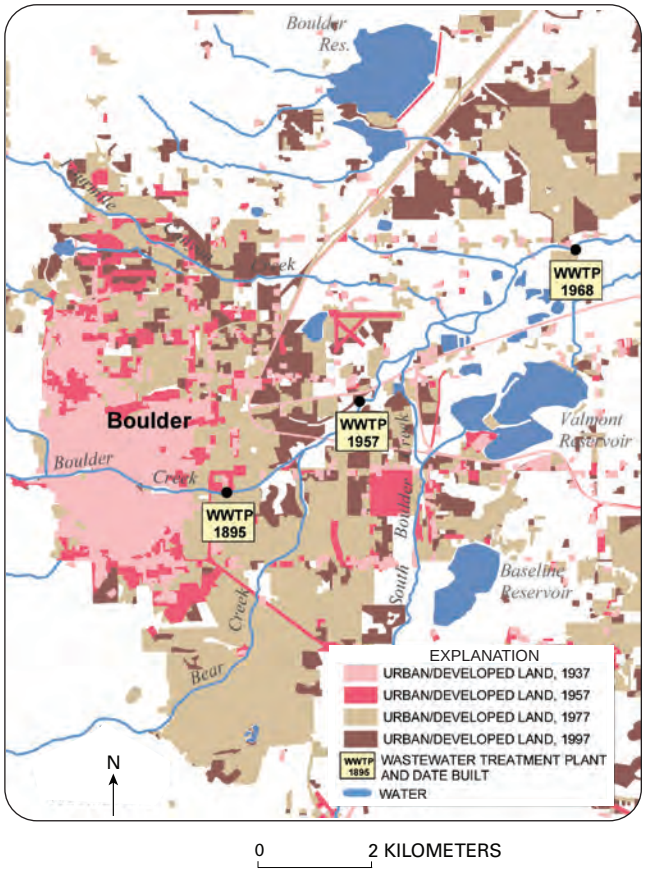


Map showing Colorado rivers polluted with sewage and counties with typhoid deaths over national average in 1929–1931 (from Chapman, 1934).

1950 to present

The population of the City of Boulder doubled between 1940 and 1960, increasing wastewater load. The City of Boulder built a new WWTP with secondary treatment (trickling filter and chlorination) on East Pearl Street in 1957. Coliform output decreased substantially, but due to continuing rapid population growth, the WWTP was quickly overloaded and released sewage with high suspended solids content and high biological oxygen demand (BOD) (U.S. Department of the Interior, 1967a, b). Below the WWTP, Boulder Creek was murky and gray, with only a small number of tolerant organisms living in the creek. In 1968, Boulder constructed an additional WWTP on 75th Street, downstream from the Boulder Creek Supply Canal. Both WWTPs discharged to Boulder Creek until 1975, when the East Pearl WWTP began diverting primary effluent to the 75th Street WWTP for secondary treatment (the East Pearl WWTP closed in 1980). Water quality of Boulder Creek improved, but dissolved-oxygen concentrations were still low and the water was murky and smelled of sewage (USEPA, 1972).

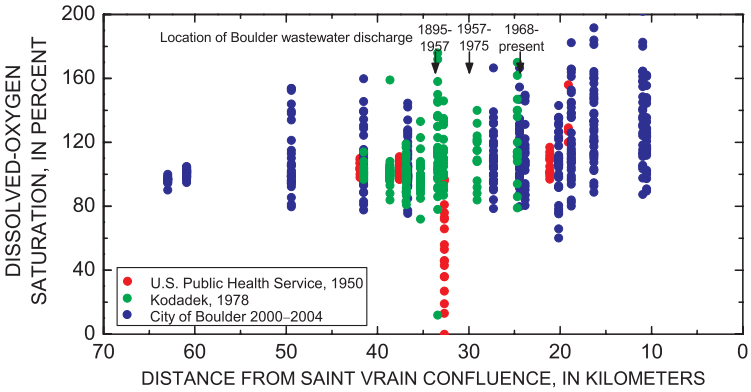
By 1965, Erie and Louisville had built WWTPs, which along with Lafayette discharged to Coal Creek (U.S. Department of the Interior, 1967a). The USEPA (1972) found that Coal Creek was contaminated with coliform bacteria, and was chemically and bacteriologically degrading lower Boulder Creek. Contamination of ground-water supplies by inadequate septic systems also was becoming a problem in mountainous parts of the watershed (Boulder Daily Camera, 1973).



Growth of urbanized areas and wastewater discharge locations, Boulder (data from USGS, 1998).

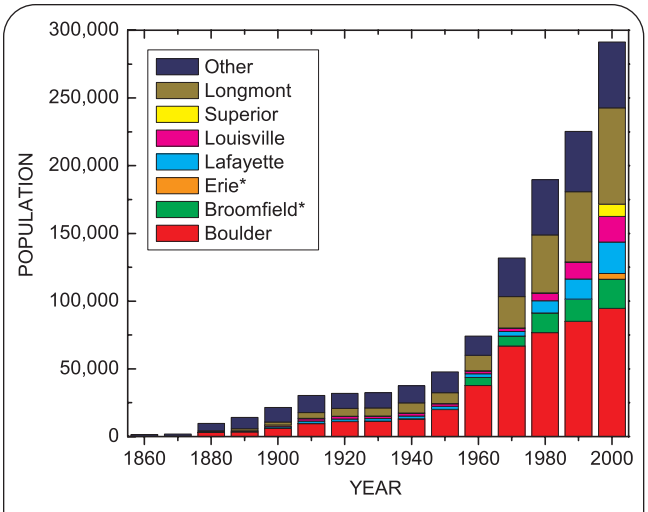
In 1972, the Federal Water Pollution Control Act Amendments (now known as the Clean Water Act) were passed, with the goal to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters" and to attain "fishable and swimmable" waters throughout the Nation. The act required that every point-source discharger of pollutants obtain a permit and meet water-quality standards, and that all publicly owned WWTPs must perform a minimum of secondary treatment (Stoddard and others, 2002). Several of the WWTPs in the watershed were upgraded.

Since the Clean Water Act was passed, additional regulations and stricter water-quality standards have required WWTPs in the watershed to upgrade several times in the past 30 years. These improvements decreased the amount of BOD, suspended solids, ammonia, coliform bacteria, and chlorine being discharged to Boulder and Coal Creeks, and increased dissolved oxygen concentrations below WWTPs (Arthur Dike, City of Boulder, written commun., 1985; Murphy and others, 2003, chapter 3). Industrial pretreatment programs now regulate the waste that industries can discharge to WWTPs. In 2005, the Boulder WWTP was being upgraded to improve ammonia removal (Floyd Bebler, City of Boulder, written commun., 2005).

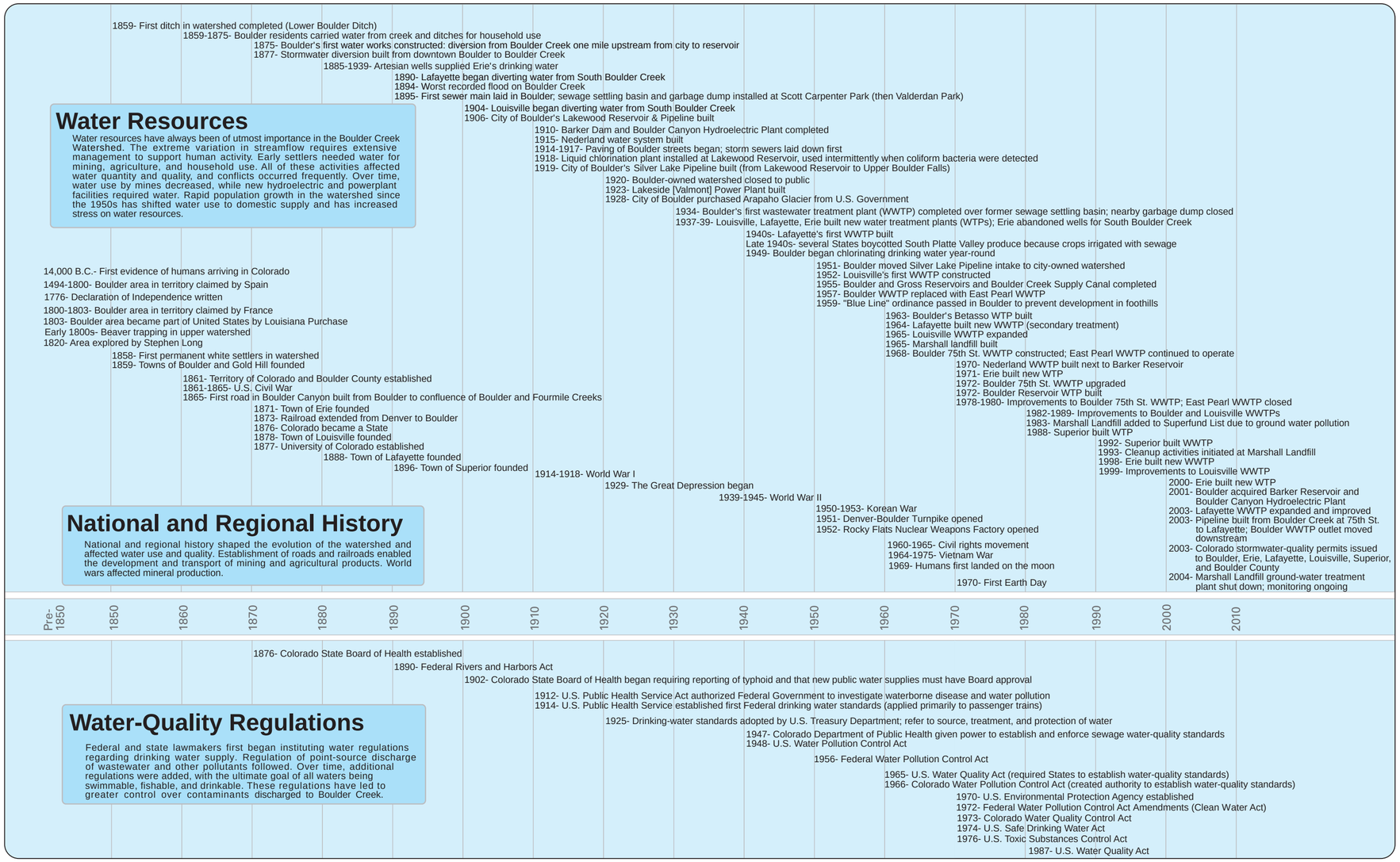


Dissolved-oxygen saturation along Middle Boulder Creek/Boulder Creek in 1950, 1978, and 2000–2004, and locations of wastewater discharge (from 1968 to 1975, there were two WWTPs discharging to the creek; data from U.S. Public Health Service, 1950; Kodadek, 1978; City of Boulder).

Population growth in the watershed continued to increase rapidly. The combined populations of the four communities discharging to Coal Creek, historically a very low flow stream, increased from 7,168 in 1970 to 57,436 in 2000 (U.S. Census Bureau, 2001). All of these communities (Erie, Lafayette, Louisville, and Superior) upgraded or built new WWTPs in the past 20 years to accommodate this growth.



Population of Boulder County, 1860–2000 (data from U.S. Census Bureau, 2001; *Erie and Broomfield populations include only portions within Boulder County; Broomfield became a separate county in 2001).



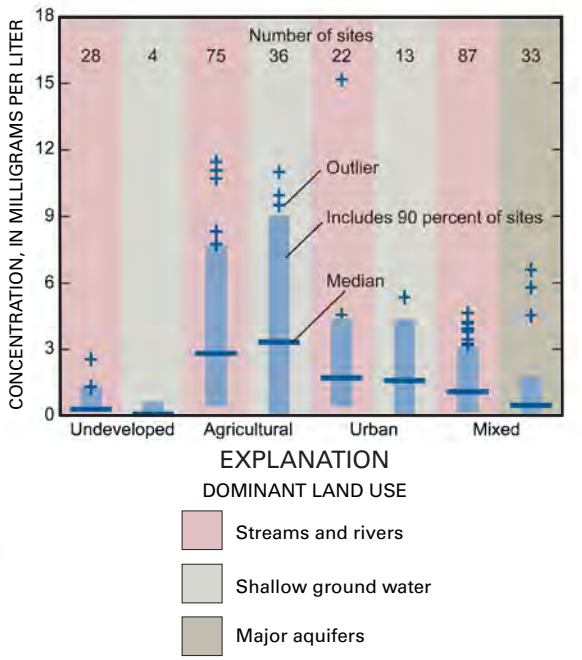
Timeline for the Boulder Creek Watershed, Colorado

How does water quality in the Boulder Creek Watershed compare to other Front Range watersheds and to watersheds nationwide?

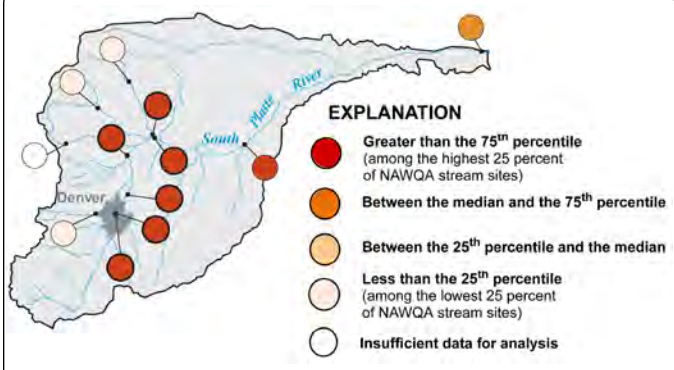
The National Water-Quality Assessment (NAWQA) Program of the USGS assesses water quality of watersheds across the United States. NAWQA studies indicate that contaminants are widespread, albeit commonly at low concentrations, across a wide range of landscapes and land uses (Hamilton and others, 2004). The highest nutrient and pesticide concentrations were detected in agricultural and urban streams. These streams usually contain complex mixtures of nutrients and pesticides. Nationally, at least one pesticide was found in 94 percent of all surface-water samples. Contaminant concentrations varied with seasons, typically with long periods of low or nondetectable concentrations and brief periods of much higher concentrations.

The South Platte River Watershed, which includes the Boulder Creek Watershed, has been studied as part of the NAWQA Program. The NAWQA study evaluated data based on five land-use categories: forest, agricultural, urban, mixed urban/agricultural, and rangeland. The study found that water quality in the forested mountain region of the South Platte River Watershed was generally good, while water quality in urban and agricultural areas was degraded (Dennehy and others, 1998). Most surface-water sampling sites located in urban, agricultural, and mixed urban/agricultural land-use areas had nutrient concentrations that were among the highest 25 percent of all 20 NAWQA study units sampled during 1992–95 (that is, 75 percent or more of samples from each site had total nitrogen concentrations greater than 7.3 mg/L as N and total phosphorus concentrations greater than 0.87 mg/L as P). Total nitrogen concentrations in streams along the Colorado Front Range were substantially greater downstream from WWTPs. Nutrient levels in mountain and rangeland sampling sites in the South Platte River Watershed, however, were among the lowest nationally.

Water-quality data for Boulder Creek are similar to data from the South Platte River Watershed NAWQA study in the same land-use categories. Nutrient concentrations in forested headwater and mountain regions are low or undetectable; downstream from urban areas, nutrient concentrations are within the range of the highest 25 percent of the NAWQA study units (Murphy and Waterman, 2005).



Total nitrogen in streams and nitrate in ground water for all USGS NAWQA study units (from USGS, 1999).



Ranking of nutrient concentrations in the South Platte River Watershed relative to all NAWQA stream sites (bold outline of circle indicates one or more aquatic-life criteria were exceeded; from Dennehy and others, 1998).

Information about the USGS NAWQA program is available at http://water.usgs.gov/nawqa/

What will be the water-quality issues in the Boulder Creek Watershed in the future?

As population has grown in the Boulder Creek Watershed, potential water-quality effects from urbanization have increased. Conversion of forest and agricultural land to urban land use has resulted in increased impervious surface area, which causes rain and melted snow to travel quickly to streams as surface-water runoff, carrying sediment and accumulated contaminants. Construction also contributes sediment to streams if runoff is not controlled. In 2001, CDPHE enacted regulations that require urban areas with populations over 10,000 to manage stormwater to reduce pollutant loading (CDPHE, 2005f). These regulations require public education, illicit discharge detection and elimination, construction site stormwater runoff control, and pollution prevention for municipal operations. In the Boulder Creek Watershed, these regulations affect Boulder County and the cities of Boulder, Erie, Lafayette, Louisville, and Superior. The listing of Boulder Creek through the city of Boulder as an impaired stream because of high levels of *E. coli* has also focused attention on urban runoff. Identifying sources of bacteria is difficult, and research is ongoing (Stoeckel and others, 2004).

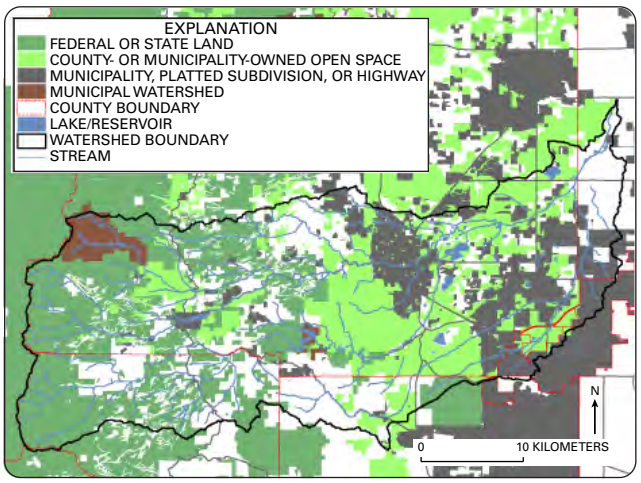
Information about stormwater programs in the watershed is available from the Watershed Approach to Stream Health (WASH) program at www.BASIN.org/WASH

Increased population means more wastewater, which contributes nutrients and organic wastewater contaminants to streams. However, WWTP expansions to accommodate growth usually improve nutrient removal. The Boulder WWTP, the largest contributor of ammonia to the watershed, is being upgraded to improve ammonia removal. Organic wastewater contaminants, such as pharmaceutical drugs, hormones, and cleaning products, which are generally not regulated, have been found in effluent from the Boulder WWTP and WWTPs and rivers throughout the Nation (Kolpin and others, 2002; Murphy and others, 2003, chapter 5). The effects of many of these compounds are unknown, and there are no water-quality standards for most of them. Potential concerns include abnormal physiological processes and reproductive impairment (Daughton and Ternes, 1999). Studies of fish in Boulder Creek and the South Platte River downstream from WWTPs detected a high female to male ratio and reproductive abnormalities (Vajda and others, 2004). New analytical research into the ecological effects of these emerging contaminants is needed to fully understand human health and ecosystem implications.

While population growth and urbanization in the Boulder Creek Watershed has been rapid in recent years, the rate of growth will likely be lower in the future. Boulder County and communities within the county have preserved about 445 square kilometers (110,000 acres) of land as open space or conservation easements (Boulder County Parks and Open Space, written commun., 2005). There is also open space in Broomfield, Jefferson, and Weld Counties within the watershed. Much of the upper watershed is national forest or city-owned protected watershed property.



Cleaning products



Land ownership in the Boulder Creek Watershed in 2005 (data provided by U.S. Forest Service, Boulder County, and Jefferson County).

Summary

Boulder Creek and its tributaries are vital for providing drinking water, agricultural irrigation, aquatic habitat, recreation, and power generation. The suitability of water for these uses is commonly determined by water quality. Water quality in the Boulder Creek Watershed is affected by natural factors such as geology, climate, and physiography, and human-caused factors, such as wastewater effluent, runoff from roads and urbanized areas, agricultural practices, atmospheric contaminants, and other sources. Water-quality effects are compounded by the many water diversions in the watershed, which often leave little water in streams to provide dilution. The relative effect of these factors on water quality has changed over time and will continue to shift with changes in land and water use. Knowledge of water quality is important for effective water-resource and land-use planning. This report provides an assessment of water quality in the Boulder Creek Watershed at the beginning of the 21st century and how it has changed over the past 160 years. The information can be used as a baseline for evaluating water-quality changes in the future.



Middle Boulder Creek

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For more information

About the Boulder Creek Watershed:

Boulder Area Sustainability Information Network:
www.BASIN.org

USGS studies on the Boulder Creek Watershed:
http://wwwbrr.cr.usgs.gov/projects/SWC_Boulder_Watershed/

About communities within the watershed:

Boulder County
Post Office Box 471
Boulder, CO 80306
(303) 441-3131
http://www.co.boulder.co.us

City of Boulder
1739 Broadway
Boulder, CO 80302
(303) 441-3266
http://www.ci.boulder.co.us

City and County of Broomfield
One DesCombes Drive
Broomfield, CO 80020
(303) 438-6390
http://www.ci.broomfield.co.us/

City of Lafayette
1290 South Public Road
Lafayette, CO 80026
(303) 665-5588
http://www.cityoflafayette.com

City of Louisville
749 Main Street
Louisville, CO 80027
(303) 666-6565
http://www.ci.louisville.co.us/

Gilpin County
203 Eureka Street
Central City, CO 80427
(303) 582-5214
http://co.gilpin.co.us/

Jefferson County
100 Jefferson County Pkwy
Golden, CO 80419
(303) 279-6511
http://co.jefferson.co.us/

Town of Erie
645 Holbrook, PO Box 750
Erie, CO 80516
(303) 926-2700
http://www.ci.erie.co.us/

Town of Nederland
P.O. Box 396
Nederland, CO 80466
(303) 258-3266
http://town.nederland.co.us/

Town of Superior
124 E. Coal Creek Drive
Superior, CO 80027
(303) 499-3675
http://www.townofsuperior.com/

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Wildfire-driven changes in hydrology mobilize arsenic and metals from legacy mine waste

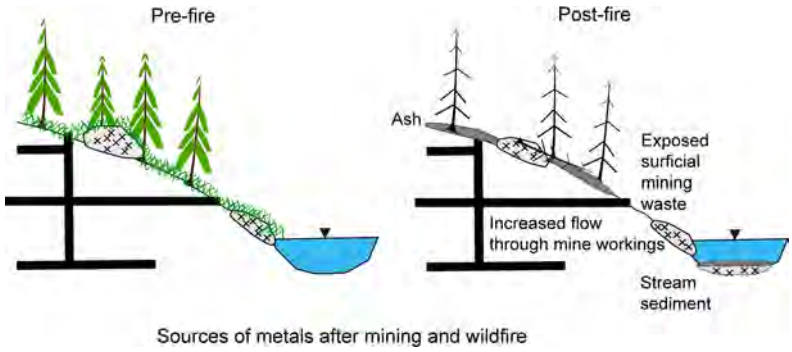
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HIGHLIGHTS

- Wildfire exposed legacy mine waste and altered surface and subsurface flow paths.
- Water-quality impairment by arsenic was driven by release from mine waste.
- Wildfire ash was not a major source of arsenic.
- Post-fire metal mobilization from legacy mine waste poses a risk to water supplies.

GRAPHICAL ABSTRACT



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ABSTRACT

Wildfires burning in watersheds that have been mined and since revegetated pose unique risks to downstream water supplies. A wildfire near Boulder, Colorado, that burned a forested watershed recovering from mining disturbance that occurred 80–160 years ago allowed us to 1) assess arsenic and metal contamination in streams draining the burned area for a five-year period after the wildfire and 2) determine the fire-affected hydrologic drivers that convey arsenic and metals to surface water. Most metal concentrations were low in the circumneutral waters draining the burned area. Water and sediment collected from streams downstream of the burned area had elevated arsenic concentrations during and after post-fire storms. Mining-related deposits were the main source of arsenic to streams. An increased proportion of overland flow relative to infiltration after the fire mobilized arsenic- and metal-rich surface deposits, along with wildfire ash and soil, into streams within and downstream of the burned area. The deposition of this material into stream channels resulted in the remobilization of arsenic for the five-year post-fire study period. It is also possible that enhanced subsurface flow after the fire increased contact of water with arsenic-bearing minerals exposed in underground mine workings. Other studies have reported that wildfire ash can be an important source of arsenic and metals to surface waters, but wildfire ash was not a major source of arsenic in this study. Predicted increases in frequency, size, and intensity of wildfires in the western U.S., a region with widely dispersed historical mines, suggest that the intersection of legacy mining and post-wildfire hydrologic response poses an increasing risk for water supplies.
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1. Introduction

Wildfires can drastically alter watershed hydrology. Loss of vegetation can lead to reduced evapotranspiration (Dore et al., 2012) and

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interception (Neary et al., 2005), and soil hydraulic properties can be greatly altered (Ebel and Moody, 2017). As a result of these changes, a greater proportion of rainfall can be transformed to overland surface flow, leading to higher peak flows and flooding during storms (Moody et al., 2013). During baseflow conditions, however, decreased canopy interception and evapotranspiration (Blount et al., 2020; Poon and Kinoshita, 2018; Wine and Cadol, 2016), along with increased snowmelt (Gleason et al., 2013; Harpold et al., 2014) and decreased soil moisture storage capacity (Ebel et al., 2012a), may lead to increased subsurface flow. Post-wildfire increases in groundwater recharge have been indicated by unsaturated zone numerical modeling calibrated to soil-moisture measurements (Ebel, 2013) and inferred from decreased baseflow recession rates (Bart and Tague, 2017).

The alteration of hydrologic flow paths, together with physical and chemical changes in soil and organic matter (Certini, 2005; Mataix-Solera et al., 2011), can lead to impaired surface-water quality, loss of reservoir storage, and high costs to water providers and customers (Bladon et al., 2014; Emelko et al., 2011; Hallema et al., 2019; Hallema et al., 2018; Martin, 2016; Murphy et al., 2018a; Robinne et al., 2018; Rust et al., 2018; Smith et al., 2011). The most frequently reported post-fire water-quality impairments include increased concentrations of sediment, nitrogen (N), phosphorus (P), dissolved organic carbon (DOC), and manganese (Mn), primarily from increased erosion and transport of wildfire ash and soil to streams (Rust et al., 2018; Smith et al., 2011). Elevated metal concentrations can occur in surface water after wildfires, in both the dissolved phase and bound to ash and suspended sediment (Burke et al., 2013; Burton et al., 2016; Gallaher et al., 2002; Leak et al., 2003; Rust et al., 2018; Rust et al., 2019; Smith et al., 2011). Pre-fire atmospheric deposition from anthropogenic emissions (e.g., power generation or transportation) to forests has been identified as one source of metals such as copper (Cu), mercury (Hg), lead (Pb), and zinc (Zn) to streams in some burned watersheds (Burke et al., 2013; Caldwell et al., 2000; Stein et al., 2012). Wildfires in areas with historical land disturbance, such as timber harvesting or mining, have increased the risk of elevated loads of sediment and metals in streams (Abraham et al., 2018; Harrison et al., 2014). However, changes in metal export from burned watersheds remains largely unknown (Rust et al., 2019) and little research has been conducted on the post-fire delivery of metals to waterbodies in forested sites with a legacy of historical mining.

We assessed water quality and sources of arsenic and metals after the 2010 Fourmile Canyon Fire, near Boulder, Colorado, burned a forested watershed that was recovering from historical mining disturbance (Fig. 1). The wildfire combusted forest cover and altered soil properties, leading to a shift from dominantly subsurface runoff generation before wildfire to infiltration-excess overland flow after wildfire during relatively common thunderstorms (Ebel et al., 2012b; Moody and Ebel,

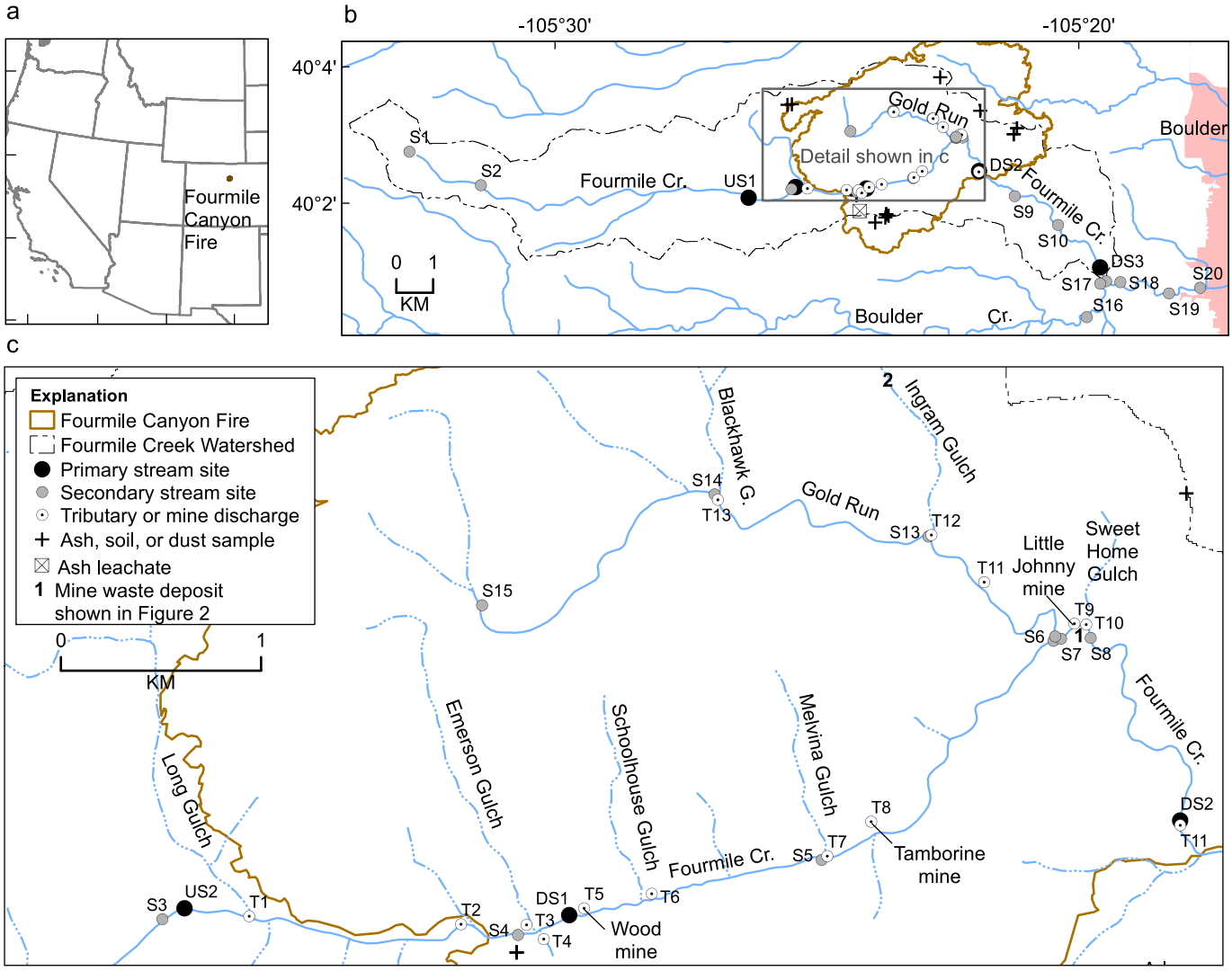


Fig. 1. Maps of a) study location in western U.S.; b) study area; c) detail of area shown in b.

2012). Wildfire ash, sediment, nutrients, and other constituents were eroded and transported to streams (Murphy et al., 2012; Murphy et al., 2015; Writer et al., 2012; Writer and Murphy, 2012). Altered hydrologic flow paths and source material availability were evident in increased stream water concentrations of constituents elevated in ash (e.g., Ca, K, Mg, Mn, alkalinity, and DOC), along with sediment and nitrate (Murphy et al., 2018b). Stream-water concentrations of several constituents (e.g., turbidity, DOC, Mn) exceeded levels that affect water treatment and/or ecosystems by orders of magnitude during storms and remained elevated for months to years (Murphy et al., 2015).

The exposure of mine tailings and waste rock due to loss of cover vegetation, together with wildfire-induced changes in hydrology, increased the risk of mobilization of metals from legacy mining waste to streams. The main objectives of this investigation are to 1) assess metal concentrations in surface waters downstream of an area affected by wildfire and historical mining and 2) understand the drivers that convey metals to surface waters after wildfire. Here we focus on arsenic (As, technically a metalloid, though grouped with metals in this study as is common in water-quality studies) due to its presence in ore and mining waste in this region, and its known risk to human health. We examined concentrations of As in 1) stream water for five years after wildfire through multiple flow regimes, including drought and historic flooding; 2) sediment transported during high flow; 3) mine tailings and waste rock; 4) water discharged from mine workings; 5) wildland and residential ash and soil; and 6) dust. We identify sources of As in the watershed, assess the most likely sources of elevated As in streams and sediment, and describe potential mechanisms for post-fire metal mobilization and transport. The results of this investigation have important implications for other watersheds affected by historical land disturbance, particularly mining, in the face of increasing number, size, and severity of wildfires in many areas of the globe (Abatzoglou and Williams, 2016; Westerling et al., 2006).

2. Materials and methods

2.1. Study area

The Fourmile Canyon Fire near Boulder, Colorado, burned about 23% of the Fourmile Creek watershed from September 6–10, 2010 (Fig. 1), resulting in burn severities that ranged from low to high (Murphy et al., 2015, their Fig. 2). Elevations in the watershed range from 1750 to 3510 m, with a mean basin elevation of 2432 m (Murphy et al., 2015). Mean annual precipitation in the burned area (elevations ~1900–2200 m) is 500–600 mm, about 40% of which falls as snow. Precipitation upstream of the burned area is higher, and a greater proportion (up to ~70%) falls as snow (Cowie et al., 2017; Murphy et al., 2015). Highest runoff typically occurs April–June due to snowmelt runoff and mixed rain and snow events; baseflow conditions occur from about September to March (Murphy et al., 2012). Pre-fire forest vegetation was dominated by ponderosa pine (*Pinus ponderosa*) with some Rocky Mountain juniper (*Juniperus scopulorum*) on south-facing slopes and ponderosa pine and Douglas-fir (*Pseudotsuga menziesii*) on north-facing slopes (Graham et al., 2012).

The combustion of tree canopy and other vegetation by the wildfire re-exposed legacy mine waste left after mining and processing of gold, tungsten, and other metals in the mid-19th to mid-20th centuries (Anderson, 2005; Cobb, 1999; Kelly and Goddard, 1969). Mining debris and related roads and railroads cover about 4% of hillslopes in the watershed, and placer mining activities transformed floodplain morphology (Dethier et al., 2018). While many areas remain denuded for decades to centuries after mining, the weathering of mine waste bearing both sulfides and carbonates, as is the case in the Fourmile Creek watershed (Geller, 1993; Kelly and Goddard, 1969; Plumlee et al., 1995), often results in circumneutral soil pH values (Nordstrom, 2008; Nordstrom, 2011). Such conditions are conducive to revegetation (Sheoran et al., 2010); aided by favorable climatic conditions for forest regeneration and establishment in the late 1800s (Battaglia et al., 2018), much of the legacy waste had reforested (Fig. 2a, b) by the time of the Fourmile Canyon Fire in 2010. The wildfire exposed mining waste (Fig. 2c), and there is visual evidence that post-fire storms eroded some of this waste. A substantial tailings deposit (original volume > 15,000 m^3) dating from the 1930s and 1940s located next to Fourmile Creek immediately downstream of its largest tributary, Gold Run (Figs. 1, 2d, e), was partly eroded (20–25% of pre-flood volume) during the September 2013 flood (Dethier et al., 2018). That deposit was removed by the U.S. Environmental Protection Agency (EPA) between November 2014 and March 2015 because of elevated levels of arsenic and lead (U.S. Environmental Protection Agency, 2018). Additional mine waste within the burned area (Fig. 2f) has since been removed by other entities, but more remains. Dozens of underground mine tunnels and shafts (Kelly and Goddard, 1969) provide pathways for water to enter subsurface drainage networks and interact with exposed minerals.

2.2. Stream discharge and water quality

Stream discharge data and water-quality samples were collected for five years after the wildfire (September 2010–December 2015) from the mainstem of Fourmile Creek routinely and during storms upstream and downstream of the burned area, as described elsewhere (McCleskey et al., 2012; Murphy et al., 2012; Murphy et al., 2015). Here, we also report stream discharge and water-quality data for tributaries, mine discharge, and Boulder Creek, both upstream and downstream of its confluence with Fourmile Creek (Fig. 1, Table SI-1). Samples were filtered through a 0.4- or 0.45-μm filter, preserved, and analyzed for major cations, anions, and metals as described elsewhere (McCleskey et al., 2012; Murphy et al., 2015). Arsenic concentrations were determined using hydride-generation atomic absorption spectrometry (Perkin Elmer, PinAAcle 900T), which required pre-reduction of As (V) using potassium iodide, ascorbic acid, and hydrochloric acid. A flow-injection analysis system (Perkin Elmer, FIAS 100) was used to generate arsine from As(III) with sodium borohydride mixed in a gas-liquid separator with a 10% *v*/v HCl carrier solution (McCleskey et al., 2003). A subset of water samples was acidified with nitric acid before filtration and analyzed for "total recoverable" (TR) cations, which includes not only dissolved and colloidal cations but those absorbed to Fe- and Mn-oxides and -hydroxides (Bowell et al., 2014). As is common in most studies of wildfire effects on water, limited pre-fire water-quality data were available; in this case, water-quality samples had been collected from our Fourmile Creek site immediately upstream of Boulder Creek, and from Boulder Creek upstream and downstream of Fourmile Creek, in the year 2000 (Murphy et al., 2003). Sediment collected on a subset of filters during storms in 2011 and 2012 was dried, subjected to a four-acid (hydrochloric, nitric, hydrofluoric, and perchloric) digestion (Briggs, 2002), and analyzed with Inductively Coupled Plasma-Mass Spectrometry (ICP-MS). Data are provided in an open-access online database (Murphy et al., 2020).

To assess the magnitude of the effect that post-fire storms can have on downstream waters, we estimated the As load that Fourmile Creek delivered to Boulder Creek during the largest storm in the year after the wildfire. During this event, two water-quality samples were collected from sites on Boulder Creek, 0.1 km upstream and 2.5 km downstream of Fourmile Creek. There is no stream gage at either site, so we estimated minimum possible discharge at the upstream site from a State of Colorado gage located 1.7 km upstream of Fourmile Creek and maximum possible discharge from a State of Colorado gage located 4.8 km downstream of Fourmile Creek (Colorado Division of Water Resources, 2020) minus pre-storm discharge at Fourmile Creek (U.S. Geological Survey, 2015) (minor tributaries and diversions in this reach have a negligible effect on stream discharge). We estimated a range of discharge values at the downstream site from discharge

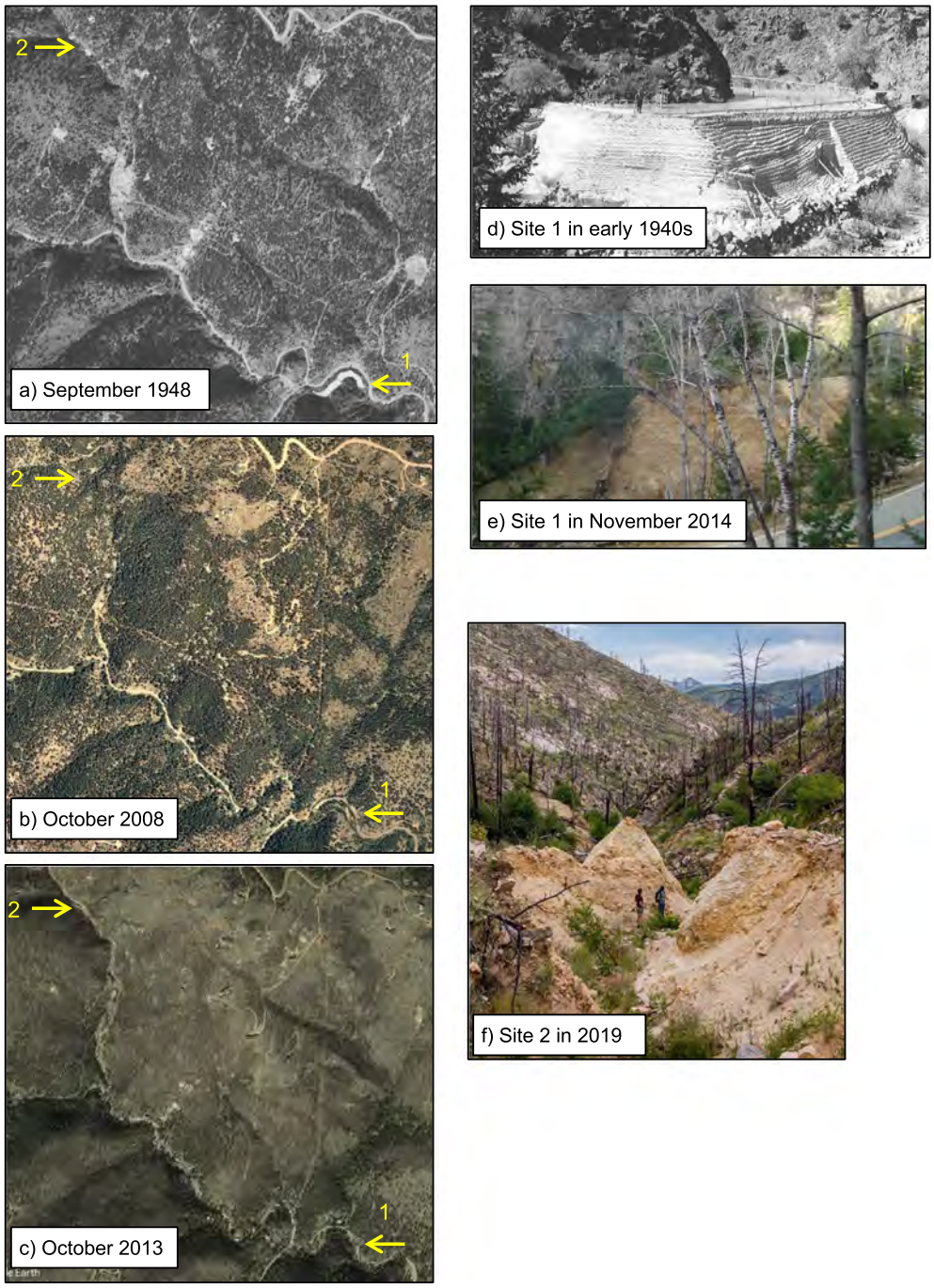


Fig. 2. Imagery of Fourmile Canyon showing a) aerial photograph in 1948 (see Fig. 1 for locations of sites 1 and 2), b) satellite imagery in 2008; c) satellite imagery in 2013 (after 2010 wildfire and 2013 flood); d) photograph of tailings deposit at site 1 in early 1940s; e) same viewpoint as d, November 2014 (deposit was removed between November 2014 and March 2015); f) photograph of mining waste located at site 2 in August 2019 (waste was removed February 2020). Sources: a) U.S. Geological Survey; b and c) Google Earth; d) Carnegie Branch Library for Local History, Boulder Historical Society Collection; e) Sheila Murphy; f) Molly Seeling.

measured at the downstream State of Colorado gage during the storm. We then multiplied stream discharge by As concentration to estimate As loads delivered in 1 h at the time of sampling.

2.3. Analyses of mine waste, wildfire ash, soil, and dust

We assessed metal content in mine waste, wildfire ash, soil, and airborne dust from samples collected within Fourmile Creek watershed. Soil and ash sampling was conducted at residential and non-residential sites in the Fourmile Canyon burned area on September 11 and 12, 2010 and September 20 and 21, 2010, with site selection based on pre-fire vegetation community and burn severity. Two unburned non-residential sites were also sampled to evaluate fire-induced changes in soil chemistry. Soil and ash samples were collected along a 30 × 30 m grid. Ash was collected first and composited across the sample grid. Once the ash was removed, the top 5 cm of soil was collected along the grid and composited. Sites were selected to avoid areas with known ore deposits, as the initial intent of the study was to determine residential contributions of trace metals. Airborne dust was collected using Big Spring Number Eight (BSNE) samplers (Fryrear, 1986) placed in triplicate at two locations in the burned area (one residential, one forested) to evaluate changes in dust composition in the months

following the fire. Dust was collected at variable intervals (e.g., 10-day, 30-day) between October 17, 2010 and July 10, 2011; the time interval increased as the volume of dust generation decreased with time since the fire. Triplicate samples were composited. Ash, soil, and dust samples were digested with a four-acid (hydrochloric, nitric, hydrofluoric, and perchloric) digestion (Briggs, 2002) and analyzed with ICP-MS. Arsenic concentrations in tailings and waste rock samples are from Dethier et al. (2018), who used ICP-MS and instrumental neutron activation, and from U.S. Environmental Protection Agency (2018), which used both X-ray fluorescence and ICP-MS after leaching with nitric and hydrochloric acids.

A rapid (5-minute) deionized-water leach (Hageman, 2007) was performed on wildfire ash and mine waste samples to determine metal concentrations. Four wildfire ash samples (collected within one month of the wildfire), eight samples from the tailings deposit next to Fourmile Creek (Figs. 1, 2e), and three samples from the wall and floor of the Little Johnny mine, directly across Fourmile Creek from the tailings deposit (Fig. 1) were sieved through a 2-mm stainless steel sieve;

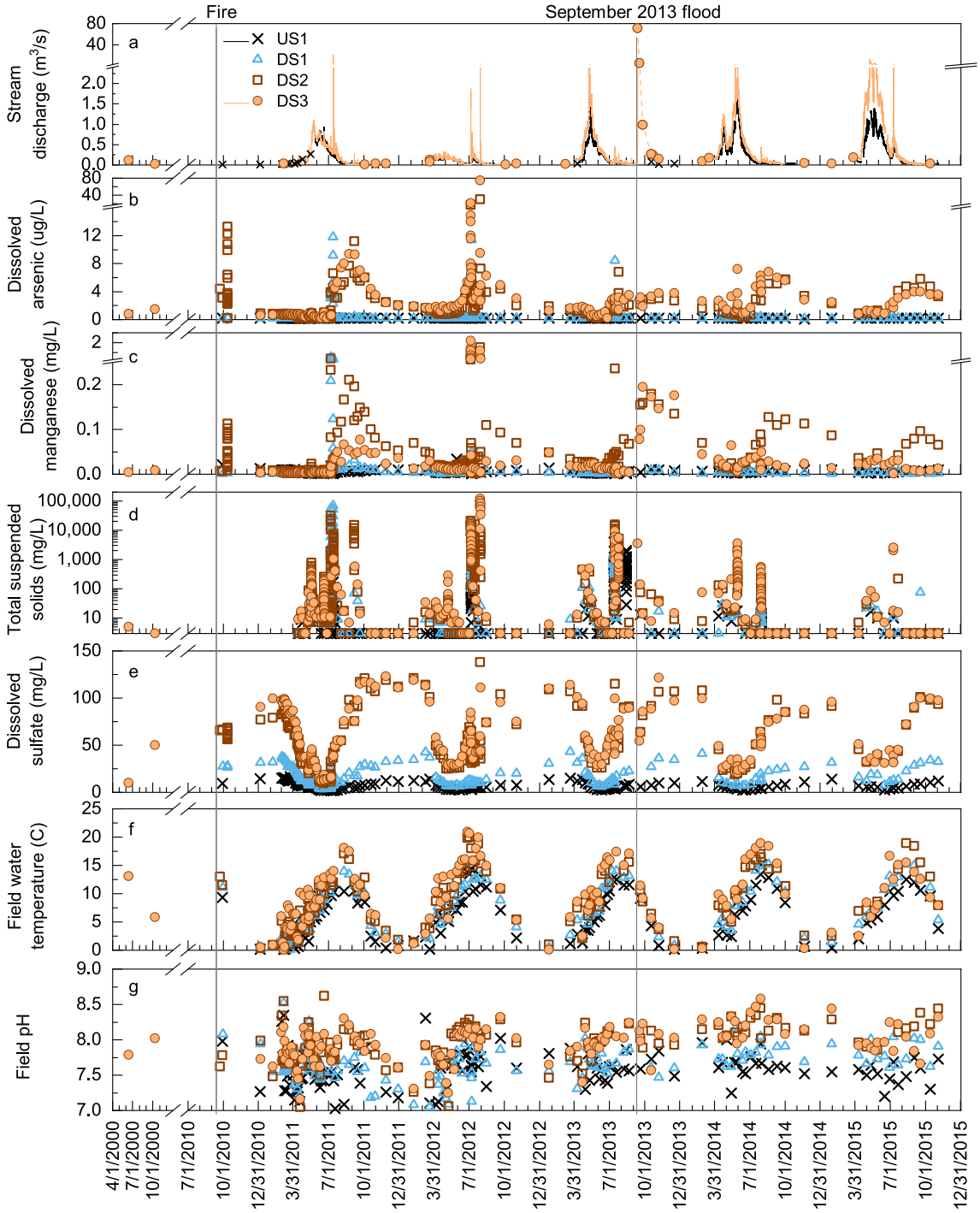


Fig. 3. a) Stream discharge (continuous discharge shown as lines; symbols represent measured discharge when continuous discharge was not available), b-e) concentrations of dissolved arsenic, dissolved manganese, total suspended solids, and dissolved sulfate, f) field water temperature, and g) field pH of Fourmile Creek upstream and downstream of burned area for five years after wildfire, with pre-fire data from 2000 (Murphy et al., 2003). (Samples in automatic samplers were generally collected the following day, and thus field temperature and pH are not available; values below detection are shown as the detection limit listed in Table SI-2).

30 g of the sieved sample was shaken with 600 g deionized water in a 1000-mL Teflon™ bottle for 5 min. The samples were filtered, preserved, and analyzed with the same methods used for water samples (McCleskey et al., 2012; Murphy et al., 2015). A subset of leachates was acidified with nitric acid before filtration and analyzed for total recoverable (TR) cations (McCleskey et al., 2012). The presence of As in a deionized-water leach of these materials indicates that As is present in the form of easily-dissolved efflorescent salts, whereas the presence of As only in leachates acidified before filtration indicates the As is bound to Fe- and Mn-oxides and/or hydroxides (Bowell et al., 2014). Data are available from Murphy et al. (2018b) and Murphy et al. (2020).

2.4. Mapping presence of arsenic-bearing minerals in mines

The substantial volume of literature regarding mining in this region was reviewed for evaluations of ore mineralogy. Most of this literature focuses on the presence of gold, silver, tungsten, and other valuable minerals (e.g., Kelly and Goddard, 1969; Lovering and Goddard, 1950), but Geller (1993) determined the relative presence (abundant, minor, trace, not present, reported in other literature, and observed but not quantified) of a broad range of gangue/alteration minerals, including sulfides such as arsenopyrite ($FeAsS_2$), pyrite (FeS_2), and arsenian pyrite (a form of pyrite that can contain up to 6 wt% As; Alpers et al., 2014). We matched the names of mines evaluated by Geller (1993) with those included in USGS geographic information systems (GIS) databases (U.S. Geological Survey, 2018; U.S. Geological Survey, 2019) to locate mines with As-bearing minerals that are potential sources of As within the Fourmile Creek watershed.

3. Results

3.1. Metal concentrations in Fourmile and Boulder Creeks

Metal concentrations in the mainstem of Fourmile Creek were generally low throughout the five-year study; dissolved concentrations of B, Ba, Be, Cd, Co, Cr, Cu, Mo, Ni, Pb, Se, W, and Zn were below either detection limits or U.S. EPA drinking water standards (Table SI-2). Some tributaries or mine discharges had higher concentrations of some metals (Cd, Co, Cu, Ni, W, and Zn) than did the mainstem (Murphy et al., 2020), but remained below U.S. EPA drinking water standards. Despite the association of As, Co, Cu, Fe, Mn, Ni, W, and Zn with ore deposits in the Fourmile Creek watershed (Geller, 1993; Kelly and Goddard, 1969), the circumneutral pH of Fourmile Creek (pH 7.2–8.6 at DS3) likely results in rapid precipitation of some of these trace metals from the water column. Concentrations of dissolved As in Fourmile Creek downstream of the burned area, however, sometimes exceeded the primary drinking water standard (Figs. 3, 4; Table SI-3). Concentrations of dissolved Fe and Mn also exceeded secondary drinking water standards at times (Murphy et al., 2015; Writer and Murphy, 2012). The subsequent discussion focuses on As due to its greater human health implications.

Dissolved As concentrations in Fourmile Creek were highest at the two sites furthest downstream of the burned area (DS2 and DS3; Figs. 1, 3) during rain storms. During the first substantial (15.2 mm) post-fire rain storm (October 2010, one month after the fire), dissolved As increased from 2.2 to 13 μg/L at site DS2 (downstream of the burned area and the tributary Gold Run). Concentrations at DS1 (downstream of part of the burned area, but upstream of Gold Run), however, did not change from <0.2 μg/L (Fig. 3). A moderate-intensity thunderstorm (maximum 30-min rainfall intensity 40 mm/h, which has a precipitation frequency estimate of 20%; Murphy et al., 2015) that occurred ten months after wildfire (July 2011) led to higher As concentrations at all sites downstream of the burned area, increasing from values between <0.2 and 1 μg/L to values between 4.5 and 11.8 μg/L during and immediately after the storm. The peak flow from this event was not captured because the automatic samplers at DS2 and DS3 clogged with debris. The maximum As concentrations likely exceeded the reported concentrations for those two sites. The storm generated overland flow and produced erosion in the burned area, causing stream discharge and concentrations of total suspended solids (TSS), DOC, NO_3, and Mn to increase by orders of magnitude (Murphy et al., 2015; Writer and Murphy, 2012). In July 2012, a more intense thunderstorm led to the highest dissolved As concentrations measured during the study: 30 μg/L at DS2 and 75 μg/L at DS3 (Fig. 3). Samples collected during this event also had the highest TR As (740 μg/L at DS3) and TSS (118,000 mg/L) measured during the study (Figs. 3, 4; Table SI-3). During all of these storm events (as throughout the entire study), dissolved and TR As concentrations at US1, upstream of the burned area and 3.4 km upstream of DS1, remained <0.2 μg/L (Figs. 3, 4; Table SI-3).

Arsenic concentrations in suspended sediment collected during these post-fire storms generally increased downstream, reflecting the nature of the area upstream from each site. Sediment samples collected during storms at DS1 contained 12 to 87 mg/kg, with an average concentration of 38 mg/kg As (Fig. 5a; Table SI-4). Downstream of Gold Run, storm sediment samples contained 15 to 313 mg/kg at DS2, with an average concentration of 97 mg/kg; and further downstream at DS3, such samples contained 47 to 470 mg/kg As, with an average of 196 mg/kg As. Arsenic concentrations in suspended sediment samples were similar in downstream trend and magnitude to those in floodplain deposits, which were elevated along the entire reach of Fourmile Creek between Gold Run and Boulder Creek (Dethier et al., 2018, their Fig. 12). Upstream of the burned area, suspended sediment during storms was inadequate to allow metals analysis, but floodplain deposits were much lower in concentration (1.8 to 4.0 mg/kg As) than downstream (7.8 to 240 mg/kg As) (Fig. 5a; Table SI-4).

The post-fire storms had long-lasting effects on As concentrations at sites downstream of Gold Run (DS2 and DS3), whereas dissolved As concentrations returned to <0.2 μg/L at site DS1 within a week of July 2011 and July 2012 storms (Fig. 3). Elevated As and Mn concentrations at DS2 and DS3 persisted into the low-flow periods of January–April 2012 and 2013, relative to pre-storm concentrations and to concentrations at US1 and DS1 (Fig. 3). Arsenic concentrations (both dissolved and TR) at a given discharge were elevated for four years after the post-fire storms compared to pre-storm and to pre-fire (Fig. 6), indicating that more As was being exported after the storms for a similar stream discharge. The ratios of As to TSS and SO_4 at DS2 and DS3 were also higher after storms. In contrast, both As and Mn concentrations were higher after the post-fire storms and the ratio of As to Mn was not altered, suggesting these constituents were affected in a similar manner by the storms. Trends in the relationship of As and Mn concentrations to flow differed between DS2 and DS3; although As concentrations were similar at DS2 and DS3 on the same collection date, Mn concentrations often decreased downstream (Fig. 3). Concentrations of As at DS2 and DS3 were almost identical during spring runoff in 2011, however, they were higher at DS3 than at DS2 in years 2012–2014.

The lingering effect of July 2011 storms was evident during spring (April–June) 2012 runoff. In other years, As concentrations were typically lowest during spring due to dilution by snowmelt runoff (Fig. 3). While As concentrations at all Fourmile Creek sites were below or near the detection limit of 0.2 μg/L during the first post-fire spring runoff period (2011), As concentrations at DS2 and DS3 in spring 2012 were elevated compared to US1 and DS1 (Fig. 3). May–June 2012 was unusual in that as a result of drought, stream discharge was only 16% of the long-term mean for this period (Murphy et al., 2018b), so part of the difference may have been due to the lack of dilution from snowmelt runoff, which is mostly derived from upstream of the burned area and is very low in most dissolved constituents (Murphy et al., 2015). However, differences in As concentrations during spring runoff between DS2 and DS3 compared to US1 and DS1 persisted for the rest of the 5-year study (Fig. 3): As concentrations were usually above the 0.2 μg/L detection limit, unlike in spring 2011, despite equal or higher discharge.

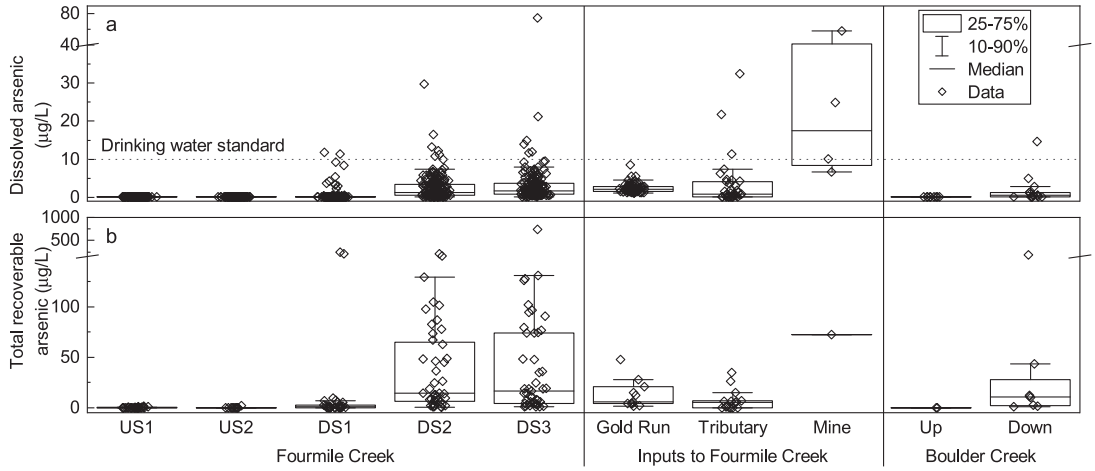


Fig. 4. Concentrations of a) dissolved and b) total recoverable arsenic in surface waters in Fourmile Creek, inputs, and Boulder Creek upstream and downstream of Fourmile Creek (sites are shown in Fig. 1 and described in Table SI-1; values below detection are shown as the detection limits listed in Table SI-2).

While dilution by snowmelt typically led to low As concentrations during high discharge, dissolved As concentrations were relatively elevated during the high discharge period after the massive regional rain storm in September 2013 (Figs. 3, 6). This rain event delivered highest recorded precipitation totals to the foothills region of the Fourmile Creek watershed, including the burned area (Gochis et al., 2015). Despite September–December 2013 discharge values that were more than an order of magnitude higher than the average flow in that period, As concentrations were similar to or slightly higher than that period in the other years of the study (Fig. 3), leading to a period of very high As export. In contrast to other years, As concentrations remained elevated until the next spring runoff (2014) (Fig. 3). During that spring, after the flood shifted the creek to erode the tailings deposit next to Fourmile Creek immediately downstream of Gold Run (Figs. 1, 2d, e), As concentrations were notably variable, possibly due to irregular erosion and transport of the tailings deposit.

Elevated dissolved As concentrations in stream water during and after the post-fire floods persisted downstream in Boulder Creek. Arsenic concentrations in Boulder Creek upstream of Fourmile Creek were always below detection (Fig. 4; Table SI-3); so were As concentrations downstream of Boulder Creek both pre-fire and post-fire/pre-storm (Murphy et al., 2020; Murphy et al., 2003). After the July 2011 storms, however, Boulder Creek downstream of Fourmile Creek had elevated concentrations of As. The post-fire storms also led to increased Mn concentrations in Boulder Creek downstream of Fourmile Creek compared to pre-storm and upstream (Murphy et al., 2020). During the July 13,

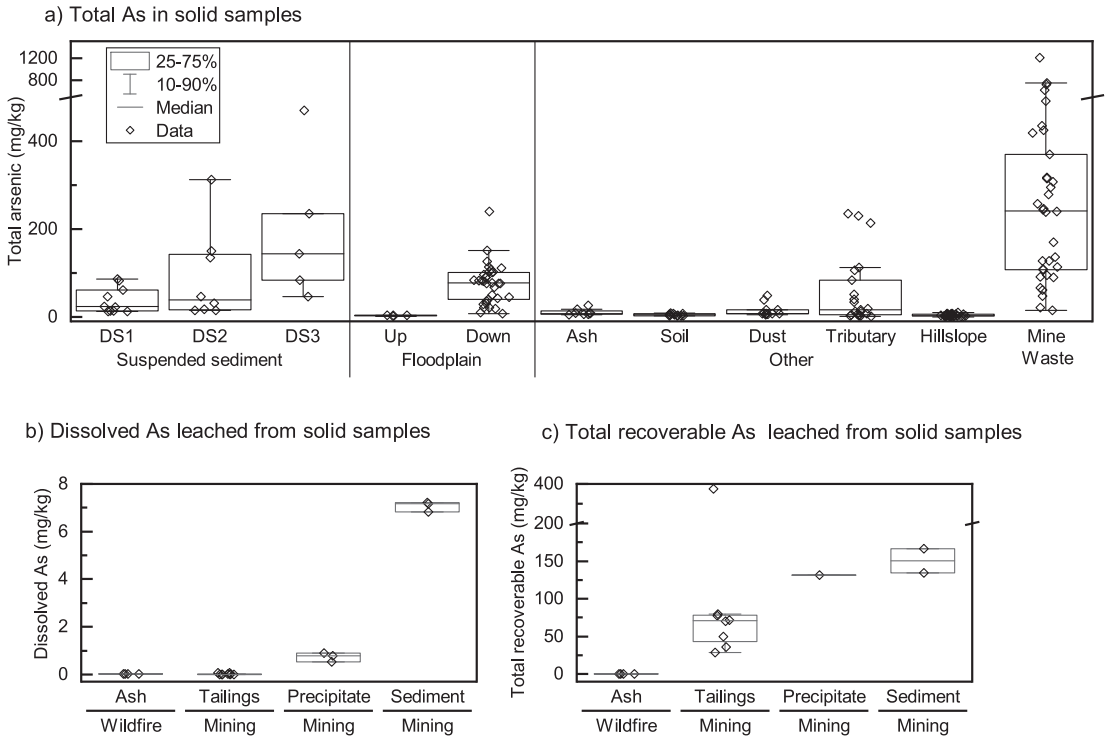


Fig. 5. Concentrations of a) total arsenic in suspended sediment at three sites downstream of the burned area, floodplain samples upstream (up) and downstream (down) of burned area, and other solid samples (after samples were treated to four-acid digestion) (see Table SI-3 for more detail; floodplain, tributaries, hillslope, and mine waste from Dethier et al., 2018); b) dissolved and c) total recoverable arsenic in leachates of wildfire ash and mine-related sediment and precipitate (see Table SI-5 for more detail).

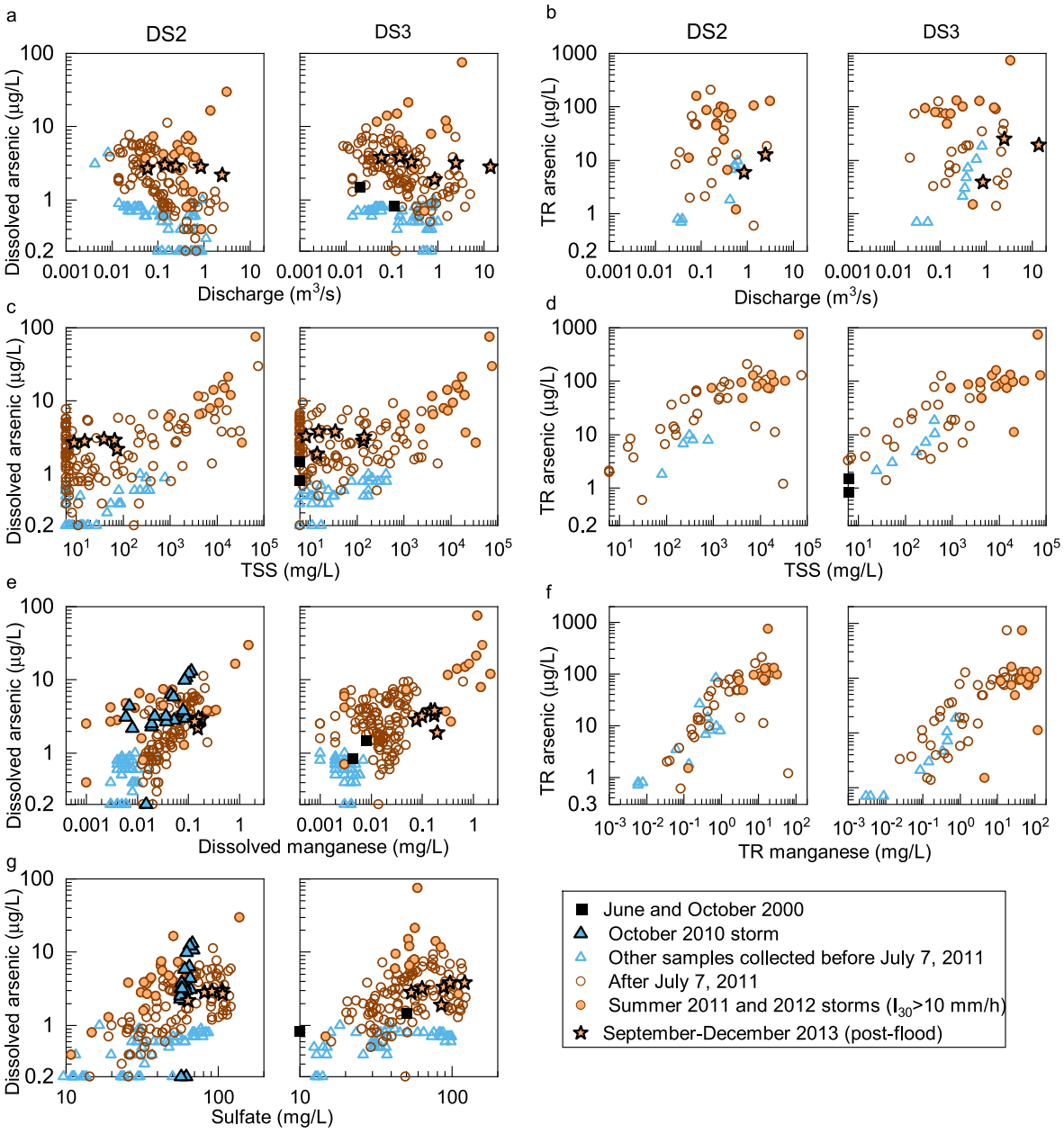


Fig. 6. Concentrations of various constituents versus dissolved and total recoverable arsenic at sites DS2 and DS3 (includes pre-fire data from 2000 and post-fire data from September 2010–December 2015; October 2010 storm data do not include stream discharge because streamgaging equipment had not yet been installed). Data for US1 or DS1 are not shown because As was almost always below detection; values below detection are shown as the detection limit.

2011 storm event, As concentration in Boulder Creek upstream of Fourmile Creek was <0.2 µg/L, while downstream it was 14.7 µg/L (Murphy et al., 2020). We estimate that the As load of Boulder Creek downstream of Fourmile Creek was at least 100 times greater during the event than upstream, and that Fourmile Creek delivered about 1.5 kg As to Boulder Creek in 1 h. Clearly, once As is mobilized into streams with a circumneutral pH, it can be transported a long distance and affect water quality downstream.

3.2. Sources of arsenic within the Fourmile Creek watershed

3.2.1. Surface-water inputs to Fourmile Creek

Concentrations of As in water samples collected from tributaries and mines discharging to Fourmile Creek varied widely (Fig. 4) and were highest in the vicinity of the Fourmile Creek/Gold Run confluence (Fig. 7). Gold Run, the most substantial tributary in the Fourmile Creek watershed, ranged in As concentration from 1.2 to 8.5 µg/L; based on behavior of Fourmile Creek, As concentrations were likely higher during storms, when Gold Run was not sampled. The tributary with highest dissolved As concentration was Sweet Home Gulch, which discharges to Fourmile Creek 165 m downstream from Gold Run (Figs. 1, 7; Table SI-3). Concentrations of dissolved As in waters discharging from three mines within the burned area varied from 3.5 to 58 µg/L (Fig. 4; Table SI-3) and were highest in water discharging from the Little Johnny mine, which discharges to Fourmile Creek between Gold Run and Sweet Home Gulch (Figs. 1, 7).

3.2.2. Mine waste, soil, wildfire ash, and airborne dust

Of all the samples collected from potential As sources—wildland and residential ash, soil, airborne dust, and mine waste—the highest total As concentrations were measured in mine waste (Fig. 5a). Dethier et al. (2018) reported that mine waste rock in the Fourmile Creek

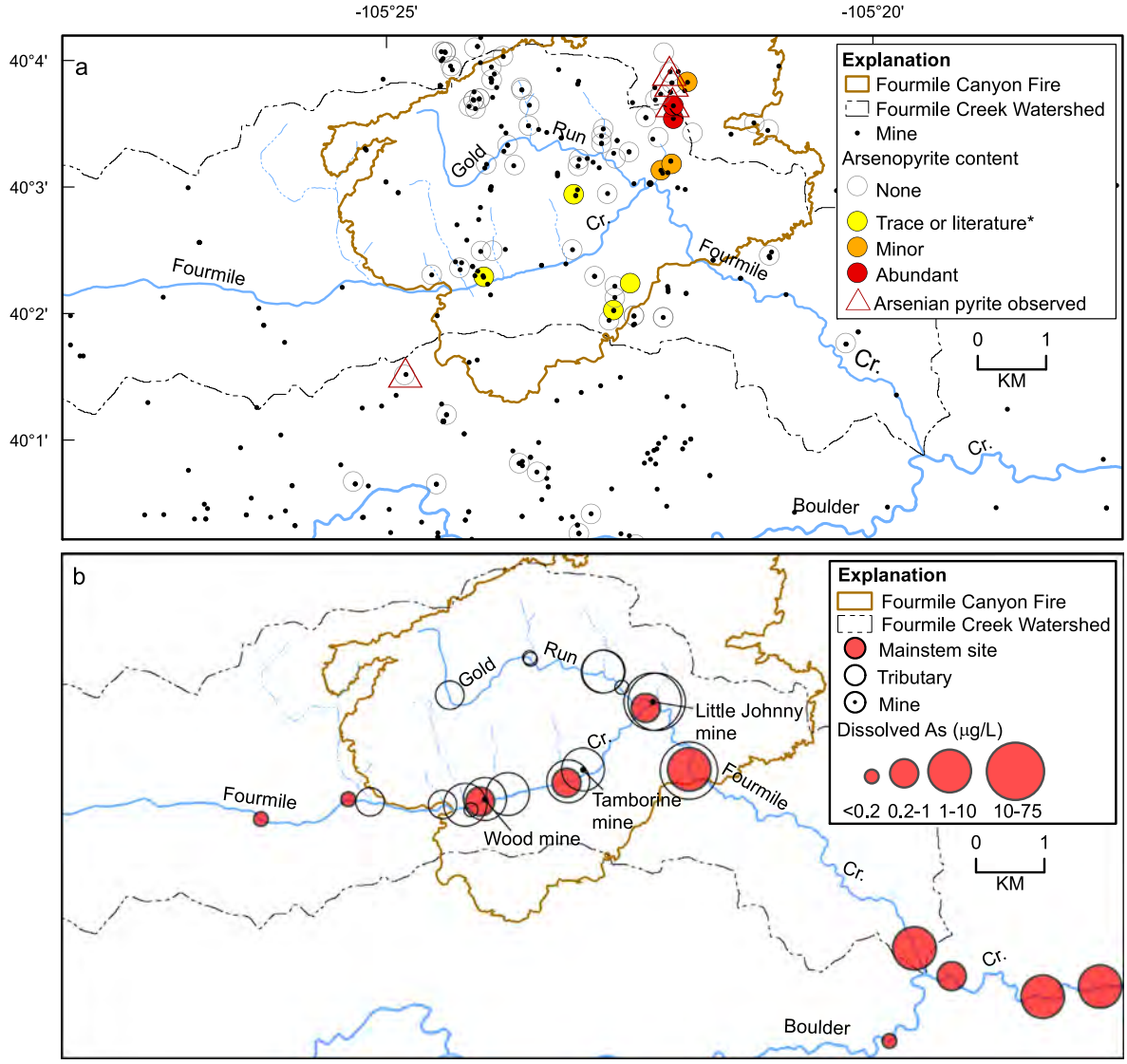


Fig. 7. Map of study area showing a) past or present metal-producing mines (U.S. Geological Survey, 2019) and mines that were assessed for arsenopyrite and arsenian pyrite content (Geller, 1993; *literature indicates that he reported that others had observed the mineral) and b) mean arsenic concentrations in mainstem of Fourmile and Boulder Creeks (mainstem sites with less than three samples were excluded due to bias of sampling time compared to other mainstem sites; when concentrations were below detection (0.2 µg/L), the detection limit was used for calculating average and therefore average values will be less than value shown in some cases).

watershed contained 15–1205 mg/kg As, and tailings deposits had 21–758 mg/kg As; the U.S. EPA (2018) measured higher As concentrations (103–2100 mg/kg) in the tailings deposit next to Fourmile Creek downstream of Gold Run (Table SI-4). Only a small amount of As (0.006–0.072 mg/kg) was released from samples of that tailings deposit with a deionized-water leach, but substantial As (29–376 mg/kg) was released when leachates were treated with HNO_3 before filtration (Fig. 5b; Table SI-5), suggesting that As was primarily bound to Fe- and Mn-oxides and/or -hydroxides and thus would be available to be released under reducing or acidic conditions (Bowell et al., 2014). Precipitates and sediment collected from inside the Little Johnny mine released 0.53–0.89 mg/kg As and about 7 mg/kg As, respectively, after the deionized-water leach, whereas HNO_3 treatment released 131–167 mg/kg As from these samples (Fig. 5), suggesting that As within the mine is present both in the form of soluble efflorescent salts and Fe- and Mn-oxides and/or -hydroxides. The pH of the deionized-water leachates of tailings and mine floor sediment was neutral to basic (7.36–8.72), but leachates of two samples scraped from the ceiling of the mine tunnel were acidic (3.01–3.06) (Table SI-5).

Sediment collected from tributary overbanks had the next highest As concentrations of potential sources (after mine waste), ranging from 1.2 to 235 mg/kg As (Fig. 5; Table SI-4), with highest concentrations in samples from Sweet Home Gulch and two tributaries of Gold Run (Dethier et al., 2018). Solid samples of ash and soil contained 2.3–27 mg/kg As. Concentrations of As in wildland ash and residential ash were similar (Table SI-4). Leachates of wildfire ash with deionized water released only an average of 0.017 mg/kg As, and subsequent treatment with HNO_3 released an average of 0.094 mg/kg As (Fig. 5). The pH of these ash leachates was basic (8.80–8.86) (Table SI-5). Airborne dust collected from burned forested areas contained an average of 8.6 mg/kg As, while dust in burned residential areas contained an average of 23.1 mg/kg As (Fig. 5; Table SI-4).

3.2.3. Spatial variability in mine locations and arsenopyrite presence

Spatial analyses of mine locations and presence of As-bearing minerals revealed that the wildfire burned the area in the Fourmile Creek watershed with the highest concentration of mines, and that arsenopyrite is present in mines near the confluence of Fourmile Creek and Gold Run (Fig. 7a; Geller, 1993). The highest arsenopyrite abundance in the

watershed was observed in mines in the Sweet Home Gulch, which discharges to Fourmile Creek 165 m downstream of Gold Run (Figs. 1, 7a). Arsenian pyrite was observed near the headwaters of Sweet Home Gulch. Drainage from Sweet Home Gulch, and discharge from the nearby Little Johnny mine, contained the highest dissolved As concentrations measured in surface water during the study (Fig. 7b). Dissolved As concentrations in Gold Run were also elevated (Fig. 4); although Geller (1993) did not report the presence of arsenopyrite in sampled mines in the Gold Run watershed, the area is bracketed by mines bearing arsenopyrite (Fig. 7a). In addition, sediment collected from tributaries within Gold Run contained elevated As (Dethier et al., 2018). Therefore, either unsampled mines in the watershed contain the mineral, or processing mills within the area left behind As-bearing waste rock and tailings imported from other mines.

4. Discussion

4.1. Metal remobilization from legacy mine waste after wildfire

We propose that fire-altered hydrology can lead to increased metal transport from legacy mine waste to surface water via several potential mechanisms. The first mechanism involves increased mobilization of both metal-bearing sediment and dissolved metals from surficial mine waste. High-intensity, low-frequency storms in historically mined watersheds has been shown to drive downstream dispersal of legacy mine sediment via floodwaters (Foulds et al., 2014; Kincey et al., 2018; Runkel et al., 2016). Wildfire will increase this dispersion due to greater overland flow during post-fire storms, which transports mine waste from hillslopes to streams, and higher stream discharge, which can erode mine tailings from stream banks (Table 1). Loading of TSS in Fourmile Creek downstream of the burned area during storms was orders of magnitude higher than upstream (Murphy et al., 2015). Elevated concentrations of dissolved and TR As were correlated with elevated TSS concentrations (Fig. 6), as has been found in other burned areas (Burton et al., 2016). Sharp increases in concentrations of dissolved metals, along with sulfate, have been related to the dissolution of efflorescent salts on mine tailings (Jambor et al., 2000; Keith et al., 2001). The removal of vegetation cover would lead to greater contact of precipitation with mine tailings, and overland flow could rapidly carry metals to streams. This mechanism could explain the occurrence of highest concentrations of dissolved As, Mn, and Fe during moderate- to high-intensity rain storms in the first two years after the Fourmile Canyon Fire (Fig. 3) (Murphy et al., 2015).

Remobilization of mine waste eroded from hillslopes and stream banks and deposited in stream channels and floodplains during storms provides a long-term (months to years) source for elevated sediment-bound and dissolved metal concentrations in surface waters (Table 1). Increased erosion and transport of sediment during post-fire storms can drastically alter stream channels (Moody, 2001; Moody, 2017; Moody and Martin, 2001). Prior to the July 2011 storms, the stream channel of Fourmile Creek was composed primarily of cobble-sized rocks; afterward, we observed shifting sand and silt coating the channel downstream of Gold Run for months. This sediment, which was elevated in As (Fig. 5), was then readily remobilized by minor rain storms (Murphy et al., 2015). The sediment would also serve as a source for dissolved As, likely as a result of desorption from, or reductive dissolution of, Fe- or Mn-oxides and/or -hydroxides (Table 1). Similar to most streams, As in Fourmile Creek is primarily in the form of the oxyanion $HAsO_4^{2-}$ (as determined using PHREEQCI; Parkhurst and Appelo, 1999), whose adsorption on iron oxides decreases with increasing pH, especially in the pH 7–9 range, and with increasing temperature (Dixit and Hering, 2003; Fuller and Davis, 1989; Gammons et al., 2007; Gammons et al., 2015; Nimick et al., 2003). Excluding storm events, As concentrations at sites DS2 and DS3 were highest in Fourmile Creek in late summer each year of the study, when direct sunlight and high rates of photosynthesis led to the highest pH values (8.2–8.6) and water temperatures (18–21 °C) measured during the study. In addition, dissolution of Fe- and Mn-oxides and -hydroxides and subsequent As mobilization can occur when strongly reducing conditions occur just below the sediment-water interface after rapid accumulation and burial of carbon-rich sediments (Kneebone et al., 2002; Nickson et al., 1998; Smedley and Kinniburgh, 2002), a common scenario after post-fire storms. Furthermore, As may be released by the reductive dissolution of As-bearing ferrihydrite regardless of whether the As is coprecipitated with or adsorbed onto the ferrihydrite (Erbs et al., 2010). Reductive dissolution can be catalyzed by microbes and can affect the speciation and mobility of both As and Fe (Campbell et al., 2006).

Another pathway by which mining-related metals may be transferred to surface waters after wildfire involves increased flow through underground mine workings, resulting in increased mineral dissolution (Table 1). Rain storms have been shown to flush metals from efflorescent salts within mine workings to downstream waters (Caraballo et al., 2016; Verplanck et al., 2006). Greater amounts of water traveling overland during post-fire storms could potentially lead to more water entering mine openings. In addition to potentially greater flushing during storms in the post-fire period, it is possible that more total water passes through the subsurface, and hence through underground mine

Table 1
Potential sources of metals to surface water after wildfire.

Physical source	Chemical form	Hydrologic and/or chemical driver	Seasonality	Potentially important source in Fourmile Creek?
Surficial mine waste deposits (tailings, waste rock) re-exposed by wildfire	Dissolved	Direct contact of precipitation with efflorescent salts	Precipitation events, particularly after long dry periods	Yes
	Sediment	Post-fire overland flow and increased stream discharge	Moderate- to high-intensity rain storms	Yes
Mining waste deposited in stream channel by post-fire storms	Sediment	Remobilization	Rain- or snowmelt-driven minor increases in discharge, prior to sediment excavation during next high-flow event	Yes
	Dissolved	Desorption from and/or reductive dissolution of Fe- and Mn-oxides and -hydroxides	Potentially year-round, but more evident during baseflow, and varies by element [1]	Yes
Exposed sulfide minerals and efflorescent salts in underground mines	Dissolved	Increased subsurface flow after wildfire	Potentially year-round, but more evident during baseflow	Yes
	Dissolved	Greater water-level fluctuations, which promote sulfide oxidation	Year-round	Yes
Wildland and residential ash [2]	Dissolved	Post-fire overland flow	Moderate to high-intensity summer rain storms	No

[1] For pH-dependent metals and metalloids, such as As, Pb, Cu, can vary related to temperature and sunlight-driven photosynthesis.
[2] From combustion of vegetation that contained metals from soil uptake or atmospheric deposition, or from burned building materials.

workings, during post-fire non-storm periods. Wildfire-driven shifts in vegetation from conifer forest to grasses and shrubs can decrease evapotranspiration, resulting in a net gain in groundwater (Bart and Tague, 2017; Ebel, 2013) and increased streamflow (Blount et al., 2020; Poon and Kinoshita, 2018). Increased subsurface water passing through mine workings would increase water/rock interactions, including the release of As from precipitates (Fig. 5b and c); As is known to form highly soluble efflorescent secondary minerals such as pharmacolite, weilite and haidingerite, and these minerals often form in moist underground mine workings (Power et al., 2009). Furthermore, water-level fluctuations within a mine may promote the oxidation of sulfide minerals (Alpers et al., 2003) and increase As mobility. The oxidation products may be mobilized directly or precipitated as efflorescent salts and mobilized by subsequent water flows.

All, or a combination, of these mechanisms may contribute to elevated metals in surface waters downstream of areas impacted by both mining and wildfire, and different mechanisms may be dominant under different seasons and hydrologic conditions. During post-fire storms that resulted in overland flow and high stream discharge, elevated dissolved As in Fourmile Creek downstream of the burned area is likely derived from rapid dissolution of efflorescent salts from surficial mining waste (Byrne et al., 2013; Keith et al., 2001) and from the transport of As-rich sediment to the stream. However, it is possible that elevated As after the record-breaking rainfall of September 2013, when soils remained saturated (Ebel et al., 2015) and stream discharge was elevated for months, was caused by flushing through subsurface mine workings; constituents that are elevated in deep flow paths and mine discharge (e.g., SiO_2 and Ca), also remained elevated as flood waters receded (Murphy et al., 2018b). Elevated dissolved As during non-storm periods following July 2011 and 2012 storms is most likely related to desorption from and/or reductive dissolution of Fe- and Mn-oxides and -hydroxides present in mining-derived sediment that was deposited in the stream channel during storms. Dissolved As concentrations at DS2 and DS3 were almost identical during spring runoff in 2011, but they were slightly higher at DS3 than at DS2 during spring runoff in in the subsequent three years. Minimal arsenopyrite is present in mines that discharge to Fourmile Creek within this reach (Fig. 7a), suggesting the As source is within the streambed. In addition, dissolved As concentrations decreased each fall when temperature and pH dropped, while sulfate remained elevated during baseflow (Fig. 3). If As concentrations were solely due to increased relative proportion of mine discharge during low-flow conditions, both As and SO_4 would remain elevated during the winter months. One source of As, the largest known tailings pile on the banks of Fourmile Creek located immediately downstream of Gold Run (Figs. 1, 2), was removed in 2014–2015 (U.S. Environmental Protection Agency, 2018), reducing the amount of mining waste susceptible to erosion and transport in the future. However, As concentrations downstream in Fourmile Creek did not immediately decrease in 2015, suggesting that other sources of As to surface water persisted. Indeed, floodplain sediment deposits contain sufficient As concentrations that it may take hundreds to thousands of years to remove this contaminant from the watershed (Dethier et al., 2018).

4.2. Limited role of wildfire and residential ash in metal delivery to streams

Several studies have attributed elevated metal concentrations after wildfire to the delivery of ash and exposed soil to streams (Burton et al., 2016; Gallaher et al., 2002; Stein et al., 2012), but ash appears to be a relatively minor contributor to elevated As in Fourmile Creek. Metals can be concentrated in roots, branches and needles of conifers (King et al., 1985), and the combustion of vegetation and soil organic matter can release more labile forms of metals (Odigie and Flegal, 2014). Elevated metals in post-fire runoff, including Pb, have been attributed to burning of forest that had accumulated anthropogenic contaminants from atmospheric deposition (Burke et al., 2013). Abraham et al. (2018) found that As concentrations in burned soil were 30 times higher than pre-burn, and ascribed this to combustion of vegetation that had absorbed As from the soil, where it was initially concentrated due to historical mining of gold associated with sulfide minerals (such as arsenopyrite). Average As concentrations in wildland fire ash and burned soil collected from the Fourmile Creek watershed were greater than in floodplain sediment upstream of the burned area, but lower than in floodplain and suspended sediment collected downstream of the burned area (Fig. 5a; Table SI-4). Leachates of wildfire ash were also low in As (Fig. 5b, c). A smelter was located at the confluence of Fourmile Creek and Gold Run in the 1880s (Cobb, 1999), but it was a small-scale operation and the ore did not contain very high concentrations of As (Geller, 1993); thus, it was not likely a major source of atmospherically deposited As. Others have found that ash samples collected from burned residences and outbuildings had higher As concentrations than in ash collected from wildland areas, possibly because residential buildings generally have higher concentrations of trace elements from wood treatment, paint, wiring, pipes, and other building materials (Burton et al., 2016; Plumlee et al., 2013), but As concentrations in residential and wildland fire ash were similar (Table SI-4). Arsenic concentrations were elevated at site DS2 during the October 2010 post-fire rain event, and a sample collected from a culvert that drained a burned residential area and discharged to Fourmile Creek immediately upstream of DS2 also had elevated As (11.4 μg/L); but it is also possible that this drainage is affected by As-bearing mining waste (Fig. 7a).

4.3. Risk for the future of water supplies in the western U.S.

Water-quality impacts related to wildfire in the western U.S., and in other areas of the world, will likely be magnified by burning of forests that have regrown after disturbance by mining, with the potential for enhanced post-fire mobilization of legacy mine waste. Many western U.S. watersheds that provide critical water supplies and are at risk from wildfire also contain historical mines (Fig. 8). Substantial gold production in western U.S. states such as California and Colorado occurred in the late 1800s (Craig and Rimstidt, 1998). Since that time, many forested areas with a legacy of mining activities, such as the Colorado Mineral Belt and the Sierra Nevada Range in California, have developed more dense tree cover as a consequence of fire suppression and land use change (Hessburg et al., 2019; Liknes et al., 2013; Rodman et al., 2019). These regions are now vulnerable to burning and subsequent release of long-sequestered metals. Predicted increases in storm intensity (Scoccimarro et al., 2013) will likely produce more extreme runoff events (Wrzesien and Pavelsky, 2020), which in combination with a possible transition from precipitation dominance by snow to dominance by rain have been suggested as potentially increasing the potential for post-fire erosion (Moody and Martin, 2009; Sankey et al., 2017) and flush-out events in mined areas (Nordstrom, 2009). The number, size, and severity of wildfires are also increasing (Abatzoglou and Williams, 2016; Westerling et al., 2006), thus exacerbating the risk of mobilization of metals from mining waste to water supplies. Such overlapping disturbances need to be considered when predicting and planning for the consequences of increasing future disturbances (Mirus et al., 2017).

5. Conclusions

Mobilization of metal-rich legacy mine waste after wildfire poses a risk to many water supplies. Many post-fire studies have focused on wildfire ash as a dominant source of metals to surface water after wildfire, but we propose that remobilization of legacy mine waste due to fire-altered hydrology poses a potentially larger risk of contamination in many regions. The downstream dispersal of legacy mine waste by flood events has been previously demonstrated; here, we document the acceleration of this dispersal and its impacts on water quality as the result of altered hydrologic processes in a burned, mined watershed.

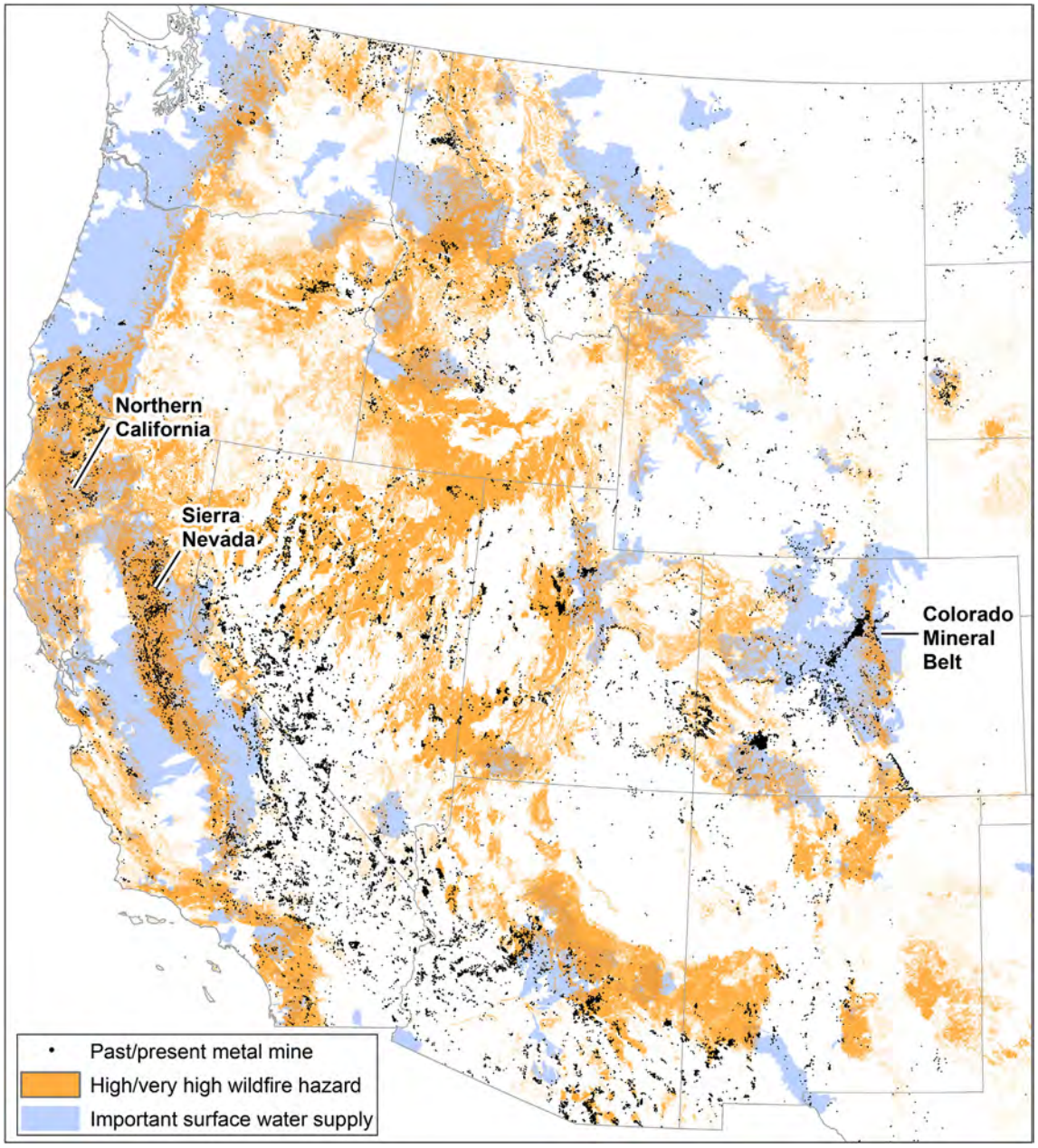


Fig. 8. Map of western U.S., showing past or present metal-producing mines (U.S. Geological Survey, 2018), high/very high wildfire hazard potential in 2018 (Dillon, 2018), and important forested surface-water supply watersheds (based on population served and intake locations, weighted by percent forest; Weidner and Todd, 2011).

Potential mechanisms that will transport metals to surface water after wildfire burns revegetated mined land include:

- Increased dissolution and transport of metals from efflorescent salts on surficial mine waste due to direct contact of precipitation (caused by loss of canopy vegetation) and greater overland flow during storms.
- Erosion and transport of metal-rich sediment from hillslopes and streambanks due to greater overland flow and increased stream discharge during storms.
- Remobilization of metal-rich sediment deposited in stream channels during minor rises in stream discharge.
- Desorption from and/or reductive dissolution of Fe- and Mn-oxides and -hydroxides in stream sediment.
- Increased subsurface flow through mine workings and subsequent increased flushing of metals from easily dissolved efflorescent salts.
- Greater water-level fluctuations within mine workings, which could promote the oxidation of sulfide minerals and increase As mobility.

Many water-supply watersheds in the western U.S. that were historically mined are now at increased risk of wildfire. Considering historical disturbance in a burned watershed will improve efforts to predict the effect of wildfire on water quality.

CRediT authorship contribution statement

Sheila F. Murphy: Conceptualization, Investigation, Writing - original draft, Visualization, Project administration. **R. Blaine McCleskey:** Conceptualization, Investigation, Writing - original draft. **Deborah A. Martin:** Writing - original draft. **JoAnn M. Holloway:** Investigation,

Writing - review & editing. **Jeffrey H. Writer:** Conceptualization, Investigation, Writing - review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.scitotenv.2020.140635https://doi.org/10.1016/j.scitotenv.2020.140635.

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CALAIS GEN
6.16

REPRODUCED

Special Use Review Application And Addendum

CROSS MINE EXPANSION
Boulder County, Colorado

Prepared on behalf of
Calais Resources, Inc.

WALSH Project Number: 7160-010

Reproduced July, 2008

Walsh

Environmental Scientists and Engineers, LLC

Calais Resources, Inc.
Cross Mine Expansion
Special Use Review Application
April 2008

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Add #5 to all [illegible]

Boulder County

Boulder County
Land Use Department
Publications

Referral Agencies

Land Use Department
Courthouse Annex Building
2045 13th Street
PO Box 471
Boulder, CO 80302

Planning Division:
Phone: 303-441-3930
Fax: 303-441-4856
Email: planner@co.boulder.co.us
http://www.co.boulder.co.us/lu/

Office Hours:
Monday—Friday 8:00 AM to 4:30 PM

Referral Agencies

Below is a list of agencies and interests along with their addresses. The planner at your pre-application conference will go through this list and reference items from your **Submittal Requirements Form** to be included in your **Referral Packet** that are required to be sent to the agencies referenced by the **Submittal Materials Table** item number. If the line in front of the agency is blank, then no referral is required.

1,2,5,6,11,13,16,17,18,19 **Land Use Copy**
Inter-County Mail

_____ **Dave Webster**
Water Resources Engineer/Floodplain Administrator
Boulder County Transportation Department
1,5,6,13, Inter-County Mail
16,17,18,19 **Anita Riley • Justin Gindlesperger**
Boulder County Transportation Department
Inter-County Mail

Referrals for Conservation Easements

_____ **Janis Whisman**
Boulder County Parks/Open Space Dept.
Inter-County Mail

_____ **Jeff Dwight, Chief Bldg Official**
Boulder County Land Use Building Division
Inter-County Mail

_____ **Pete Fogg**
Boulder County Land Use Long Range Planning Division
Inter-County Mail

_____ **Barbara Andrews**
Boulder County Attorney's Office
1,5,6,13, Inter-County Mail
16-18 **Iris Sherman**
Boulder County Public Health
Inter-County Mail

_____ **Eric Philips**
Boulder County Land Use Wildfire Mitigation Coordinator
1,5,6,13, Inter-County Mail
16-18 **Denise Grimm**
Boulder County Land Use Historic Review
Inter-County Mail

_____ **Tim Damato**
Weed Inspector
Boulder County Parks & Open Space Department
1,5,6,13 Inter-County Mail
16-18 **Boulder County Assessor**
Inter-County Mail
1,5,6,13, **Ron West**
16-18 Boulder County Parks & Open Space Department
Inter-County Mail
Phone: 303-527-0416

_____ **Dan Hershman**
Boulder County Road Maintenance Department
Inter-County Mail

_____ **Lt. Phil West**
Boulder County Sheriff's Department
Inter-County Mail

_____ **Boulder County Treasurer**
Inter-County Mail

_____ **Nancy McIntyre**
District Manager
Boulder Valley & Longmont Conservation Districts
9595 Nelson Road, Box D
Longmont, CO 80501
Phone: 303-776-4034 ext. 3

_____ **Jason Emery**
Boulder County Surveyor
Boulder Land Consultants
5690 Valmont
Boulder, CO 80301
Phone: 303-441-1665

_____ **Colorado State University**
Cooperative Extension Office
9595 Nelson Road, Box B
Longmont, CO 80501
Phone: 303-776-4865

Referral Agencies List

_____ Other Boulder County Agencies:

_____

_____

_____

_____

1,5,6,13 16-18 Adjacent Property Owners within 1500 feet.

_____

_____

_____

_____

_____ Homeowners Associations or Related Groups

_____

_____

_____

1,5,6,13, 16-19 _____ Anyone with legal interests in the property as indicated in Title Report (such as lien holders or mortgage companies)

_____

_____

_____

_____

_____ Allenspark Concerned Citizens
Attn: Bob Donovan
PO Box 336
Allenspark, CO 80510
Note: Send referral for projects along Peak to Peak from Peaceful Valley North of the county limit.

_____ Allenspark Water & Sanitation District
Attn: Tom Street
PO. Box 91
1,5,6,13, Allenspark, CO 80510

16-18 Arapaho and Roosevelt National Forests & Pawnee National Grassland
Christine M. Walsh, Dist. Ranger
Boulder Ranger District
Phone: 303-541-2500
Email: cwalsh@fs.fed.us
or,
Nancy Fetterman, GIS
Phone: 303-245-6418

_____ Audubon Society (Boulder County)
Attn: Board of Review
P.O. Box 2081
Boulder, CO 80306

_____ Boulder Valley School District
Attn.: Don Orr
PO Box 9011
Boulder, CO 80306
Phone: 303-447-5062

_____ Boulder and White Rock Ditch Reservoir Company
Dan Grant,
Secretary/Treasurer
P.O. Box 1826
Longmont CO 80502-1826

_____ Bureau of Land Management
Attn: Jan Fackrell
Northeast Resource Area
3170 E. Main Street
Canon City, CO 81212-9326

_____ Burlington Northern & Santa Fe Railway Co.
Property & Facilities Management
Attn: Director of Field Operations
PO Box 961050
Ft. Worth, TX 76161-0050

_____ Citizens for Eldorado Canyon
Eric Johnson
32 Artesian Drive
Eldorado Canyon, CO 80025
Note: This is an invalid Address per Post Office must be a PO Box

_____ Coal Creek Canyon Improvement Association
Attn: Tom Hoffman
11578 Ranch Elsie Road
Golden, CO 80403
Note: Send Referrals for All Projects in Coal Creek Canyon Area.

_____ Claire Solohub**
District Wildlife Manager
CO Division of Wildlife
Area 2
Dept. of Natural Resources
4207 West County Rd. 16E
Loveland, CO 80537
North Boulder Office
Phone: 303-828-2591
VoiceMail: 303-291-7142
Email:
Claire.solohub@state.co.us
Note: Any projects located North of Arapahoe Road and North Boulder should go to Loveland Office.

_____ John Koehler**
District Wildlife Manager
CO Division of Wildlife
Area 2
Dept. of Natural Resources
13161 Bryant Cr.
Broomfield, CO 80020
Note: Any projects South of Arapahoe Road and South of the Boulder Hwy. should go to Broomfield Office.

_____ CO Forest Service
Attn: Allen Owens
5625 Ute Hwy.
Longmont, CO 80503
Phone: 303-823-5774
Fax: 303-823-5768

For Geologic Hazards

1,5,6,13, 16-18 CO Geological Survey
CO Natural Resources Dept.
1313 Sherman
Room 703
Denver, CO 80203

_____ CO Dept. of Local Affairs
Attn: Charles T. Unseld
Division of Local Government
1313 Sherman Street
Room 521
1,5,6,13, Denver, CO 80203

16-18 CO Mined Land Reclamation Division (MLRD)
1313 Sherman
Room 215
Denver, CO 80203

Referral Agencies List

_____ CO Natural Areas Council
c/o, CO State Parks
Attn: Janet Coles
1313 Sherman Street
Room 618
Denver, CO 80203

For Mineral Extractions

1,5,6,13, 16-18 CO Natural Resources Dept of Division of Minerals and Geology
1313 Sherman St
Denver, CO 80203-2236
Phone: 303-866-3567
1,5,6,13, Fax: 303-866-2696

16-18 CO Natural Resources Dept of Soil Conservation Board For Watershed & Soil Protection
700 Kipling Street
Suite 400
Lakewood, CO 80215-8000

For Oil & Gas Development

_____ CO Natural Resources Dept of Oil & Gas Conservation Commission
1120 Lincoln St
Denver, CO 80203-2136
Phone: 303-894-2100
Fax: 303-866-2696

For Floodplains

_____ CO Natural Resources
Department of Water Conservation Board
1313 Sherman St
Denver, CO 80203-2236
Phone: 303-866-3441
Fax: 303-866-2696

_____ CO Natural Resources
Department
State Engineer
1313 Sherman, Rm. 802
Denver, CO 80203

For Records of Older Permits:

Records
M - F 10am - 3:30pm
Phone: 303-866 3447

For Technical Questions, Application Status, Current Permit Info:

Groundwater
Phone: 303-866 3581

_____ CO Transportation Department R4
Attn: Gloria Hice-Idler,
Access Manager
1420 Second Street
Greeley, CO 80631
Phone: (970) 350-2148
Email:
Gloria.Hice-Idler@dot.state.co.us

_____ Eldorado Canyon State Park
9 Kneale Road, Box B
Eldorado Springs, CO 80025
Phone: 303-494-3943
Email:
eldorado.park@state.co.us

_____ Eldora Civic Association
Attn: Deb Evans
P.O. Box 988
Nederland, CO 80466

_____ Energy Resources Technology
Land (ERTL) Inc.
229 Terry Street
Longmont, CO 80501-5930

_____ ESSA - Quiet Zone US Department of Commerce
Inst. of Telecommunication Science (NTIA/ITS)
Attn: Val O' Day, Acting Director
325 Broadway
Boulder, CO 80305

_____ Gold Hill Zoning & Historic District
661 Pine Street (Gold Hill)
Boulder, CO 80302
Note: Send Referrals for All Projects in Gold Hill Area.

_____ Greater Allenspark Alliance
Attn: Phil Stern
P.O. Box 56
Allenspark , CO 80510
Note: Send referral for projects along Peak to Peak from Peaceful Valley to the county limit, and along Big Owl Road and Cabin Creek

_____ Chris Horvak
2131 E. Panama Drive
Littleton, CO 80121
Note: Include on all SD Applications.

_____ H.B. 1088
(Severed Mineral Rights)
Compliance Certificate Required

_____ Lake Eldora Corporation
PO Box 1697
Nederland, CO 80466

_____ Lake Eldora Water & Sanitation
Box 1378
Nederland, CO 80466

_____ Left Hand Water District
Attn: Kathy Peterson
P.O. Box 210
Niwot, CO 80544

_____ Little Thompson Water District
835 East Hwy. 56
Berthoud, CO 80513

_____ Longs Peak Water District
9875 Vermillion Road
Longmont, CO 80501

_____ MOST
Attn: Phil Stern
PO Box 56
Allenspark, CO 80510
Note: Mountain Area Referrals/Issues

_____ Nature Conservancy of Colorado
The Canyon Center
1881 9th Street, Suite 200
Boulder, CO 80302
Phone: 303-444-2950

_____ Niwot Business Association
Attn: Bruce Warren
P.O. Box 92
Niwot, CO 80544

_____ Niwot Community Association
Attn: Neal Anderson
PO Box 72
Niwot, CO 80544
Phone: 303-652-3099

_____ Niwot Design Review Subcommittee
Attn: Pat Murphy
Niwot Real Estate
102 2nd Avenue
PO Box 340
Niwot, CO 80544
Note: Send Referrals for All Projects in Niwot Rural Community District.

Referral Agencies List

_____ Niwot Sanitation District
Attn: Gayle
Packard-Seeburger
7395 N. 95th Street
Niwot, CO 80503
Phone: 303-652-2525

_____ Northern Colorado Water Conservancy District
1250 N. Wilson Ave
Loveland, CO 80538-4461

_____ Patina Oil & Gas Corporation
Attn: Brendt Myhr
1625 Broadway, Suite 2000
Denver, CO 80202
Phone: 303-389-3600

_____ Pine Brook Water District
Attn: Bob De Haas
1903 Linden Drive
Boulder, CO 80304

_____ Qwest Communications
Attn: Kathy Dunbar
1855 S. Flatiron Ct. #B-01
Boulder, CO 80301

_____ Rocky Mountain National Park
Attn: Superintendent
Estes Park, CO 80517

_____ St. Vrain Valley Schools
Attn: Planning & Evaluation
395 S. Pratt Pkwy.
Longmont, CO 80501

_____ U.S. Bureau of Reclamation Department of Interior
Eastern Colorado Area Office
11056 West County Rd. 18E
Loveland, CO 80537

_____ US Army Corps of Engineers Omaha District
Attn: Terry McKee
Denver Regulatory Office
9307 S. Wadsworth Blvd.
Littleton, CO 80128-6901

_____ US Dept of Commerce
National Telecommunications & Information Administration/Institute for Telecommunications Sciences
Attn: A. W. Vincent
325 Broadway
Boulder, CO 80305

_____ US Fish & Wildlife Service/Ecological Services/Colorado Field Office
Attn: Susan Linner, Field Supervisor
PO Box 25486
DFC (MS 65412)
Denver, CO 80225-0486
Phone: 303-236-4773
Fax: 303-236-4005

_____ U.S. Forest Service
Attn: Land Staff
2140 Yarmouth
Boulder, CO 80301

_____ US Post Offices in Boulder County
- ❑ Allenspark 80510
- ❑ Berthoud 80513
- ❑ Boulder 80302
- ❑ Broomfield 80020
- ❑ Eldorado Springs 80025
- ❑ Hygiene 80533
- ❑ Jamestown 80455
- ❑ Lafayette 80026
- ❑ Longmont 80501
- ❑ Louisville 80027
- ❑ Lyons 80540
- ❑ Nederland 80466
- ❑ Niwot 80544
- ❑ Ward 80481

_____ Western Area Power Administration (WAPA)
Rocky Mountain Region
Attn: Carrie Ashto
PO Box 3700
Loveland, CO 80539

_____ Xcel Energy (PSCo)
Contract ROW Processor
550 15th Street, Ste. 700
Denver, CO 80202
Phone: 303-571-7029
Fax: 303-571-7877

_____ Other Affected Water Suppliers

_____ Other Affected Utilities

_____ Affected Ditch Companies

1,3,5,6, Affected Fire Districts
13,16-18

_____ Cities/Towns Within 3 Miles

1,3,5,6, City/Town Community Service Areas (CSAs) Within 3 Miles
13,16-18 Nederland

_____ Other Counties Within 3 Miles

_____ Other State Agencies

_____ Other Federal Agencies

Fire Protection Districts

Allenspark FPD
Attn: Mike Osmum
PO Box 153
Allenspark, CO 80510
Phone: 303-747-2586

Berthoud FPD
Attn: Stephen Charles, Fire Marshall
275 Mountain Ave
PO Box 570
Berthoud, CO 80513
Phone: 970-532 2264

Big Elk Meadows FPD
Attn: Gerry Guthrie
PO Box 474
Lyons, CO 80540
Phone: 303-823-6369

(BCFFA) Boulder County Fire Fighters' Association
Attn: Brett Gibson
91 Four Mile Canyon Rd.
Boulder, CO 80302

Boulder Mountain Fire Authority
(f.k.a. Boulder Heights FPD & Pine Brook Hills FPD)
Attn: John Benson, Chief
1905 Linden Drive
Boulder, CO 80304
Phone: 303-440-0235

Boulder Rural FPD
Attn: Jeff Webb
5075 Jay Road
Boulder, CO 80301
Phone: 303-530-9575 ext. 105
Email: jeff.webb@BRFD.org

City of Boulder FPD
Attn: Larry Donner, Chief
PO Box 791
Boulder, CO 80306
Phone: 303-441-3357

City of Boulder Mountain Parks
Attn: J. Scholl, Ranger Supervisor
PO Box 791
Boulder, CO 80306

Coal Creek Canyon FPD
Attn: Janice Miklovic
PO Box 7187
Golden, CO 80403
Phone: 303-647-3121

Four Mile FPD
Attn: Bret Gibson, Chief
87 Four Mile Canyon
Boulder, CO 80302
Phone: 303-444-0882

Gold Hill FPD
Attn: Chris Finn, Chief
1011 Main Gold Hill
Boulder, CO 80302
Phone: 303-444-5549

High Country FPD
Attn: Roger Durham, Chief
448 Pine Drive
Rollinsville, CO 80474
Phone: 303-642-3655

Hygiene FPD
Attn: A.J. Hoffman
PO Box 83
Hygiene, CO 80533
Phone: 303-776-2950
Email: xbar7@msn.com

Indian Peaks FPD
Attn: Norman Bowers, Chief
PO Box 173
Ward, CO 80481
Phone: 303-459-3452

Jamestown Volunteer Fire District
Attn: Chris O'Brien, Chief
PO Box 315
Jamestown, CO 80455
Phone: 303-587-2709

Lafayette FPD
Attn: John Mansfield, Fire Marshall
PO Box 68
Lafayette, CO 80026
Phone: 303-665-9661

Lefthand FPD
Attn: Dave Nyquist, Chief
900 Lefthand Canyon Drive
Boulder, CO 80302-9341
Phone: 303-447-9661

Longmont City Fire Bureau
Attn: Steve Trunck, Chief
225 Kimbark St.
Longmont, CO 80501
Phone: 303-651-8424

Louisville FPD
Attn: Tim Parker, Chief
895 West Via Appia
Louisville, CO 80027
Phone: 303-656-6595

Lyons FPD
Attn: Dennis Moe, Chief
PO Box 695
Lyons, CO 80540
Phone: 303-823-6611

Mountain View FPD
(Longmont Rural FPD)
Attn: Luanne Penfold, Fire Marshall
9119 East County Line Road
Longmont, CO 80501-8955
Phone: 303-772-0710
Email: LPenfold@mountainviewfire.org

Nederland FPD
Attn: Rick Dirr, Chief
PO Box 155
Nederland, CO 80466
Phone: 303-258-9161

North Metro Fire Rescue Headquarters
10550 Huron Street
Northglenn, CO 80234
Phone: 303-452-9910
Fax: 303-451-0289

Pinewood Springs FPD
61 Kiowa
Lyons, CO 80540
Phone: 303-823-5086

Rocky Mountain Fire Authority
Eldorado Springs/Marshall FPD & Cherryvale FPD
Attn: Ray Proulx
Cherryvale Station 1
7700 Baseline Road
Boulder, CO 80303
Phone: 303-494-3735
Email: rproulx@rockymountainfire.org

Poorman Volunteer Fire Department
Sunshine Star Route
Boulder, CO 80302

Sugarloaf FPD
Attn: Sally Stoffel, Chief
1360 Sugarloaf Road
Boulder, CO 80302
Phone: 303-442-1050

Sunshine FPD
Attn: Steve Stratton, Chief
311 County Road 83
Boulder, CO 80302
Phone: 303-786-7731

Sunshine FPD
Attn: Bruce D. Honeyman
Assistant Chief & Fire Marshall
6101 Sunshine Canyon
Boulder, CO 80302
Phone: 303-273-3420

West Metro FPD
447 South Allison Pkwy
Lakewood, CO 80226

Additional Referral Agencies

Utilities

Estes Park Power & Light
211 E. Elkhorn Ave.
Estes Park, CO 80517

Poudre Valley REA
PO Box 272550
Fort Collins, CO 80527-2550

Xcel Energy (PSCo)
Contract ROW Processor
550 15th Street, Suite 700
Denver, CO 80202
Phone: 303-571-7029
Fax: 303-571-7877

For Properties in the Plains:

United Powers, Inc.
18551 East 160th Avenue
Brighton, CO 80601

For Properties in the Mountains:

United Power, Inc.
Attn: Randy Christianson
95 Gross Dam Road
Golden, CO 80403

Western Gas Supply Co.
500 Prudential Plaza
1050 17th St.
Denver, CO 80265-0501

District 6 Water Users Assn.
Attn: Robert Brand
9595 Nelson Road, Box C
Longmont, CO 80501

Northern Colorado Water Conservancy District
P.O. Box 679
Loveland, CO 80537

St. Vrain & Left Hand Water Conservancy District
9595 Nelson Rd.
Box C, Suite. 203
Longmont, CO 80501

Urban Drainage & Flood Control District
2480 W. 26th Ave.
Denver, CO 80211

Cities/Counties

Adams County Planning Department
12200 N. Pecos Street,
3rd Floor
Westminster, CO 80234
Planning & Development:
Phone: (303) 453-8800;
Fax: (303) 453-8829
Public Works/Building:
Phone: (303) 453-8700;
Fax: (303) 453-8711
Public Works/Engineering:
Phone: (303) 453-8787;
Fax: (303) 453-8775

City of Boulder Planning & Development Services
Attn: Susan Richstone
Park Central Building
1739 Broadway, 3rd Floor
Boulder, CO 80302
Phone: (303) 441-1880
Mailing Address:
PO Box 791
Boulder, CO 80306-0791

City of Boulder Open Space/Real Estate Department
Attn: Ann Goodhart
66 South Cherryvale Road
Boulder, CO 80303
cc: Mike Patton
PO Box 791
Boulder, CO 80306

City and County of Broomfield Planning Department
1 Des Combes Drive
Broomfield, CO 80020
Phone: (303) 438-6284;
Fax: (303) 438-6297

Erie Planning Department
Attn: Hallie Sawyer
PO Box 750
Erie, CO 80516
Phone: (303) 926-2770;
Fax: (303) 926-2706

Gilpin County Planning Department
The Old Courthouse
203 Eureka St.
2nd & 3rd Floors
Mailing Address:
P.O. Box 661
Central City, CO 80427
Phone: (303) 582-5831
or 582-5214;
Fax: (303) 565-1796

Grand County Planning Department
308 Byers Ave.
Hot Sulphur Springs, CO 80451
Phone: 970-725-3347
ext. 129
Fax: (970) 725-3303
Mailing Address:
PO Box 239
Hot Sulphur Springs, CO 80451

Jamestown Planning Department
Attn: Mary Ellen Birch
PO Box 298
Jamestown, CO 80455

Jefferson County Planning Department
100 Jefferson Pkwy.,
Suite 3550
Golden, CO 80419
Phone: (303) 271-8700

City of Lafayette
Attn: Phillip Patterson, AICP
Director of Planning & Building
1290 S. Public Road
Lafayette, CO 80026
Phone: 303-665-5506
ext. 3330
Fax: 303-665-2153

Larimer County Planning Department
200 W. Oak St., 3rd Floor
Fort Collins CO 80521
Phone: (970) 498-7683;
Fax: (970) 498-7711
Mailing Address:
P.O. Box 1190
Ft. Collins, CO 80522

Longmont Planning & Development Services Division
Attn: Froda Greenberg
Civic Center Complex
350 Kimbark St.
Longmont, CO 80501

Louisville Planning Department
749 Main St.
Louisville, CO 80027
Phone: (303) 666-6565;
Fax: (303) 335-4550

Town of Lyons
Attn: Terri Andrews
PO Box 49
Lyons, CO 80540

Lyons Planning Consultant
Attn: Don Kock
621 Monroe St.
Denver, CO 80206

Nederland Planning Department
P.O. Box 396
Nederland, CO 8046

Town of Superior Planning Department
Attn: Scott Randall
124 E. Coal Creek Drive
Superior, CO 80027
Phone: (303) 499-3675;
Fax: (303) 499-3677

Ward Planning Department
PO Box 99
Ward, CO 80481-0099

Weld County Planning Department
915 10th St.
Greeley, CO 80631
Phone: (970) 353-6100
ext. 3540;
Fax: (970) 304-6498

Adjacent property owners (APO) to the subject parcels:

The following is a consolidated list of APOs for the parcels that encompass the proposed development.

Aardvark Agencies Inc
C/O Tom Hendricks
PO Box 653
Nederland, CO 80460-0653

Backman, William D Jr
PO Box 232
Aurora, IN 47001-0232

Bergren, John E & Shirley C
6121 W 29th Ave
Denver, CO 80214-8133

Calais Resources Colorado Inc
PO Box 653
Nederland, CO 80466

Dunn, J A & Mary E
4170 Carr St
Wheat Ridge, CO 80033-4421

Dunning, Richard AKA Richard D
136 Divoll Pasture Rd
Springfield, VT 05156

Fullerton, Robert P
3201 Cherryridge Rd
Englewood, CO 80113

Good, Carter C
961 Sherman St
Ypsilanti, MI 48197-2767

Guercio, James William C/O Caribou CO
1300 Walnut St, Ste 200
Boulder, CO 80302

Hardly Able Mining Company LLC
885 Arapahoe Ave
Boulder, CO 80203

Hendricks, Thomas S
PO Box 653
Nederland, CO 80466-0653

Martin, Ruth A
3480 Ash Ave
Boulder, CO 80303-3432

McKenzie, Jerry B
116 E Montezuma Ave
Cortez, CO 81321-3219

Metz, Richard S & H J Newman
1020 W Talcott Rd
Park Ridge, IL 60068-4604

Natural Seven Corporation, The
C/O Richard P Woolley
4570 E Yale Ave #908
Denver, CO 80222

Nederland FPD
C/O Rick Dirr, Chief
PO Box 155
Nederland, CO 80466

Norton, Edward & Rececca Sue Pronto
190 Cessna Dr
Erie, CO 80516-8112

Rickman, John C & Annette G
200 S Washington St
Denver, CO 80209-2114

Smith, Duane A Revocable Trust
2911 Cedar Ave
Durango, CO 81301-4481

U S Forest Service
C/O Land Staff
2140 Yarmouth
Boulder, CO 80301

Boulder County Land Use Department
2045 13th Street / 13th & Spruce Streets / Courthouse Annex
Mailing address: PO Box 471; Boulder, CO 80306
Phone 303-441-3930 / Fax 303-441-4856
http://www.co.boulder.co.us/lu e-mail: planner@co.boulder.co.us

APPLICATION FORM

SHADED AREAS FOR STAFF ONLY
INTAKE STAMP

PROJECT NUMBER	PROJECT NAME
PAC-07-205	Cross Mine Expansion: Calais Resources

*No Application Deadline:	*Application Deadline - 1st Wednesday of the month:	*Application Deadline - 2nd Wednesday of the month:		
O LIMITED IMPACT SPECIAL USE	O VARIANCE	O EXEMPTION PLAT	O PRELIMINARY PLAN	O FINAL PLAT
O SITE PLAN REVIEW	O APPEAL	O LOCATION AND EXTENT	O ROAD NAME CHANGE	O SKETCH PLAN
O SITE PLAN REVIEW WAIVER		O RESUBDIVISION (REPLAT)	X SPECIAL USE/SSDP	O REZONING
O SUBDIVISION EXEMPTION		O ROAD/EASEMENT VACATION	O EXTENSION OF APPROVAL	
O 1041-STATE INTEREST REVIEW				
O OTHER				

LOCATION(S) - STREET ADDRESS(ES): 4415 Caribou Rd
Nederland, CO 80466

SUBDIVISION NAME: N/A

LOT(S)	BLOCK(S)	SECTION(S)	TOWNSHIP(S)	RANGE(S)
N/A	N/A	9	1S	73W

AREA IN ACRES	EXISTING ZONING	EXISTING USE OF PROPERTY	NUMBER OF PROPOSED LOTS
Permit boundary 9.35 acres	Forestry	Subsurface Mining	N/A

PROPOSED WATER SUPPLY	PROPOSED SEWAGE DISPOSAL METHOD
Two existing wells: DWR permits 116655 & 111951	Existing septic/leach field (Permit 12942); and new septic/leach field

APPLICANTS

APPLICANT/PROPERTY OWNER	EMAIL ADDRESS
CALAIS RESOURCES INC.	dyoung1619@aol.com

STREET ADDRESS				
PO Box 653				
CITY	STATE	ZIP CODE	PHONE NUMBER	FAX NUMBER
Nederland	CO	80466	303-258-3806	303-258-0402

APPLICANT/PROPERTY OWNER	STREET ADDRESS			
Anadarko Agencies	1001 4th Avenue Plaza, Ste 3300			
CITY	STATE	ZIP CODE	PHONE NUMBER	FAX NUMBER
Seattle	WA	98154		

AGENT/CONSULTANT	EMAIL ADDRESS			
STREET ADDRESS				
CITY	STATE	ZIP CODE	PHONE NUMBER	FAX NUMBER

AGENT/CONSULTANT	STREET ADDRESS			
Walsh Environmental Scientists and Engineers	4888 Pearl E. Cir Ste 108			
CITY	STATE	ZIP CODE	PHONE NUMBER	FAX NUMBER
Boulder	CO	80301	303 443 3282	303 443 0367

CERTIFICATION

I certify that I am signing this Application Form as an owner of record of the property included in the Application. I certify that the information and exhibits I have submitted are true and correct to the best of my knowledge. I understand that all materials required by Boulder County must be submitted prior to having this matter processed. I understand that public hearings or meetings may be required. I understand that I must sign an Agreement of Payment for Application processing fees and that additional fees or materials may be required as a result of considerations which may arise in the processing of this docket. I understand that the road, school and park dedications may be required as a condition of approval.

I understand that I am consenting to allow the County Staff involved in this application or their designees to enter onto and inspect the subject property at any reasonable time, without obtaining any prior consent.

All landowners are required to sign application. If additional space is needed attach additional sheet signed and dated.

SIGNATURE OF LANDOWNER	DATE
X Thomas S. Kaufmann for: Calais Resources Inc.	4-09-08
SIGNATURE OF LANDOWNER	DATE
X Thomas S. Kaufmann for: Anadarko Agencies	4-09-08
OTHER SIGNATURE *	DATE
X	

* Only if the Land Use Director waives the landowner signature requirement for good cause shown under the applicable provisions of the Land Use Code.

Development Summary

The Cross Mine is an active gold and silver mine, located 3 miles west of Nederland, Colorado on Caribou Road in the Roosevelt National Forest, at an elevation of 9700 feet above sea level. The mine is near the Caribou Mining District, where mining activities date back to the 1860s. Mining at the Cross Mine dates back to the 1920s.

Calais Resources Inc., the owners of the Cross Mine and adjacent properties, are proposing to expand operations. Proposed activities include the development of a new mine tunnel and expanded underground mine workings; construction and operation of an on-site surface mill; construction of an ore storage building; development of a new access and safety road connecting two currently disconnected mine areas; implementation of site drainage controls; and other site improvements.

These proposed activities trigger Special Use Review under the Boulder County Land Use Code. A pre-application meeting was held with the Boulder County Land Use Department on December 7, 2007, in which the requirements for Special Use Review were identified. This package satisfies those requirements.

Environmental conditions at the Cross Mine are highly favorable. The mine workings are located within benign, non-acid-generating rock. Ore processing requires only non-hazardous, organic chemicals. No surface tailings deposition will occur with this development. The colors of the new buildings have been chosen to blend in with the surrounding terrain and forest. As described within this package, Calais Resources intends to construct and operate the Cross Mine with the utmost care for the environment, in the same manner that they have operated the mine since its acquisition.

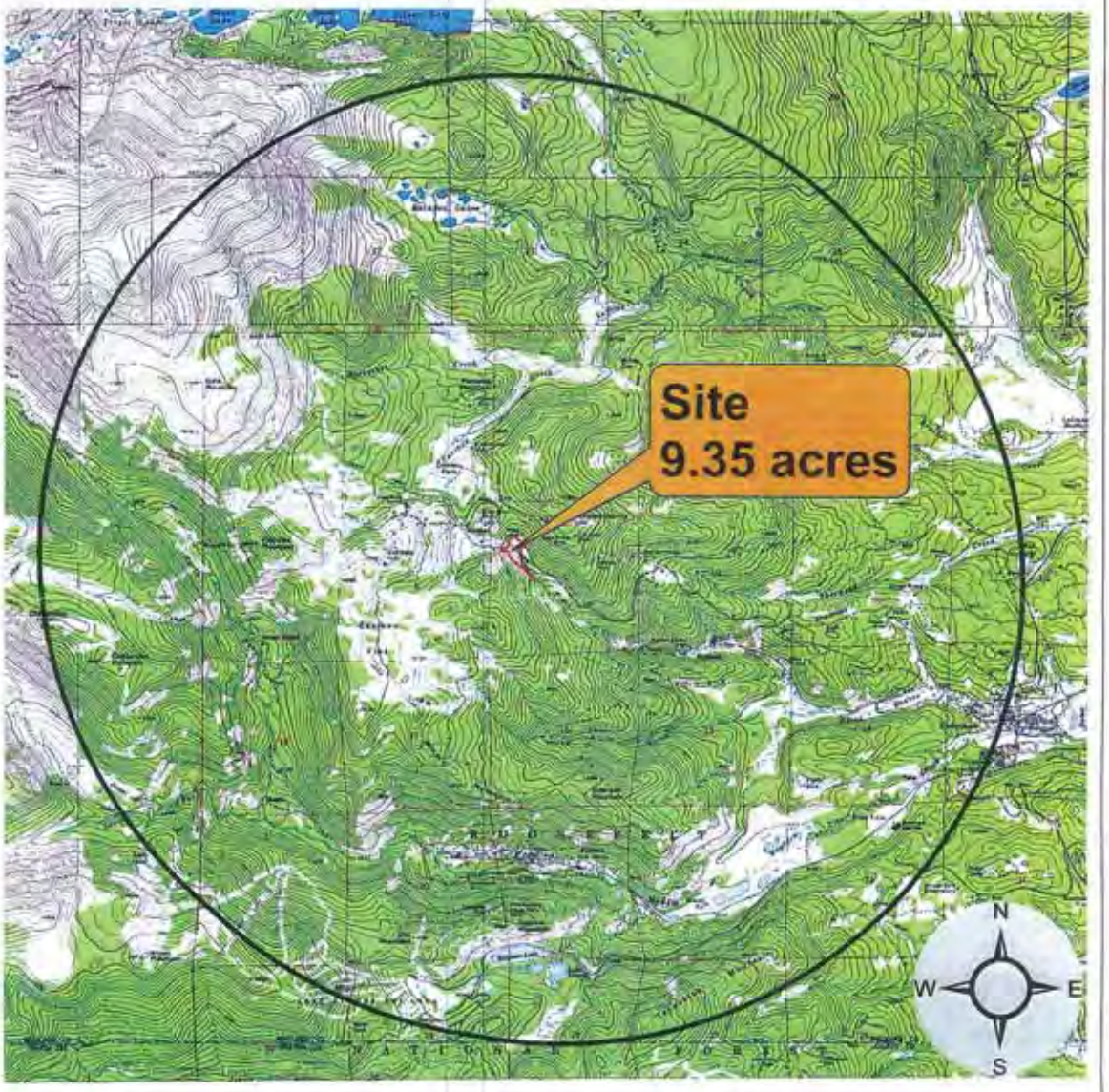
Other permits that will be obtained prior to the proposed expansion include: an amendment to the existing Colorado Division of Reclamation, Mining, and Safety 110(2) permit; building permits; grading permits; amendments to existing Colorado Division of Public Health and Environment stormwater and process water discharge permits; air emissions permits; and other permits as required by local, county, state, and federal regulations.

This Special Use Review package has been compiled on behalf of Calais Resources Inc. by Walsh Environmental Scientists and Engineers LLC in Boulder.

Section 1

Calais Resources, Inc. - Cross Mine Expansion

Vicinity Map



Legend

Permit Area Boundary

3 Mile Radius of Permit Area Boundary

Map is 1:50,000 scale USGS topographic map.
Obtained on Terraserver, courtesy of USGS

0 0.5 1 2 Miles

Applicant: Calais Resources, Inc.
P.O. Box 653
Nederland, CO 80466
(303) 483-5163

Consultants: Walsh Environmental, LLC
4888 Pearl East Circle, Suite 106
Boulder, CO 80301
(303) 443-3282

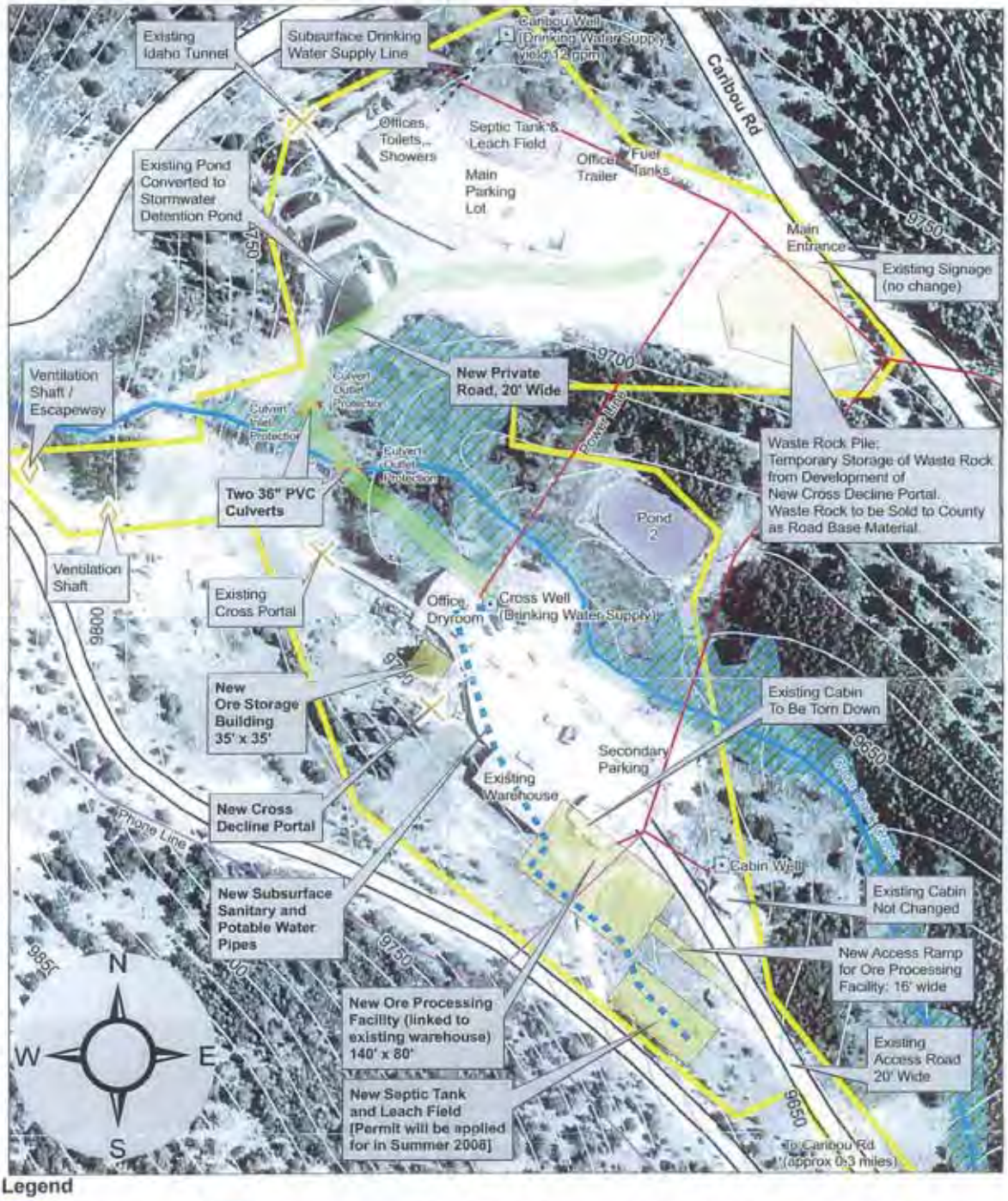
Walsh

Calais Resources
Figure 1: Vicinity Map
Project: 7160

Prepared: 03/31/08 | Revised:

Calais Resources, Inc. - Cross Mine Expansion

Total Acreage of DRMS Permit Boundary: 9.35 acres; Zoned Forestry



Legend

- Permit Area Boundary
- Existing Road
- New Private Road
- Wetland
- Existing Building
- New Feature
- Coon Track Creek
- Contour (10' Interval)
- Existing Phone Line
- Existing Power Line
- New Sanitary / Potable Pipe
- Well Location
- Portal
- Shaft

Applicant: Calais Resources, Inc.
P.O. Box 653
Nederland, CO 80466
(303) 483-5163

Consultants: Walsh Environmental, LLC
4888 Pearl East Circle, Suite 108
Boulder, CO 80301
(303) 443-3282

Surveyors: Drexel Barrell & Co.
4840 Pearl East Circle
Boulder, CO 80301

Ore Storage Bldg: ~ 1,230 sq. ft. (0.3% of permit area)
Ore Processing Facility: ~ 11,200 sq. ft. (2.7%)
New Road: ~ 13,500 sq. ft. (3.3%)
Main Parking ~ 8,860 sq. ft. (2.2%)
Secondary Parking ~ 3,300 sq. ft. (0.8%)
New Sanitary/Potable Pipes ~ 600 ft (each)
New Septic Leach Field ~ 1,000 sq. ft. (0.2%)

Vegetation, soils, and geology are discussed and depicted in the Development Report.

0 55 110 220 330 440 Feet

1 inch equals 100 feet

Calais Resources
Figure 2: Site Plan
Project: 7160

Prepared: 03/31/08 | Revised:

U:\Projects\Calais_resources\2008\SITE PLAN

Calais Resources, Inc. - Cross Mine Expansion

Total Acreage of DRMS Permit Boundary = 9.35 acres; Zoned Forestry



Shown parcel boundary data was obtained from Boulder County Assessor's Office on 3/3/08. Data does not match claim survey data; refer to Figure 4 for an accurate claim boundary survey map.

Cross Mine permit boundary located entirely in Township 1S, Range 73W, Section 9

Legend

Permit Boundary

Parcel with PIN

158300200031 CROSS MS RARE METALS & RARE MTLS MS CROSS 2 CROSS SYNDI CATE MAMMOTH PROTECTION ROME O TACOMA RICO AMERICAN APEX GIMD JULIET CROWN POINT 8-1S-73 IMP ON PLEASANT VALLEY LD (UNPAT) 53.54 ACS #124936

158300200032 MONITOR LD 227 .88 AC NEW YORK LD 344A 5 AC NEW YORK MS 3448 2.09 AC GRAND ISLAND TOTAL 7.97 AC IDS 28236-7 COMBINED HERE PROPERTY ADDRESS: 000000 CARIBOU RD MOUNTAINS

158309000009 ALL SEC 9-1S-73 LESS MINES 335 AC M/L SPLIT FROM ID 86448 PROPERTY ADDRESS: 000000 COUNTY RD 128-J MOUNTAINS

158309000013 BRAZILIAN LD 13367-A 2.04 ACS BRAZILIAN MS 13367-B 3.23 ACS GRAND ISLAND TOTAL 5.27 ACS ID 28077 COMB HERE PROPERTY ADDRESS: 004835 CARIBOU RD MOUNTAINS

158309000014 LARAMIE COUNTY LD 2.7 ACS & HOMESTEAD LD 2.7 ACS BOTH 13471 GILPIN COUNTY LD 12933 4.37 ACS GRAND ISLAND TOTAL 9.77 ACS IDS 28469 & 28476 COMBINED HERE PROPERTY ADDRESS: 000000 CARIBOU RD MOUNTAI

158309000025 CROSS MS 20681B GRAND ISLAND 9-1S-73 LEASEHOLD IMPROVEMENTS PROPERTY ADDRESS: 004415 CARIBOU RD A MOUNTAINS

Applicant: Calais Resources, Inc.
P.O. Box 653
Nederland, CO 80466
(303) 483-5163

0 150 300 600 900 Feet

Calais Resources
Figure 3: Permit Boundary and Parcels
Project: 7160

Prepared: 03/05/08	Revised:

I:\Projects\Calais_Resources\2008\SITE PLAN_BOUNDARY_WITH COUNTY DATA UNSHIFTED



Calais Resources, Inc.
Figure 4. Claims Map

Maptek

08-Apr-2008

1:2400

Section 2

Development Report

This Development Report follows the format prescribed by Boulder County Land Use Code, Article 3-203 (F).

List of adjacent property owners (APO) to the subject parcels:

The following is a consolidated list of APOs for the parcels that encompass the proposed development. The list was developed by Boulder County Land Use Department.

Aardvark Agencies Inc
C/O Tom Hendricks
PO Box 653
Nederland, CO 80460-0653

Backman, William D Jr
PO Box 232
Aurora, IN 47001-0232

Bergren, John E & Shirley C
6121 W 29th Ave
Denver, CO 80214-8133

Calais Resources Colorado Inc
PO Box 653
Nederland, CO 80466

Dunn, J A & Mary E
4170 Carr St
Wheat Ridge, CO 80033-4421

Dunning, Richard AKA Richard D
136 Divoll Pasture Rd
Springfield, VT 05156

Fullerton, Robert P
3201 Cherryridge Rd
Englewood, CO 80113

Good, Carter C
961 Sherman St
Ypsilanti, MI 48197-2767

Guercio, James William C/O Caribou CO
1300 Walnut St, Ste 200
Boulder, CO 80302

Hardly Able Mining Company LLC
885 Arapahoe Ave
Boulder, CO 80203

Hendricks, Thomas S
PO Box 653
Nederland, CO 80466-0653

Martin, Ruth A
3480 Ash Ave
Boulder, CO 80303-3432

McKenzie, Jerry B
116 E Montezuma Ave
Cortez, CO 81321-3219

Metz, Richard S & H J Newman
1020 W Talcott Rd
Park Ridge, IL 60068-4604

Natural Seven Corporation, The
C/O Richard P Woolley
4570 E Yale Ave #908
Denver, CO 80222

Nederland FPD
C/O Rick Dirr, Chief
PO Box 155
Nederland, CO 80466

Norton, Edward & Rececca Sue Pronto
190 Cessna Dr
Erie, CO 80516-8112

Rickman, John C & Annette G
200 S Washington St
Denver, CO 80209-2114

Smith, Duane A Revocable Trust
2911 Cedar Ave
Durango, CO 81301-4481

U S Forest Service
C/O Land Staff
2140 Yarmouth
Boulder, CO 80301

Description of site features such as streams, areas subject to flooding, lakes, high groundwater areas, topography, vegetative cover, climatology, and other features that may aid in the evaluation of the proposed development:

The site is an active gold and silver mine (Colorado Division of Reclamation, Mining, and Safety 110(2) Permit M1977410, issued 11/3/1980), located 3 miles west of Nederland, Colorado in the Roosevelt National Forest at an elevation of 9700 feet above sea level.

Stream and Wetlands

Wetlands on the Calais Mine property are primarily associated with Coon Track Creek, which is a narrow and well-defined channel that flows through the length of the property and drains the entire Cross Mine area watershed. Coon Track Creek is a tributary of Beaver Creek, which flows into Middle Boulder Creek just before Barker Reservoir. Coon Track Creek exhibits steady low flows year-round, with high flows during snowmelt runoff.

Waters of the U.S., including associated wetlands, were surveyed within the proposed site boundary and plotted by a Professional Wetland Scientist for Walsh Environmental using a Trimble XT (hand-held GPS unit with ESRI ARC Pad mobile mapping software) and total 1.94-acres (84,506 sq.ft.). This wetland survey is shown on the Site Map. A Jurisdictional Determination was approved by US Army Corps of Engineers on February 7, 2008, and the approval letter is provided in Attachment A to this Development Report.

The creek is characterized by steep side slopes and a rocky channel bottom. In the upper and mid-reaches of the creek, the presence of wetland habitat is nominal and only extends beyond the banks in a few isolated, low-lying areas. Two man-made, plastic-lined ponds flank the north and west sides of the mining complex. The pond fringes are devoid of vegetation but have been determined to be jurisdictional by the U.S. Army Corps of Engineers as they are hydrologically connected to the creek downstream through a series of PVC pipes. Below the mine structures the creek meanders along a narrow ravine before exiting the property through a County-maintained culvert under the Cross Mine access road. Wetland habitat associated with the downstream reaches is limited to the riparian corridor and to a wet meadow area on the north bank that is situated just east of the large pond and extends into the adjacent aspen woodland.

Woody vegetation associated with the wetland areas includes the following species: speckled alder (*Alnus incana*), aspen (*Populus tremuloides*), coyote willow (*Salix exigua*), mountain willow (*Salix monticola*), plane-leaf willow (*Salix planifolia*), Geyer's willow (*Salix geyeriana*), twinberry (*Lonicera involucrata)*, and bog birch (*Betula pumila*). Understory vegetation in the vicinity of the creek is sparse due to the density of the shrub communities, although a large stand of blue-joint reedgrass (*Calamagrostis canadensis*) dominates the wet meadow east of the pond. Scatterings of cow parsnip (*Heracleum lanatum*), sedges (*Carex* spp.), Baltic rush (*Juncus balticus*), duckweed (*Lemna minor*), and Rocky Mountain iris (*Iris missouriensis*) are also present.

Soil sampling was conducted at the upper and lower reaches of the creek in areas that represent the character of the creek corridor. Soils along the banks and in the meadow wetland exhibit hydric characteristics (i.e. low chroma colors) and are saturated close to the ground's surface for most of the

year. Supporting evidence that surface ponding occurs periodically (i.e., drainage patterns and sediment deposits) was noted.
The primary source of hydrology for wetlands is provided by slope runoff and flows from the creek, although flows from the Idaho Tunnel that are directed into the large pond contribute to wetland hydrology in the lower half of the property. Secondary sources are provided by naturally occurring side slope seeps, snowmelt and precipitation events.

Site Topography
As discussed above, the site is bisected by Coon Track Creek and its associated wetlands. The proposed development includes the construction of a new road to connect two currently topographically disconnected mining areas, known as the "Cross" (south of Coon Track Creek) and "Caribou" (north of Coon Track Creek) areas.

Please refer to the Site Drainage Report, included in this Special Use Review submittal as an Engineering Report, for a depiction of drainage patterns within and around the site. Currently, the best topographical data available for the site is 10-foot contours shown on the Site Plan; for construction design of the road and new buildings, the site will be surveyed to a much smaller contour interval in Summer 2008.

In general, the Caribou area is a relatively flat region north of Coon Track Creek, disturbed from decades of mining activity. Stormwater drainage from the Caribou area flows generally southward toward the adjacent creek.

The Cross area is south of Coon Track Creek, and is relatively flat due to decades of mining activity. Stormwater drainage from the Cross area flows generally northeast and east toward the adjacent creek.

The Cross and Caribou areas are surrounded by hills which slope toward the site. These hillsides are generally stable, and exhibit no evidence of landslides or soil creep. Please refer to the site Geotechnical Report, presented in this Special Use Review submittal as an Engineering Report, for a geotechnical engineer-certified description of site topography.

Calais holds an active Stormwater Discharge Permit through Colorado Department of Public Health and Environment (Permit COR-04-0081). This permit, and its associated Stormwater Management Plan, will be updated to reflect the proposed development. As shown in the Site Drainage Report, Calais plans to install site-wide BMPs to control erosion and sedimentation into stormwater. These BMPs include upgradient run-on diversion ditches; straw bales and/or silt fences to trap erosion; inlet and outlet protection of the two new culverts for the new road; establishment of detention ponds to retain stormwater drainage; BMPs during construction activities; and other BMPs as deemed necessary.

Flooding Potential
The Cross Mine complex is very high in the headwaters of Coon Track Creek, and thus does not lie in a county-designated floodplain. During spring snowmelt, some of the wetlands are subject to seasonal flooding; however, none of the proposed operation will occur within the wetlands that are subject to flooding, aside from the road crossing and culvert system discussed above.

Climate

The Cross complex is at an elevation of about 9700 ft above sea level. High winds are common throughout the year, with potential gusts up to 130 miles per hour. Snow is a common occurrence for most of the year, except for July and August. The design of the proposed new buildings will accommodate the foreseeable heavy snow and wind loads on the structures.

The Western Regional Climate Center (http://www.wrcc.dri.edu) was accessed on April 3, 2008 for climate data. Station 055878 ("Nederland 2 NNE, Colorado") is the nearest weather station, approximately 3.5 miles to the east of the Cross complex at an elevation of 8,240 ft. Although geographically close to the site, this station is at an elevation approximately 1,500 feet lower than the Cross complex. This means that data from this weather station likely underestimates snow amounts, and likely overestimates temperatures. Data from this station ranges from 1971 to 2000, and is presented in the table below.

Climate Data for "Nederland 2 NNE, Colorado" (WRCC Station 055878), approximately 3.5 miles to the east of the Cross complex at 8,240ft elevation

Category	Climate Data (1970-1988)
Annual precipitation, yearly average	17.97 inches
Annual precipitation, yearly minimum observed	13.11 inches (1977)
Annual precipitation, yearly maximum	25.52 inches (1983)
Maximum daily observed precipitation	2.85 inches (April 3, 1986)
Annual snowfall, yearly average	139.0 inches
Annual snowfall, yearly maximum observed	231 inches (1983)
Average low temperature, yearly	25.2 °F
Average high temperature, yearly	53.4 °F
Average low temperature, December-February	11.9 °F
Average high temperature, December-February	36.6 °F
Average low temperature, March-May	22.9 °F
Average high temperature, March-May	49.5 °F
Average low temperature, June-August	40.3 °F
Average high temperature, June-August	72.5 °F
Average low temperature, September-November	25.6 °F
Average high temperature, September-November	54.6 °F
Average yearly number of days with lows below 32 °F	242.1
Average yearly number of days with highs over 90 °F	0
Extreme daily low temperature observed	-34 °F (December 8, 1978)
Extreme daily high temperature observed	89 °F (August 7, 1979)

Description of soil characteristics of the site which have a significant influence on the proposed use of the land:

Soil sampling was conducted at the upper and lower reaches of the creek in areas that represent the character of the creek corridor. Soils along the banks and in the meadow wetland exhibit hydric characteristics (i.e. low chroma colors) and are saturated close to the ground's surface for most of the year. Supporting evidence that surface ponding occurs periodically (i.e., drainage patterns and sediment deposits) was noted.

Soils have been mapped and described by the USDA Natural Resources Conservation Service (2008). A soils map, soils map key, and soils descriptions are found in Attachment B.

Soils at the site are generally divided into three types, with different types for north of the Coon Track Creek wetland, south of the Coon Track Creek wetland, and the Coon Track Creek wetland area itself.

Soils north of the Coon Track Creek wetland area, which is an area of previous development sometimes referred to as "Caribou" or "Idaho Tunnel site", are characterized by NRCS as *Leighcan-Catamount families, moist complex, 5 to 40 percent slopes.* NRCS further categorizes this soil type as found on mountain slopes, and composed of residuum and/or slope alluvium derived from igneous and metamorphic rock. It is somewhat excessively drained.

Soils within the Coon Track Creek wetland area, which divides the site down the middle, are characterized by NRCS as *Gateview family – Cryaquolls complex, 0 to 15 percent slopes.* NRCS further categorizes this soil type as found on alluvial fans or terraces, and composed of gravelly alluvium and/or gravelly glaciofluvial deposits derived from igneous, metamorphic and sedimentary rock. It is well drained.

Soils south of the Coon Track Creek wetland area, which is an area of previous development referred to as "Cross", are characterized by NRCS as *Leighcan family, 5 to 40 percent slopes.* NRCS further categorizes this soil type as found on mountain slopes, and composed of colluvium over residuum weathered from igneous and metamorphic rock. It is somewhat excessively drained.

A geotechnical and geological evaluation of the soils within the proposed development was completed by Shannon & Wilson, Inc. in March 2008, and the report of this evaluation is included in this Special Use Review submittal as an engineering report.

Report on the geologic characteristics of the area including any potential natural or man-made hazards which would have a significant influence on the proposed use of the land, a determination of what effect such factors would have, and proposed corrective or protective measures:

The site is identified on the April 1999 version of the "Geologic Hazard and Constraint Areas" map in the Boulder County Comprehensive Plan, as within the "Major" geologic hazard area.
The geotechnical and environmental consulting firm Shannon & Wilson, Inc provided a Professional Engineer-certified evaluation of the geotechnical suitability of the proposed development in March 2008 (included as an Engineering Report). Shannon & Wilson concluded that "the site is suitable for the proposed development, provided that proper geotechnical engineering and construction techniques are employed." Further, they state "in our opinion, there is a low probability of any geologic hazards adversely impacting the proposed construction."

In the preparation of the geotechnical report, Shannon & Wilson conducted a site visit, and reviewed digital images, stereo aerial photographs, aerial photos from the Boulder County Assessor's Office, and USGS geologic maps. Based on the limited information available from the satellite imagery and aerial photographs, they did not detect any evidence of slope instability (landslides, debris flows, or avalanche chutes) at or near the mine complex. Shannon & Wilson states, "Based on our understanding of the local bedrock and surficial geology, we consider slope instability to pose a low risk to the proposed development."

Coarse granular alluvial soils close to their source area are not typically susceptible to swelling or collapse upon wetting (hydrocompaction). As such, Shannon & Wilson states, "it is our opinion that these hazards are unlikely to be present at the site."

No underground mine workings are less than 40 feet below the existing ground surface, and there are no mine workings below the proposed buildings and roadway. The footprints of the two proposed buildings are underlain by alluvial gravel. When the existing warehouse was built, no blasting was required to excavate the building foundation; it is expected that similar conditions will be encountered during construction of the new buildings.

In a USGS map published in 1969, Dolores Gable mapped a fault at the ground surface approximately 700 feet east of the Cross Mine site. Kerry Holland, in a 1994 master's thesis for the Colorado School of Mines, refers to numerous faults encountered underground within the Cross Mine deposit, and many of the veins encountered in the mine are likely the result of mineralization along fault planes. However, movement on these faults was associated with the Lariamide orogeny and they are now considered inactive. The closest active faults (faults with documented or suspected Quaternary movement) are a section of the Golden Fault located approximately 22 miles southwest near Golden, and the Williams Fork Mountains fault located about 28 miles west-southwest near the boundary of Grand and Summit Counties. The Valmont Fault located about 22 miles east-northeast of the site near Valmont Reservoir and the northern portion of the Golden Fault about 17 miles east-southeast of the site are considered suspect features. Shannon & Wilson state, "It is our opinion that the risk of ground surface rupture due to seismic activity at or near the site is extremely low."

For further details, please refer to the Geotechnical Evaluation report by Shannon & Wilson in the Engineering Reports section of this Special Use Review package.

The effect on the existing water supply:

> **The source and method of distribution must be approved by the Boulder County Health Department and other applicable regulatory agencies. The source of the water supply should be sufficient to meet all the present and future domestic and agricultural requirements of the proposed area.**
>
> **Proof of contract with supplier, or well log and completion report showing sustained yield. For domestic water, proof that the supply meets the Colorado Primary Drinking Water Standards must be provided.**

Calais plans to use an existing permitted water supply for drinking water and domestic water (showers and toilets) purposes. This permitted supply is from the Caribou Well (Permit 116655, yield 12 gpm), shown on the Site Map at the north end of the property. An existing subsurface pump and supply line connects the Caribou Well to the "Offices, Toilets, Showers" building on the Site Map. This method of distribution was approved with the building permit for this building (Land Use Permit BP-80-810). Wastewater from these toilets and showers flows into an existing permitted septic tank and leach field (Boulder County Health Department Permit 12942).

Calais also plans to use the existing Cross Well (Permit 111951, yield 25 gpm) as a potable water supply for the toilets at the proposed ore processing facility. The design of this new water distribution system will be part of the Building Permit for the ore processing facility.

See Attachment C for well logs for the Caribou and Cross wells.

The Caribou Well (linked to the showers and toilets on the north side of the complex) was sampled on February 21, 2008 to prove that the supply meets Colorado Primary Drinking Water standards. However, most of the parameters in this sample were analyzed for **total** concentrations, where the drinking water standards call for **dissolved** concentrations. Thus, the results overestimate the concentrations dissolved in the water. However, all of the drinking water standards are met, in spite of the stricter analysis. Results are compiled in the table below, and compared to the drinking water standard. An official copy of the lab results, with lab QA information, is available upon request from Walsh Environmental.

Drinking Water Analysis Results for Caribou Well, sampled 2/21/2008.

Parameter Analyzed	Result (Value in Parentheses is detection limit)	Colorado Drinking Water Standard (WQCC Reg 41)
Antimony (total)	ND (0.0004 mg/L)	0.006 mg/L (dissolved)
Arsenic (total)	ND (0.0005 mg/L)	0.01 mg/L (dissolved)
Barium (total)	0.0060 mg/L	2.0 mg/L (dissolved)
Beryllium (total)	ND (0.0001 mg/L)	0.004 mg/L (dissolved)
Cadmium (total)	ND (0.0001 mg/L)	0.005 mg/L (dissolved)
Chromium (total)	ND (0.01 mg/L)	0.1 mg/L (dissolved)
Chromium, trivalent	ND (0.01 mg/L)	no standard
Chromium, hexavalent	ND (0.005 mg/L)	no standard
Cyanide (total)	ND (0.005 mg/L)	0.2 mg/L (Free)
Fluoride (total)	ND (0.1 mg/L)	4.0 mg/L (dissolved)
Lead (total)	0.0004 mg/L	0.05 mg/L (dissolved)
Mercury (total)	0.000003 mg/L	0.002 mg/L (inorganic)
Molybdenum (total)	ND (0.0005 mg/L)	0.035 mg/L (dissolved)
Nickel (total)	ND (0.0006 mg/L)	0.1 mg/L (dissolved)
Nitrate as N (dissolved)	0.12 mg/L	10.0 mg/L (dissolved)
Nitrate/Nitrite as N (dissolved)	0.12 mg/L	10.0 mg/L (dissolved)
Nitrite as N (dissolved)	ND (0.01 mg/L)	1.0 mg/L (dissolved)
Selenium (total)	0.0001 mg/L	0.05 mg/L (dissolved)
Silver (total)	0.00012 mg/L	0.05 mg/L (dissolved)
Thallium (total)	ND (0.0001 mg/L)	0.002 mg/L (dissolved)
Total Suspended Solids	ND (5 mg/L)	400 mg/L
Uranium (total)	ND (0.0001 mg/L)	0.03 mg/L (dissolved)
Gross Alpha	2.6 (+/- 1.3) pCi/L	15 pCi/L
Gross Beta	5.6 (+/- 2.2) pCi/L	4 mrem/yr

Notes:

ND = Not Detected

Standards from Colorado Department of Public Health and Environment, Water Quality Control Commission, Regulation No. 41: The Basic Standards for Ground Water, effective May 31, 2008.

The Cross Well will be sampled for drinking water analysis in Spring 2008, in anticipation of the building permit for the ore processing facility. It is expected that the results from the Cross Well will be similar to those from the Caribou Well shown above.

The effect on groundwater and aquifer recharge areas:

The relation of the subject parcel to floodplains, the nature of soils and subsoils, and their ability to adequately support waste disposal, the slope of the land, the effect of sewage effluents, and the presence of streams as related to pollution shall be evaluated:

The subject parcels are not impacted by designated floodplains, because the site is located very near the headwaters of Coon Track Creek.

Groundwater at the site is generally controlled by drainage out of one of the existing mine adits. This elevation is below the level of the existing buildings. Based on this information, and the fact that depth to bedrock at the site of the proposed development is relatively shallow, it is not anticipated that groundwater will adversely affect building foundations or mining operations.

Upgradient and downgradient groundwater characterization will be performed as required by DRMS, at approved DRMS locations.

A water balance has been created for the site, which assesses the mine water demand and expected discharge rates. See Attachment D for the water balance diagram.

Plans for an adequate and safe sanitation system must be provided. This system must be designed, constructed, and maintained in accordance with all applicable regulations and requirements of the Boulder County Health Department and other applicable regulatory agencies:

The Cross Mine complex has an existing septic tank and leach field (Boulder County Health Department Permit Number 12942), designed to treat wastewater production from 18 users at 50 gallons per day. This septic tank and leach field system is connected to the shower building on the north side of the complex, and will be the sanitation system used by employees and all visitors to the mine. This system has been in continuous use, and received appropriate and timely maintenance, since its installation in 1980. See Attachment E for a copy of the septic permit and engineering design report.

To accommodate increased wastewater flow from an increased workforce at the mine and mill on the southern side of the complex, a new septic tank and leach field will be installed with the new ore processing facility. Design and permitting for this new system will be performed in Summer 2008, concurrent to the submittal of the Building Permit application. It is projected that two toilets and two sinks will be installed. The capacity of the system will likely be similar to that of the existing septic tank and leach field (1500 gallon tank). The water source for the new septic tank and leach field will be the Cross Well (Permit 111951).

The long and short term effect on flora and fauna shall be determined through field surveys, and/or expert opinions. The applicant shall address any material adverse impacts of the development on these biological systems, including plans for the mitigation of these impacts. Wildlife impact reports shall be required in accordance with Section 7-1700:

Fauna

Calais coordinated with Ron West of Boulder County Parks and Open Space to determine the applicability of a Wildlife Impact Report, based on requirements stipulated in the Boulder County Land Use Code, Article 7: 7-1700 Wildlife Impacts, dated July 1, 2007. The following statements support the non-applicability for inclusion of a Wildlife Impact Report.

- Located within a Critical Wildlife Habitat, Natural Community, Rare Plant Area or Riparian Corridor as designated on the Boulder County Comprehensive Plan (BCCP) maps:

  Although two adjoining, critical wildlife habitat areas (Caribou Park and Upper Caribou Park Willow Carrs), and one rare plant area occur west of the property near the Town of Caribou, no critical habitats or areas of significance occur on the Calais Mine property.

- Located within a Natural Area or Natural Landmark listed in the Environmental Resources Element of the BCCP and mapped in the Boulder County Zoning Maps:

  Natural Areas and Natural Landmarks do not occur on the property

- Located within a Boulder Valley Natural Ecosystem as designated on the Boulder Valley Natural Ecosystems Map of the BCCP:

  The property is not located within a designated Natural Ecosystem

- Located within a Critical Parcel Candidate Land as designated in the official records of the Front Range Backdrop Project as maintained in the Boulder County Land Use Department:

  Not Applicable. The Front Range Backdrop Project was abandoned several years ago.

- Located within any critical habitat for state- or federally-designated threatened or endangered species as shown on any maps adopted under the critical wildlife habitat provisions of Article 7 of this Code.

  Walsh [consultants for Calais] *coordinated with Boulder County Parks and Open Space representatives to verify that critical habitat for endangered species is not present on the property.*

- Determined by Boulder County Parks and Open Space (BCPOS) to serve as significant habitat for any of the listed "Species of Special Concern in Boulder County" (1994 adopted list).

  Walsh coordinated with BCPOS representatives to verify that significant habitat for Boulder County Species of Special Concern is not present on the property.

- Determined by BCPOS to serve as significant habitat for any of the species on the Colorado Division of Wildlife's "Colorado Listing of Endangered and Threatened Wildlife Species and Species of Special Concern" (May 15, 1998 adopted list).

Walsh coordinated with BCPOS representatives to verify that significant habitat for species of special concern listed by the Colorado Division of Wildlife critical habitat for endangered species is not present on the property

- Determined by BCPOS to serve as significant habitat for the black-tailed prairie dog (*Cynomys ludovicianus*) with reference to any published maps of the Boulder County Health Department, the Colorado Division of Wildlife, or other such competent information source.
  Habitat is unsuitable for the black-tailed prairie dog as this species is indigenous to short-grass prairie habitat on the plains.

The "Keith / Dutch Park Lode Conservation Easement Baseline Report" prepared by the Boulder County Parks and Open Space Department in January 2008 was referred to as a guide for existing wildlife resources. This Report describes environmental conditions at a property, also owned by Calais Resources, located approximately 0.4 miles to the northwest of the Cross Mine complex.

The meadows and forests found at the Keith / Dutch Park Lode (and thus likely also the Cross Mine complex) provide habitat for a wide array of birds and mammals, along with a few amphibians (during seasonal movements away from water) that are typical of the Subalpine Lifezone. Elk, mule deer, mountain lion, black bear, moose, coyote, bobcat and fox are regularly seen around Caribou.

The proposed development at the Cross Mine complex largely falls within existing disturbance. The new tunnel portal and two new buildings are entirely within existing disturbance, but the new road crosses a previously undisturbed wetland and stream area. The new road will have two 36" PVC culverts installed, which wildlife could use as a path to follow the stream. Also, the existing "winter road", which was a former County road passing directly south of the Cross Mine complex, could be used as an alternate path for wildlife migration.

As described in the mine Reclamation Plan, which is included in this Special Use Review package, at closure the road will be completely removed and the stream restored to its original configuration.

Flora

An in-depth vegetation survey was performed at the Cross Mine complex in June and October 2006. A report of this vegetation survey and its associated vegetation map is provided as Attachment F to this Development Report.

No adverse effects to flora are anticipated by the proposed development. The new road will be designed to minimize erosion and sedimentation, using widely accepted best management practices (BMPs). Road base material will be fully characterized to demonstrate its benign nature. Furthermore, stormwater flowing toward the site will be diverted around the site to reduce the transport of materials from disturbed areas toward the wetlands and Coon Track Creek. Refer to the Site Drainage Report, included in this Special Use Review package as an Engineering Report, for information about site-wide drainage controls.

The effect on significant cultural (archaeological and historic) resources and on other designated environmental resources, including but not limited to critical wildlife habitats, shall be assessed and plans for protection of such resources included. Wildlife impact reports shall be required in accordance with Section 7-1700:

Activities associated with the proposed Cross Mine expansion occur almost entirely on previously disturbed land; the only new feature on undisturbed land is the new safety and access road. Tom Hendricks, who has worked at the Cross Mine since 1971, is the best resource for cultural / historic information about the Cross Mine. Furthermore, Mr. Hendricks served on the Boulder County Historic Preservation Board for several years. Attachment G is a letter from Mr. Hendricks stating that the two buildings and road will have no adverse effects on cultural or historic resources.

One building will have to be deconstructed and removed in order to make room for the Ore Processing Building. This is a wooden cabin, known as the "miner's shack", and it is the only historic resource that will be adversely affected by the proposed development. In consultation with the Boulder County Historic Preservation Board, the history of this "miner's shack", including all available historic photos, current photos, and a historical narrative, have been compiled for the shack, and are presented in Attachment H.

An evaluation of any potential radiation hazard that may have been identified by the State or County Health Departments.

Boulder County Health Department was contacted by Walsh in March 2008 to discuss any potential radiation hazard within the mine, or as a result of mining and milling activities.

Radium and/or Uranium in Boulder County soil is not uncommon. The County Health Department cited two local sites with elevated radium levels in the soil – the Virginia Mill, and Caribou Tunnel #1. However, both of these sites lie over a half-mile to the west of the Cross Mine site, on the opposite side of Caribou Hill. As such, elevated radium levels at those sites do not necessarily indicate the presence of radium or radioactive materials at the Cross site.

The Mine Safety and Health Administration (MSHA) holds jurisdiction over radon and radiation screening of mines and mining facilities. Operators of the Cross mine have conducted routine radon testing within the mine, in accordance with MSHA regulations, since the 1980's. All of these routine tests have shown zero radon concentrations within the mine.

The proposed new mill building will include a ventilation system – primarily to prevent siliconiosis, but this will also expel other airborne contaminants, including radon. As MSHA is the regulatory authority for mine workplace safety, any monitoring or mitigation of workplace hazards (including radon) required by MSHA will be conducted in a timely and effective manner.

Characterization of ore material in December 2007, using X-ray fluorescence, showed Uranium levels within all five ore samples to be below the detection limit of 50 parts per million. Further characterization of waste rock and tailings material by SPLP, required for the DRMS permit amendment, will include analysis for alpha and beta particles in leachate.

An evaluation of the expected demands and effects of the development on the ability of local governments and quasi-governmental agencies to provide water, sanitation, natural gas, electricity, access, fire, schools, hospitals, police, flood protection, solid waste disposal, and other services to this development while maintaining adequate levels of service to other areas:

Service	Effect	Comments
Water	No effect	All domestic water supplied by two on-site wells; all process water supplied by mine effluent streams. See Water Balance (Attachment D).
Sanitation	No effect	All domestic wastewater will be treated by the installed and permitted septic tank and leach field, and the proposed new septic tank and leach field. During construction, portable toilets will be provided.
Natural Gas	No effect	Not needed; no natural gas lines are connected to the site.
Electricity	Increased demand	Projected 550 kW/hr during operations. Existing power lines and transformers are adequate to supply this demand.
Access	Improved	New road will facilitate access between the two currently separated properties; existing gate from Caribou Road will be preserved; existing Cross Mine access road will be preserved; County and/or Forest Service roads will be improved through use of waste rock as road base.
Fire	No effect	Nederland Fire Protection District remains as primary fire responder. Fire suppression systems will be installed in the new ore processing facility.
Schools	No effect	No effect on schools nor school buses.
Hospitals	No effect	Development will not increase demand on hospitals, nor will affect hospital operations. Since the operation is small, arrangements will be made with offsite mine rescue groups that will be contacted to assist if required. The closest offsite mine rescue group is at the Henderson Mine near Empire, Colorado approximately 35 miles away; this is within the MSHA-required 2-hour response timeframe.
Police	No effect	
Flood Protection	No effect	Site does not lie in a floodplain.
Solid Waste Disposal	Increased demand	Dumpsters with locks will be used for solid waste disposal during operations. During construction, a roll-off waste receptacle will be used for waste that cannot be recycled. Dumpsters will be emptied or exchanged on a regular schedule, and whenever needed.
Recycling	Increased demand	A locking paper and plastic recycling bin will be used during operations. During construction, a roll-off recycling receptacle will be used for recyclable construction materials.

An assessment of the transportation impacts of the development:

A separate Traffic Control and Management Plan was prepared, and is included in this Special Use Review package as an Engineering Report.

The proposed development will likely have ***positive*** impacts on nearby roads, as Calais plans to sell quartz-monzonite material to the County for use as road base on nearby distressed County and US Forest Service roads.

References

Boulder County Comprehensive Plan. http://www.bouldercounty.org/lu/bccp/ "Geologic Hazard and Constraint Areas", April 1999. Accessed 3/28/08.

Gable, Dolores J., 1969: Geologic Map of the Nederland Quadrangle, Boulder and Gilpin Counties, Colorado; United States Geological Survey, Washington, DC

Holland, Kerry L, 1994: Structure, Mineralization, and Alteration of the Cross Deposit, Boulder County, Colorado; unpublished Master's Thesis, Colorado School of Mines, Golden, CO; 100pp.

Keith / Dutch Park Lode Conservation Easement Baseline Report. Produced by Boulder County Parks and Open Space. February 14, 2008.

NRCS Soil survey. Natural Resource Conservation Survey. http://websoilsurvey.nrcs.usda.gov Accessed 3/4/08.

Attachments

A: U.S. Army Corps of Engineers Jurisdictional Decision
B: Soils Map from National Resources Conservation Service Web Soil Survey
C: Well Logs for Caribou and Cross Wells
D: Water Balance Diagram
E: Septic System Permit and Engineering Report for Caribou OWS
F: Vegetation Report and Map
G: Letter from Tom Hendricks re: Effects on Historic / Cultural Resources
H: Historic Information about "Miner's Shack"

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
DENVER REGULATORY OFFICE, 9307 SOUTH WADSWORTH BOULEVARD
LITTLETON, COLORADO 80128-6901

February 7, 2008

Ms. Janetta Shepard
Walsh Environmental Scientists and Engineering, LLC
4888 Pearl East Circle, Suite 108
Boulder, CO 80301-2475

RE: Calais Mine Site, Coon Tract Creek
Corps File No. NWO-2008-316-DEN

Dear Ms. Waslsh:

Mr. Terry McKee of my office has reviewed your January 30, 2008 wetland delineation report for this project located in the W ½ of Section 9, T1S, R73W, Boulder County, Colorado. Your wetland report and wetland map for this project is considered accurate and accepted by my office. Coon Track Creek, its abutting wetlands, the small pond and the large pond in the review are waters of the U.S. This Jurisdictional Determination is valid for 5 years from the date of this letter, unless there has been a change in hydrology.

If any work associated with this project requires the placement of dredged or fill material, and any excavation associated with a dredged or fill project, either temporary or permanent, in waters of the U.S., this office should be notified by a proponent of the project for Department of the Army permits or changes in permit requirements pursuant to Section 404 of the Clean Water Act. Work in waters of the U.S. should be shown on a map identifying the Quarter Section, Township, Range and County of the work and the dimensions of work in each area. Any loss of waters of the U.S. may require mitigation. Mitigation requirements will be determined during the Department of the Army permitting review.

An approved jurisdictional determination (JD) has been completed for your project and is available to you upon request, or it may be viewed at our website at https://www.nwo.usace.army.mil/html/od-tl/jur/jur.htm. The JD will be available on the website within 30 days. If you are not in agreement with the JD, you may request an administrative appeal under Corps of Engineers regulations found at 33 C.F.R. 331 (http://www.usace.army.mil/cw/cecwo/reg/33cfr331.htm). The Request for Appeal must be received within 60 days from the date of this correspondence. If you would like more information on the jurisdictional appeal process, contact this office. It is not necessary to submit a Request for Appeal if you do not object to the JD.

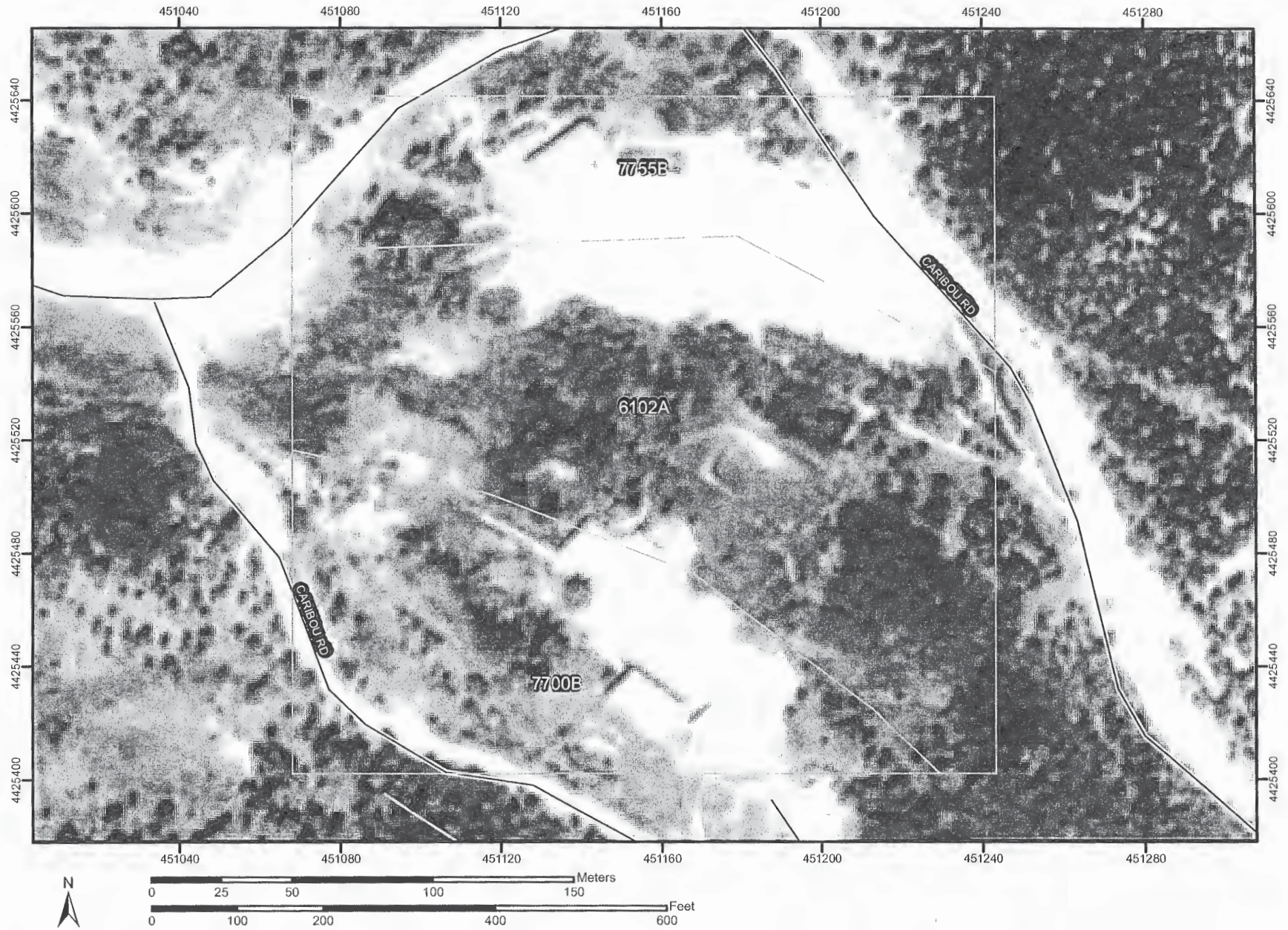
If there are any questions call **Mr. Terry McKee** at **(303) 979-4120** and **reference Corps No. NWO-2008-316-DEN.**

Sincerely,

Timothy T. Carey
Chief, Denver Regulatory Office

tm

Soil Map–Arapaho-Roosevelt National Forest Area, Colorado, Parts of Boulder, Clear Creek, Gilpin, Grand, Park and Larimer Counties
(Calais Cross Mine)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features

Municipalities
- Cities
- Urban Areas

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails

Roads
- Interstate Highways
- US Routes
- State Highways
- Local Roads
- Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 13N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Arapaho-Roosevelt National Forest Area, Colorado, Parts of Boulder, Clear Creek, Gilpin, Grand, Park and Larimer Counties
Survey Area Data: Version 2, Feb 4, 2008

Date(s) aerial images were photographed: 1999

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Arapaho-Roosevelt National Forest Area, Colorado, Parts of Boulder, Clear Creek, Gilpin, Grand, Park and Larimer Counties (CO645)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
6102A	Gateview family-Cryaquolls complex, 0 to 15 percent slopes	6.9	46.8%
7700B	Leighcan family, 5 to 40 percent slopes	4.2	28.2%
7755B	Leighcan-Catamount families, moist complex, 5 to 40 percent slopes	3.7	25.0%
Totals for Area of Interest (AOI)		14.8	100.0%

WDID Receipt

COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203

RECEIVED NOV 19 1979 WATER RESOURCES STATE ENGINEER COLO.

RECEIVED OCT 10 1979

PERMIT APPLICATION FORM

Application must be complete where applicable. Type or print in BLACK INK. No overstrikes or erasures unless initialed

FOR: (X) A PERMIT TO USE GROUND WATER
(X) A PERMIT TO CONSTRUCT A WELL
(X) A PERMIT TO INSTALL A PUMP
( ) REPLACEMENT FOR NO. _____
( ) OTHER _____
WATER COURT CASE NO.

(1) APPLICANT - mailing address

NAME Tom Hendricks

STREET PO Box 653

CITY Nederland, CO (State) 80466 (Zip)

TELEPHONE NO 258-3806

(2) LOCATION OF PROPOSED WELL

County Boulder

SW ¼ of the NW ¼, Section 9

Twp 1 S (N or S) Rng 73 W (E or W) 6th PM

(3) WATER USE AND WELL DATA

Proposed maximum pumping rate (gpm) 15

Average annual amount of ground water to be appropriated (acre-feet) 1

Number of acres to be irrigated 0

Proposed total depth (feet): 200

Aquifer ground water is to be obtained from:

Granite

Owner's well designation _____

GROUND WATER TO BE USED FOR:

(X) HOUSEHOLD USE ONLY no irrigation (0)
( ) DOMESTIC (1)
( ) LIVESTOCK (2)
( ) COMMERCIAL (4)
( ) INDUSTRIAL (5)
( ) IRRIGATION (6)
( ) MUNICIPAL (8)
( ) OTHER (9)

DETAIL THE USE ON BACK IN (11)

(4) DRILLER

Name Norris & Sons Drilling Co.

Street 4599 North Broadway

City Boulder, CO (State) 80302 (Zip)

Telephone No 442-4083 Lic. No 716

FOR OFFICE USE ONLY. DO NOT WRITE IN THIS COLUMN

Receipt No 11941A

Basin _____ Dist _____

CONDITIONS OF APPROVAL

This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of the permit does not assure the applicant that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.

APPROVED FOR HOUSEHOLD USE ONLY, FOR ONE (1) SINGLE FAMILY DWELLING AND NOT TO BE USED FOR IRRIGATION. THE RETURN FLOW FROM THE USE OF THIS WELL MUST BE RETURNED TO THE SAME STREAM SYSTEM IN WHICH THE WELL IS LOCATED.

APPLICATION APPROVED

PERMIT NUMBER 11951

DATE ISSUED NOV 30 1979

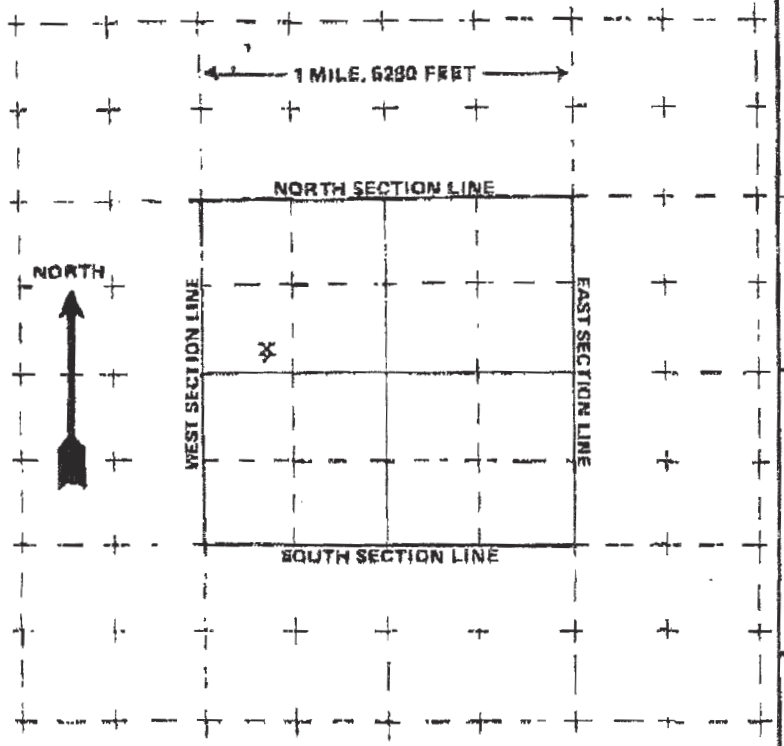
EXPIRATION DATE NOV 30 1981

Bruce E. DeBrine

DEPUTY (STATE ENGINEER)

BY R.G. Hanbold

(5) THE LOCATION OF THE PROPOSED WELL and the area on which the water will be used must be indicated on the diagram below. Use the CENTER SECTION (1 section, 640 acres) for the well location.



The scale of the diagram is 2 inches = 1 mile
Each small square represents 40 acres.

WATER EQUIVALENTS TABLE (Rounded Figures)
An acre-foot covers 1 acre of land 1 foot deep
1 cubic foot per second (cfs) = 449 gallons per minute (gpm)
A family of 6 will require approximately 1 acre-foot of water per year
1 acre-foot = 43,560 cubic feet = 325,900 gallons.
1,000 gpm pumped continuously for one day produces 4.43 acre-feet.

(6) THE WELL MUST BE LOCATED BELOW by distances from section lines.

2200 ft. from North (north or south) sec. line

1000 ft. from West (east or west) sec. line

LOT _____ BLOCK _____ FILING # _____

SUBDIVISION Rare Metals Mill Site #20681-B

(7) TRACT ON WHICH WELL WILL BE LOCATED Owner: Same

No. of acres 5. Will this be the only well on this tract? Yes

(8) PROPOSED CASING PROGRAM

Plain Casing

6 5/8 in. from -1 ft. to 20 ft.

_____ in. from _____ ft. to _____ ft.

Perforated casing

4 1/2 in. from 15 ft. to 200 ft.

_____ in. from _____ ft. to _____ ft.

(9) FOR REPLACEMENT WELLS give distance and direction from old well and plans for plugging it:

(10) LAND ON WHICH GROUND WATER WILL BE USED:

Owner(s): Tom Hendricks No. of acres: 5

Legal description: SW¼ of NW¼, Sec. 9, T 1S, R 73W

(11) DETAILED DESCRIPTION of the use of ground water: **Household use and domestic wells must indicate type of disposal system to be used.**

Household use only -- septic tank with absorption bed

(12) OTHER WATER RIGHTS used on this land, including wells Give Registration and Water Court Case Numbers.

Type or right	Used for (purpose)	Description of land on which used
None		

(13) THE APPLICANT(S) STATE(S) THAT THE INFORMATION SET FORTH HEREON IS TRUE TO THE BEST OF HIS KNOWLEDGE.

Thomas S. Hendricks

SIGNATURE OF APPLICANT(S)

Use additional sheets of paper if more room is required

C-

THIS FORM MUST BE SUBMITTED WITHIN 60 DAYS OF COMPLETION OF THE WORK DESCRIBED HEREON. TYPE OR PRINT IN BLACK INK

COLORADO DIVISION OF WATER RESOURCES

1313 Sherman Street Room 818
Denver, Colorado 80203

WELL COMPLETION AND PUMP INSTALLATION REPORT

PERMIT NUMBER 111951

RECEIVED
NOV 13 1980
WATER RESOURCES
STATE ENGINEER
COLO

WELL OWNER Hendricks Mining Company

ADDRESS P.O. Box 653 Nederland, CO 80466

DATE COMPLETED November 3 1980

SW ¼ of the NW ¼ of Sec. 9

T 1 S R 73 W 6th P.M.

WELL LOG

From	To	Type and Color of Material	Water Loc.

TOTAL DEPTH

Use additional pages necessary to complete log.

HOLE DIAMETER

in. from to ft.

in. from to ft.

in. from to ft.

DRILLING METHOD

CASING RECORD:

Plain Casing

Size & kind from to

Size & kind from to

Size & kind from to

Perforated Casing

Size & kind from to

Size & kind from to

Size & kind from to

GROUTING RECORD

Material

Intervals

Placement Method

GRAVEL PACK: Size

Interval

TEST DATA

Date Tested , 19

Static Water Level Prior to Test

Type of Test Pump

Length of Test

Sustained Yield (Metered)

Final Pumping Water Level

PUMP INSTALLATION REPORT

Pump Make McDonalds

Type submersible

Powered by 115V HP 1/3

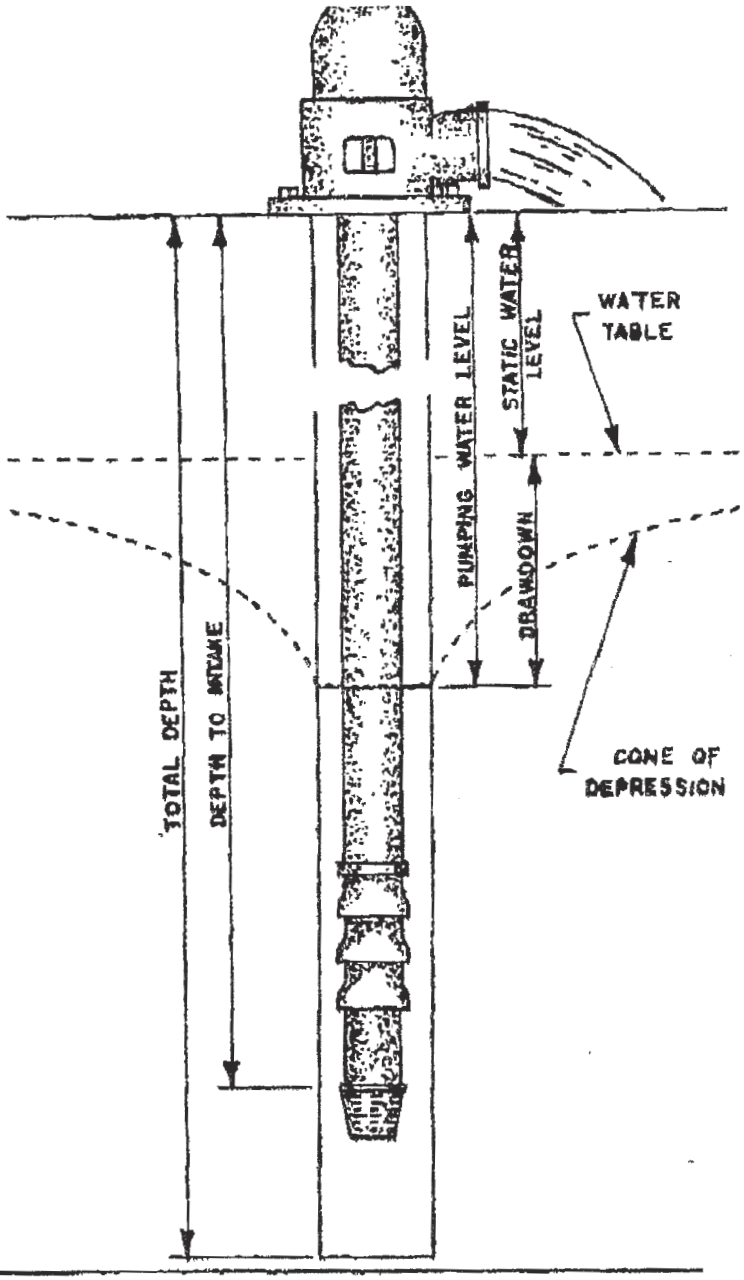
Pump Serial No J809145

Motor Serial No. NA

Date Installed September 3, 1980

Pump Intake Depth 150'

Remarks



WELL TEST DATA WITH PERMANENT PUMP

Date Tested not tested

Static Water Level Prior to Test

Length of Test Hours

Sustained yield (Metered) GPM

Pumping Water Level

Remarks

CONTRACTORS STATEMENT

The undersigned, being duly sworn upon oath, deposes and says that he is the contractor of the well or pump installation described hereon; that he has read the statement made hereon; knows the content thereof, and that the same is true of his own knowledge.

Signature Lloyd H Miller License No. 625

State of Colorado, County of Boulder SS

Subscribed and sworn to before me this 11 day of November, 19 80.

My Commission expires July 3, 1982

My Commission expires: , 19 .

Notary Public Roxi English

FORM TO BE MADE OUT IN QUADRUPLICATE: WHITE FORM must be an original copy on both sides and signed. WHITE AND GREEN copies must be filed with the State Engineer. PINK COPY is for the Owner and YELLOW COPY is for the Driller.

RECEIVED
DEC 3 1 1979
WATER RESOURCES
STATE ENGINEER

THIS FORM MUST BE SUBMITTED WITHIN 60 DAYS OF COMPLETION OF THE WORK DESCRIBED HEREON. TYPE OR PRINT IN BLACK INK

COLORADO DIVISION OF WATER RESOURCES

1313 Sherman Street Room 818
Denver, Colorado 80203

WELL COMPLETION AND PUMP INSTALLATION REPORT

PERMIT NUMBER 111951

WELL OWNER Tom Hendricks
ADDRESS PO Box 653 Nederland, CO 80466

SW ¼ of the NW ¼ of Sec 9
T. 1 S. R. 73 N. 6th PM

DATE COMPLETED December 21 1979

WELL LOG

From	To	Type and Color of Material	Water Loc.
0	3	Fill	
3	42	Overburden	
42	75	Brown granite	
75	80	Granite/quartz	
80	145	Grey granite	
145	150	Quartz	
150	165	Grey granite	
		5 GPM @ 75'	
		20 GPM @ 145'	
		The testing of production of water from this well [illegible] report, [illegible] condition [illegible] date of test [illegible] production. This [illegible]	

TOTAL DEPTH 165'

Use additional pages necessary to complete log.

HOLE DIAMETER

9 in. from 0 to 50 ft.
6 in. from 50 to 165 ft.
.... in. from .. to .... ft.

DRILLING METHOD Air percussion

CASING RECORD:

Plain Casing

Size 6 5/8 & kind Steel from +1 to 50 ft
Size 4 1/2 & kind PVC from 15 to 65 ft
Size & kind from to ft

Perforated Casing

Size 4 1/2 & kind PVC from 65 to 165 ft
Size & kind from to ft
Size & kind from to ft

GROUTING RECORD

Material Cement
Intervals 15' - 60'
Placement Method Poured

GRAVEL PACK: Size N A
Interval

TEST DATA

Date Tested December 21, 19 79
Static Water Level Prior to Test ft
Type of Test Pump Air
Length of Test One hour
Sustained Yield (Metered) 25 GPM
Final Pumping Water Level 165'

PUMP INSTALLATION REPORT

Pump Make _____

Type _____

Powered by _____ HP _____

Pump Serial No _____

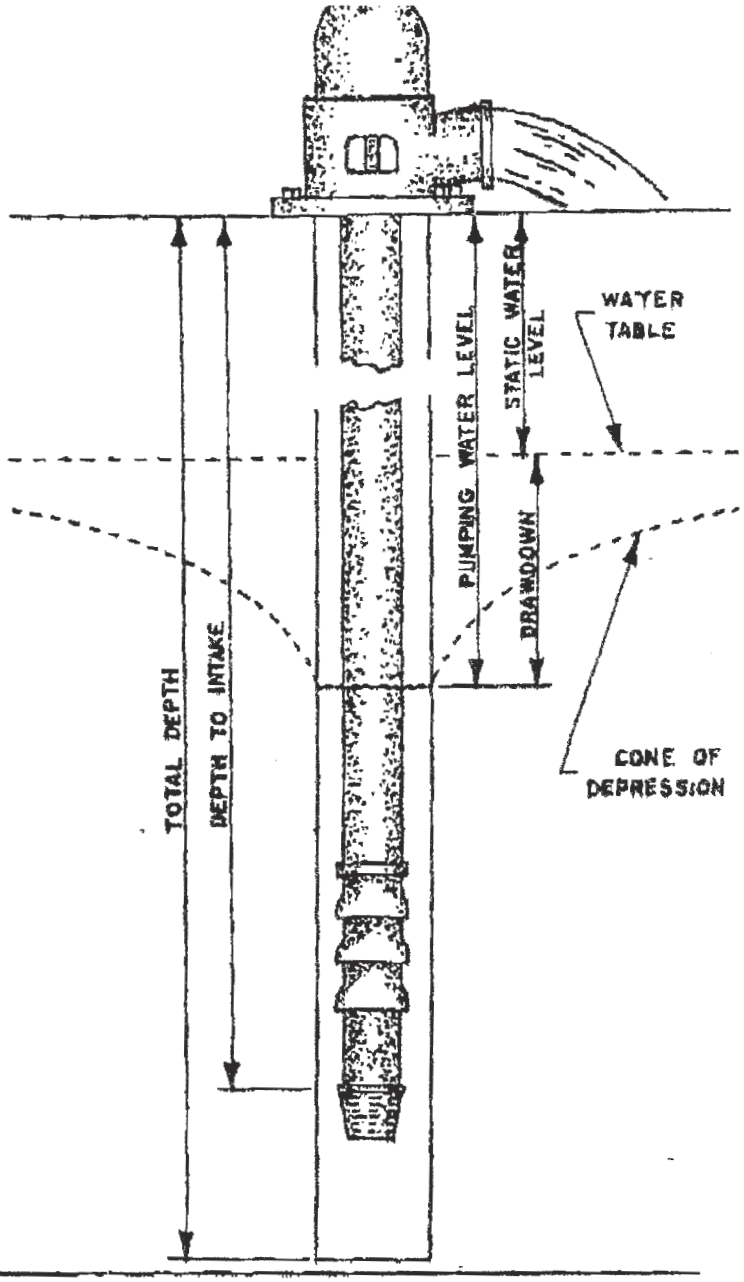
Motor Serial No. _____

Date Installed _____

Pump Intake Depth _____

Remarks _____

_____



WELL TEST DATA WITH PERMANENT PUMP

Date Tested _____

Static Water Level Prior to Test _____

Length of Test _____ Hours

Sustained yield (Metered) _____ GPM

Pumping Water Level _____

Remarks _____

_____

CONTRACTORS STATEMENT

The undersigned, being duly sworn upon oath, deposes and says that he is the contractor of the well or pump installation described hereon; that he has read the statement made hereon; knows the content thereof, and that the same is true of his own knowledge.

Signature Richard R. Wilson License No. 716

State of Colorado, County of Boulder SS

Subscribed and sworn to before me this 24 day of December, 19 79.

My Commission expires: Febr 24, 19 80.

Notary Public Roger H. Williams

FORM TO BE MADE OUT IN QUADRUPLICATE. WHITE FORM must be an original copy on both sides and signed. WHITE AND GREEN copies must be filed with the State Engineer. PINK COPY is for the Owner and YELLOW COPY is for the Driller.

WRJ-5-Rev 76

COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203

RECEIVED
SEP 11 1980

PERMIT APPLICATION FORM

Application must be complete where applicable. Type or print in BLACK INK. No overstrikes or erasures unless initialed.

FOR: (X) A PERMIT TO USE GROUND WATER
(X) A PERMIT TO CONSTRUCT A WELL
(X) A PERMIT TO INSTALL A PUMP

( ) REPLACEMENT FOR NO. _____
( ) OTHER _____
WATER COURT CASE NO. _____

(1) APPLICANT - mailing address

NAME Hendricks-Good Mining Co.

STREET 3000 N. 63rd St.

CITY Boulder (State) CO (Zip) 80301

TELEPHONE NO. 443-1502

(2) LOCATION OF PROPOSED WELL

County Boulder

SW ¼ of the NW ¼, Section 9

Twp. 1 S. (N.S), Rng 73 W. (E.W), 6th P.M

(3) WATER USE AND WELL DATA

Proposed maximum pumping rate (gpm) 15

Average annual amount of ground water to be appropriated (acre-feet): 1

Number of acres to be irrigated 0

Proposed total depth (feet): 200

Aquifer ground water is to be obtained from:

Granite

Owner's well designation None

GROUND WATER TO BE USED FOR:

(X) HOUSEHOLD USE ONLY - no irrigation (0)
( ) DOMESTIC (1)
( ) LIVESTOCK (2)
( ) COMMERCIAL (4)
( ) INDUSTRIAL (5)
( ) IRRIGATION (6)
( ) MUNICIPAL (8)
( ) OTHER (9) _____

DETAIL THE USE ON BACK IN (11)

(4) DRILLER

Name Norris & Sons Drilling Co.

Street 4599 No. Broadway

City Boulder (State) CO (Zip) 80302

Telephone No. 442-4083 Lic. No. 716

FOR OFFICE USE ONLY: DO NOT WRITE IN THIS COLUMN

Receipt No. 8135 / _____

Basin _____ Dist. _____

CONDITIONS OF APPROVAL

This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of the permit does not assure the applicant that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.

APPROVED FOR HOUSEHOLD USE ONLY, FOR ONE (1) SINGLE FAMILY DWELLING AND NOT TO BE USED FOR IRRIGATION. THE RETURN FLOW FROM THE USE OF THIS WELL MUST BE RETURNED TO THE SAME STREAM SYSTEM IN WHICH THE WELL IS LOCATED.

THE MUNICIPAL OR COUNTY GOVERNMENT SHALL BE CONSULTED WHEN LOCATING THIS WELL, AND THEIR REGULATIONS SHALL BE COMPLIED WITH.

APPLICATION APPROVED

PERMIT NUMBER 116655

DATE ISSUED OCT 16 1980

EXPIRATION DATE OCT 16 1982

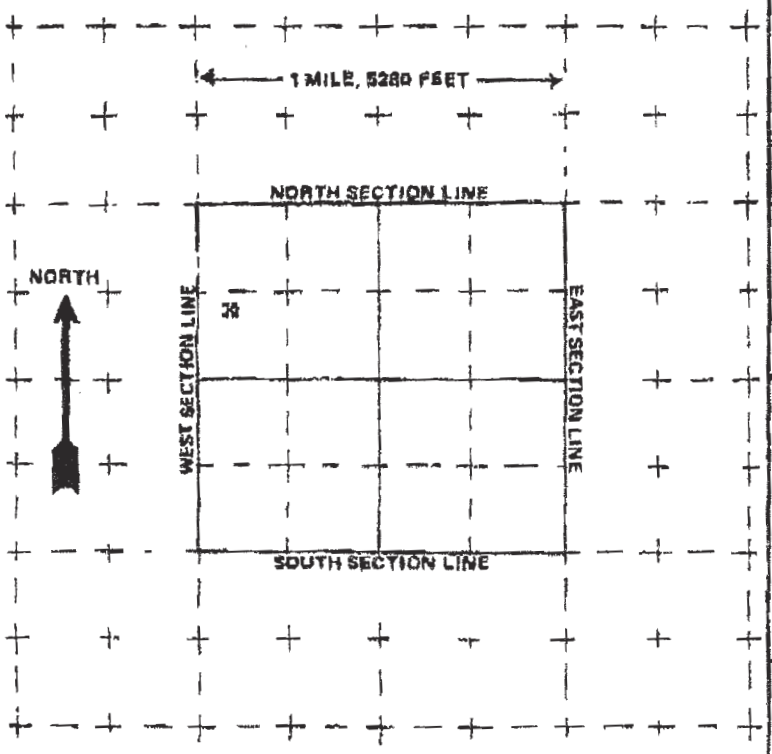
Bruce E. DeBerry (STATE ENGINEER)

DEPUTY

BY [signature]

I.D. 1-06 COUNTY 07

(5) THE LOCATION OF THE PROPOSED WELL and the area on which the water will be used must be indicated on the diagram below. Use the CENTER SECTION (1 section, 640 acres) for the well location.



The scale of the diagram is 2 inches = 1 mile
Each small square represents 40 acres.

WATER EQUIVALENTS TABLE (Rounded Figures)
An acre-foot covers 1 acre of land 1 foot deep
1 cubic foot per second (cfs) . . 449 gallons per minute (gpm)
A family of 5 will require approximately 1 acre-foot of water per year
1 acre-foot . . 43,560 cubic feet . . . 325,900 gallons.
1,000 gpm pumped continuously for one day produces 4.42 acre-feet

(6) THE WELL MUST BE LOCATED BELOW by distances from section lines.

1500 ft. from North (north or south) sec. line

600 ft. from West (east or west) sec. line

LOT -- BLOCK -- FILING # --

SUBDIVISION Brazilian Mill Site, U.S. Survey #13367-B

(7) TRACT ON WHICH WELL WILL BE LOCATED Owner: Same

No. of acres 3.23 . Will this be the only well on this tract? Yes

(8) PROPOSED CASING PROGRAM

Plain Casing

6 5/8 in. from -1 ft. to 20 ft.

4 1/2 in. from 15 ft. to 100 ft

Perforated casing

4 1/2 in. from 100 ft. to 200 ft.

____ in. from ____ ft. to ____ ft.

(9) FOR REPLACEMENT WELLS give distance and direction from old well and plans for plugging it:

(10) LAND ON WHICH GROUND WATER WILL BE USED:

Owner(s): Hendricks-Good Mining Co. No. of acres. 3.23

Legal description: SW¼ of NW¼, Sec. 9, T 1S, R 73W

(11) DETAILED DESCRIPTION of the use of ground water: **Household use and domestic wells must indicate type of disposal system to be used.**

Household use only -- septic tank with absorption bed

(12) OTHER WATER RIGHTS used on this land, including wells. Give Registration and Water Court Case Numbers.

Type or right	Used for (purpose)	Description of land on which used
None		

(13) THE APPLICANT(S) STATE(S) THAT THE INFORMATION SET FORTH HEREON IS TRUE TO THE BEST OF HIS KNOWLEDGE.

X James S. Hendricks Hendricks-Good Mining Co. Inc.

SIGNATURE OF APPLICANT(S)

Use additional sheets of paper if more space is required

WJR-26-77

COLORADO DIVISION OF WATER RESOURCES

1313 Sherman Street - Room 818
Denver, Colorado 80203

THIS FORM MUST BE SUBMITTED WITHIN 60 DAYS OF COMPLETION OF THE WORK DESCRIBED HEREON. TYPE OR PRINT IN BLACK INK.

WELL COMPLETION AND PUMP INSTALLATION REPORT

PERMIT NUMBER 116655

RECEIVED
NOV 13 1980
WATER RESOURCES
STATE ENGINEER
COLO.

WELL OWNER HENDRICKS-GOOD MINING CO.
ADDRESS 3000 N. 63rd Street Boulder, CO 80301

SW ¼ of the NW ¼ of Sec. 9
T. 1 S, R. 73 W, 6th P.M

DATE COMPLETED November 4, 1980

WELL LOG

From	To	Type and Color of Material	Water Loc.
0	10	Clay, gravel, boulders	
10	70	Schist	
70	90	Brown granite/quartz	
90	100	Grey granite	
100	165	Schist	
		12 GPM @ 70' - 90'	

The testing of production of water from this well, as reflected by this report, is totally dependent upon conditions existing as of the date of testing and does not reflect any projection as to future production. This is dependent upon future conditions.

TOTAL DEPTH 165'

Use additional pages necessary to complete log.

HOLE DIAMETER

9 in. from 0 to 26 ft.
6 in. from 26 to 165 ft.
___ in. from ___ to ___ ft.

DRILLING METHOD Air percussion

CASING RECORD:

Plain Casing

Size 6 5/8 & kind Steel from -1 to 26 ft
Size 4 1/2 & kind PVC from 15 to 25 ft
Size ___ & kind ___ from ___ to ___ ft

Perforated Casing

Size 4 1/2 & kind PVC from 25 to 165 ft
Size ___ & kind ___ from ___ to ___ ft
Size ___ & kind ___ from ___ to ___ ft

GROUTING RECORD

Material Cement
Intervals 8' - 26'
Placement Method Poured

GRAVEL PACK: Size N A
Interval ___

TEST DATA

Date Tested November 4, 1980
Static Water Level Prior to Test 20 ft
Type of Test Pump Air
Length of Test One hour
Sustained Yield (Metered) 12 GPM
Final Pumping Water Level 165'

PUMP INSTALLATION REPORT

Pump Make _____

Type _____

Powered by _____ HP ___

Pump Serial No. _____

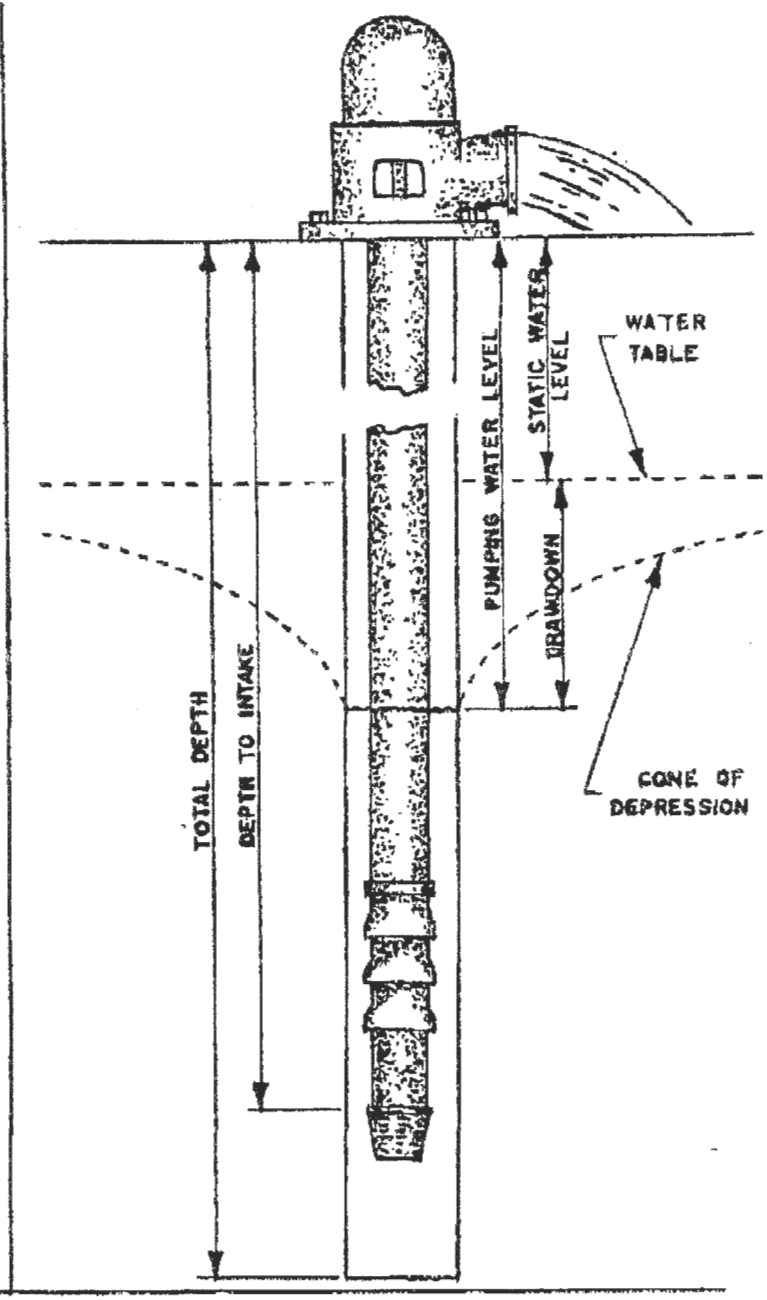
Motor Serial No. _____

Date Installed _____

Pump Intake Depth _____

Remarks _____

_____



WELL TEST DATA WITH PERMANENT PUMP

Date Tested _____

Static Water Level Prior to Test _____

Length of Test _____ Hours

Sustained yield (Metered) _____ GPM

Pumping Water Level _____

Remarks _____

_____

CONTRACTORS STATEMENT

The undersigned, being duly sworn upon oath, deposes and says that he is the contractor of the well or pump installation described hereon; that he has read the statement made hereon; knows the content thereof, and that the same is true of his own knowledge.

Signature Roland R Wilson License No. 716

State of Colorado, County of Boulder SS

Subscribed and sworn to before me this 5 day of November, 1980.

My Commission expires: Febr. 22, 1984.

Notary Public Roger H. Williams

FORM TO BE MADE OUT IN QUADRUPLICATE: WHITE FORM must be an original copy on both sides and signed. WHITE AND GREEN copies must be filed with the State Engineer. PINK COPY is for the Owner and YELLOW COPY is for the Driller.

WJR-26-77

THIS FORM MUST BE SUBMITTED WITHIN 60 DAYS OF COMPLETION OF THE WORK DESCRIBED HEREON. TYPE OR PRINT IN BLACK INK.

COLORADO DIVISION OF WATER RESOURCES

1313 Sherman Street - Room 818
Denver, Colorado 80203

WELL COMPLETION AND PUMP INSTALLATION REPORT

PERMIT NUMBER 116655

RECEIVED
NOV 13 1980
WATER RESOURCES
STATE ENGINEER

WELL OWNER Hendricks Mining Company

ADDRESS P.O. Box 653, Nederland, CO 80466

DATE COMPLETED November 10, 1980

SW ¼ of the NW ¼ of Sec. 9,

T. 1 S, R. 73 W, 6th P.M.

WELL LOG

From	To	Type and Color of Material	Water Loc.

TOTAL DEPTH _____

Use additional pages necessary to complete log.

HOLE DIAMETER

_____ in. from _____ to _____ ft.

_____ in. from _____ to _____ ft.

_____ in. from _____ to _____ ft.

DRILLING METHOD _____

CASING RECORD:

Plain Casing

Size _____ & kind _____ from _____ to _____ ft.

Size _____ & kind _____ from _____ to _____ ft.

Size _____ & kind _____ from _____ to _____ ft.

Perforated Casing

Size _____ & kind _____ from _____ to _____ ft.

Size _____ & kind _____ from _____ to _____ ft.

Size _____ & kind _____ from _____ to _____ ft.

GROUTING RECORD

Material _____

Intervals _____

Placement Method _____

GRAVEL PACK: Size _____

Interval _____

TEST DATA

Date Tested _____, 19__

Static Water Level Prior to Test _____ ft

Type of Test Pump _____

Length of Test _____

Sustained Yield (Metered) _____

Final Pumping Water Level _____

PUMP INSTALLATION REPORT

Pump Make Jacuzzi

Type 3 - wire submersible

Powered by 230V HP 1

Pump Serial No. 1S4C-S2-14

Motor Serial No. OHB-660706

Date Installed November 10, 1980

Pump Intake Depth 165'

Remarks

WELL TEST DATA WITH PERMANENT PUMP

Date Tested not tested

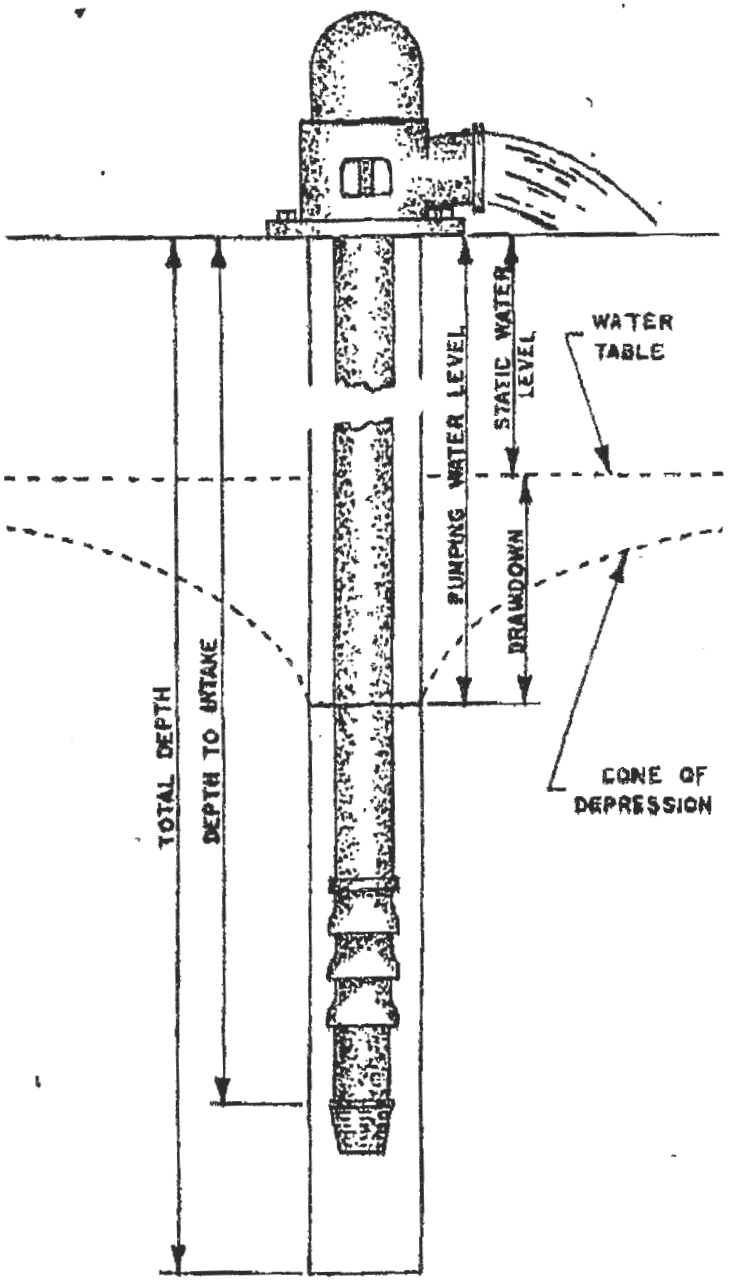
Static Water Level Prior to Test

Length of Test Hours

Sustained yield (Metered) GPM

Pumping Water Level

Remarks



CONTRACTORS STATEMENT

The undersigned, being duly sworn upon oath, deposes and says that he is the contractor of the well or pump installation described hereon; that he has read the statement made hereon; knows the content thereof, and that the same is true of his own knowledge.

Signature Lloyd H Miller License No. 625

State of Colorado, County of Boulder SS

Subscribed and sworn to before me this 11 day of November, 1980.

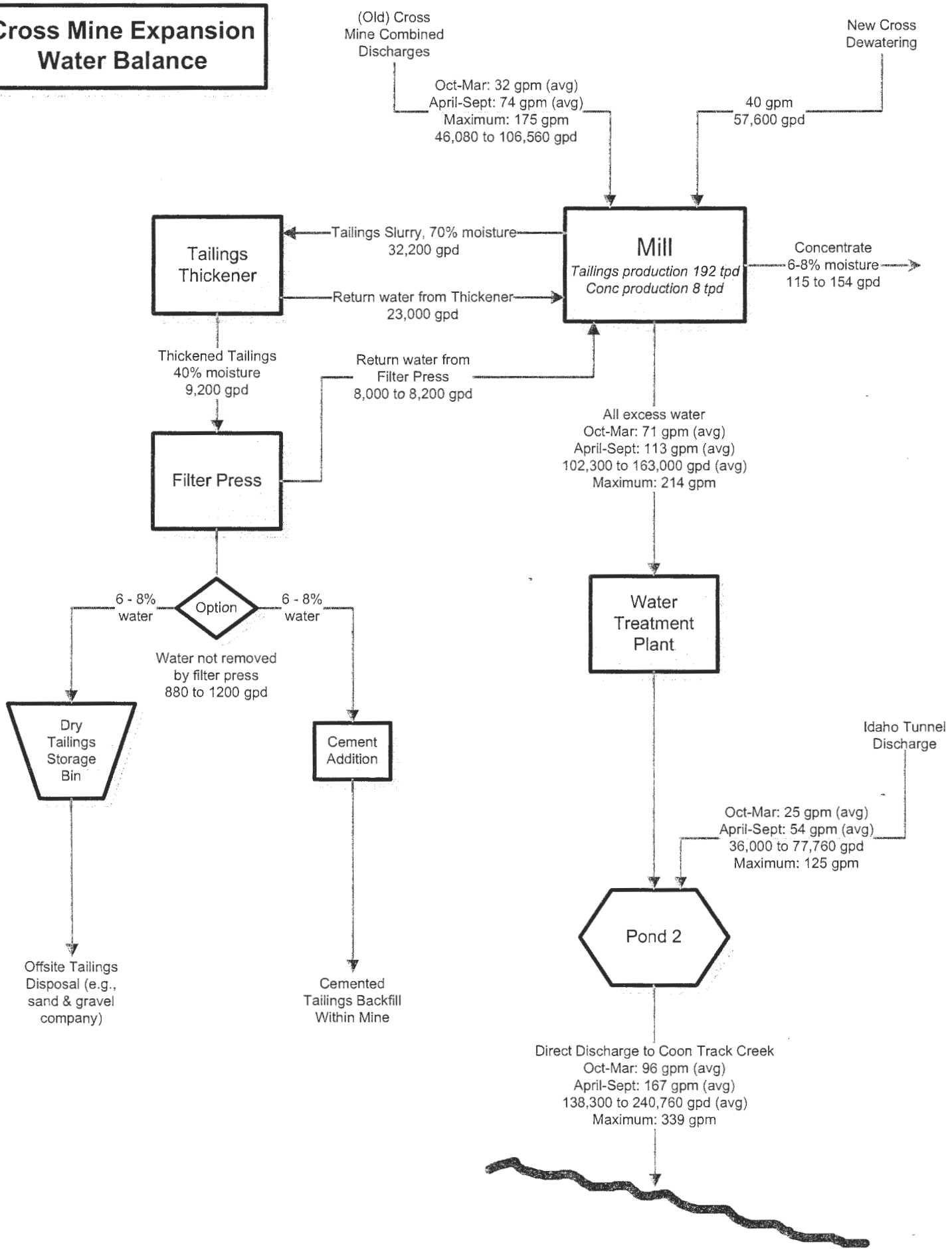
My Commision expires July 3, 1982

My Commission expires: , 19 .

Notary Public Lori English

FORM TO BE MADE OUT IN QUADRUPLICATE: WHITE FORM must be an original copy on both sides and signed. WHITE AND GREEN copies must be filed with the State Engineer. PINK COPY is for the Owner and YELLOW COPY is for the Driller.

Cross Mine Expansion Water Balance



12942

New ____
Repair ____
Upgrade ____
Additon ____
Renewal ____

Receipt Number 13453

BOUNDER COUNTY HEALTH DEPARTMENT
3450 Broadway, Boulder 80302
441-3590

APPLICATION AND PERMIT TO INSTALL, CONSTRUCT, ALTER OR REPAIR INDIVIDUAL SEWAGE DISPOSAL SYSTEM (SEPTIC TANK)
CERTIFICATION TO BOULDER COUNTY LAND USE DEPARTMENT (COUNTY BUILDING INSP. DEPT.)

Owner HENDRICKS-Good Mining Co Street Address 3,000 N. 63RD
City Boulder State Co. Zip Code 80301 Phone 443-1502
OR Agent TOM HENDRICKS Address P.O. Box 2172 City Bo. Co. Phone 442-6783
OR Agent JAMES T. HAZELWOOD
Installer OWNER (MIKE SMITH) Address of Site Gorham
Legal Description (short) NW¼, SEC. 9 T1S, R73W, 6TH P.M.

TO BE FILLED OUT BY APPLICANT

1. Existing Buildings Shop under construction
2. Areas to be surfaced None
3. Building proposed: Residential ____ Commercial X Agric. ____
   Business ____
4. No. of bedrooms None No. of baths 3-4
   No. of persons 18 per 24 hr/day
5. Basement plumbing: yes ____ no X type ____
6. Area of lot (acres) Mining Claims-Surface
7. Subsoil drainfile (yes) ____ (no) X
8. Type of sewage disp. system requested:
   Septic tank X vault ____ other ____
9. Well (proposed) X (installed) ____
10. Water District ____

DEPARTMENT USE ONLY

1. Slope <5% Waterlines REMAIN 25'
2. Soil Type Rocky
3. Soil perc rate 15 minutes/inch (aver.)
4. Water table depth >8' Bedrock >8'
5. Location of central sewer MILES
6. Sized for 18 Persons/DAY ~~bedrooms (2 persons/bedroom)~~

Please locate on the plot plan below the well location or other type of individual water supply including the house, waterlines, proposed septic area and any streams, ditches, or steep banks on the site.

DETAIL DIRECTIONS TO PROPERTY

N W E S

See attached drawing ATTACHMENT I

DETAIL PLOT PLAN

N W E S

See attached drawing ATTACHMENT II

Owner Signature (Authorized Agent) James T. Hazelwood Date 10/3/80

DEPARTMENT USE ONLY

Permission is hereby granted to the owner or his agent to perform the work indicated below in accordance with the Boulder County I.S.D.S. Regulations. This permit is to remain in full force for one year from date, unless revoked for non-compliance. Plans and specifications of proposed sewage disposal system which reviewed and attached to this permit have been considered satisfactory. Approval is given if this building site meets existing Zoning and/or Subdivision regulations of Boulder County as they apply in this specific case.

MINIMUM REQUIREMENTS

Install: Septic Tank 1500 gals. / ~~Vault~~ / ~~Other~~
Absorption Field 906 sq. ft., OR ____ feet of trench three feet wide.
No one trench may exceed one hundred feet.

Installation Instructions INSTALL IN DUMP AREA EXACTLY AS PER HAZELWOOD ENGINEERING DESIGN EXCEPT BED SIZE TO BE 906 ft. RECOMMEND COVER TO BE SAME ON-SITE SOIL AS FILL TO FACILITATE PLANT GROWTH. VEHICLES TO BE PREVENTED FROM DRIVING ON FIELD. REMAIN 100' FROM ALL WELLS, 25' FROM WATERLINES. FOLLOW ALL BOULDER COUNTY ISDS REGULATIONS.

Authorized Signatures Dennis Hatten
Owner or Agent Steven G. Brady
Installer ____ Engineer Approval ____
Final Inspection 12/15/80

Approved by Board of Health ____
Permit Date 10-10-80
Date October 15 1980
Date ____
(Health Officer—Sanitarian Signature(s)) Dennis Hatten

al inspection. A final inspection is required for all system installations
E NO RESPONSIBILITY IN CASE OF FAILURE OR INADEQUACY
D FAITH WITH THE PROPERTY OWNER OR REPRESENTATIVE.

Post-it® Fax Note 7671	Date 3/7/08	# of pages ▶ 4
To Andy Gruel	From Jim Sherman	
Co./Dept. Walsh	Co. BCPH	
Phone # 443 3282	Phone # 441 1157	
Fax # 3034430367	Fax #	

12942

SEWAGE DISPOSAL SYSTEM FINAL INSPECTION

Boulder County Health Department

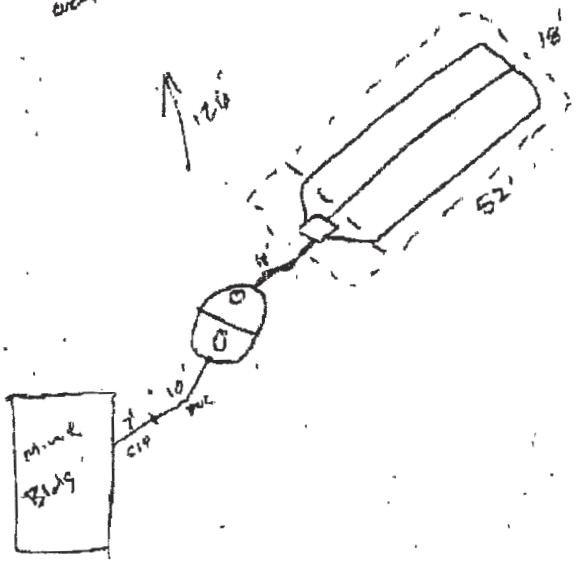
NAME HENDRICKS - GOOD MINING CO

LEGAL DESCRIPTION S9 T1S R73W

INSTALLER STONEHEDGE

System Installed in area of tests yes
Distribution Box yes Water Leveled yes
Distribution Lines 3 Capped ~~Connected~~ Slope level
Type of Grouting asphalt
Depth of Gravel 12"
Paper/Straw straw
Septic Tank/Aeration Unit Construction 1500 gal
Company FRONT RANGE
Size Meets Minimum Requirements 906 yes 936 ~~no~~ variance
Distance to Wells 126'
Distance to Streams/Ditches >100'
Depth of Fill Under System — Adequate Shoulder —
Depth of System 2½'
Other

SCHEMATIC OF SYSTEM (Location, House, Direction, Distances)



52
18
416
52
936

APPROVED per engineer

DENIED _____ REASON _____

DATE 11/17/80

Dennis Gates
Inspected By

3/79 - 214 ENG LETTER 12/15/80

2-1113

HASELWOOD ENGINEERING AND SURVEY COMPANY
1580 GROVE STREET
BOULDER, COLORADO 80302
P O Box 2173

AREA CODE 303
PHONE 442-6783

SEPTIC SYSTEM DESIGN
HENDRICKS-GOOD MINING COMPANY

NW 1/4, Sec. 9, T1S, R73W, 6th P.M.
Boulder County, Colorado

LOCATION: The septic system proposed location is on the mine dump of the mine at Caribou now being opened by the subject mining company. Attachment I shows the approximate location on a portion of U.S. Nederland Quadrangle 15 1/2 Minute Map.

FACILITY: A 30' by 80' multipurpose mine building is now being built at the site. The building will contain a large shop area, storage area, office, lunch area, and dirty and clean locker area. It is estimated that 18 men per 24-hour day will use the lunch room and locker facilities.

DESIGN CONSIDERATIONS: Profile tests and perc tests were taken in two areas as shown in Attachment II. The first area was in the dump rock itself. The dump rock, 0 feet to 8 feet was from fine to moderate size rock interspersed with rock reaching 1 foot + in size. The perc rate in this material was greater than 5 minutes per inch. No measurements could be made.

The second area tried was in an area just North of the mine dump in a natural valley. The profile hole encountered water at about 6 feet where digging was discontinued. Water eventually filled to within 4 feet of the surface. The soil encountered from 0 feet to 3 feet was very fine grained with a sandy appearance. The perc rate in this area was 10 and 15 minutes per inch.

Based on the above data, it is proposed that a modified standard-type absorption system be constructed to dispose of sewage effluent at this location.

SEWAGE SYSTEM DESIGN: It is recommended that the modified absorption system be constructed in the dump area as shown in Attachment II. This would be accomplished by digging out the dump rock to a depth of seven feet, 24 feet wide, 50 feet long and then backfilled with the on-site sandy soil found to the North to a depth of about 6 feet. A standard absorption-type gravel bed and 4 inch pipe

JAMES T. HASELWOOD
COLORADO REGISTERED ENGINEER AND LAND SURVEYOR NO. 9403

distribution system will be constructed in the barrow material at a depth of 3 feet below the surface. The approximate top one foot of the bed will be filled with selected dump rock. The sides of the bed from a depth of 7 feet to within one foot of the surface will be lined with plastic of at least 10 mil thickness. A 1,500 gallon septic tank is recommended for this installation.

Bed design was based on a percolation rate of 15 minutes per inch, and an effluent rate of 900 gallons per day. It is estimated that the barrow material will be compacted to a point so as to have an equivalent percolation rate as it does in the natural state. Compaction will be accomplished with a tract-type loader moving the barrow material. The effluent rate was based on 50 gallons per day per man, for 18 men per 24-hour day.

All construction is to be performed to the current specifications of Boulder County Sewage Disposal System Regulations.

Prepared by:

James T. Haselwood

October 1, 1980

CROSS MINE VEGETATION
ECOLOGICAL SITE SURVEY AND ASSESSMENT

City of Nederland, Colorado

Prepared for:

Calais Resources Colorado, Inc.

P.O. Box 653
Nederland, Colorado 80466-0653

Prepared by:

Walsh Environmental Scientists and Engineers, LLC
4888 Pearl East Circle, Suite 108
Boulder, Colorado 80301
303-443-3282

Walsh Project Number 7160-030

March 12, 2008

Project Summary

This study was conducted to identify, delineate, and describe the plant communities on the Cross Mine, Boulder County, Colorado. The Cross Mine is located five miles west of Nederland, Colorado in the Roosevelt National Forest at an elevation of 9,700 feet. The site is bisected by Coon Track Creek, a tributary of Beaver Creek which flows into Middle Boulder Creek before delivering flow to Barker Reservoir.

Walsh Environmental Scientists and Engineers, LLC (WALSH) ecologists identified and delineated 13 major plant communities totaling 25.1 acres (Figure 1).

Methods

Walsh ecologists were familiarized with the project site at a kick-off meeting on May 24, 2006. Additional site visits were conducted on June 12 and October 5, 2006. Initial plant community identifications were made from a recent aerial photograph of the site. The site was traversed on foot and these identifications were confirmed or modified with additional observations and information. Confirmed community boundaries were drawn over the aerial photo image and digitized. A brief description of each community was composed, including a list of dominant plant species.

Results

Thirteen plant communities (comprising 25.1 acres) were described and mapped. These include 11 upland and two wetland communities. Each community is described below and illustrated in Figure 1. A list of dominant plant species found in each community is located in Table 1.

Upland Plant Communities

Aspen Woodland

Aspen woodland is the most widespread plant community on the site, comprising three individual polygons and representing 7.33 acres (29.2 percent) of the site. This community is dominated by a relatively closed quaking aspen (*Populus tremuloides*) canopy. A few scattered limber coniferous species contribute a minor component to this canopy and include limber pine (*Pinus flexilis*) and lodgepole pine (*Pinus contorta*) as well as subalpine fir (*Abies bifolia*), Engelmann spruce (*Picea engelmannii*) and blue spruce (*Picea glauca*). A lush understory is dominated by graminoids including mountain brome (*Bromus marginatus*), Timothy (*Phleum pratense*), and bluegrasses (*Poa* spp.) Wood's rose (*Rosa woodsii*) and shrubby cinquefoil (*Pentaphylloides floribunda)* represent a limited shrub stratum. A diverse forb component is dominated by Alsike clover (*Trifolium hybridum*), yarrow (*Achillea lanulosa*), wild strawberry

(*Fragaria vesca*), silver lupine (*Lupinus argenteus*), and black-eyed Susan (*Rudbeckia hirta*).

Limber/Lodgepole Pine Parkland

The limber/lodgepole pine parkland includes three polygons comprising 5.44 acres (21.7 percent) of the site. Parklands refer to areas of scattered trees with canopy cover of 50 percent or less. In these areas, limber and lodgepole pine trees are scattered amidst meadows comprising the same species found in the upland meadow community.

Aspen/Lodgepole Pine Parkland

Aspen/lodgepole pine parkland includes less than a half-acre (1.1 percent) of the site. Aspen and lodgepole pine trees are scattered throughout open meadows with an herbaceous component comprising essentially the same species as found in the upland meadows.

Developed

This portion of the site represents areas that have remained unvegetated during surface disturbance caused by onsite human activities. The developed area includes approximately 3.6 acres (14.4 percent) of the site.

Disturbed Upland Meadow

The second-most extensive community on the project site, the disturbed upland meadow area, comprises 4.3 acres (17.3 percent) of the site. It appears that this community once more closely resembles the upland meadow areas. However, the plant community has been modified in response to surface disturbances caused by human activities such as livestock grazing and construction. Fewer native species occur in these areas, which are notably dominated by planted pasture or reclamation grasses such as smooth brome, Timothy, and Kentucky bluegrass (*Poa pratensis*).

Lodgepole Pine Parkland

The lodgepole pine parkland comprises less than an acre (2.7 percent) of the site. This parkland community is named for the lodgepole pine scattered throughout a generally upland meadow herbaceous community dominated by Timothy and smooth brome, intermixed with yarrow and wild strawberry. Common juniper, shrubby cinquefoil, and mountain snowberry (*Symphoricarpos oreophilus*) represent a scattered shrub story.

Planted Grasses

This community comprises less than an acre (1.8 percent) of the site. These areas appear to be locations where the native plant community has been completely removed during human activities and replaced by planted pasture and reclamation grasses such as smooth brome, mountain brome, Timothy, and Kentucky bluegrass.

Rock Outcrop

A rock outcrop includes approximately a tenth of an acre (0.6 percent) in the north portion of the site. This feature supports a few trees and shrubs including subalpine fir, Englemann spruce, lodgepole, limber pine, and broom huckleberry (*Vaccinium scoparium*). Forbs such as pussytoes and golden banner (*Thermopsis montana*) were also present.

Spruce/Fir Woodland

A limited spruce/fir woodland occurs in the north part of the site, comprising approximately a third of an acre (1.5 percent) of land..This community is characterized by a dense Englemann spruce and subalpine fir canopy with a sparse understory of shrubs including broom huckleberry, twinberry honeysuckle (*Lonicera involucrata*), fireweed (*Chamerion danielsii*), whisk broom parsley (*Harbouria trachypleura*), and heartleaf arnica (*Arnica cordifolia*).

Upland Meadow

The upland meadow comprises a small portion of the northern part of the site and accounts for less than an acre (2.9 percent of the site). The area is characterized by Kentucky bluegrass and prairie sagewort forb (*Artemisia ludoviciana*) as co-dominants in a species-rich herbaceous community. Other common grasses include smooth brome (*Bromopsis inermis*), Timothy, Canada bluegrass (*Poa compressa*), and sun sedge (*Carex pensylvanica* subsp. *heliophila)*. The most common forbs include sedum (*Amerosedum lanceolatum*), pussytoes (*Antennaria parviflora*), fringed sage (*Artemisia frigida*), wild geranium (*Geranium richardsonii* and *G. viscossisimum*), yarrow (*Achillea lanulosa*), fringed thistle (*Cirsium centaureae*) and wild strawberry. The only weed noted includes scattered small populations of Canada thistle (*Breea arvensis*) at the community edges where it grades into more mesic areas.

Scattered, low-growing shrubs include Wood's rose, shrubby cinquefoil, broom huckleberry and common juniper (*Juniperus communis*). Occasional clumps of Scouler's willow (*Salix scouleriana*) also occur in the upland meadow.

Willow/Spruce/Fir Woodland

The willow/spruce/fir woodland represents an intermediate community that grades into both the spruce/fir woodland as well as the willow woodland. This community represents slightly more than an acre (4.1 percent) of the site. The canopy is dominated by a number of willow species including Geyer (*Salix geyeriana*), plane-leaf (*S. planifolia*), mountain (*S. montana*), and sandbar (*S. exigua*) intermixed with Colorado blue spruce (*Picea pungens*) and subalpine fir. This community also supports a diverse shrub story with dense stands of thin-leaf alder (*Alnus incana* subsp. *tenuifolia)* and bog birch *(Betula pumila*) as well as wax currant (*Ribes cereum*), prickly currant (*R. lacustre*), twinberry honeysuckle, and Wood's rose. A lush herbaceous understory includes wild strawberry, wild geranium, large-leaved avens (*Geum macrophyllum*), yellow

bedstraw (*Galium verum*), bluebells (*Mertensia ciliata*), dandelion (*Taraxacum officinale*), clover (*Trifolium* spp.), and death camas (*Zigadenus venenosus*).

Wetland Plant Communities

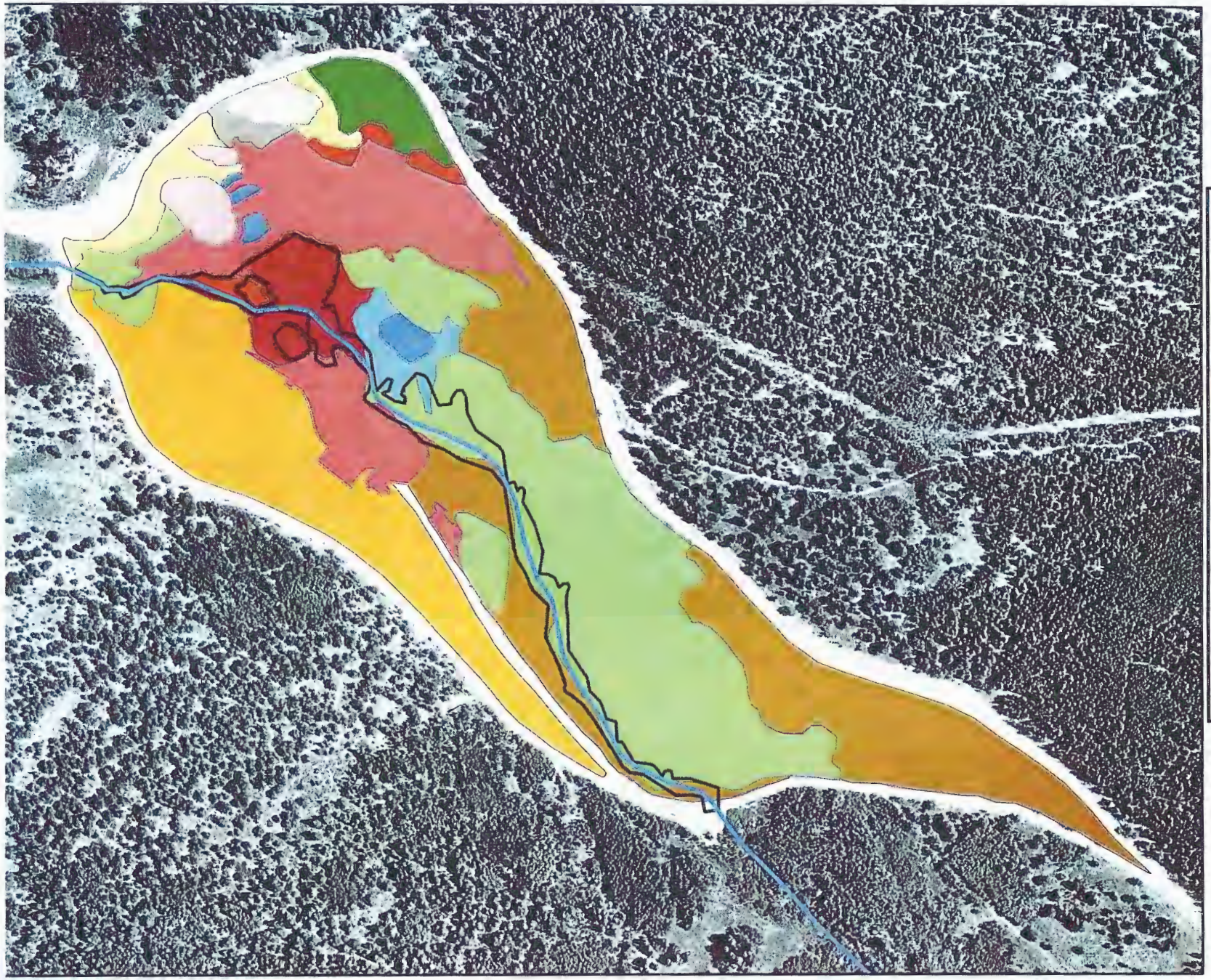
Pond (Open Water)

Four human-constructed holding ponds occur on the site, totaling approximately a quarter acre (1.0 percent of the site). The largest pond occurs in the center of the planted grasses community. This pond margin supports a mixture of the aforementioned planted grasses, with pockets of narrow-leaved cattails (*Typha angustifolia*) and plane-leaf willow. The smaller ponds occur in the developed area and support relatively few plants along their margins.

Willow Woodland

The willow woodland community occurs adjacent to the creek channel, in the most mesic portion of the site. This woodland comprises almost a half acre (1.7 percent) of the site. The area is characterized by a dense willow canopy composed of the same species found in the willow/spruce/fir woodland. The same dense shrub and lush herbaceous components that are present in the willow/spruce/fir woodland also occur in this community.

Cross Mine Plant Communities



Walsh

environmental Scientists and Engineers, LLC

ATTACHMENT H

To: Boulder County Land Use Department

From: Walsh Environmental Scientists and Engineers, LLC

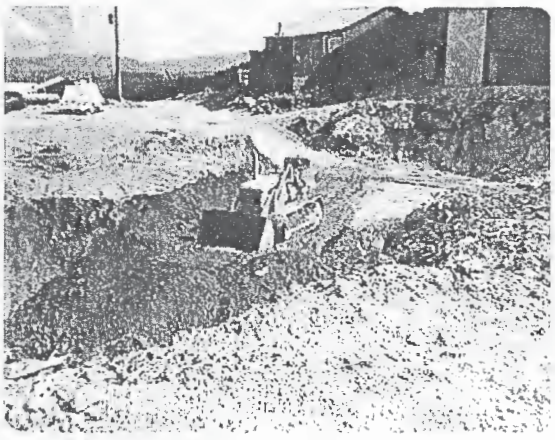
Re: Request for approval to demolish on-site wooden structure

---

Request: As part of the application to Boulder County Land Use, Calais Resources respectfully requests approval to demolish on-site wooden structure to construct new mill associated with the restart of the Cross Mine, a wholly owned and operated gold and silver mining operation near Nederland, Colorado. The Cross Mine is in Section 9, Township 1 South, Range 73 West, Boulder County, Colorado, and is part of the 3.5 square mile land package owned by Calais Resources. The mine is located approximately 5 miles west of Nederland, Colorado in the Roosevelt National Forest at an elevation of 9700 ft above sea level. All activities associated with the restart of the Cross Mine are on private fee land owned by Calais Resources.



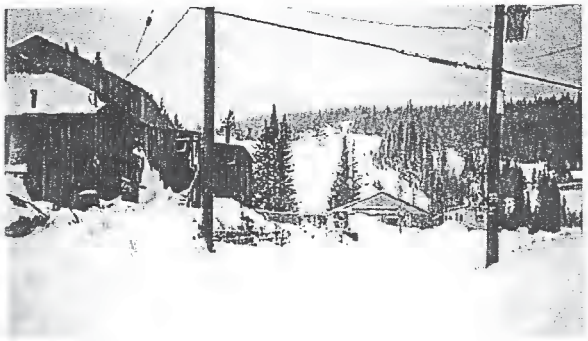
Photographs of wooden structure. Top photo dated mid 1970's, bottom photo dated 1977.



Year of construction: 1925

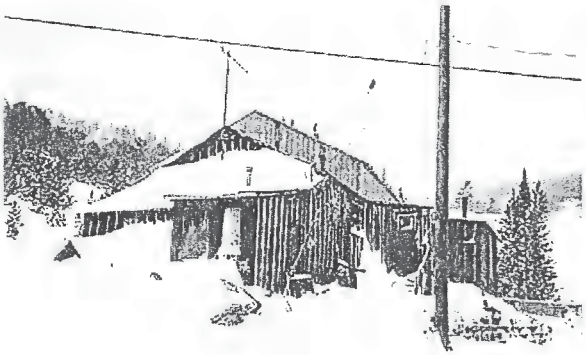
Construction: wooden frame, one story

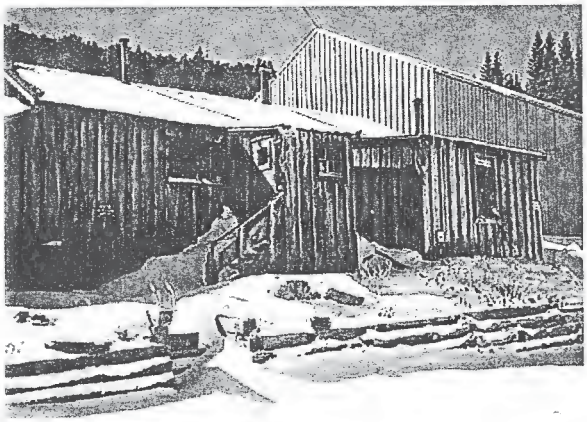
Use/History of the structure: The structure was built by the Cross Mining Company (Mr. George H. Teal and Mr. Todd Dofflemyer) and was used as a boarding house for the Cross Mine operation. Several miners lived in the structure in the late 1920's and early 1930's. When the Cross Mine was closed due to the war closure act, Jimmy Hibler (the brother in law of Todd Dofflemyer) moved to the cabin as caretaker for the mine until his death in the early 1960's. Tom Hendricks moved to the property on July 12, 1971 and remodeled the structure to be used as a mine office in the early 1970's. Visitors and site geologists occasionally lived in the structure in the late 1970's and early 1980's. Mike Savage, a mining engineer and miner, lived in the structure in the mid 1980's and early 1990's. The structure has been reportedly significantly altered and modified over the course of its existence. (*Source of information: Tom Hendricks, Calais Resources, January 31, 2008)*





Current photographs of structure. Photographs dated January 2008





Section 3

Walsh
Environmental Scientists and Engineers, LLC
an **ecology and environment** company

I hereby certify that this report for the preliminary drainage design of the Calais Cross Mine Expansion Project was prepared under my direct supervision in accordance with the provisions of the Boulder County Storm Drainage Criteria Manual for the owners thereof.

Julie Ellis Ash
Colorado Registered Professional Engineer

State of Colorado No. 35723

4888 Pearl East Circle Suite 108 Boulder, Colorado 80301-2475 Phone (303) 443-3282 FAX (303) 443-0367

INTRODUCTION

The purpose of this document is to present drainage concepts and preliminary design for the Calais Mine Site proposed access road. This report does not offer construction level detail, rather, it serves as general guidance for initial stages of site development.

I DRAINAGE SYSTEM DESCRIPTION

The Calais Cross Mine Expansion Project lies within the upper most reach of the Coon Track Creek watershed, which is a left bank tributary to Beaver Creek then to Boulder Creek in Boulder County. The Project boundary lies on the north and south side of Coon Track Creek about 1-mile directly east of Caribou Hill (see Figure 1 – Overall Drainage Plan). The Project lies within section 9 of Range 73 W and Township 1 S of the Nederland USGS quad.

At the west end of the Project, Coon Track Creek watershed is approximately 390-acres in size and increases to around 490 acres at the east end. The highest elevation is 10,150 feet, which drops to elevation just above 9,600 feet at the east end of the Project. The main channel slopes from 7% to as steep as 25% just above the Project area, with an overall slope around 11%.

Coon Track Creek watershed varies from dense tree cover along steep valley slopes (30% and greater) above the Project area to flatter steps with medium dense vegetation and milder slopes (less than 10%). The soils vary from Type B to C and D hydrologic groups. For calculating peak runoff rates, soils were assumed to be HSG C.

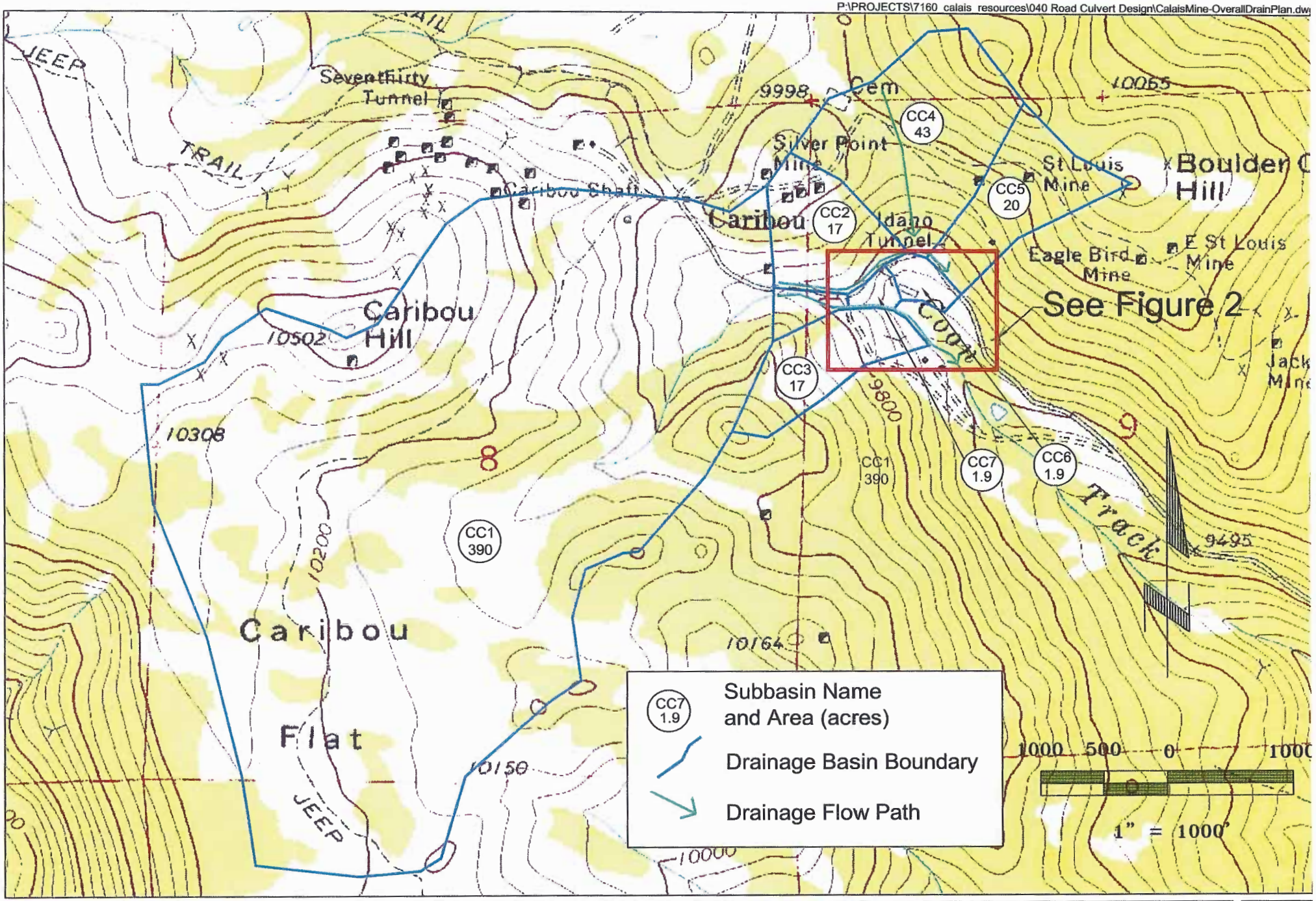
Existing Drainage Conditions

Within the Project area (see Figure 2 – Site Drainage Plan), the pre-project drainage was altered by previous mine operations and facilities. Five ponds (Item 11) of varying sizes were used to collect and treat mine drainage from the Project and from another mine operation (i.e.: the Idaho Mine tunnel, Item 9). The ponds also collected local runoff to some extent. Most of the potential offsite runoff has been diverted around the Project by the roadside ditch along the north side of Caribou Road, as illustrated by the drainage path flow arrows on Figure 2. The offsite drainage crosses Caribou Road in the existing culvert (Item 27) and is discharged to Coon Track Creek.

Proposed Drainage Conditions.

To accommodate the new road (item 4) and other operational improvements, modifications to the existing drainage system are proposed, the key features which are described below.

New Access Road. The proposed new access road (item 4) will require two new 36" diameter culverts with flared end sections and outlet protection (item 15). The culverts are sized to convey the 10-year flood peak without overtopping the roadway. Because of the steep channel slope of Coon Track Creek, the riprap outlet protection includes a grouted rundown, a low-tailwater sediment basin, and a short channel transition (see Figure 3 – Drainage Details).



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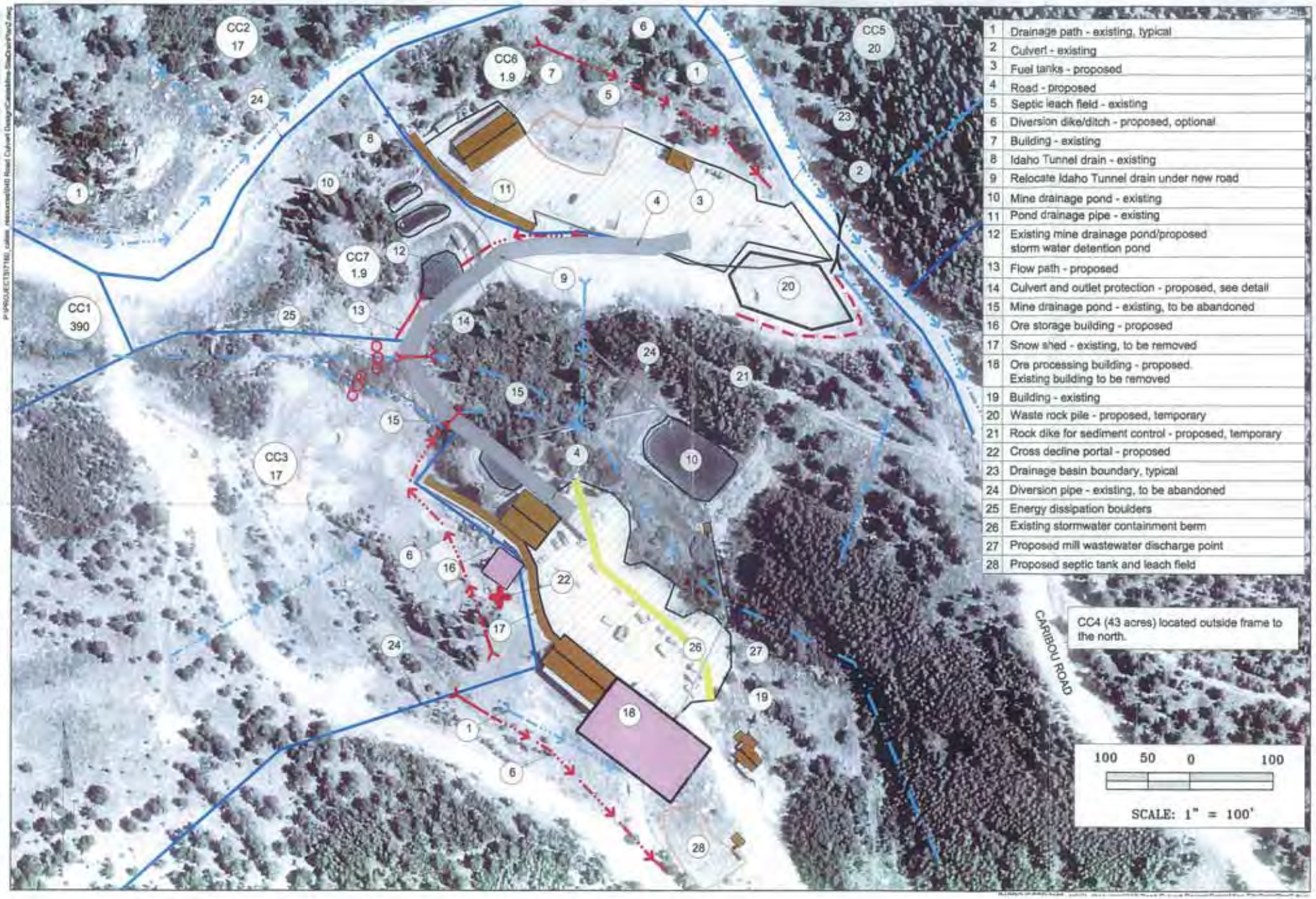
DRAWN BY:	JB
CHECKED BY:	
DATE:	03-07-08

NO:	REVISIONS:	DATE:	BY:
#1			
#2			
#3			

Calais Mine Site
Drainage Plan

Overall Site Plan

DRAWING:	1
SHEET:	1 of 1



1	Drainage path - existing, typical
2	Culvert - existing
3	Fuel tanks - proposed
4	Road - proposed
5	Septic leach field - existing
6	Diversion dike/ditch - proposed, optional
7	Building - existing
8	Idaho Tunnel drain - existing
9	Relocate Idaho Tunnel drain under new road
10	Mine drainage pond - existing
11	Pond drainage pipe - existing
12	Existing mine drainage pond/proposed storm water detention pond
13	Flow path - proposed
14	Culvert and outlet protection - proposed, see detail
15	Mine drainage pond - existing, to be abandoned
16	Ore storage building - proposed
17	Snow shed - existing, to be removed
18	Ore processing building - proposed. Existing building to be removed
19	Building - existing
20	Waste rock pile - proposed, temporary
21	Rock dike for sediment control - proposed, temporary
22	Cross decline portal - proposed
23	Drainage basin boundary, typical
24	Diversion pipe - existing, to be abandoned
25	Energy dissipation boulders
26	Existing stormwater containment berm
27	Proposed mill wastewater discharge point
28	Proposed septic tank and leach field

DRAWING: 2

SHEET: 1 of 1

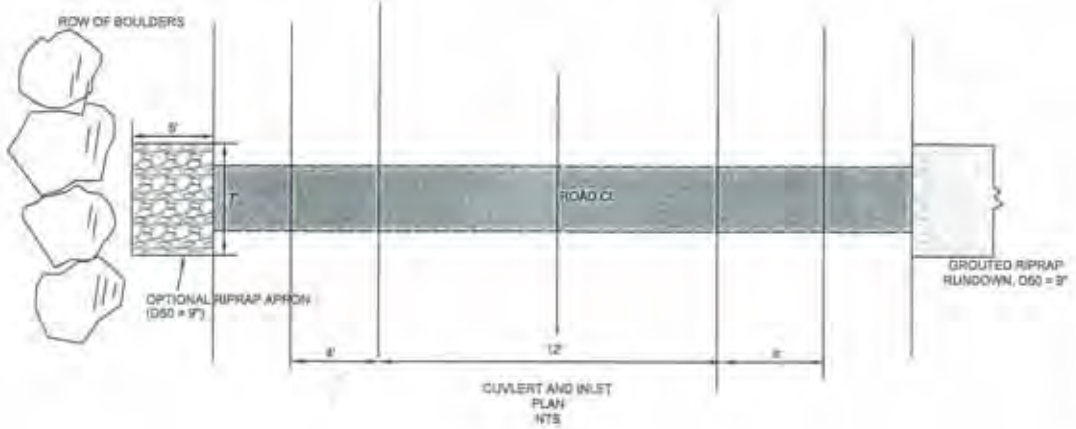
Calais Mine Site
Drainage Plan

Site Drainage Plan

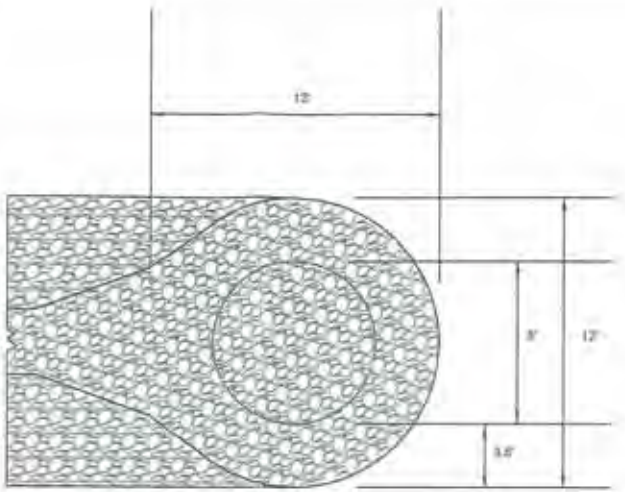
NO	REVISIONS	DATE:	BY:
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DRAWN BY: KHJB
CHECKED BY:
DATE: 02-07-08
PROJECT NO: 7180.048

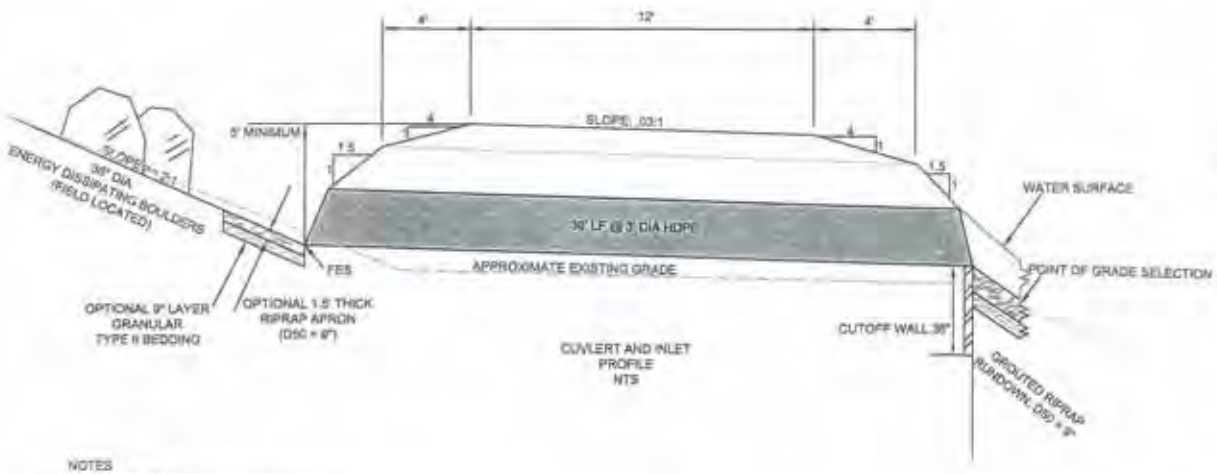
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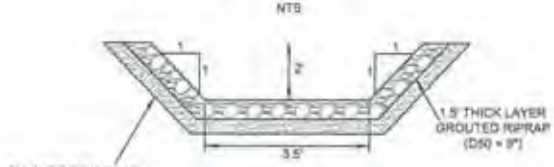
CULVERT AND INLET
PLAN
NTS



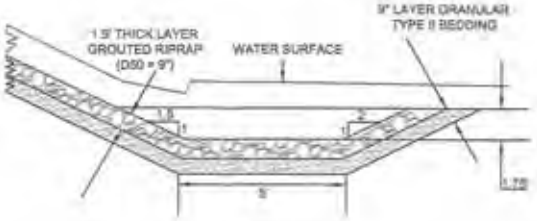
LOW TAILWATER BASIN
PLAN
NTS



CULVERT AND INLET
PROFILE
NTS



GROUTED RIPRAP RUNDOWN
SECTION
NTS



LOW TAILWATER BASIN
PROFILE
NTS

NOTES

1. FES AT BOTH ENDS
2. MSHA REQUIREMENTS MAY CHANGE SECTION.
   A LONGER CULVERT MAY BE REQUIRED
3. 5' MINIMUM FROM ROAD SURFACE TO INLET INVERT ALLOWS 2 FT PIPE COVER

DRAWING: 3
SHEET: 1 of 1

Calais Mine Site
Drainage Plan

Culvert Plan and Profile

NO.	REVISIONS:	DATE:	BY:
#1			
#2			
#3			
#3			

DRAWN BY: JS
CHECKED BY: RA
DATE: 03-11-08
PROJECT NO: T150.041

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Storm runoff from sub-basin CC7 will be collected in roadside ditches and directed to the new stormwater detention pond (item 13). Currently this pond collects mine drainage, but will be modified to allow construction of the new roadway and to provide stormwater storage. The new road will also result in abandoning and filling a mine drainage pond (item 16) at the south end of the road.

Preliminary Earthwork Calculations. The best available topographic information is currently 40-ft contours from USGS topographic quadrangle maps. To preliminarily approximate cut and fill volumes associated with the new access road, assumptions have been made for local slopes and elevations along the proposed road alignment under existing conditions.

The northern portion of the new access road will be constructed at or near existing grade and final design will include location to target an approximate balance of cut and fill requirements. The center portion of the new road crosses the two proposed culverts. In order to provide the necessary cover for the culverts, fill will be required in the center section. The southern portion of the new road will also target an approximate balance of cut and fill requirements, but may be more constrained by proposed road elevations and therefore not as close to existing grade. Preliminary calculations approximate the earthwork volumes associated with construction of the new access road to include roughly 2000 cy of fill and 1000 cy of cut. Assumptions used for the preliminary earthwork calculations are provided in Appendix A.

Waste Rock Storage. Waste rock from the new portal (item 23) located at the south end of the Project will be temporarily stock piled at the north east area of the Project (item 21) and later hauled from the site. To protect Coon Track Creek, a rock dike will be constructed around the downstream portion of the rock pile to collect and filter fine sediment from the waste rock. Since the rock pile is expected to be removed within 3-years, the sediment is expected to be minimal and not require removal. After removal of the waste rock, the temporary rock dike will be removed.

Other Drainage Facilities. Two diversion dikes/ditches (item 7) may also be constructed to protect the operations area, one at the north end and one at the south end of the Project. The north dike will capture and divert a portion of the runoff from sub-basin CC6 and direct it to the culvert under the entrance road to the north side operation. The south dike will capture and divert most of the runoff from sub-basin CC3 and direct it to Coon Track Creek. Both of these diversion dikes/ditches are considered optional, depending on whether runoff from the two sub-basins impact operations.

To protect the roadway and new culverts from flood events in Coon Track Creek, energy dissipation boulders (item 26) will be placed in the creek bed above the culverts in the steep section of the channel. The boulders will dissipate energy by providing an impact surface during larger flows and by creating small pond area upstream of the boulders. The location and number of energy dissipation boulders will be determined in the field.

II DRAINAGE ANALYSIS AND DESIGN CRITERIA

A. Regulations

The drainage plan for the Calais Mine was prepared in accordance with the criteria and requirements of the Boulder County Storm Drainage Criteria Manual[1].

B. Hydrologic Criteria

Due to the significant size differences between the Coon Track Creek watershed (CC1) and the remaining subbasin areas, two different hydrologic models were employed. All subbasins except CC1 were analyzed using the Rational Method, which was developed specifically for small watersheds. The Colorado Unit Hydrograph Procedure (CUHP) was applied to CC1. Both methods are recommended by Boulder County Road Standards.

CC1 is the only watershed that drains to the proposed culverts. The remaining subbasins empty into existing roadside ditches (CC2, CC4 and CC5), detention ponds (CC6 and CC7), or are routed offsite (CC3) as shown in Figure 2. Hydrologic modeling was run for these basins to check the adequacy of existing site drainage systems. A 10-year storm was selected for peak flow analysis, per Boulder County Road Standards for private roads.

CUHP results for CC1 and Rational Method results for the remaining subbasins are shown in Table 1. Hydrologic calculations are provided in Appendix B.

Table 1.

Subbasin	Area (acres)	10-year Peak Flow (cfs)	100-year Peak Flow (cfs)
CC1*	390	132	549
CC2#	17	17	30
CC3#	17	16	29
CC4#	43	42	74
CC5#	20	20	35
CC6#	1.9	2	4
CC7#	1.9	2	4

*CUHP used for Coon Track Creek watershed
Rational Method used for small subbasins

CUHP results indicate a 10-year storm peak flow of 132 cfs and a 100-year storm peak of 549cfs where the proposed road crosses the Creek. Field observation suggests that

[1] WRC Engineering, Inc. 1984. *Boulder County Storm Drainage Criteria Manual.*

Coon Track Creek splits evenly prior to the proposed road crossing; therefore each culvert was designed to pass 66 cfs. Two 36" diameter high density polyethylene (HDPE) culverts were selected to pass the design flow. HDPE material was selected for durability in acidic and abrasive environments.

C. Hydraulic Criteria

Due to the steep terrain, the outlet of the culverts will require a riprap rundown to convey the flood flows to a low-tailwater stilling basin, which provides energy dissipation for the high velocity flows. Upstream of the culverts, a line of large (36" diameter) boulders will be installed that are spaced to allow low flows to pass between the boulders. During high flows, the boulders will create small pools for energy dissipation, which also promotes sediment deposition. A plan and profile of the culvert, rundown, stilling basin, and energy dissipation boulder for erosion control are provided on Figure 3.

Hydraulic calculations are provided in Appendix C.

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APPENDIX A

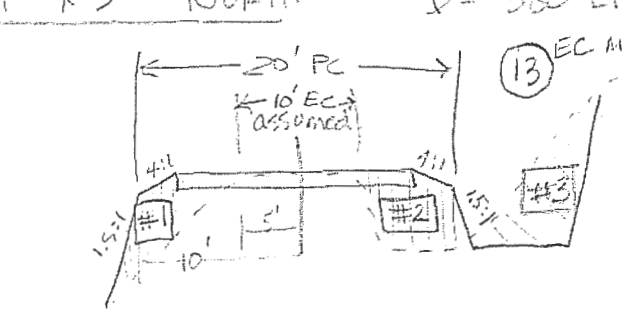
Earthwork
Volume Calculations

4888 Pearl East Circle Suite 108 Boulder, Colorado 80301-2475 Phone (303) 443-3282 FAX (303) 443-0367

Walter
Environmental Scientists and Engineers, Inc

By JEA Date 3-10-08 Subject CALAIS ACCESS RD Sheet No. 1 of 1
Chkd. By ____ Date ____ EARTHWORK ESTIMATES Proj. No. 7160-041

TYP XS - NORTH ℓ = 380 LF N. END TO BASIN CC3



(13) EC Mine pond to become SW det. pond

assume 4' depth EC mine pond

#1 FILL



± 25 sf/LF

#2 FILL



± 10 sf/LF

#3 CUT assume ≈ FILL

$\forall_{NORTH}$ = (25+10) @ 380 LF

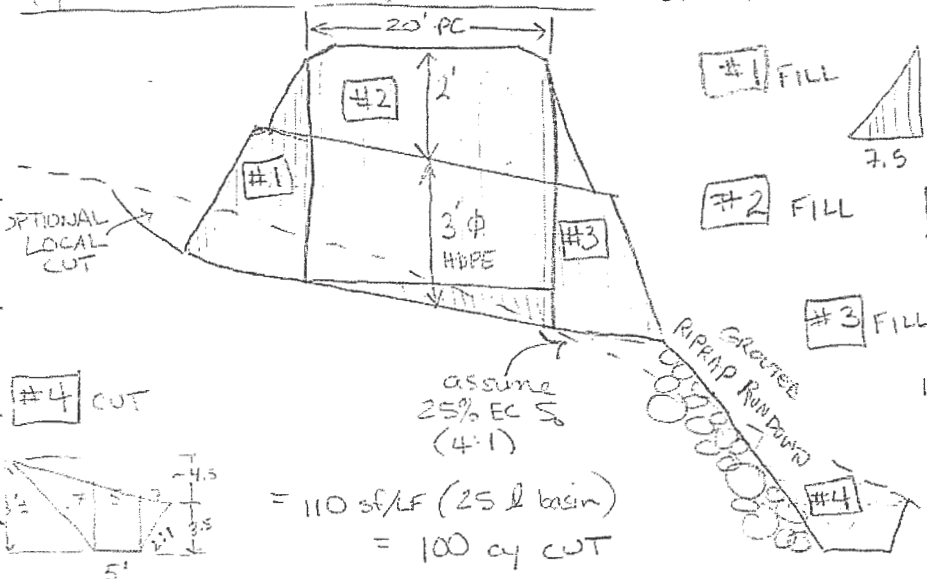
≅ 500 cy FILL
≅ 500 cy CUT

TYP XS - SOUTH ℓ = 180 LF BASIN CC3 TO S. END

Assume 20% more fill & less cut than NORTH XS due to EC Mine pond fill and addtl fill from CENTER (CULVERT) SECTION

$\forall_{SOUTH}$ ≅ 500 (1.2) = 600 cy FILL
≅ 500 (0.8) = 400 cy CUT

TYP XS - CENTER (CULVERTS) ℓ = 100 LF = BASIN CC3

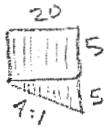


*CULVERT VOID SPACE NOT SIGNIF.
(1) 36"ϕ = 7sf/LF @ 40 LF ⇒ 10 cy VOID

#1 FILL

= 18.75 sf, use 20 sf/LF

#2 FILL



$= 20(5) + \frac{(20)(5)}{2}$ = 150 sf/LF

#3 FILL

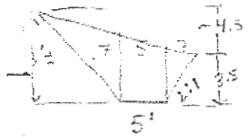


= 75 sf/LF

Σ = 245 sf/LF

$\forall_{CENTER}$ = 245 sf/LF @ 100 LF
≅ 900 cy FILL

#4 CUT



= 110 sf/LF (25 ℓ basin)
= 100 cy CUT

$\frac{3(16)}{2} + 6(5) + \frac{4(7)}{2}$ = 108 sf/LF
use 110 sf/LF basin CUT

≅ 100 cy CUT

TOTALS ≅ 2000 cy FILL
≅ 1000 cy CUT

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APPENDIX B

Hydrology Calculations

CUHP Output, Rational Method Output

4888 Pearl East Circle Suite 108 Boulder, Colorado 80301-2475 Phone (303) 443-3282 FAX (303) 443-0367

1 U.D.F.C.D. CUHP RUNOFF ANALYSIS EXECUTED ON DATE 2/26/2008 AT TIME 9:13

CUHPF/PC RELEASE 2A (32-BIT VER) SEPTEMBER 10, 1998

PRINT OPTION NUMBER SELECTED FOR THIS BASIN IS 7

u Flats

BASIN ID: 1 -- BASIN COMMENT: Caribou Flats

AREA (SQMI)	LENGTH OF BASIN (MI)	DIST TO CENTROID (MI)	IMPERV. AREA (PCT)	SLOPE (FT/FT)	UNIT DURATION (MIN)
0.62	1.20	0.65	2.00	0.0440	5.00

COEFFICIENT (REFLECTING TIME TO PEAK)	COEFFICIENT (RELATED TO PEAK RATE OF RUNOFF)
0.156	0.311

THIS BASIN USES TRADITIONAL DRAINAGE PRACTICES

FRACTION OF PERVIOUS AREA RECEIVING IMPERVIOUS DRAINAGE (DEFAULT)	FRACTION OF IMPERVIOUS AREA DIRECTLY CONNECTED TO DRAINAGE SYSTEM (DEFAULT)
R= 0.06	D= 0.04

CALCULATED UNIT HYDROGRAPH

TIME TO PEAK (MIN)	PEAK RATE OF RUNOFF (CFS/SQMI)	UNIT HYDROGRAPH PEAK (CFS)	VOLUME OF RUNOFF (AF)
20.03	680.54	421.93	33.07

WIDTH AT 50 = 44. MIN. WIDTH AT 75 = 23. MIN. K50 =0.27 K75 =0.37

RAINFALL LOSSES INPUT W/ BASIN DATA

MAX. PERVIOUS RET. =0.40 IN. MAX. IMPERVIOUS RET. =0.05 IN.
INFILTRATION = 3.00 IN./HR. DECAY = 0.00180/SECOND FNINFL = 0.50 IN./HR.

TIME	UNIT HYDROGRAPH	TIME	UNIT HYDROGRAPH	TIME	UNIT HYDROGRAPH
0.	0.	70.	141.	140.	29.
5.	106.	75.	126.	145.	26.
10.	276.	80.	112.	150.	23.
15.	389.	85.	100.	155.	21.
20.	422.	90.	90.	160.	18.
25.	400.	95.	80.	165.	16.
30.	353.	100.	71.	170.	15.
35.	313.	105.	64.	175.	13.
40.	283.	110.	57.	180.	12.
45.	253.	115.	51.	185.	10.
50.	224.	120.	45.	190.	9.
55.	198.	125.	41.	195.	8.
60.	176.	130.	36.	200.	7.
65.	158.	135.	32.	205.	0.

1 BASIN ID: 1 -- BASIN COMMENT: Caribou Flats

**** STORM NO. = 1 **** DATE OR RETURN PERIOD = 2

TIME (MIN.)	INCREMENT RAINFALL (IN)	TOTAL* EXCESS PRECIP	STORM** HYDROGRAPH (CFS)	TIME (MIN.)	INCREMENT RAINFALL (IN)	TOTAL* EXCESS PRECIP	STORM** HYDROGRAPH (CFS)
0.	0.00	0.000	0.	5.	0.02	0.000	0.

* LESS ANY WATER QUALITY CAPTURE VOLUME
** INCLUDES ANY WATER QUALITY CAPTURE VOLUME RELEASE FLOW

TOTAL PRECIP. = 0.88 (1-HOUR RAIN = 0.76) EXCESS PRECIP. = 0.001 INCHES
VOLUME OF EXCESS PRECIP = 0.02 ACRE-FEET
PEAK Q = 0. CFS TIME OF PEAK = 45. MIN.
INFILT.= 3.00 IN/HR DECAY =0.00180 FNINF = 0.50 IN/HR
MAX.PERV.RET.=0.40 IN. MAX.IMP.RET.=0.05 IN.

1 BASIN ID: 1 -- BASIN COMMENT: Caribou Flats

**** STORM NO. = 2 **** DATE OR RETURN PERIOD = 5

TIME (MIN.)	INCREMENT RAINFALL (IN)	TOTAL* EXCESS PRECIP	STORM** HYDROGRAPH (CFS)	TIME (MIN.)	INCREMENT RAINFALL (IN)	TOTAL* EXCESS PRECIP	STORM** HYDROGRAPH (CFS)
0.	0.00	0.000	0.	100.	0.02	0.000	15.
5.	0.02	0.000	0.	105.	0.02	0.000	13.
10.	0.04	0.000	0.	110.	0.02	0.000	12.
15.	0.10	0.000	0.	115.	0.02	0.000	10.
20.	0.18	0.000	0.	120.	0.02	0.000	9.
25.	0.30	0.009	1.	125.	0.00	0.000	8.
30.	0.16	0.067	10.	130.	0.00	0.000	

7.	35.	0.07	0.023	24.	135.	0.00	0.000
7.	40.	0.05	0.008	37.	140.	0.00	0.000
6.	45.	0.04	0.001	43.	145.	0.00	0.000
5.	50.	0.04	0.001	43.	150.	0.00	0.000
5.	55.	0.04	0.000	40.	155.	0.00	0.000
4.	60.	0.04	0.000	36.	160.	0.00	0.000
4.	65.	0.04	0.000	32.	165.	0.00	0.000
3.	70.	0.04	0.000	29.	170.	0.00	0.000
3.	75.	0.03	0.000	26.	175.	0.00	0.000
3.	80.	0.03	0.000	23.	180.	0.00	0.000
2.	85.	0.03	0.000	21.	185.	0.00	0.000
2.	90.	0.03	0.000	18.	190.	0.00	0.000
2.	95.	0.03	0.000	16.	195.	0.00	0.000

* LESS ANY WATER QUALITY CAPTURE VOLUME
** INCLUDES ANY WATER QUALITY CAPTURE VOLUME RELEASE FLOW

TOTAL PRECIP. = 1.39 (1-HOUR RAIN = 1.20) EXCESS PRECIP. = 0.110 INCHES
VOLUME OF EXCESS PRECIP = 3.64 ACRE-FEET
PEAK Q = 43. CFS TIME OF PEAK = 50. MIN.
INFILT.= 3.00 IN/HR DECAY =0.00180 FNINF = 0.50 IN/HR
MAX.PERV.RET.=0.40 IN. MAX.IMP.RET.=0.05 IN.

1 BASIN ID: 1 -- BASIN COMMENT: Caribou Flats

**** STORM NO. = 3 **** DATE OR RETURN PERIOD = 10

TIME (MIN.)	INCREMENT RAINFALL (IN)	TOTAL* EXCESS PRECIP	STORM** HYDROGRAPH (CFS)	TIME (MIN.)	INCREMENT RAINFALL (IN)	TOTAL* EXCESS PRECIP	STORM** HYDROGRAPH (CFS)
0.	0.00	0.000	0.	115.	0.03	0.000	41.
5.	0.03	0.000	0.	120.	0.02	0.000	36.
10.	0.06	0.000	0.	125.	0.00	0.000	32.

29.	15.	0.13	0.000	0.	130.	0.00	0.000
26.	20.	0.23	0.000	0.	135.	0.00	0.000
23.	25.	0.39	0.130	14.	140.	0.00	0.000
21.	30.	0.19	0.135	50.	145.	0.00	0.000
18.	35.	0.09	0.040	92.	150.	0.00	0.000
16.	40.	0.07	0.022	120.	155.	0.00	0.000
15.	45.	0.06	0.016	132.	160.	0.00	0.000
13.	50.	0.05	0.008	130.	165.	0.00	0.000
12.	55.	0.05	0.008	123.	170.	0.00	0.000
10.	60.	0.05	0.008	115.	175.	0.00	0.000
9.	65.	0.05	0.008	107.	180.	0.00	0.000
8.	70.	0.05	0.009	100.	185.	0.00	0.000
7.	75.	0.05	0.009	93.	190.	0.00	0.000
7.	80.	0.04	0.001	86.	195.	0.00	0.000
6.	85.	0.03	0.000	79.	200.	0.00	0.000
5.	90.	0.03	0.000	72.	205.	0.00	0.000
5.	95.	0.03	0.000	64.	210.	0.00	0.000
4.	100.	0.03	0.000	57.	215.	0.00	0.000
4.	105.	0.03	0.000	51.	220.	0.00	0.000
3.	110.	0.03	0.000	46.	225.	0.00	0.000

* LESS ANY WATER QUALITY CAPTURE VOLUME
** INCLUDES ANY WATER QUALITY CAPTURE VOLUME RELEASE FLOW

TOTAL PRECIP. = 1.79 (1-HOUR RAIN = 1.55) EXCESS PRECIP. = 0.393 INCHES
VOLUME OF EXCESS PRECIP = 12.99 ACRE-FEET
PEAK Q = 132. CFS TIME OF PEAK = 45. MIN.
INFILT.= 3.00 IN/HR DECAY =0.00180 FNINF = 0.50 IN/HR
MAX.PERV.RET.=0.40 IN. MAX.IMP.RET.=0.05 IN.

1 BASIN ID: 1 -- BASIN COMMENT: Caribou Flats

**** STORM NO. = 4 **** DATE OR RETURN PERIOD = 50

TIME	INCREMENT RAINFALL	TOTAL* EXCESS	STORM** HYDROGRAPH	TIME	INCREMENT RAINFALL	TOTAL* EXCESS

HYDROGRAPH (MIN.)	(IN)	PRECIP	(CFS)	(MIN.)	(IN)	PRECIP	(CFS)
0.	0.00	0.000	0.	125.	0.00	0.000	110.
5.	0.03	0.000	0.	130.	0.00	0.000	98.
10.	0.08	0.000	0.	135.	0.00	0.000	87.
15.	0.12	0.000	0.	140.	0.00	0.000	78.
20.	0.19	0.000	0.	145.	0.00	0.000	70.
25.	0.35	0.041	4.	150.	0.00	0.000	62.
30.	0.59	0.536	68.	155.	0.00	0.000	56.
35.	0.28	0.235	189.	160.	0.00	0.000	50.
40.	0.19	0.143	305.	165.	0.00	0.000	44.
45.	0.12	0.074	381.	170.	0.00	0.000	40.
50.	0.12	0.075	412.	175.	0.00	0.000	35.
55.	0.08	0.034	410.	180.	0.00	0.000	32.
60.	0.08	0.034	393.	185.	0.00	0.000	28.
65.	0.08	0.034	374.	190.	0.00	0.000	25.
70.	0.06	0.015	351.	195.	0.00	0.000	23.
75.	0.06	0.015	325.	200.	0.00	0.000	20.
80.	0.04	0.001	297.	205.	0.00	0.000	18.
85.	0.04	0.001	269.	210.	0.00	0.000	16.
90.	0.03	0.000	241.	215.	0.00	0.000	14.
95.	0.03	0.000	216.	220.	0.00	0.000	13.
100.	0.03	0.000	193.	225.	0.00	0.000	11.
105.	0.03	0.000	172.	230.	0.00	0.000	6.
110.	0.03	0.000	154.	235.	0.00	0.000	4.
115.	0.03	0.000	137.	240.	0.00	0.000	3.
120.	0.03	0.000	123.	245.	0.00	0.000	2.

* LESS ANY WATER QUALITY CAPTURE VOLUME
** INCLUDES ANY WATER QUALITY CAPTURE VOLUME RELEASE FLOW

TOTAL PRECIP. = 2.72 (1-HOUR RAIN = 2.35) EXCESS PRECIP. = 1.241 INCHES

VOLUME OF EXCESS PRECIP = 41.03 ACRE-FEET
PEAK Q = 412. CFS TIME OF PEAK = 50. MIN.
INFILT.= 3.00 IN/HR DECAY =0.00180 FNINF = 0.50 IN/HR
MAX.PERV.RET.=0.40 IN. MAX.IMP.RET.=0.05 IN.

1 BASIN ID: 1 -- BASIN COMMENT: Caribou Flats

**** STORM NO. = 5 **** DATE OR RETURN PERIOD = 100

TIME (MIN.)	INCREMENT RAINFALL (IN)	TOTAL* EXCESS PRECIP	STORM** HYDROGRAPH (CFS)	TIME (MIN.)	INCREMENT RAINFALL (IN)	TOTAL* EXCESS PRECIP	STORM** HYDROGRAPH (CFS)
0.	0.00	0.000	0.	125.	0.00	0.000	153.
5.	0.03	0.000	0.	130.	0.00	0.000	136.
10.	0.08	0.000	0.	135.	0.00	0.000	122.
15.	0.13	0.000	0.	140.	0.00	0.000	109.
20.	0.22	0.000	0.	145.	0.00	0.000	97.
25.	0.38	0.112	12.	150.	0.00	0.000	87.
30.	0.69	0.633	98.	155.	0.00	0.000	78.
35.	0.38	0.336	254.	160.	0.00	0.000	69.
40.	0.22	0.175	404.	165.	0.00	0.000	62.
45.	0.17	0.127	504.	170.	0.00	0.000	55.
50.	0.14	0.095	547.	175.	0.00	0.000	49.
55.	0.11	0.068	549.	180.	0.00	0.000	44.
60.	0.11	0.068	535.	185.	0.00	0.000	39.
65.	0.11	0.068	518.	190.	0.00	0.000	35.
70.	0.05	0.014	494.	195.	0.00	0.000	31.
75.	0.05	0.014	459.	200.	0.00	0.000	28.
80.	0.03	0.000	419.	205.	0.00	0.000	25.
85.	0.03	0.000	378.	210.	0.00	0.000	22.
90.	0.03	0.000	338.	215.	0.00	0.000	20.
95.	0.03	0.000	302.	220.	0.00	0.000	

18.	100.	0.03	0.000	269.	225.	0.00	0.000
15.	105.	0.03	0.000	240.	230.	0.00	0.000
9.	110.	0.03	0.000	214.	235.	0.00	0.000
6.	115.	0.03	0.000	191.	240.	0.00	0.000
4.	120.	0.03	0.000	171.	245.	0.00	0.000
3.							

* LESS ANY WATER QUALITY CAPTURE VOLUME
** INCLUDES ANY WATER QUALITY CAPTURE VOLUME RELEASE FLOW

TOTAL PRECIP. = 3.17 (1-HOUR RAIN = 2.74) EXCESS PRECIP. = 1.711 INCHES
VOLUME OF EXCESS PRECIP = 56.57 ACRE-FEET
PEAK Q = 549. CFS TIME OF PEAK = 55. MIN.
INFILT.= 3.00 IN/HR DECAY =0.00180 FNINF = 0.50 IN/HR
MAX.PERV.RET.=0.40 IN. MAX.IMP.RET.=0.05 IN.

TIME OF CONCENTRATION

PROJECT: **CALAIS MINE DRAINAGE - SMALL BASIN RATIONAL METHOD**

JOB NO: **7160-041**

CALCULATED BY: **JB** DATE: **2/28/2008**

gutter flow: $V = 1.99S^{0.5}$
grassed waterway: $V = 1.53S^{0.5}$
bare ground: $V = 0.99S^{0.5}$

DESIGN STORM **10-YR**

SUB-BASIN DATA			INITIAL/OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc CHECK (urbanized basins)		FINAL Tc (min)	REMARKS
AREA DESIGNATION	RUNOFF COEFFICIENT, C5	AREA, A (acres)	FLOW LENGTH, (ft)	SLOPE (%)	INITIAL TIME, Ti (MIN)	FLOW LENGTH, (ft)	SLOPE (%)	VELOCITY (fps)	TRAVEL TIME Tt, (min)	COMPUTED TIME, (MIN)	TOTAL LENGTH (ft)	MAXIMUM Tc = (L/180 + 10)		
CC2	0.16	17	300	30.0	9.5	850	30.0	5.4	2.6	12.1	1150	16.4	12.1	total length = 1150 ft
CC3	0.16	17	300	30.0	9.5	1395	30.0	5.4	4.3	13.8	1695	19.4	13.8	total length=1695
CC4	0.16	43	300	30.0	9.5	1108	30.0	5.4	3.4	12.9	1408	17.8	12.9	total length=1408
CC5	0.16	20	300	30.0	9.5	1119	30.0	5.4	3.4	13.0	1419	17.9	13.0	total length=1419
CC6	0.16	1.9	300	23.0	10.4									dom slope = 30%
														use bare ground vel
CC7	0.16	1.9	300	30.0	9.5									

DRAINAGE DESIGN FOR CULVERT
(RATIONAL METHOD PROCEDURE)

SHEET NO: 2 of 2

PROJECT: **CALAIS MINE DRAINAGE - SMALL BASIN RATIONAL METHOD**

JOB NO: **7160-041**

CALCULATED BY: **JB** DATE: **Feb-08** Manning's n-value = 0.013

Flow Velocity equations:
gutter flow: $V = 1.99S^{0.5}$
grassed waterway: $V = 1.53S^{0.5}$
bare ground: $V = 0.99S^{0.5}$

DESIGN STORM **10-YR**

Rainfall intensity equations $I = (28.5*P_1)/(10+Tc)^{.}.786$ P_1 (10-Year) = 1.55 inches P_1 (100-Year) = 2.74 inches

IDENTIFICATION			DIRECT RUNOFF									DITCH FLOW				CULVERT				TRAVEL TIME				REMARKS
	STREET	Design Point	Area Desig.	Tc (min.)	Runoff Coefficient, C	Intensity, I (in/hr)	Area (ac)	Sum of Area (ac)	Direct Runoff, Q (cfs)	Sum of C*A	Total Runoff, Qt (cfs)	Ditch Flow (cfs)	Ditch Section	Ditch Capacity (cfs)	Excess Runoff (cfs)	Slope	Size (in)	Capacity (cfs)	Adequate ?		Velocity (fps)	Length (ft)	Travel Time (min)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(14)	(13)	(15)	(16)	(17)	(18)	(19)		(21)	(22)	(23)	(24)
1		2	CC2	12.1	0.26	3.87	17.00	17.00	17.2	4.447	17.2													to ditch
2																								
3																								
4		3	CC3	13.8	0.26	3.65	17.00	17.00	16.2	4.447	16.2													routed offsite
5																								
6																								
7																								
8																								
9		4	CC4	12.9	0.26	3.76	43.00	43.00	42.3	11.248	42.3													to ditch
10																								
11		5	CC5	13.0	0.26	3.76	20.00	20.00	19.7	5.231	19.7													to ditch
12																								
13		6	CC6	10.4	0.26	4.13	1.90	1.90	2.0	0.494	2.0													to pond
14																								
15		7	CC7	9.5	0.26	4.27	1.90	1.90	2.1	0.494	2.1													to pond
16																								

DRAINAGE DESIGN FOR CULVERT
(RATIONAL METHOD PROCEDURE)

SHEET NO: _____

PROJECT: **CALAIS MINE DRAINAGE**

JOB NO: **7160-041**

CALCULATED BY: **JB** DATE: **Feb-08** Manning's n-value = 0.013

Flow Velocity equations:
gutter flow: $V = 1.99S^{0.5}$
grassed waterway: $V = 1.53S^{0.5}$
bare ground: $V = 0.99S^{0.5}$

DESIGN STORM **100-yr**

Rainfall intensity equations $I = (28.5*P_1)/(10+Tc)^{.}.786$ P_1 (2-Year) = 1.55 inches P_1 (100-Year) = 2.74 inches

IDENTIFICATION			DIRECT RUNOFF									DITCH FLOW				CULVERT				TRAVEL TIME				REMARKS
	STREET	Design Point	Area Desig.	Tc (min.)	Runoff Coefficient, C	Intensity, I (in/hr)	Area (ac)	Sum of Area (ac)	Direct Runoff, Q (cfs)	Sum of C*A	Total Runoff, Qt (cfs)	Ditch Flow (cfs)	Ditch Section	Ditch Capacity (cfs)	Excess Runoff (cfs)	Slope	Size (in)	Capacity (cfs)	Adequate ?		Velocity (fps)	Length (ft)	Travel Time (min)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(14)	(13)	(15)	(16)	(17)	(18)	(19)		(21)	(22)	(23)	(24)
1		2	CC2	12.1	0.26	6.85	17.00	17.00	30.3	4.420	30.3													
2																								
3																								
4		3	CC3	13.8	0.26	6.46	17.00	17.00	28.6	4.420	28.6													
5																								
6																								
7																								
8																								
9		4	CC4	12.9	0.26	6.65	43.00	43.00	74.4	11.180	74.4													
10																								
11		5	CC5	13.0	0.26	6.65	20.00	20.00	34.6	5.200	34.6													
12																								
13		6	CC6	10.4	0.26	7.29	1.90	1.90	3.6	0.494	3.6													
14																								
15		7	CC7	9.5	0.26	7.55	1.90	1.90	3.7	0.494	3.7													

Walsh
Environmental Scientists and Engineers, LLC
an ecology and environment company

APPENDIX C

Hydraulic Calculations

Culvert Sizing Sizing, Low Tailwater Basin Sizing

4888 Pearl East Circle Suite 108 Boulder, Colorado 80301-2475 Phone (303) 443-3282 FAX (303) 443-0367

CALAIS MINE - CULVERT SIZING ANALYSIS

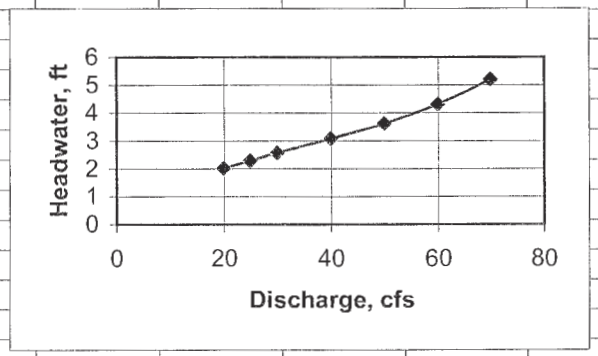
HYDROLOGY

From CUHP Analysis, Q_{10} =	132	cfs
Assume 50/50 split for design flow =	66	cfs

Rating Curve for Cross Road Culverts

Invert = 9680

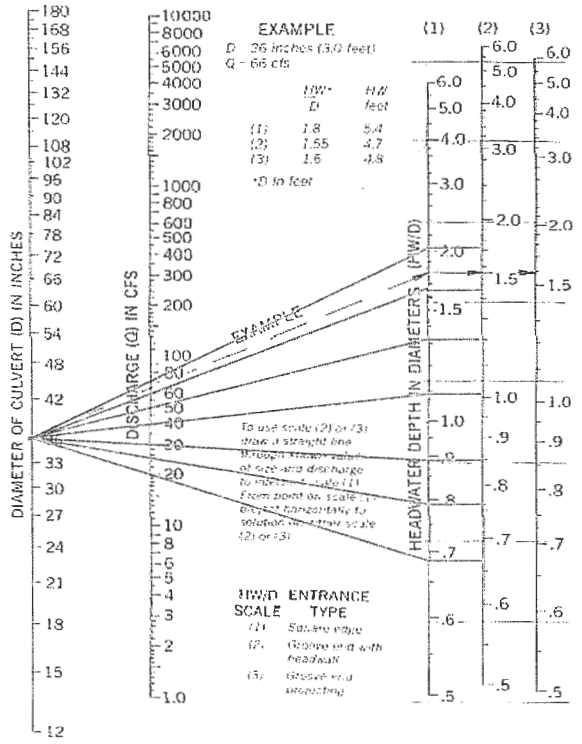
Q	Hw/D	D	Elev
20	0.67	2.01	9682.0
25	0.76	2.28	9682.3
30	0.85	2.55	9682.6
40	1.02	3.06	9683.1
50	1.2	3.6	9683.6
60	1.43	4.29	9684.3
70	1.73	5.19	9685.2



Conclusion: Headwater depth for design flow = 5-ft

FIGURE 29

HEADWATER DEPTH FOR CIRCULAR CONCRETE PIPE CULVERTS WITH INLET CONTROL



BUREAU OF PUBLIC ROADS JAN. 1963

HEADWATER SCALES 2&3
REVISED MAY 1964

Walsh
Environmental Scientists and Engineers, Inc.

By JB Date 3.9.08 Subject CALAIS LOW TAILWATER Sheet No. 1 of 1
Chkd. By ____ Date ____ DIMENSIONS Proj. No. 7160-041

KNOWNS: $Q_{10} = 66$ CFS , $\phi = 3$ FT

SIZING:

$$Q_{FULL} = \frac{1.49}{n} A_{FULL} (R_{FULL})^{2/3} S_o^{1/2} \quad (\text{USE } n = 0.009 , S_o = 0.005) \qquad R_{FULL} = A_{FULL}/WP_{FULL} = \frac{\pi r^2}{2\pi r} = \frac{r}{2}$$

$$Q_{FULL} = \frac{1.49}{0.009}(7.07)(0.75)^{2/3}(0.005)^{1/2} = 68.3 \text{ CFS}$$ SO PIPE IS ABOUT FULL DURING Q_{10}

$$V_{FULL} = \frac{Q_{FULL}}{A_{FULL}} = \frac{68.3}{7.07} = 9.66 \text{ FPS} \qquad \frac{Q}{Q_{FULL}} = \frac{6.6}{68.3} \approx 1$$ SO FLOW DEPTH APPROX ϕ

RIPRAP SIZE:

$$P_D = (V^2 + 32.2D)^{1/2} = 13.8$$ CHART YIELDS L ($D_{50} = 9''$)

THICKNESS $T = 1.75 \cdot D_{50} = 1.3$ FT ROUND TO 1.5 FT

LENGTH & WIDTH OF BASIN - APPROXIMATE BY $4 \cdot D = 12$ FT

CUTOFF WALL HEIGHT $B = \frac{D}{2} + T = 1.5 + 1 = 2.5$ FT

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

ALASKA
CALIFORNIA
COLORADO
FLORIDA
MISSOURI
OREGON
WASHINGTON

March 10, 2008

Mr. Andy Gruel
Walsh Environmental Scientists and Engineers
4888 Pearl East Circle #108
Boulder, CO 80301

RE: GEOTECHNICAL EVALUATION – CALAIS RESOURCES, CROSS MINE RESTART PROJECT, BOULDER COUNTY, COLORADO

Dear Mr. Gruel:

Calais Resources, Inc. (Calais) is applying for a Special Use Permit from Boulder County to restart mining activities at the Cross Mine near Nederland, Colorado. Walsh Environmental Scientists and Engineers (Walsh) is assisting Calais with the Permit application. As part of the restart efforts, Calais desires to construct two new buildings at the Cross Mine and a short road connecting to the nearby Caribou Mine. Shannon & Wilson, Inc. was retained by Walsh to evaluate the geotechnical suitability of the site for the planned development in accordance with the requirements of the Permit application. This letter documents our opinion of the geotechnical suitability of the proposed development.

SITE DESCRIPTION

The surface areas of the Cross and Caribou mine complex are located in the SW¼, NW¼, Section 9, T1S, R73W, 6PM in Boulder County, Colorado. Underground workings of the mines extend west into Section 8. The mines are in the Caribou-Grand Island Mining District, about 4 miles west-northwest of Nederland and near the head of Coon Trail Creek, which divides the two properties. Ground surface elevation at the mines is about 10,000 feet (MSL).

Existing surface features at the Cross Mine site include several wood-frame structures, the Cross Mine Mill Building (steel), the Mine Shop and Portal Building (steel), an office trailer, an explosives magazine, and snow sheds that connect to the Mill Building and the Cross Mine adit.

1440 Blake Street, Suite 150
Denver, Colorado 80202
303•825•3800 FAX 303•825•3801
www.shannonwilson.com

Other features at the complex include a steel building and snow shed at the Caribou mine, storage trailers, the mine dump (generated from historic mining activity), an above-ground pipeline, settling ponds, and gravel driveways. At the southeast corner of the site there is a small timber crib retaining wall between a wood-frame building and the driveway.

Bedrock geology in the area consists of Precambrian biotite gneiss which has been intruded by a Tertiary-aged stock composed primarily of monzonite porphyry, with some quartz monzonite, gabbro, titaniferous magnetite, and pyroxenite. As with similar intrusions along the Front Range, the stock and associated mineralization is associated with tectonism during the Laramide orogeny (Smith, 1938 and Gable, 1969). The only surficial materials mapped at the site are alluvial deposits along Coon Trail Creek (Gable, 1969).

The Caribou-Grand Island Mining District is within the Front Range Mineral Belt, and it includes several historic mines located around the now abandoned town of Caribou. Silver ore was discovered in the 1860s near the head of Coon Trail Creek, and production from the area began in 1870 when a wagon road was pioneered from Blackhawk (Lovering and Goddard, 1950). The deposit at the Cross Mine was discovered in 1873, and mining continued intermittently until 1939. The Cross Mine was reopened in 1974, and has since produced silver, gold, lead, zinc, and copper (Holland, 1994).

PLANNED DEVELOPMENT

Planned development at the Cross Mine site includes a new Ore Processing Building (approximately 80 ft by 80 ft) to be constructed adjacent to the existing metal Mill Building on the south side of the site; a new Ore Storage Building (approximately 60 ft by 25 ft) to be located adjacent to the snow shed extending from the mine adit; and approximately 600 feet of 20-foot-wide gravel-surfaced road extending from the Cross Mine to the Caribou Mine.

Building and road dimensions were referenced from annotations or scaled from schematics on the Cross Mine Preliminary Site Plan provided to us by Walsh. One existing wood-frame structure will be demolished prior to construction of the Ore Processing Building, and approximately 70 feet of snow shed extending from the northwest corner of the existing Mill

Building will be removed. We understand that two 36-inch culverts will be provided where the new road crosses Coon Trail Creek, and that the culverts are designed to pass the 10-year flood.

SITE VISIT

Mr. Scott Walker from our office visited the site on March 6, 2008. At the time of our visit, several feet of snow was present over most of the area. Mr. Tom Hendricks (Calais) provided a tour of the site and described the planned development. According to Mr. Hendricks, the existing Mill Building is underlain by alluvial gravel, and no blasting was required to excavate the building foundation during construction. Mr. Hendricks also said that except for the escapeway and adit portal, no underground mine workings are less than 40 feet below the existing ground surface, and there are no mine workings below the proposed buildings and roadway. Additionally, Mr. Hendricks said that the proposed road will be surfaced with crushed monzonite.

GEOTECHNICAL SUITABILITY EVALUATION

Due to the extensive snow cover at the time of our site visit, direct observation of the geological conditions was not possible. To meet the schedule for this evaluation, we obtained and reviewed low-quality digital images (index prints) of black and white (September 1994) and color infrared (September 1988) stereo aerial photographs of the area. These stereo pairs are at a scale of 1:40,000 and were collected by the United States Geological Survey (USGS) as part of the National Aerial Photography Program (NAPP). We also reviewed aerial photography (flown in the spring/summer of 2006) available from the website of the Boulder County Assessor's Office, satellite imagery of the site available from the Google Earth ™ mapping service, and the 1:24,000 scale Geologic Map of the Nederland Quadrangle published by the USGS.

The USGS geologic map does not show any landslides or landslide deposits in the vicinity of the Cross and Caribou mines. The scale of the stereo aerial photographs is too large and the resolution too poor to permit a definitive conclusion regarding the presence or absence of landslides in the area. Based on the limited information available from the satellite imagery and aerial photographs from the Boulder County Assessor's Office website, we did not detect any evidence of slope instability (landslides, debris flows, or avalanche chutes) at or near the mine

complex. Based on our understanding of the local bedrock and surficial geology, we consider slope instability to pose a low risk to the proposed development.

Coarse granular alluvial soils deposited close to their source area are not typically susceptible to swelling or collapse upon wetting (hydrocompaction). As such, it is our opinion that these hazards are unlikely to be present at the site.

We understand that no mine workings are present directly below the proposed buildings and roadway, and that virtually all underground openings at the site are at least 40 feet below the existing ground surface. As such, and given the strength of the rock, it is our opinion that the mine workings are unlikely to impact the proposed buildings and roadway. Likewise, relatively lightly loaded structures are unlikely to adversely impact underground areas of the mine.

Gable (1969) mapped a fault at the ground surface approximately 700 feet east of the Cross Mine site. Holland (1994) refers to numerous faults encountered underground within the Cross mine deposit, and many of the veins encountered in the mine are likely the result of mineralization along fault planes. However, movement on these faults was associated with the Lariamide orogeny and they are now considered inactive. The closest active faults (faults with documented or suspected Quaternary movement) are a section of the Golden Fault located approximately 22 miles southwest near Golden and the Williams Fork Mountains Fault, located about 28 miles west-southwest near the boundary of Grand and Summit Counties. The Valmont Fault located about 22 miles east-northeast of the site neat Valmont Reservoir and the northern portion of the Golden Fault about 17 miles east-southeast of the site are considered suspect features (Widmann et al., 1988). The northern end of the Golden Fault is about 2 miles northwest of the junction of Colorado Highway 72 and Colorado Highway 93. It is our opinion that the risk of ground surface rupture due to seismic activity at or near the site is extremely low.

Holland (1994) reports that lower levels of the mine are periodically flooded. We understand that groundwater at the site is generally controlled by drainage out of one of the old mine adits, and that this elevation is below the level of the main mine adit and the existing mine buildings. Based on this information, and the fact that depth to bedrock at the site of the proposed buildings is relatively shallow, we do not anticipate that groundwater will adversely affect the building foundations.

The proposed road will cross areas mapped as wetlands by Walsh, and shallow groundwater should be expected in these areas and near the Coon Trail Creek crossing. A flood event along Coon Trail Creek in excess of the design return interval may result in a washout of the road.

The scope of our services did not include any environmental assessment or evaluation regarding the presence or absence of wetlands or hazardous or toxic materials in the soil, surface water, groundwater, or air, on or below the site, or for evaluation for disposal of contaminated soils or groundwater, should any be encountered.

CONCLUSION

Based on our site visit and review of the available information, we believe that the site is suitable for the proposed development, provided that proper geotechnical engineering and construction techniques are employed. The existing timber crib retaining wall should either be removed or evaluated against the expected ground loads associated with the planned Ore Processing Building. In our opinion, there is a low probability of any geologic hazards adversely impacting the proposed construction.

CLOSURE

This report was prepared for the exclusive use of Walsh Environmental Scientists and Engineers and Calais Resources for use as supporting documentation in making application to Boulder County for a Special Use Permit associated with the restart of mining activities at the Cross Mine.

No subsurface explorations were conducted for this study. Because our evaluation relied heavily on interpretation of limited aerial photography and satellite images, and direct visual observation of the ground surface was not possible due to snow cover at the time of our site visit, there is a degree of uncertainty associated with our evaluation. As such, we recommend that foundations for the proposed buildings, roadway, and culverts be designed by a Professional Engineer licensed to practice in the State of Colorado.

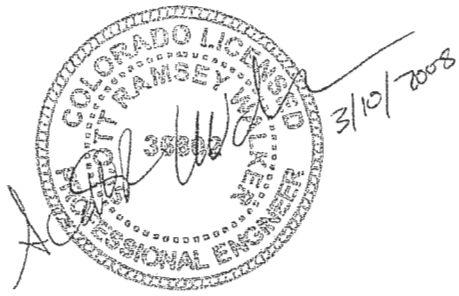
The analyses, conclusions, and recommendations contained in this report are based on site conditions as they presently exist, or as we understand them to exist. Within the limitations of the scope, schedule and budget, the analyses, conclusions and recommendations presented in this report were prepared in accordance with generally accepted professional geotechnical engineering principles and practice in this area at the time we prepared our report. We make no other warranty, either express or implied.

We appreciate the opportunity to be of service to Walsh. If you have any questions or comments regarding our findings, please contact either Scott Walker or Beth Widmann at 303-825-3800.

Sincerely,

SHANNON & WILSON, INC.

Gregory R. Fischer, Ph.D., P.E.
Senior Vice President



Scott R. Walker, P.E.
Senior Engineer

SRW:GRF/srw

REFERENCES

Boulder County Assessor's Office, 2006: E-Mapping and Property Record Search [online], available: http://map.co.boulder.co.us:8080/basemap/default.jsp [accessed March 10, 2008]

Gable, Dolores J., 1969: Geologic Map of the Nederland Quadrangle, Boulder and Gilpin Counties, Colorado; United States Geological Survey, Washington, DC

Google Earth [satellite image]: Approximate image center 39°58'42.40" N, 105°34'18.39" W, Eye Altitude 1667 ft [accessed March 10, 2008]

Google Earth [satellite image]: Approximate image center 39°58'41.23" N, 105°34'14.70" W, Eye Altitude 4174 ft [accessed March 10, 2008]

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Traffic Control and Management Plan

Calais Resources
Cross Mine Expansion Program

March 2008

Prepared for
Calais Resources
WALSH Project Number: 7160-010

Introduction

This Traffic Control Plan (TCP) conforms to the Manual on Uniform Traffic Control Devices (MUTCD), Section 6C-1 and is intended to address issues associated with the expansion of the Cross Mine, a gold and silver mining operation near Nederland, Colorado. The Cross Mine is in Section 9, Township 1 South, Range 73 West, Boulder County, Colorado. The Cross Mine is entirely owned by Calais Resources. The mine is located approximately 3 miles west of Nederland, Colorado in the Roosevelt National Forest at an elevation of 9700 ft above sea level. All activities associated with the expansion of the Cross Mine are on private fee land owned by Calais Resources.

Execution

Traffic associated with this expansion will consist of mobilization and demobilization of equipment, material delivery, onsite vehicle traffic, daily worker traffic, and off-site hauling of concentrate and mine tailings. Workers and subcontractors will be advised to obey all traffic laws and speed limits when traveling to the site. Construction traffic to and from the mine shall strictly obey all speed limits and traffic laws.

Construction Traffic

Contractor's personnel shall enter and leave the area through the entrance(s) and exit(s) designated by the Owner or Engineer. The contractor will construct a new road, and designate haul routes for access and internal circulation throughout the site for construction activities. Loaded vehicles will not exceed 15 miles per hour onsite.

Minimal disturbance to adjacent roads is expected during the construction phase. Arrivals and departures of construction vehicles entering and leaving the site via County Road 128 (also known as Caribou Road) will be staggered whenever possible. In the unlikely event that temporary traffic control measures/devices are required on County Road 128 during construction (i.e., assistance with large equipment deliveries and/or an elevated volume of vehicles entering or leaving the site at similar times), this TCP will be modified (in accordance with MUTCD and CDOT specifications) and resubmitted to Boulder County for review and approval. No road closures are anticipated for this project.

The construction period for this project is anticipated to last approximately 6 to 18 months dependent upon building designs, site access restrictions, contractor availability, and weather conditions. If required, traffic signs will be placed to alert motorists of vehicles traveling along County Road 128. The placement and types of signage required will conform to MUTCD and Colorado Department of Transportation (CDOT) specifications.

Heavy equipment will be subject to all weight limit restrictions along roadways to and from the site (CRS 42-4-507 and CRS 42-5-508). If necessary, the Contractor will apply for a Boulder County Oversize/Overweight permit with the Boulder County Transportation Department (CRS 42-4-510(11)).

Conditions of surrounding roads (in particular County Road 128) will be surveyed prior to commencement of construction. These nearby County and Forest Service roads will be repaired and/or replaced to, or better than, pre-existing conditions after construction.

Blasting

Very limited surface blasting will occur for this project. Surface blasting will be required during initial opening of the new Cross decline and is intended to last approximately one week; however, all subsequent blasting will be conducted underground. Proposed surface blasting times /schedules will be submitted to Boulder County when available and blasting will not occur during peak traffic hours. Additionally, adjacent neighboring property owners will be notified of surface blasting schedules for construction of the new decline portal. Message boards will be utilized in accordance with MUTCD guidance and will be posted as required by Boulder County Land Use Code. School buses typically do not pass the site along County Road 128.

After surface blasting is complete, underground blasting cycles are estimated to be 90 minutes for loading, blasting and smoke time. Sufficient ventilation time will be allowed before entering the heading after blasting operations. 17-ton haul trucks will transfer ore up the new decline to the surface at an estimated cycle time of 30 minutes and a distance of approximately 5,000 feet round trip. Calais Resources will abide by the most current blasting regulations adopted by the State of Colorado, and will obtain and maintain a blasting permit from the Bureau of Alcohol, Tobacco, and Firearms.

Blast material will be stored in an existing on-site powder magazine. Blasting material will be carefully purchased so as to not accumulate excess blasting material on site.

Ongoing Activities

Milling of ore will occur at an on-site surface mill. Concentrate material will require offsite transportation throughout the life of the mine expansion. The expected annual shipments of concentrate by 20-ton truck are estimated at approximately 2,800 tons per year, or 140 trucks per year (approximately 3 trucks per week).

Mill tailings production is initially estimated at approximately 40 tons per day. In the first one or two years of mine operations, these tailings will be hauled off-site to a local sand and gravel operation. Tailings truck traffic is estimated at two truckloads per day (in 20-ton trucks). After one or two years of underground mine development, the tunnel network will allow direct disposal of cemented tailings underground as backfill; at this time, off-site tailings disposal will cease, and the only truck hauling from the site will be for concentrate material.

Extensive testing, approved by the Colorado Division of Reclamation, Mining, and Safety, has demonstrated that the tailings material leaving the site is benign and has a basic pH due to the high level of calcium carbonate. This material is considered ideal for the manufacturing of concrete or other sand based requirements and will most likely be shipped to a local sand and gravel operation or cement batch plant.

As discussed in the previous section, traffic will be subject to all weight limit restrictions along roadways to and from the site (CRS 42-4-507 and CRS 42-5-508). If hauling trucks exceed this weight restriction based on the load hauled and the axles present, an application for a Boulder County Oversize/Overweight permit will be submitted to the Boulder County Transportation Department (CRS 42-4-510(11)).

Additional Traffic Considerations

As briefly discussed above, additional traffic associated with this restart project will consist of the following:

- Periodic material deliveries: diesel fuel (for on-site 10,000 gallon tank); propane (for heating purposes); mill reagents including flocculent, sodium isopropylxanthate, pine oil, frothers, lime, and other miscellaneous items (all reagents are non-toxic and non-hazardous); and bottled water.
- Sanitation and waste services: trash and recycling dumpsters will be exchanged on a regular schedule and portable sanitation facilities used during construction will require periodic servicing and maintenance.
- Daily worker traffic: Mine employees are expected to provide their own transportation from their domicile to the workplace. Calais Resources is considering the purchase of a 12-passenger van to shuttle workers from Nederland to the site in an effort to minimize on-site personal vehicles and promote carpooling. As stated above, workers and subcontractors will be advised to obey all traffic laws and speed limits when traveling to the site.

The surrounding County and Forest Service roads will likely be improved by the operations at the site, as benign non-leaching waste rock (quartz monzonite) obtained from the development of the new Cross decline portal will sold to Boulder County as road base material. Waste rock will be temporarily stored in a pile near the main entrance, and Boulder County will utilize a county-owned portable crusher to crush this waste rock into road base material for use on nearby distressed County and Forest Service roads.

Training

All traffic control personnel working at the site will have the necessary training to perform their duties effectively. Daily safety meetings will identify and specify any traffic requirements and the proper course of action to ensure safe and efficient operation for the project.

Additional Considerations

Construction will not begin until approved construction documents are submitted, reviewed, and approved by Boulder County officials and a Special Land Use permit is issued. A Stormwater Management Plan (SWMP) will be prepared, and a stormwater discharge permit will be obtained through CDPHE prior to construction.

Personnel

Contractor	To be determined	
Engineer	Walsh Environmental, LLC	(303) 443-3282
Jim Cowart	Project Manager	(303) 443-3282
Andy Gruel	Project Engineer	(303) 443-3282
Owner	Calais Resources	(303) 258-3806
David Young	President and CEO	(303) 483-5163
On-Site Supervisor	Calais Resources	
Tom Hendricks	Vice President, Operations	(303) 258-3806

Section 4

Section 4
Not Reproduced

Section 5

TITLE INFORMATION CROSS/CARIBOU MINE PROJECT-ARTICLE 2-203 (G)

1. OWNER INFORMATION

The property owners within the permit area are Calais Resources, Colorado, Inc., and its nominee owner, Aardvark Agencies, Inc. Calais has total operational control of the Aardvark properties for exploration, development, mining and construction under recorded agreement and Settlement Agreement (See, Exhibits A, B and C (Recorded Re-acquisition agreements and Settlement Agreement. See, also, Section 5 below, Explanation of Aardvark Agencies, Nominee Arrangement).

Portions of three properties leased from the Duane Smith Trust are also part of the permit area (See, Exhibit D, Lease). No mining operations occur or will occur on the Smith properties. Portions of the Smith properties are traversed by the historical mine access road, which road pre-dates the location and patent of the Smith claims (See, Section 4 below, "Legal Access").

The property owners and interest holders, with names and addresses, are listed on Exhibit E hereto.

The County of Boulder and Public Service Company of Colorado (Excel Energy) have un-recorded easements across and to the property for roads and power lines.

2. TITLE INFORMATION

Calais Resources Colorado, Inc. recently obtained a new master title insurance policy insuring title to 130 of its patented properties. A copy of the master title insurance policy is attached hereto as Exhibit F.

OVERVIEW

The core property holdings at the Cross/Caribou Mine Project (the "Project") consists of 131 patented mining claims and 105 unpatented mining claims. Fee title to the patented properties was originally passed from the United States of America under the General Mining Law. The 131 properties were acquired in approximately 3 dozen acquisitions over a period of some 34 years. 3 of those

properties, the Duane Smith Lease (Exhibit D), are leased, the most recent multi-period renewal of that lease having taken place in 2003. The Smith property was originally leased in August, 1987. The only "operations" taking place on the Smith lease are the traverse of the county's "winter road" and the Cross Mine driveway, all of which predate the Smith patents.

Attached as Exhibit F hereto is the recent master title policy obtained by Calais Resources, Inc. ("Calais") covering almost all of the Project properties 128 patents, under 130 listings) , including all properties in the permit area. Title to the permit area properties is in Calais Resources, Inc., and Aardvark Agencies, Inc. ("Aardvark") Calais has full operational and mining rights on the Aardvark properties as described below at Section 5.

The current operation will take place on properties which are all patented. Other than the Smith Lease, the properties were all acquired in three general acquisitions, described below.

The core Cross Mine properties consisting of 15 patents was acquired in 1987 by Hendricks Mining Co. from the Dofflemyer family by Warranty Deed recorded at Film 1491, RN 872090, Boulder County records. The claims were subsequently transferred to Calais Resources Colorado, Inc. by deed dated March 30, 1998, and recorded at RN 1789665 of the records of Boulder County.

The Brazilian lode and Brazilian Millsite were acquired (as part of the much larger Caribou Mine acquisition) by Aardvark Agencies, Inc. by Sheriff's deed (after assignment of the Certificate of Purchase from LNRS, LLC, the successors in title by Sheriff's sale to the interests of Nederland Mines, Inc.), on December 17, 1998, as recorded at RN 1884399, Boulder County records. (Aardvark acquired the properties by exercising an option held by Thomas S. Hendricks, subject to a recorded right to redeem and to re-acquire held by Calais, and described below at Section 5).

The New York lode and Millsite were acquired by Calais Resources Colorado, Inc., from William M. Warren and Richard A. Sigismond by Warranty Deed on October 24, 1997 as part of a larger acquisition.

Lying very near the permit area are the Alpine, Worcester, Gold Coin and Potosi lode mining claims, which were acquired by Hendricks Mining Co. from William M. Warren and Aquarius Mining Co. on August 13, 1987, by deeds recorded at Film 1490, RN 870346 and 870347, Boulder County Records.. These claims were subsequently transferred to Calais Resources Colorado, Inc., on March 30, 1998 by deed recorded at RN 1789665 of the records of Boulder County. These adjacent claims are not currently part of the permit area.

On the 23rd day of July, 1998, Calais Resources Colorado, Inc. transferred the New York Lode and Millsite claims (together with others, the "Group B

properties") to Aardvark Agencies, Inc. as part of a larger financing transaction involving Aardvark. (The transfer was made subject to a recorded right to redeem and re-acquire held by Calais, and described below, and further subject to a note and deed of trust in the amount of $2.3 million, held by Calais.)

THE RIGHTS TO REDEEM AND TO RE-ACQUIRE HELD BY CALAIS, INCLUDING FULL OPERATIONAL RIGHTS

Pursuant to its financing arrangements with Aardvark, both the Caribou Group properties (including the Brazilian lode and millsite) and the Group B properties (which include the New York lode and millsite) were made subject to Right to Redeem and Re-acquire Agreements in favor of Calais from Aardvark which agreements were recorded in Boulder County on August 4, 2000 at RN 2067199 (Group B properties, further correction document recorded at RN 2195462) (Exhibit B), and on August 17, 2000 recorded at RN 2070940 (Caribou Mine property, including the Brazilian lode and millsite)(Exhibit C).

Calais has a continued right of entry for exploration, development and mining of the properties contained in Section 4 of each agreement, specific reference being made to Section 4.1.

Pursuant to a certain March 9, 2004 written Settlement Agreement and General Release executed among the parties, the price at which Calais may redeem and re-acquire the Caribou Mine properties and Group B properties was re-adjusted. The right of Calais to enter and to explore, develop and mine the properties was re-confirmed and expanded at Section 2(a)(iii)(1 through 9) of that agreement, specifically including the ability at (a)(iii)(4) to bring on and to erect such buildings, plants and machinery as Calais may deem advisable.

On February 7, 2006, Calais exercised its re-acquisition rights, Notice of which is recorded at RN 2756409 of the records of Boulder County (as recorded February 13, 2006). The re-acquisition has not yet been closed, but the rights to explore, develop and mine continue unabated.

THE NEW MASTER TITLE POLICY

A New Master Title Policy covering 128 patented claims Under 130 listings (see dual listings for Arizona and Ontario lodes, etc., acquired as separate parcels) was issued in March 2008. The policy covers all of the claims within the permit area.

The title policy contains 32 listed title coverage exceptions for the 128 properties, the majority of which are for existing royalty agreements (11 exceptions); patent exceptions (3 exceptions), the referenced Rights to Redeem and to Re-acquire (2 exceptions), standard coverage exceptions (5 exceptions), lack of direct

contact of some claims with a county road (1 exception) and easements for county roads and the uninterrupted flow of Caribou Creek (2 exceptions).

Of the remaining exceptions to coverage, the highlights (5 exceptions) are the referenced deed of trust in favor of Calais Resources Colorado, Inc., as executed by Aardvark Agencies (which would affect the New York lode and millsite properties, RN 1902445), and certain deeds of trust and related security agreement (Security Agreement, RN 2516512) in favor of Broadway Mortgage Corporation and named individuals, one each executed by Calais Resources Colorado, Inc. (RN 2798813) and Aardvark Agencies, Inc, (RN 2798812) respectively. Both of the Aardvark and Calais deeds of trust were subsequently assigned. The assignments were subsequently modified several additional times, and are now held by nominees or assignees of MFPI Partners. The deeds of trust and subsequent assignments would affect all of the permit area properties on which operations will occur. The Aardvark deed of trust to Calais has been subordinated to the so-called Broadway note and deeds of trust. (RN 2498814).

A second deed of trust has been executed in favor of Duane A. Duffy and Glenn E. Duffy and the so-called Duffy Group, which deed of trust is subordinate in time to the Broadway note and deeds of trust, and which deed of trust is recorded at RN 2715644..

3. PROPERTY DESCRIPTIONS

The properties the subject of this application are all patented mining claims described by name and Mineral Survey number. A list of the properties within the permit area is attached hereto as Exhibit G.

As an aid to County examination of the file, attached hereto as Exhibit H are copies of the official US Mineral survey plats of each of the claims the subject of this application showing all original survey calls and corner and sideline monumentation.

4. LEGAL ACCESS

The initial discoveries at Caribou occurred in 1869, with initial road building occurring in 1870 (See, Duane Smith Silver Saga, "Rush to Riches" p. 5, fn 8.(Exhibit I) The initial Caribou Road was built directly up Coon Track Creek, and through the Cross Mine properties which are the subject of this application. Shortly thereafter, the road was moved to the hillside opposite the creek to avoid

the heavy drifting which occurs in the creek bottom. The original road can still be walked today. Both of the original historical roads were mapped by the United States Geologic Survey and the Department of the Interior working in conjunction with the Western History Section of the Denver Public Library (Exhibits J and K). Both of the roads passed directly through the Cross Mine and Caribou Mine properties which are the subject of this application.

The Cross Mine and Caribou Mine properties the subject of this application are now crossed by County Road 128, and County 128 ("Winter road"). The winter road was constructed very near the old original 1870 Post Road No. 10 to avoid the "Caribou Drift" which often closed County 128 just above the Idaho Mine. Both roads have been historically county maintained, though the winter road is currently the subject of a temporary closure at its western intersection with County 128. Both of those roads are in the same position they were today as were shown on the Mineral Survey plat for the Romeo and other Cross patented claims in 1944 (Exhibit H). The Cross mine driveway is in the same position as it was in 1944, and in the 1939 mine yard survey of 1939 (Exhibit L).

The Lode Law of 1866 (Section R.S. 2477) invited the construction of roads on the open public domain. No permits or filings were required to build roads in the 1870-1875 era, and dozens of wagon, toll and road companies were formed in Boulder County for this purpose. These roads now form a large part of the County's mountain road system. The lands remained open, unappropriated public domain until the creation of the National Forest Reserves in this area in the early part of the 20th century, by which point the road systems at the Cross and Caribou mines (and elsewhere in the district) were fully in place.

With regard to the Caribou portal area and yard, County Road 128 cuts directly through the Brazilian Millsite claim, with direct access to the mine and yard from County 128.

The Cross lode M.S. 518, was discovered on July 11, 1873, and surveyed for patent on February 25, 1882. At the time of patent survey for M.S. 518, the tunnel and discovery shaft were already in place, and access was by wagon at the site of the existing Cross Mine driveway. The old Post Road No 10 emerges from Coon Track Creek and joins the winter road (128) near the base of the Cross Mine driveway. Both the winter road and the old Post Road No. 10 continue across the Cross mine patent. This driveway (wagon road) to the Cross Mine portal had been in place for approximately 26 years when surrounding claims were surveyed for patent. (Gilpin County Lode M.S. 12933, was discovered on April 15, 1998, and surveyed for patent on February 2nd, 1899; the Laramie County lode M.S. 13471 was discovered on November 7, 1897 and surveyed for patent on October 2nd, 1899; the Homestead lode was discovered on February 6, 1897, and surveyed for patent on October 2nd, 1899) All three of those claims are now owned by Duane Smith Trust (Smith was the author of "Silver Saga", his first book on Colorado history. Smith is now a professor at Fort

Lewis in Durango, Colorado) and leased by Calais Resources (Exhibit D). Legal access to the Cross Mine had been established more than a quarter century prior to the discovery and patent of these later claims. The winter road 128 and a portion of the Cross Mine driveway cross portions of the named claims. The mineral surveys for the three named claims show the Cross lode M.S. 518 and Crown Point lode M.S. 6823 as existing patents at the time these later claims were surveyed. All discovery dates were confirmed in "Mining Districts of Boulder County, Colorado (Percy Stanley Fritz, 1927, Exhibit M).

The Cross lode was one of the earliest discoveries below the old Town of Caribou along with the Idaho Mine. Access to the Cross Mine by road was established in the 1870's, and access has been unquestioned for over 130 years without interruption.

5. EXPLANATION OF AARDVARK AGENCIES, INC. NOMINEE ARRANGEMENT

Thomas S. Hendricks held an option to acquire the Caribou properties, a group of 29 patented claims, for $500,000. His Company, Calais Resources, Inc., did not have those funds immediately available. Calais also wished to acquire approximately $800,000 in drilling and operational funds.

The CEO of Calais, Marlowe Harvey, controlled a real estate vehicle, Aardvark Agencies, Inc., which was liquidating apartment buildings in Denver. Rather than have Calais issue shares to raise the money, Aardvark proposed to invest its real estate profits in the acquisition of the Caribou properties. It was also to acquire certain of the other Calais properties as security for the drilling advances, subject to a mortgage in favor of Calais, and the requirement that Calais have the ability to re-acquire all of the properties, including the Caribou property, upon repaying the advances.

The Right to Redeem and Re-Acquire Agreements were recorded in Boulder County on August 4, 2000 at RN 2067199 (Exhibit B) (Sigismond, Boulder County and other properties, also re-recorded at 2195462 as a correction document); and August 17, 2000 at RN 2070940 (Exhibit C) (Caribou Mine and Property Groups). Calais' continued right of entry for exploration, development and mining was contained at Section 4 (Reference 4.1). The Brazilian Lode and Millsite are included in the Caribou Group of properties, and the New York Millsite is one of the Sigismond properties.

On March 9, 2004, Calais, Harvey and other parties executed a certain Settlement Agreement and General Release (Exhibit A) The right to re-acquire the properties was re-confirmed at an agreed exercise price of $747,728.47 as part of a settlement of all disputes concerning the Colorado properties (Section 2 of Settlement; 2(a)(1) re-purchase price, Exhibit A). The right of Calais to enter and to explore, develop and mine the property was re-confirmed and expanded at Section 2(a)(iii)(1 through 9) of Exhibit A, specifically including at Section 4 the right to bring on and erect such buildings, plants and machinery as Calais may deem advisable.

On February 7, 2006, Calais exercised its re-acquisition rights, Notice of which is recorded at RN 2756409 of the Boulder County Records (as recorded February 13, 2006) (Exhibit N).

Section 6

Mining Plan

The following is a general mining and reclamation plan as of January 2008, and is provided for unofficial informational purposes only. An upcoming amendment (prior to application for Building Permit) to the Colorado Division of Reclamation, Mining, and Safety (DRMS) mining permit will include a more complete and formal mining and reclamation plan, which will be considered the official mining and reclamation plan.

Introduction

The Cross Mine is an active gold and silver mine in the Caribou / Cross Mining Complex about 5 miles west of Nederland, Colorado. Calais Resources Colorado, Inc. holds an active Colorado DRMS 110(2) Permit (M1977410, issued 11/3/1980). Prior to any new development activity, this permit will be amended to reflect the new mining plan.

The proposed mining plan includes the development of the new Cross Mine Decline portal, construction and operation of a new mill and processing facility, construction of new buildings, and construction of a new private road. In accordance with the DRMS permit, extraction will be capped at 70,000 tons per year, or 200 tons per day.

Pending the completion of funding and permitting, the Cross Mine expansion program would begin in summer/fall 2008 with the construction of new buildings and a new road, and the development of the new Cross Decline Portal. The recently purchased Stringtown Mill in Leadville, Colorado will be dismantled, refurbished, and reassembled at the Cross Mine. Additional mill equipment will also be purchased as required, with the entire mill completed and operational by early 2009. The mine is expected to operate under these conditions for at least three years, and could operate as long as decades or more.

All of the technology, methods, and equipment chosen for the Cross Mine are industry-standard and well proven. Proven historic mining activity performed by Hendricks Mining, Inc. at the Cross Mine was also utilized in determining the development and operating plan.

Subsurface Conditions and Resources

The Cross Mine is part of the 3.5 square mile land package owned by Calais Resources Colorado, Inc. The mine is located in the Roosevelt National Forest at an elevation of 9,700 feet above sea level. All activities associated with the restart of the Cross Mine are on private fee land owned by Calais Resources. Gold and silver mining in the Consolidated Caribou Mining District dates back to the 1860s, with over 20 million ounces of silver and 300,000 ounces of gold recovered to date.

The mining district is located near the northeastern exposed limit of the Colorado Mineral Belt. The deposits of the Caribou district have been described by the U.S. Geological Survey (USGS) as "polymetallic veins with abundant carbonates or the associated wall rock has been altered to contain carbonates." The vein structures occur as steeply dipping northeast-striking veins that cut the east/west striking veins. The vein mineralization was emplaced during multiple phases (up to seven) and includes early and persistent pyrite, copper, zinc, lead, and

silver sulfides and gold. A relatively early carbonate-rich phase resulted in common dolomite, calcite, rhodochrosite, and other carbonate minerals in the veins. These carbonates are indicative of the acid-neutralizing potential of the ore body, and therefore the lack of any acid rock drainage potential. Baseline water sampling over the last twenty years confirms these conclusions with consistently low metal loading and pH levels in the range of 7.5 to 8.0 (alkaline).

A total of 175,000 feet of diamond drill core has been drilled over the entire property by Hendricks Mining and more recently Calais Resources. This core has been carefully logged and sampled as necessary. The results have been placed in the Vulcan mine software program for mine planning as well as resource and reserve estimates. The Cross Mine has over 100 diamond drill holes that were used for this proposed restart program. This information as well as detailed sampling of the underground workings has been used to estimate the future mining design and estimated mining metal grades.

Based on historic mining activity, core sampling, and review of the existing underground mine workings, the ground conditions were determined to be excellent. The surrounding host rock (30,000 to 40,000 pounds per square inch [psi] compressive strength tests) as well as relatively shallow overburden (less than 400 feet) indicate that ground support requirements are expected to be minimal.

Mining and Milling Methods

The orientation, proximity to the surface, and geological controls of the Cross Mine ore body will require mining of the ore reserves with underground mining techniques. The proposed 200 ton-per-day operation will not require the installation of a surface tailing impoundment facility, since the tailing material will be used as cemented backfill underground.

As part of the review to expand the mining of ore resources at the Cross Mine, underground mining methods were reviewed that would minimize dilution, capital, and operating costs, and maximize recovery of the ore resources while maintaining the design production capacity of the new mill (200 tons per day). The deposit characteristics as well as the daily ore production goal of 200 tons per day required the selection of the highly selective cut and fill mining method. Alternative bulk underground mining methods were not selected due to the potential for greater dilution, as well as failure to satisfy the 200 tons per day mining constraint.

The mining method selected involves horizontal stope cuts and cemented backfill. Stope cuts of 10 feet high will be drilled and blasted using ammonium nitrate fuel oil (ANFO). Sufficient smoke time is allowed (minimum of 30 minutes) before the area is re-entered. After careful inspection and determination that the ground is safe and secure, the mining sequence is repeated until the end of the ore zone is reached for the design of each particular cut. Once the extent of the ore has been reached for each specific 10-foot horizontal slice, the backfill sequence is started.

Tailings from the onsite mill will be mixed with cement and piped to the individual stope areas. Special bulkhead preparations are completed at the stope opening to allow the

placement of cemented tailings and the release of the tailing water. The cemented sand fill layer allows for the complete recovery of the ore within the next (upper) cut by providing a hard surface for the slusher bucket to run on and the ability to completely wash-down the stope after the mining cut is completed, but before the backfill sequence begins. The final cut in a respective ore zone does not require backfilling and is left open.

Ore is transported by haul trucks to the surface, where it is temporarily stored in an Ore Storage Shed adjacent to the Cross Decline Portal. Then, ore is transferred into the mill for crushing, grinding, flotation, and concentration. The milling process will only use DRMS-approved reagents and chemicals. Expected annual shipments of concentrate to an offsite smelter by 20-ton truck loads are estimated to be 2,800 tons per year, or 140 truckloads per year, or about three truckloads per week.

Tailings produced from this milling process will be thickened and backfilled within the mine, as discussed above. However, during the first few years of mining and milling, the subsurface tailings delivery system will not yet be functional; for those first years, excess tailings (estimated to be less than 40 tons per day, or two truckloads per day) will be filter-pressed and hauled offsite to a local sand and gravel operation or cement batch plant. Extensive testing has demonstrated that the tailings material is benign and has a basic pH due to the high level of calcium carbonate whereby the tailing material is considered ideal for the manufacturing of concrete or other sand-based requirements.

Using the selective cut-and-fill method will substantially reduce waste rock production. The only expected waste rock production will occur during development of the new Cross Decline to about 400 feet below ground surface. This waste rock is primarily composed of gneiss and monzonite quartz; these benign materials will be analyzed for leachability and acid production by DRMS-approved methods prior to amendment of the DRMS permit. The waste rock is expected to be non-acid producing and non-metals leaching.

Waste rock will be stored at the surface in a waste rock pile near the main entrance from Caribou Road. There, Boulder County Transportation Department will install a county-owned and operated portable crusher to convert waste rock into highly useful road base material. The County will then use this road base to improve distressed County and Forest Service roads in the area.

The mine will utilize existing shafts for ventilation.

Water Management

The Cross Mine is currently handling water at an average of 30 gallons per minute, and discharging into Coon Track Creek under a Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division approved National Pollutant Discharge Elimination System (NPDES) permit (Permit CO-00322751). This excess water is from the old workings of the mines, as well as surface seepage.

See Attachment A for a diagram of expected water supply, demand, and discharge during expanded mining. Because of water recycling from filter presses and thickeners, make-up

water for the processing circuit is expected to be in the range of 0.5 to 2 gallons per minute. The new underground mining will require an estimated water pumping capacity of 72 gpm (October-March) to 114 gpm (April-September) due to the expanded underground working and the excess water generated from the backfill cycles during the production mining process. Excess water will report to ditches along the drifts, and then to two-compartment water sumps strategically located on the production levels. These sumps will allow dirty water to enter one side of the sump, and then overflow into the clean water side of the sump. The sumps will be large enough to allow sufficient settling time before overflowing into the clean water sump. Periodically, the dirty water side of the sump will be shut down and dewatered and the sediment mucked up and transported to the mill, where metals contained in the sediment will be recovered. From the clean water side of the sump, the excess water will be pumped to the surface and used in the mill as makeup water. Excess mill water (expected 27 gallons per minute) will be treated at a water treatment plant at the mill.

Pond 2 is a lined surface water impoundment currently used as a polishing pond prior to final discharge. Treated water effluent from the mill water treatment plant will be mixed in Pond 2 with water from the Idaho Tunnel. Thus, Pond 2 will serve as a final dilution / polishing pond for mill water treatment effluent prior to final discharge to Coon Track Creek in accordance with the NPDES water discharge permit.

Labor

It is expected that the proposed development and operation will employ 5 salaried staff, and up to 29 hourly workers at full capacity.

All salaried staff and hourly paid tradesmen will work a 50-hour week. Operating personnel will provide coverage in accordance with a 10-hour day, 5 days per week. The mill will run a continuous schedule. Personnel will reside in the neighboring communities and will be responsible for transportation from their domicile to the place of work. A vanpool is under consideration.

New Buildings and Road

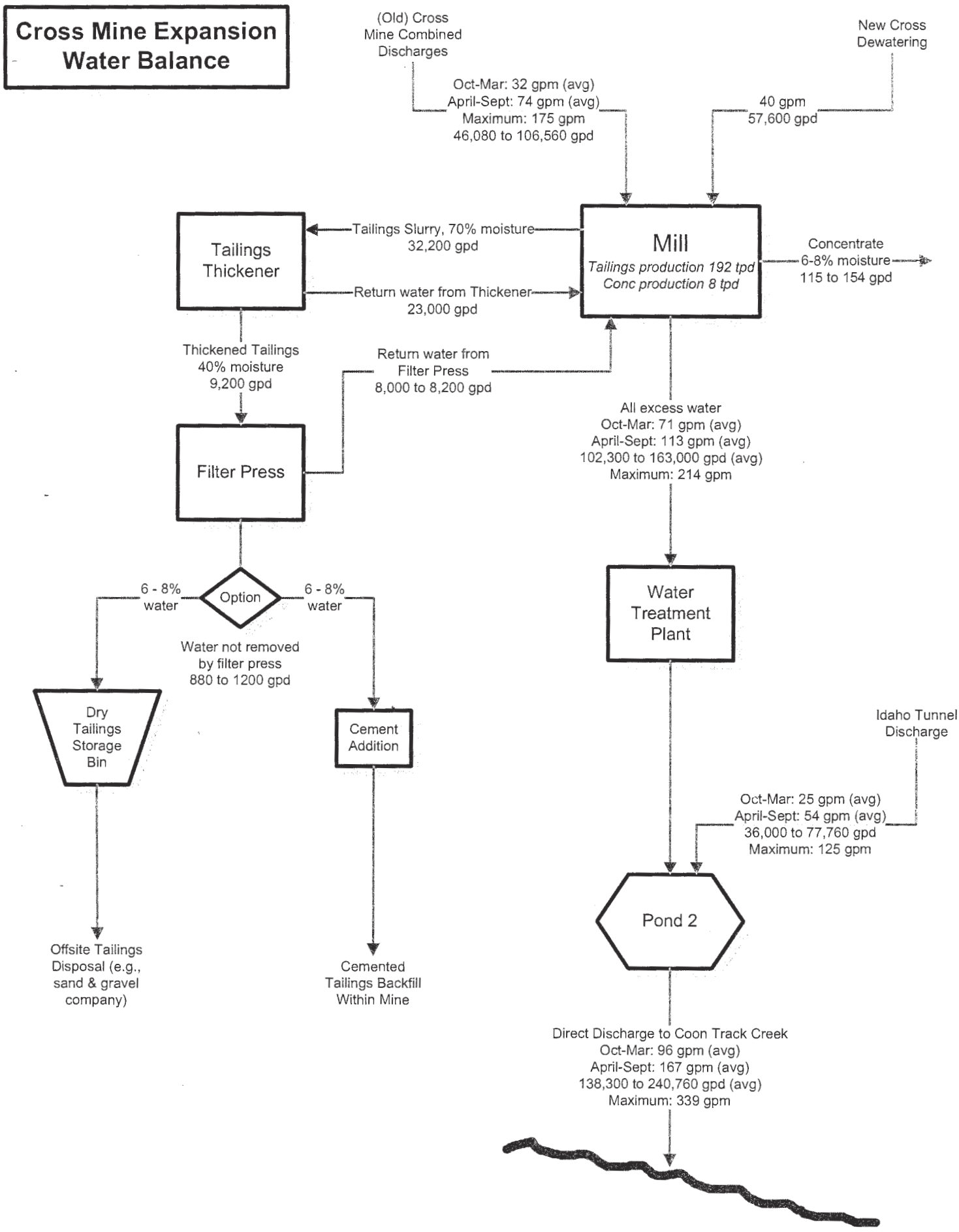
The proposed development includes the construction of two new buildings, and a new private road. Refer to the Building Plans / Elevation Drawings for details about the buildings. Refer to the Site Drainage Plan and Road Design for details about the new road.

The new buildings are the Ore Storage Shed and Ore Processing Facility. These buildings will be designed to match the existing buildings on the site; they will be painted a natural green color to harmonize with the surrounding environment.

The new 20-foot wide road will link the currently disconnected Cross and Caribou mine sites. It has been designed in accordance with Boulder County's Private Road Standards. This road will greatly improve truck traffic flow through the site, and facilitate mine operations. The road will cross Coon Track Creek; the design of the road incorporates two 36-inch polyvinyl chloride (PVC) culverts, which will be capable of handling 135 cubic feet per second (cfs). (Refer to the Road Design engineering report for details about the road and culverts). The culverts will be equipped with adequate inlet and outlet protection.

Attachment A: Cross Mine Water Balance

Cross Mine Expansion Water Balance



RECLAMATION PLAN

The following is a general reclamation plan developed as of March 2008 and is provided for land use permitting and informational purposes only. An amendment to the Colorado Division of Reclamation, Mining, and Safety (CDRMS) mining permit (Permit M1977410) will be completed in the near future. This amendment will constitute the formal mining and reclamation plan, which will be considered the official mining and reclamation plan.

1.0 INTRODUCTION

This document describes the future measures to be taken to reclaim the Cross Mine site to an appropriate post-mining land use. The purpose of this plan is to generally describe the timing, procedures, criteria, and materials that will be used to reclaim the mine site. The final version of this plan will be submitted to CDRMS as part of an amendment to the existing 110(2) mining permit (Permit M1977410).

The Cross Mine is an active mine owned by Calais Resources Colorado, Inc., located in the SW ¼ NW ¼, Section 9, Township 1 South, Range 73 West, 6th Principal Meridian, Boulder County, Colorado. Access is over the existing Nederland-Caribou road, and by the existing Cross Mine cutoff from the "winter road" section of the county-maintained Nederland-Caribou road. These roads were identified on the 1972 quadrangle map prepared by the U.S. Department of the Interior: United States Geological Survey (USGS).

2.0 SUMMARY OF SURFACE DISTURBANCE

Refer to **Attachment A** for a basic site map, which depicts existing and proposed disturbance.

2.1 Pre-Act Disturbance

Gold and silver mining in the Consolidated Caribou Mining District date back to the 1860s, with over 20 million ounces of silver and 300,000 ounces of gold recovered to date in the district. Mining and surface disturbance occurred at and around the Cross Mine site beginning in the 1880s, which is decades prior to the passage of the Colorado Mine Land Reclamation Act in 1976.

The site properties were acquired piece-by-piece by Hendricks Mining Company, and its successor, Calais Resources Colorado, Inc. Hendricks Mining Company began operations at the site in July 1971. At that time, the majority (roughly 75 percent) of all surface disturbance already existed. The Old Cross Mine portal was developed in the 1940s. A large building at the Cross Mine burned down in 1960. Some mine waste dumps existed at the Cross site prior to 1974, when they were removed and/or regraded to provide a level surface for equipment and material handling.

Two wooden cabins were built in the 1940s at the Cross site, which still stand today. One of these cabins is and shall continue to be a private residence during the proposed new mining. The other cabin will be torn down, under consultation with the Boulder County Historic Preservation Board.

The Caribou (upper portion of new mining boundary) property was acquired by Hendricks Mining Company in 1980. Existing disturbance at this site included haul roads and surfaces, ancillary surface disturbances, the Idaho Tunnel portal, a snow shed, and an office building, which were remnants of pre-Act mining.

2.2 Post-Act (Permitted) Disturbance

Since the currently active permit was approved in 1980, underground mine development has occurred primarily by driving cuts directly on vein material. Ore was shipped directly to an off-site mill, and no ore stockpiles were created.

Waste rock excavated during underground development was stockpiled in the northeast corner of the site. This waste rock material was sold in the early 1980s to Boulder County, and was used as road base material on nearby county and United States Forest Service roads. Little waste rock material exists at this location today. However, the proposed mining activity will temporarily reactivate this waste rock dump for approximately less than a year.

As part of permitted mining activity, two steel-frame construction buildings were erected at the Cross mine site in the 1980s. These are the Office / Dryroom building and the Warehouse (Boulder County Building Permit BP-80-576).

In 1980, a series of detention ponds were created near the Idaho Tunnel portal. These ponds are no longer in use, and will be removed during site preparations for new mining activity.

In 1987, two lined surface water detention ponds (Pond 1 and Pond 2) were constructed on site. These ponds collected discharge from the Idaho and Cross tunnels, and provided detention prior to discharge into Coon Track Creek. These ponds are still in use; however, during site preparations for new mining activity, Pond 1 will be removed.

Calais Resources Colorado, Inc. acquired Hendricks Mining Company in 1998, and with it acquired surface and subsurface rights to the property.

In 2003, Calais began its "Supplemental Environmental Program," which focused on regrading and revegetation to protect selected slope areas from erosion and to reduce sedimentation of Coon Track Creek. The majority of reclamation work performed in 2003 was at the Cross site, on the slope directly above Coon Track Creek.

Trash is temporarily stored in locked dumpsters and trucked off site. Strict rules exist regarding the non-disposal of personal or mine trash on or near the mine site. Rules of good housekeeping are maintained at all times, and will continue through new operations.

See **Attachment B** for the most recent inspection report from Colorado Division of Minerals and Geology in 2004. This inspection report includes the following quotes:

- "...the operator has done an excellent job of going well beyond the scope of required reclamation activities and has made a significant contribution toward reclaiming historic mining disturbance in the Caribou area."
- "[The operator] has done an exemplary job of maintaining a 'clean' operation in compliance with all applicable state and federal regulations as well as contemporaneous reclamation of permitted disturbed areas and surrounding historic mining disturbance."

In summary, existing surface disturbances (pre- and post-Act) which will remain at the commencement of operations include:

- Office / shower building at Caribou;
- Fuel tanks at Caribou;
- Septic tank and leach field at Caribou;
- Office / dryroom building at Cross;
- Warehouse at Cross;
- Two mine portals – the Idaho Tunnel Portal and the Old Cross Portal;
- Operating surfaces / parking lots at Cross and Caribou;
- Pond 2, the water treatment pond which collects discharge from the Idaho Tunnel and Old Cross Portal;
- Three groundwater wells; and
- Two ventilation shafts.

2.3 Proposed New Disturbance

Planned improvements to the site will include a new surface disturbance associated with a road, two culverts, two new buildings (Ore Processing Facility and Ore Storage Shed), a new septic tank and leach field, and the new Cross Decline Portal. Some regrading of regolith for building and road construction is anticipated. Prior to all new surface disturbance, erosion and sediment control best management practices (BMPs) will be implemented, and topsoil (if present) will be separately salvaged and stored in stockpiles on site for use during final or concurrent reclamation.

2.3.1 Waste Rock

Waste rock will be generated from the new Cross Decline portal. This waste rock (approximately 200,000 tons) will be temporarily stockpiled at the northeast end of the mine site. It is anticipated that the newly extracted waste rock will be non-acid generating. Prior to submittal of the permit amendment to CDRMS, sampling and analysis of waste rock will be conducted to verify this assumption.

The waste rock will be sold to the County and/or the US Forest Service as road base for nearby county and Forest Service roads, in the same manner that was followed in the early 1980s. Depending on negotiations, the Boulder County Transportation Department will furnish a portable crusher that will be placed near the pile. It is anticipated that all waste rock will be removed prior to reclamation.

No backfilling of underground mine workings with waste rock will occur. All ore processing operations, including crushing and milling, will occur within the new on-site mill. Refer to the Mining Plan for details about mining and milling methods.

2.3.2 Tailings

For the first year of mine operations, tailings will be hauled off site by 20-ton trucks. These tailings will be sold to local landfills as clean fill, or to sand and gravel operations as clean sand. Analyses of tailings will include Toxicity Characteristic Leaching Procedure (TCLP), Synthetic Precipitation Leaching Procedure (SPLP), and Acid-Base Accounting (ABA). Several of these analyses are already underway.

After the first year or so of operations, dewatered and cemented tailings will be backfilled within the underground mine workings. Refer to the mining plan for details about tailings backfill activities and methods. No tailings will remain on the land surface prior to reclamation.

2.4 Industrial Wastewater Management

Calais currently manages and treats one permitted mine water discharge point, which discharges directly into Coon Track Creek under Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD) National Pollutant Discharge Elimination System (NPDES) Permit CO-0032751. This discharge point currently has three sources.

The three mine water sources which contribute flow to the permit discharge point are:

- (existing) Cross Mine Tunnel seepage from the roof of the mine;
- (existing) Cross Mine Tunnel artesian flow from the floor of the mine; and
- Idaho Tunnel flow.

These two flows from the existing Cross Mine Tunnel are piped to and mixed in Pond 1, where approximately 10 pounds of lime is added daily to raise the pH. Then, Pond 1 discharges into Pond 2, where it mixes with the mine water from the Idaho Tunnel. In Pond 2, trace metals precipitate from the water. The discharge from Pond 2 flows through an outlet pipe where it is directly discharged to Coon Track Creek. This point discharge currently meets all water quality standards for Coon Track Creek. All required reporting has been provided to CDPHE and EPA on a timely basis.

At closure, one additional permitted water discharge is anticipated, which will flow from the new Cross Decline Portal. See Section 3.4.3 for a discussion of water management at closure.

2.5 Stormwater Controls

Stormwater controls will be implemented during operations to prevent erosion and sedimentation into Coon Track Creek. Many of these controls will remain after closure, After reclamation, these controls will be maintained through the implementation of a DRMS-approved post-closure operations & maintenance plan.

3.0 RECLAMATION PLAN

3.1 Statutory and Regulatory Requirements

The Colorado Mined Land Reclamation Act requires mine operators to "reclaim land affected by mining operations so that the affected land may be put to a use beneficial to the people of the state." The Act is administered by the Colorado Department of Natural Resources (CDNR) Division of Reclamation, Mining, and Safety, and implemented by the Hard Rock/Metal Mining Rules and Regulation, a publication of the Mined Land Reclamation Board (MLRB). The MLRB is the decision-making authority for CDRMS.

To operate a mine in Colorado, a mine operator must obtain a reclamation permit from CDRMS. The reclamation permit application package includes a general description of the mine, mining plan, and other legal and notification documents. A reclamation plan is also part of the permit application package. Specific reclamation plan requirements are identified in Section 6.3.4 of the MLRB rules and regulations. The amendment to CDRMS 110(2) Permit M1977410 for the Cross Mine site will comply with the CDRMS rules by satisfying the requirements of Section 3.1 and Rule 3 of the MLRB regulations.

The Boulder County Land Use Code, section 4-602(A), also has requirements for the establishment and performance of a reclamation plan for subsurface mining.

3.2 Post-Mining Land Use

The primary post-mining land use for the property will be rangeland. Secondary post-mining land use will be residential use. These land uses are consistent with land use in the surrounding areas. Reclamation activities described in this plan are directed toward future rangeland and residential use. To satisfy the primary land use for the site, the reclamation plan will identify the existence of viable grazing units, as well as commit to a vegetation productivity standard. For the secondary land use, the existing private residence will be retained on site. See the attached Preliminary Reclamation Plan map. The owner may choose to establish an Environmental Covenant on the site, which will restrict future use.

3.3 Facilities Closure/Dismantling

Buildings and structures to be removed at closure include the Caribou office/shower building, septic leach field (to be buried), snow roof, fuel tanks, Cross office, Cross mill building, and Cross ore storage shed. These structures will be dismantled and removed from the site at the cessation of mining operations and before the grounds are graded to final contour. Any concrete foundations and paved areas will be reduced to rubble and buried on site.

During dismantling and removal of facilities, surfaces where minor spills have occurred (evidenced by stains or discoloration) will be tested and remediated appropriately. No areas of spills are currently known.

The remaining disturbances, including roads and the Cross and Caribou surface parking areas, will be ripped and scarified as needed, contoured and roughened if necessary for drainage control, and integrated into the surrounding undisturbed topography. The two culverts will be removed, and Coon Track Creek will be restored to its original course.

To protect the public and wildlife, the three on-site portals will be closed to restrict access. A locking metal gate will be installed to prevent entry. Portal closure will be conducted in accordance with the Colorado Inactive Mine program requirements. No bulkheads will be constructed within the portals, eliminating the risk of pressure buildup and bulkhead blowout. Physical barriers and signage will be installed immediately outside of the portals to further deter trespassing. Bat controls will be installed if DRMS deems necessary.

The two vent shafts will be sealed by installing steel plates across the shafts. The plates will be anchored in cement along the perimeter. The area will then be backfilled, contoured, and seeded in accordance with DRMS specifications.

Fuel alkalines, reagents, explosives, and other materials will be removed from the site at closure. Mitigation of storage sites will be carried out as necessary and required by regulations.

After removal of buildings, the ground surfaces will be reclaimed to meet the post-mining land use goal of rangeland use. The area will be graded to promote drainage. The final surface will be contoured to minimize erosion, ponding, or slope failure. Finally, the area will be revegetated.

Pond 2 will be removed, including *in situ* disposal of the pond liner. The sediments on the liner will be sampled and removed if required by regulatory requirements. The liner will then be folded in on itself and buried, and the area will be regraded and revegetated in the same manner as other surfaces at the site. Regrading will occur to provide positive drainage over the buried liner, to prevent ponding.

Of the three on-site drinking water wells, the Caribou and Cross wells will be removed. Only the well supplying the residential building, named Cabin Well, will remain.

3.4 Reclamation Practices

The reclamation approach and procedures outlined in this plan were developed for the site-specific conditions present at the mine site. Reclamation procedures are designed to return mining-related disturbance to a productive use, similar to the surrounding area. In addition, the reclaimed areas will be visually and functionally compatible with the surrounding topography.

The reclamation procedures proposed for the Cross Mine project consist of the following basic components:

1. Removing structures and conditions which could constitute public hazards.
2. Establishing stable surface, topographic, and drainage conditions that are compatible with the surrounding landscape and serve to control erosion;
3. Establishing soil conditions conducive to re-establishment of a perennial and desirable vegetation; and
4. Revegetating disturbed areas to satisfy the rangeland and residential post-mining land use.

The general reclamation goal for the mine site is to reclaim the site to a stable, functioning landscape, which allows essentially the same land uses as surrounding areas. The site will be reclaimed with native grasses, shrubs, and trees to the extent practical. The reclamation plan will not include introduced species. Seeding and woody species planting rates will be provided in the permit amendment. The following sections detail the various aspects of the reclamation plan.

3.4.1 Topsoil Salvage, Storage, and Protection

Prior to building and road construction, topsoil will be salvaged from the disturbed area and stored in topsoil stockpiles until needed for final or contemporaneous reclamation. Topsoil stockpiles will be protected from wind and water erosion by establishing a quick growing vegetative cover on the surface of the stockpile, and by building a berm around the stockpile. At closure, and after use of the topsoil, the stockpile area will be scarified to alleviate compaction, fertilized and amended (if necessary), and seeded with a reclamation seed mixture specifically designed to re-establish a perennial and desirable vegetative cover at the mine site.

3.4.2 Contouring and Shaping

The reclamation contouring program for the mine site has been designed to create geotechnically stable landforms and to minimize erosion and sedimentation, while at the same time considering the needs of the rangeland and residential post-mining land uses.

The mine site will be contoured by creating topographical diversity. Final grading will create undulating land forms that are stable, and blend with the surrounding undisturbed topography. Final grading efforts will minimize erosion and additional surface disturbance, and straight lines will be altered to provide contours, which are visually and functionally compatible with surrounding terrain.

Surface water drainage will be routed as discussed in Section 3.4.3. Compacted surfaces will be scarified prior to growth media placement (if available), to enhance soil adhesion to the graded surface. The access road will be retained up to the cabin, in accordance with the landowner's preference, but will be graded to blend with recontoured surfaces prior to topsoil redistribution and revegetation activities. The growth medium (topsoil) will be left in a roughened condition to reduce surface runoff, increase infiltration and increase micro topographic variability, which will enhance vegetative diversity.

3.4.3 Water Management

During operations, surface water drainage will be maintained according to the specifications described in the Surface Water Control Plan, which will be provided in the permit amendment.

At closure, it is anticipated that there will be four water sources to manage: the three existing sources as described in Section 2.4, and a new discharge from the new Cross Decline Portal. As bulkheads are not planned at closure for any of the three portals, these discharges will continue at closure and beyond.

Refer to the Mining Plan for a description of water management and treatment methods to be used in the proposed new mining operation.

Water discharging from the above-mentioned portals must meet applicable surface water quality standards prior to discharge to Coon Track Creek. Therefore, water treatment will likely be required to remove trace metals. Accordingly, provisions for water treatment at the site during operations and following closure will be included in the CDRMS permit amendment. Passive water treatment for the combined Cross and Idaho flows will be implemented, such as limestone drains and wetlands.

At closure, the road that crosses Coon Track Creek will be removed. This also includes removal of two culverts and inlet / outlet protection features. The stream channel will be restored to its original configuration.

3.4.4 Erosion Control

Prior to operations, run-on control berms and ditches will be installed upgradient of the mine site, to route water away from disturbed areas. This will reduce erosion and sedimentation of disturbed areas. These upgradient berms and ditches will remain in place after closure, and will continue to provide protection from sedimentation and erosion.

Revegetation of the disturbed area is an effective means of controlling long-term sediment transport. Prior to establishment of vegetative cover, erosion control BMPs will be implemented to minimize soil erosion and sediment transport off-site. Surface mulch will be applied to the surface of the reseeded area to protect the slope from raindrop impact prior to establishment of a vegetative cover. The reclaimed surface will be left in a roughened condition, which will reduce erosion by decreasing slope length and the opportunity for channelization of surface runoff. In addition, implementation of the Surface Water Control Plan, which will be described in the permit amendment, will minimize erosion from run on and runoff. If necessary, high velocity flows will be controlled in designed rip-rap filled ditches.

The ditches will be designed for long-term stability by over-excavation (approximately 1 foot) beyond the required final ditch cross-section. Non-woven geotextile will be placed over the downhill berm, across the bottom of the ditch, and extending a short distance above the ditch on the uphill side. The geotextile will prevent sloughing caused by rain and frost heave from filling the ditch. Rip rap will be placed on top of the geotextile within and above the ditch area to minimize channel scour, and provide long-lasting protection for the geotextile.

3.4.5 Revegetation

Growth Media Redistribution

During final reclamation, all stockpiled growth media will be redistributed. To enhance revegetation diversity, the depth of soil replaced will vary according to the recontoured landscape. Soil testing will occur at closure to determine if soil amendments or fertilizers may be required to establish desirable vegetation.

As stated previously, prior to growth media redistribution, the subsoil will be scarified to enhance growth medium adhesion to the subgrade material. The growth media will be dumped, spread, and graded using a minimum number of passes to prevent compaction. Following growth media placement or amendment application (if necessary), pitting and gouging will lightly compact the soil, create micro sites for water retention, and reduce the potential for erosion.

Soil Amendment and Seedbed Preparation

Since it is anticipated that there will be an insufficient soil volume to cover all recontoured areas, both soil and excess fill material will be characterized to determine its suitability as a growth medium. Samples of these materials will be chemically and physically analyzed. Results from the analyses will indicate whether amendments are necessary to condition the soil and excess fill material as a growth medium. Fertilizer and amendments will only be applied where soil tests indicate nutrient deficiencies exist which may inhibit plant establishment. The potential for undesirable weed invasion will also be considered. Therefore, under some circumstances, fertilizers or amendments may not be applied.

Based on the results of soil analyses, fertilization and amendment application recommendations will be formulated to enhance the suitability of the soils as a plant growth medium. The selected fertilizers and amendments will be incorporated into the top 6 inches of soil immediately prior to seeding. Timing and application rate for fertilizers and amendments will be determined prior to seeding activities.

Fertilizer and amendment application and seedbed preparation will take place following grading and growth media redistribution (if available). Compacted surfaces will be loosened and left in rough condition by ripping, or other mechanical manipulation. Loose erodible surfaces may need to be bulldozer tracked to prevent sloughing before amendments, seed, and mulch are applied. The surfaces will be disked, raked, or treated to incorporate the amendments into the top 4 to 6 inches. While not anticipated, supplemental applications of fertilizer will be made if indicated by vegetation monitoring.

Seeding and Planting

Seeding may be performed by drill seeder, dry broadcasting, or hydroseeding, depending on the working area and slope steepness. Seed application rates will be calibrated to the method of seed application. Woody species seedlings will be manually planted.

The proposed seed mixtures will be determined by commercial seed availability, the vegetation and habitat types that exist in the surrounding area, and known climatic and soil conditions of the site. Input for the seed mixtures and rates may be provided by the Natural Resources Conservation Service (NRCS), the Plant Information Network and CDRMS. Proposed seed and seedling mixtures, and application rates will be provided in the CDRMS permit amendment.

Mulching

Surface mulch, either weed-free straw or commercial hydromulch, will be applied following seeding. Straw mulch will be applied in areas where dry broadcast seed has occurred. Hydromulch will be used where the seed was sown hydraulically. Straw mulch will be applied at a rate of 2 tons per acre and will be secured using either mechanical crimping methods or a chemical tackifier. A hydromulcher will be employed for application of commercial tackified hydromulch at a rate of 1 ton per acre on steep slopes.

3.4.6 Control of Undesirable Species

During vegetation establishment, weed control practices will be implemented to limit the growth and spread of noxious weeds, and to ensure that revegetation efforts are successful. The control program will include using certified weed-free straw and alfalfa in the mulching and amendment programs, as well as certified seed with a low weed seed content.

Weed control will consist of annual observation of the site by a vegetation specialist for three years after closure. Weedy species will be pulled or sprayed by a certified commercial herbicide application contractor.

3.5 Site Features to Remain After Reclamation

Few buildings and man-made features will remain on site after reclamation activities are complete. The cabin will remain on site as a private residence. The well associated with this cabin will also remain, as will the access road to the cabin. Long-term water treatment features, as mentioned in Section 3.4.3, will

remain in place after closure, and will likely require ongoing maintenance and restoration. All other structures and features will be either removed, buried, or reclaimed.

3.6 Reclamation Schedule

The ore body under exploration at the mine site is anticipated to support many years of mining. It is possible that operations will eventually be expanded, requiring further permitting and planning. This reclamation plan has been prepared with consideration of the current plan, best available information, and practical expectations.

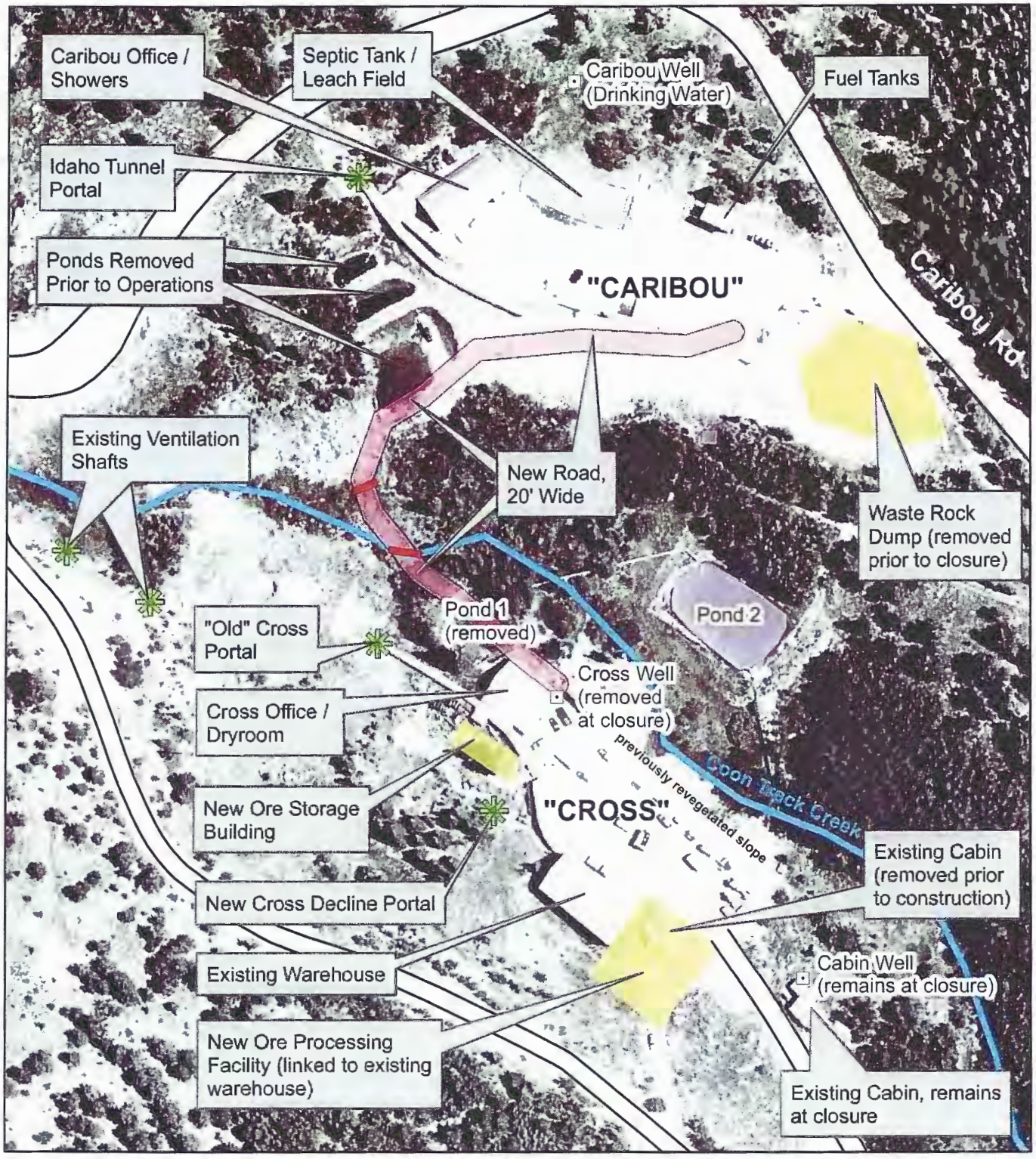
Reclamation activities are scheduled to begin at the end of mining activities. Where possible, reclamation of portions of the site may begin during operations. Interim reclamation will include grading, erosion control, and drainage control features.

Most reclamation activities will take place at the time of mine closure and will be considered final reclamation. Seeding and planting will be completed in mid to late fall of the year of closure in order to take advantage of winter and spring moisture. Alternatively, early to mid spring seeding and planting will take place when appropriate or when weather constraints or other unavoidable circumstances make fall seeding and planting infeasible.

Post-closure monitoring of water discharges will occur as specified by the approved CDRMS reclamation permit amendment. Post-closure monitoring will also include observation of vegetation, erosion, and sedimentation for at least three years following completion of reclamation activities.

Attachment A

Site Map with Previous and Proposed Disturbance



Cross Mine
Basic Reclamation Plan
Existing and New Features

Legend

- Existing Features
- New Road, 20' Wide
- New Features
- Portal or Shaft

0 45 90 180 270 360 Feet

1 inch equals 130.9 feet

N W E S

Walsh

U:\Projects\Callais_resources\2006\reclamation plan letter

Attachment B

Colorado Division of Minerals and Geology - Inspection Report from 6/18/2004

MINE ID # OR PROSPECTING ID #: M-1977-410

INSPECTION DATE: 06/18/04 INSPECTOR=S INITIALS: TAS

OBSERVATIONS

1. A site inspection of the Cross Mine was made as part of the Division's on-going 4-year inspection program. The Cross Mine is located approximately 5 miles west of Nederland at an elevation of approximately 10,000 feet. Present during the inspection was Tom Hendricks. Weather was inclement and raining periodically throughout the inspection.

2. A mining and reclamation permit for the Cross Mine was issued on November 3, 1980. The site is permitted for a total surface disturbance of 1.0 acre. The mine plan specifies underground mining via shrink-stoping mining techniques where waste rock is utilized as stope-fill in the mine. There will be little or no ore stockpiled at the mine site. The operator has posted a financial warranty of $15,400. The site will be reclaimed to a home site and wildlife habitat. This inspector finds that the existing financial warranty is adequate to complete the terms of the approved reclamation plan.

3. Since the last inspection by the Division on June 16, 1999, the operator has a) processed technical revisions which address the drill hole program and confirm that existing buildings will remain during final reclamation, b) completed construction of the water treatment plant, and c) completed a significant amount of reclamation tasks at both the Cross Mine and the Smuggler Mine. This inspector notes that the operator has done an excellent job of going well beyond the scope of required reclamation activities and has made a significant contribution toward reclaiming historic mining disturbance in the Caribou area. Underground mining activities have not yet begun. The core drilling program is on-going and the operator has done a commendable job in reclaiming drill sites as soon as practicable. (Recent Annual Reports and the operator's February 4, 2004 Colorado Dept. Health SEP Report provide a detailed explanation of all the various reclamation activities completed).

4. Reclamation work inspected included the following: 1) The Cross Mine dump was contoured back with the establishment of a buffer zone along Coon Track Creek, 2) 30 dump truck loads of topsoil and mulch were placed on the Cross Mine dump and seeded with the approved native grass seed mix, 3) Excess dump rock was contoured into the hillside behind the Cross Mine to reclaim old surface workings, and 4) backfilling and sealing of exploration core drill holes and re-seeding exploration drill pad areas with the approved native grass seed mix.

5. The water management system at the Cross Mine was functioning as designed during the inspection. The water management system includes two (2) lined ponds and a small water treatment plant below the lower pond to add lime and adjust the pH of mine process water to near neutral. The upper pond was constructed as a catchment basin for stormwater. The operator discharges process water offsite via an approved Water Discharge NPDES Permit from the Colorado Department of Health and maintains a rigorous water quality monitoring and reporting program.

6. Signs and markers were posted as required by Rule 3.1.12.

7. Mr. Hendricks has done an exemplary job of maintaining a "clean" operation in compliance with all applicable state and federal regulations as well as contemporaneous reclamation of permitted disturbed areas and surrounding historic mining disturbance.

Contact Address

Thomas S. Hendricks

OR: Calais Resources Colorado, Inc.

Cross Mine Road, PO Box 653 – Caribou

TE/ZIP: Nederland, CO 80466

)unt, DMG (via E-Mail)

COLORADO DIVISION OF MINERALS AND GEOLOGY
MINERALS PROGRAM INSPECTION REPORT
PHONE: (303) 866-3567

The Division of Minerals and Geology has conducted an inspection of the mining operation noted below. This report documents observations concerning compliance of the mining operation with the permit and the regulations of the Mined Land Reclamation Board. The report notes 1) Areas of successful compliance; 2) Problems and suggested corrective actions and/or 3) Possible violations to be considered for possible enforcement action by the Mined Land Reclamation Board. OPERATORS SHOULD READ THIS REPORT CAREFULLY BECAUSE IT MAY REQUIRE CORRECTIVE ACTION AND/OR RESPONSES TO THE DIVISION IN ORDER TO AVOID CONSIDERATION OF POSSIBLE ENFORCEMENT ACTION BY THE MINED LAND RECLAMATION BOARD.

MINE NAME: Cross Mine OPERATOR: Calais Resources Colorado, Inc.

COUNTY: Boulder MINERAL: Gold, Silver TYPE OF OPERATION: 110(2), Underground

INSPECTOR(S): Thomas A. Schreiner TAS

MINE ID # OR PROSPECTING ID #: M-1977-410

INSPECTION DATE:	06/18/04	DATE OF COMPLAINT:	NA
INSPECTOR'S INITIALS:	TAS	TIME OF DAY (MILITARY):	10:00
INSPECTION TYPE CODE[1]:	MI	POST INSP. CONTACTS[2]:	FS
JOINT INSP. AGENCY CODE[2]:	NO	REASON FOR INSP. CODE[3]:	IE
WEATHER CODE[4]:	RN, IN	BOND CALCULATION TYPE[5]:	BC

OP. REP. PRESENT: Tom Hendricks

1. INSPECTION TYPE CODE - [CL-IN: IL=Illegal Operation, MI=Monitoring, MP=Mineral Prospect, SI=Surety-related, PR=Pre-operation]
2. POST INSPECTION CONTACTS AND JOINT INSPECTION AGENCY CODE - [CL-AG: NO=None, BL=BLM, CH=Colo. Dept. Health; CL=Land Board, CT=Citizen; CW=Wildlife, FS=Forest Service, HW=Hwy. Dept., LG=Local Government, SE=State Engr.]
3. REASON FOR INSPECTION CODE - [CL-RS: AG=Other Agency Request, CT=Citizen Complaint, IE=Normal I&E Program, HP=High Priority, PY=Priority]
4. WEATHER CODE - [CL-WE: CL=Cloudy, CR=Clear, IN=Inclement - prevented inspection, RN=Raining, SN=Snowing, WD=Windy]
5. BOND CALCULATION TYPE: - [BC=Complete Bond, BP=Partial Bond, NN=None]

This list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each. IF PB OR PV IS INDICATED, YOU SHOULD READ THE FOLLOWING PAGES CAREFULLY IN ORDER TO ASSURE COMPLIANCE WITH THE TERMS OF YOUR PERMIT AND APPLICABLE RULES AND REGULATIONS. If PV is indicated, you will be notified under separate cover when the Mined Land reclamation Board will consider possible enforcement action.

GENERAL INSPECTION TOPICS

(AR) RECORDS..... Y	(FN) FINANCIAL WARRANTY..... Y	(RD) ROADS..... Y
(HB) HYDROLOGIC BALANCE..... Y	(BG) BACKFILL & GRADING..... Y	(EX) EXPLOSIVES..... N
(PW) PROCESSING WASTE/TAILING..... N	(SF) PROCESSING FACILITIES..... Y	(TS) TOPSOIL..... N
(MP) GENL MINE PLAN COMPLIANCE... Y	(FW) FISH & WILDLIFE..... Y	(RV) REVEGETATION..... N
(SM) SIGNS AND MARKERS..... Y	(SP) STORM WATER MGT PLAN... N	(SB) COMPLETE INSP..... N
(ES) OVERBURDEN/DEV. WASTE..... Y	(SC) EROSION/SEDIMENTATION.. Y	(RS) RECL PLAN/COMP... Y
(AT) ACID OR TOXIC MATERIALS..... N	(OD) OFF-SITE DAMAGE..... N	(ST) STIPULATIONS..... N

Y = Inspected and Found in Compliance PV = Inspected and Possible Violations Noted PB = Inspected and Problems Noted
N = Not Inspected NA = Not Applicable

WHITE - PUBLIC FILE YELLOW - OPERATOR PINK - CORRESPONDENCE FILE

Section 7

Boulder County

Boulder County
Land Use Department
Publications

Agreement for Payment

Land Use Department
Courthouse Annex Building
2045 13th Street
PO Box 471
Boulder, CO 80302

Planning Division:
Phone: 303-441-3930
Fax: 303-441-4856
Email: planner@co.boulder.co.us
http://www.co.boulder.co.us/lu/

Office Hours:
Monday — Friday 8:00 AM to 4:30 PM

Agreement for Payment

Agreement for payment of Land Use Department Application Fees and for processing of Application in accordance with the Boulder County Land Use Code.

(I) (We), Calais Resources, Inc.

as Property Owner of Record/Applicant ("APPLICANT"), AGREE AS FOLLOWS with the County of Boulder and its Land Use Department (collectively "COUNTY"), in consideration of the County's acceptance of Applicant's application for the land use approval as further described below:

1. Applicant has submitted to County an application for approval of: Cross Mine Expansion ("Application").
2. Applicant acknowledges and understands that Board of County Commissioners has established and amends from time to time a fee structure for County Land Use Department applications for most applications, this includes a non-refundable deposit which must be paid prior to the Department's acceptance of any application for processing, and provision for billing the Applicant for any costs of processing applications which may accrue above the non-refundable deposit amount. The Applicant acknowledges and agrees that this Agreement shall govern the payment of fees for the processing of the Application.
3. The Application shall not be accepted for processing unless the property owner of record of the property included in the Application signs this Agreement. In the case of multiple property owners, the Director of the County Land Use Department ("Director") shall have the discretion to determine which owner(s) shall sign. A person other than the property owner of record may sign the Application and this Agreement only if the Land Use Director, for good cause shown, waives the requirement for landowner signature under the applicable provisions of the Land Use Code.
4. The Applicant shall be billed by the County Land Use Department ("the Department") for all direct and indirect costs (including but not limited to staff time of the Department, the County Attorney's Office, and the County Transportation, Public Health, and Parks Departments); mailing, copying, recording, and publication fees and costs; and authorized consultants' fees incurred by the County), which the Department has accrued to date in processing the Application. The Department will continue to bill the Applicant until all costs have accrued and are paid.
5. The Applicant agrees to pay all such bills in full, and by whatever manner of payment is specified as acceptable by the Director, by delivery made to the Department no later than one month after the billing date. The Director shall have the discretion to suspend processing of the Application if any payments under this Agreement are not made on time. This suspension may involve the postponement of scheduled Planning Commission or Board of County Commissioner hearings or meetings, and the incurrence of additional costs such as for remodification or republication. Similarly, the Director shall have the discretion to terminate the processing of any Application for which any billed payment is more than three months overdue.
6. The person/address whom the Applicant designates to receive all billings for fees under this Agreement are as follows:

Calais Resources Inc.
PO Box 653
Nederland, CO 80466

Any billing mailed to this person/address and not returned to the Department shall be deemed received. The Applicant may change the billing address under this Paragraph by providing written notification of such change to the Department.

7. In the event of nonpayment of fees, the County shall have the right to file a fee collection action against any or all of the persons signing this Agreement or the Application as Applicant. Any resulting judgment for fees may be enforced in any legal manner whatsoever and may be filed as a judgment lien against the real property which is the subject of the Application, as well as against any real property owned in whole or in part by any judgement debtor hereunder.
8. Any agreement by the Director or County to forego any of the judicial or administrative remedies available to them under this Agreement in response to the late payment or nonpayment of fees, shall not in any way constitute a waiver of the Director's or County's rights to collect fees or appropriately adjust the processing of the Application as provided herein.
9. In submitting the Application and signing this Agreement, the Applicant acknowledges and agrees that the Application is subject to the applicable processing and public hearing requirements set forth in the Boulder County Land Use Code. The Applicant acknowledges that the Applicant has obtained or has access to the Boulder County Land Use Code, and that, prior to filing the Application, the Applicant has had the opportunity to consult the relevant provisions governing the processing of and decision on the Application.
10. In submitting the Application and signing this Agreement, the Applicant acknowledges and agrees that the Applicant is authorized to make available to the County, for purposes of copying and distributing for public review, all of the documents and information which the Applicant submits with or in support of the Application. Upon demand from the County, the Applicant agrees to indemnify and defend the County and its officials, agents and employees, and to hold them harmless from, any action, claim, suit, loss, cost, damage, or expense which may be brought or assessed against the County or any of its officials, agents or employees on account of any allegation by the Applicant or any person that the County may have violated federal copyright law, or violated any law, agreement, or provision allegedly protecting the confidentiality of or restricting public review of the Application materials which the Applicant submits to the County for review as part of the Application.
11. In submitting the Application and signing this Agreement, the Applicant acknowledges and agrees that the County Land Use Department and any other County staff involved in processing the Application or their duly authorized representatives will need to enter upon the property which is the subject of the Application and conduct inspections thereof to evaluate the Application pursuant to the applicable criteria of the Land Use Code, and perform related tasks. The Applicant hereby consents to allow the County staff or their designees to enter upon and inspect the subject property at any time for this purpose without obtaining the Applicant's separate consent at the time of inspection. This consent extends to inspections while the Application is in process, as well as after it has been approved to assure that any imposed conditions of approval are met.
12. The Applicant agrees to waive any requirements for the Applicant's written consent to extend voluntarily any public hearing or other deadline associated with processing the Application, if the Applicant or its representative agrees orally to any such extension.
13. The Applicant acknowledges that the Applicant executes this Agreement freely, voluntarily, and without threat of compulsion. The Applicant understands that the Applicant may consult an attorney or any other person concerning the Application or this Agreement prior to executing this Agreement, if the Applicant so chooses.
14. Acceptance of the Application for filing and receipt of the Application fee deposit do not necessarily mean that the Application is complete under the applicable requirements of the Land Use Code.
15. This Agreement shall become effective once signed by the Applicant and the County. It shall remain in effect throughout the processing of the Application Form, and until all obligations of the Applicant under this Agreement and under any County approval of the Application Form are met.
16. This Agreement shall be construed and enforced in accordance with the law of the State of Colorado.

Applicant:

Note: Property Owner must sign this document per Paragraph 3.

By: Thomas S. Mendes _____ By: _____

Date: 4/09-08 _____ Date: _____

By: _____ By: _____

Date: _____ Date: _____

Boulder County:

Land Use Director or Designee

By: _____

Date: _____

For Land Use Department Use

Docket Name: _____ Docket Number: _____

Deposit Amount: $ _____ Date Received: _____

Boulder County Land Use Department Planning Publications

Applicant's Certificate of Compliance

with Article 65.5 of Title 24, Colorado Revised Statutes
(H.B. 01-1088, Effective July 1, 2001)

NOTE TO APPLICANT AND LAND USE DEPARTMENT: *This form must be completed for any application for development under the Boulder County Land Use Code which (1) requires a public hearing before the Planning Commission or Board of County Commissioners,* ***and*** *which (2) is either (a) any kind of planned unit development, subdivision, or resubdivision/replat sketch plan, preliminary plan, or final plat application,* ***or*** *(b) an application for any other type of Land Use Code approval which anticipates new surface development ("a Subject Application").*

I. The Applicant must complete the following certification as a prerequisite to the Land Use Department *accepting as complete* any Subject Application which is tendered for processing to the Land Use Department on or after July 1, 2001. [Applicants for an approval of an application such as Site Plan Review, which is granted administratively and may not require a public hearing, do not need to complete the following certifications unless and until their application is appealed to or called up for a public hearing]:

I, Calais Resources Inc., Applicant for the following named development under the Boulder County Land Use Code _____ (Docket #_____) ("the proposed Development"), hereby certify that I or my agent have examined the records in the Office of the Boulder County Clerk and Recorder to determine if any owners or lessees of any severed mineral estate in the property which is the subject of the Proposed Development ("the Subject Property") (i.e., owners or lessees of mineral rights constituting less than full fee title in the Subject Property) can be identified, as required by Article 65.5 of Title 24, Colorado Revised Statutes (also known as "H.B. 01-1088" ("the Act")). Further, based on this examination, I have determined that ***(check applicable entry):***

_____ No such mineral estate owners or lessees exist in the Subject Property.

X Mineral estate owners or lessees exist in the Subject Property to whom notice of the County's initial public hearing on my application will need to be sent as required by the Act.

Signed: Thomas S. Hendricks
(Applicat's Signature/Date)

THOMAS S. HENDRICKS
(Applicant's Printed Name)

Signed: _____
(Applicant's Signature/Date)

_____
(Applicant's Printed Name)

(**Note:** *The same person(s) signing the development/docket application form on behalf of the Applicant must also sign the foregoing certification*)

This document prepared by:
Boulder County Land Use Dept.
Courthouse Annex, 13th & Spruce St.
PO Box 471; Boulder, CO 80306
Phone: (303) 441-3930
Fax: (303) 441-4856
Web Site:
http://www.co.boulder.co.us/lu/
or http://www.bouldercounty.us/lu
E-mail:
planner@co.boulder.co.us

Office Hours:
Monday through Friday
8:00 AM to 4:30 PM

Applicants Certificate of Compliance cont'

II. If the Applicant has certified above that mineral estate owners or lessees exist in the Subject Property to whom notice of the County's initial public hearing on the Subject Application will need to be sent as required by Article 65.5 of Title 24, Colorado Revised Statutes (H.B. 01-1088, effective July 1, 2001) ("the Act"), then the Applicant must complete the following additional certification as a prerequisite to the Land Use Department proceeding with the initial public hearing (before the Planning Commission or Board of County Commissioners, as applicable) on the Subject Application:

I, Calais Resources Inc., Applicant for the following named development under the Boulder County Land Use Code Cross Mine Expansion (Docket # PAC-07-205) ("the Proposed Development"), hereby certify that I or my agent have sent a notice, by first-class mail, not less than thirty days before the date scheduled for the initial public hearing on the Subject Application/Proposed Development, to: (1) all mineral estate owners or lessees in the Subject Property, containing the time and place of the initial public hearing, the nature of the hearing, the location of the Subject Property, and the name of the Applicant, *and* (2) the County, containing the name and address of all mineral estate owners or lessees in the Subject Property, all as required by the Act. I further acknowledge and agree that while the County has no obligation whatsoever to check or independently determine my compliance with the Act, to the extent information becomes know to the County indicating that I have failed to comply with the public hearing notice requirement of the Act, the County may, in its discretion, refuse to set, continue, reschedule, or vacate any public hearing on the Subject Application to enable proper notice to mineral estate owners or lessees under the Act, and may take such other action regarding any approval of the Subject Application as authorized by the Act. I further acknowledge and agree that to the extent any other state statute or provision of the County's Land Use Code purport to entitle me to action or a decision on the Subject Application within a designated period of time, this certification and agreement constitute a written waiver of any such entitlement to the extent necessary for me to comply with the public hearing notice requirements of the Act.

Signed: Thomas S. Hendricks 4-09-08
(Applicat's Signature/Date)

THOMAS S. HENDRICKS
(Applicant's Printed Name)

Signed: _____
(Applicant's Signature/Date)

_____
(Applicant's Printed Name)

(Note: *The same person(s) signing the development/docket application form on behalf of the Applicant must also sign the foregoing certification*)

Post Office Box 471 • Boulder, Colorado 80306

Land Use Department

Courthouse Annex
2045 13th Street • 13th & Spruce Streets • Boulder, Colorado 80302 • (303) 441-3930
http://www.bouldercounty.org/lu/

March 17, 2008

Calais Resources Colorado, Inc.
PO Box 653
Nederland, CO 80046-0653

RE: LIMITED AND CONDITIONAL CONFIRMATION OF BUILDING LOT STATUS REGARDING PROPERTY IDENTIFIED BY THE PARCEL NUMBER 158300200031

Dear Mr. Young:

The Land Use Department researched the parcel consisting of approximately 58 acres, located in Section 9, Township 1S, Range 73W, Parcel Number 158300200031, owned by Calais Resources Colorado, Inc. ("the parcel"). The Land Use Department's research was based on the application you provided, deed research, the County zoning and subdivision regulations, and information in the Land Use Department files. As a result, we have determined that the parcel is a legal building lot. This determination is *limited and conditional* because it confirms only that the parcel is a legal building lot eligible for certain potential development. **Because other County regulations must be complied with before a building permit can be issued for development on the parcel, this letter does not represent that the parcels can be developed for any particular structure or use.**

Specifically, the parcel is larger than the present minimum lot area of 35 acres in the Forestry Zoning District, and therefore is eligible for designation as a building lot by Boulder County.

Owners and prospective purchasers of the parcel are advised that future development of the parcels may require County building permits and/or discretionary zoning or land use review. These may or may not be granted depending on the applicable regulations. For example, a building permit requires proof of legal access that meets County standards; proof that legal sources of water and sanitation are available; and resolution of issues related to floodplains, soil type, drainage, and topography. The Boulder County Land Use Code may require Site Plan Review, Development Plan Review, Special Use Review, Subdivision or Subdivision Exemption approval, and/or other discretionary land use authorizations prior to any approval of building permits.

The determination that the parcel is eligible for building lot designation is made based upon the Land Use Code of Boulder County as it is adopted and in effect at the time of this determination. This does not constitute a basis for the legal or equitable vesting of zoning, land use, or development rights in the Parcel.

If you have further questions, please feel free to contact me.

Sincerely,

Kenneth Ziebarth, AICP
GIS Manager

cc: Section 9 T1S R73W, Assessor, letter log, BLD-008-0041

Cindy Domenico
County Commissioner

Ben Pearlman
County Commissioner

Will Toor
County Commissioner

Addendum
Section 1

Calais Resources, Inc.
Cross Mine Expansion
Special Use Review Application – Addendum
May 2008

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ORE PROCESSING BUILDING AREA SURVEY
PLAN VIEW OF EXISTING & PROPOSED GRADES
EARTHWORK CALCULATIONS
EXCESS MATERIAL MAP AND CALCULATIONS

Addendum Summary

This Addendum is submitted in response to comments from the Boulder County Land Use Department regarding the Special Use Review Application by Calais Resources, Inc., on April 9, 2008.

The Department identified two major topics in the April 2008 submittal which required further information. The Department requested a traffic impact study be performed in accordance with Boulder County Transportation guidelines; this study is included in Section 1.

The Department required more detail on building elevation drawings; these drawings are included in Section 2. These new building drawings replace the drawings submitted in April 2008.

The Department identified a need for more detail regarding the earthwork and grading surrounding the two new buildings. The planner assigned to this docket required existing and proposed topographic contours be shown at a 10-foot distance around the building footprint. The planner also requested that earthwork calculations be shown, and an accounting of excess material be performed. All of these items are included in Section 3.

Drawings and information included in this Addendum shall be considered the current plan, and any information contained in the April 2008 submittal which conflicts with information presented in this Addendum should be disregarded.

Finally, the list of required elements for the Special Use Review submittal identified in the December 6, 2007 pre-application meeting was omitted in the April 2008 submittal; in this Addendum it is included on the next page.

This Addendum was compiled on behalf of Calais Resources, Inc., by Walsh Environmental Scientists and Engineers LLC in Boulder. The Department requested four copies of this Addendum; additional copies are available by contacting:

Andy Gruel
Walsh Environmental Scientists and Engineers
4888 Pearl E Circle, Ste 108
Boulder, CO 80301
(303) 443-3282
agruel@walshenv.com

Boulder County Land Use Department Planning Publications

Submittal Requirements

Please include a copy of this form with your application. For general information about preparing referrals, please read "Referral Packet Mailing Guidelines"

This section to be filled out by the preapplication planner

Planner Name: Janice Bilotnikoff

Pre-application Date: 12/6/07

Project Name: Calais Resources

Process Type: SU for Subsurface mining /SSDP

Application Materials

The following information may be required, depending on the type of proposal. Please indicate that the information has been enclosed with your application and referral packets by checking the box labeled "Attached."(**Article 3-203 of the *Land Use Code* has detailed information about application materials**)

#	Materials	Planner Initials	Required	Attached
1	Application Form		✓	
2	Adjacent Property Owner List (2)		✓	
3	Building Plans/Elevation Drawings		✓	
4	Development Agreement			
5	Development Report/narrative		✓	
6	Engineering Reports*		✓	
7	Exemption Map			
8	Final Plan Map			
9	Letter of Credit			
10	Preliminary Plan Map			
11	Referral Packets		✓	
12	Service Area Description			
13	Site Plan		✓	
14	Service Area Description			
15	Sketch Plan Map			
16	Vicinity Map		✓	
17	Other: title report		✓	
18	Other: mining+reclamation plan		✓	
19	Other: ~~traffic reports~~		~~✓~~	
20	Other:			
21	Other:			
22	Other:			
23	Other:			

*** Engineering Reports**

Engineering reports must be certified by a licensed P.E. Depending on the type of application, an Engineering Report will include, Plan & Profile, soils characteristics, earthwork manipulations & calculations, drainage plans, geotechnical evaluations, and traffic reports. If you are required to submit an Engineering Report, please discuss the details of the report with your planner.

Referral Agencies

The materials identified in the chart above by the pre-application planner must be included in your referral packets. You will be required to prepare referral packets for the agencies in the attached list, as directed by the pre-application planner.

Certification

I certify that all required materials are properly in the referral packets for the above application, and that packets have the proper mailing and first class postage. I understand that error in preparation of the packets may result in a delay in processing the application.

Applicant's Signature: _____ Date: _____

Please Print Name: _____ Phone: _____

This document prepared by:
Boulder County Land Use Dept.
Courthouse Annex, 13th & Spruce St.
PO Box 471; Boulder, CO 80306
Phone: 303-441-3930
Fax: 303-441-4856
Web Site:
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Office Hours:
Monday through Friday
8:00 AM to 4:30 PM

FOX HIGGINS
TRANSPORTATION GROUP

May 13, 2008

Mr. Andy Gruel
Walsh Environmental Scientists and Engineers, LLC
4888 Pearl East Circle, # 108
Boulder, CO 80301

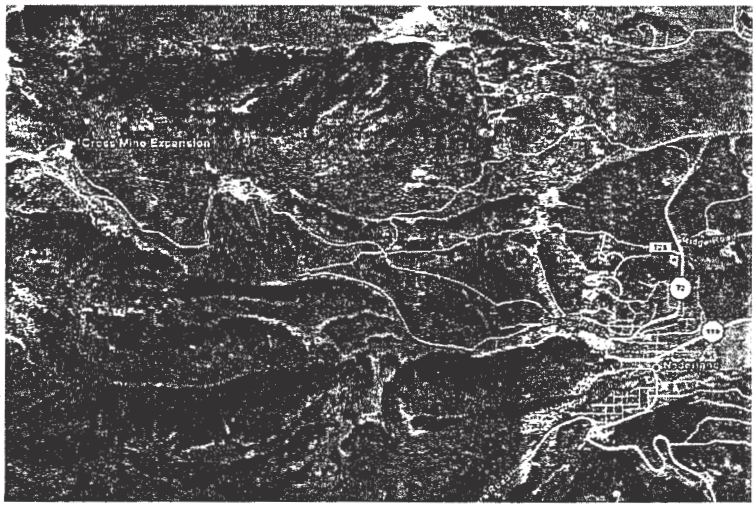
Re: Traffic Study Report for the proposed Cross Mine in Boulder County, Colorado

Dear Mr. Gruel:

At your request, I have prepared this traffic study report for the proposed expansion to Cross Mine in Boulder County, west of Nederland. Based on discussions with Boulder County staff, this study will meet the requirements of a Traffic Impact Review as detailed in their Guidelines For Traffic Studies For Land Development. This report addresses the following key issues:

- Automobile and truck trip generation by the Cross Mine;
- Existing and projected traffic operations at the SH 72 (Peak to Peak Highway) / CR 128 (Caribou Road) intersection;
- Available sight distance at the mine accesses onto CR 128;
- Needed traffic mitigation measures, if any.

These issues are discussed in detail below.



Project Description

The proposed Cross Mine expansion is located at the site of an existing gold and silver mine in the historic Caribou mine district west of Nederland in Boulder County. The mine is approximately 4.8 miles west of the Peak to Peak Highway (SH 72) on Boulder County Road (CR) 128 (also known as Caribou Road). The existing mine has two access drives onto CR 128, and it is anticipated that these existing driveways will continue to serve the expanded mining operation.

P.O. Box 19768, Boulder, Colorado 80308-2768
Phone: 303-652-3571 • Fax: 303-772-2329 or 303-652-6574

The Cross Mine will employ 34 workers.

Anticipated Automobile and Truck Traffic Generation

There will be two 10 hour shifts per day at the mine with 17 workers in each shift. The day shift will run from 7:00 AM till 5:00 PM, and the night shift will run from 7:00 PM till 5:00 AM. It is anticipated that miners will carpool to and from work, and the Cross Mine is considering purchasing a van to minimize employee traffic. For this study it has been assumed that the 17 workers in each shift will arrive in 10 automobiles. This represents an average auto occupancy of 1.7 persons per vehicle.

It is anticipated that the mine will be served by four types of trucks as follows:

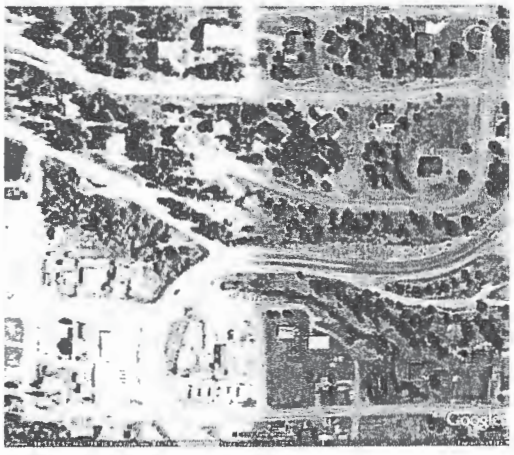
- Ore concentrate haul-off trucks (20-ton trucks) – 2 per week or 0.4 per day on average;
- Tailing sand haul-off trucks (20-ton trucks) – 2 per day during the initial 2 years of mine activity;
- Material delivery trucks (diesel fuel, propane, non-toxic mill reagents, etc.) – 2 per week or 0.4 per day on average;
- Waste / recycling trucks – 2 per week or 0.4 per day on average.

Based on the employee and truck access described above, a detailed trip generation estimate has been prepared and is summarized in Table 1. It can be seen that the mine will generate between 45 and 50 one-way vehicle trips per day (23 inbound and 23 outbound). The timing of the employee shifts is such that there will be no employee traffic generated during the AM peak hour (7:30 – 8:30 AM as documented in recent traffic counts) on Nederland streets. It is likely that only the outbound day shift employees will add to traffic on Nederland streets during the PM peak hour (5:00 – 6:00 PM). These employees will add 10 outbound trips during this PM peak hour.

On average, there will be 6 to 7 one way truck trips accessing the mine per day. It is my understanding that truck traffic serving the mine will typically occur during the day and will avoid peak traffic periods.

Existing and Projected Traffic Operations at the SH 72/ CR 128 Intersection in Nederland

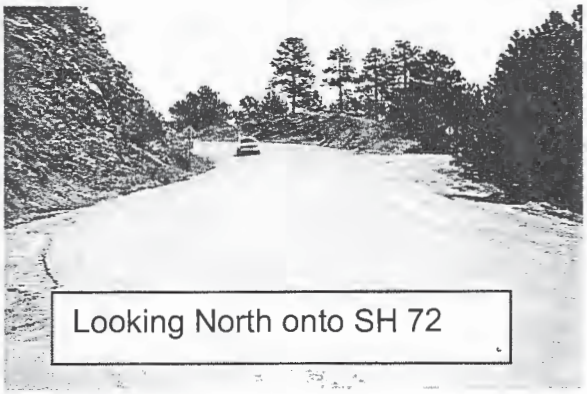
Boulder County Transportation staff selected the intersection of SH 72 (Peak to Peak Highway) and CR 128 (Caribou Road) in Nederland for evaluation of mine traffic impacts.



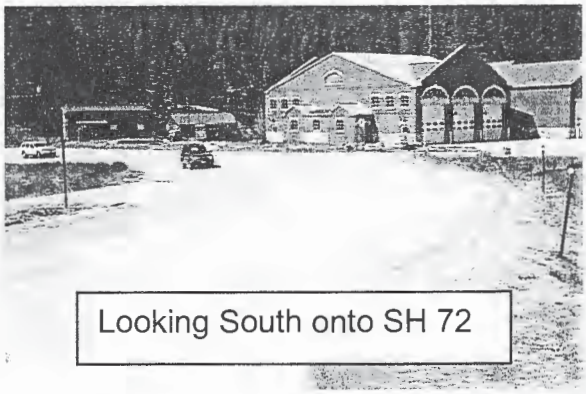
Existing Conditions:

Currently there are approximately 2,600 vehicles per day on SH 72 in this vicinity, and 520 vehicles per day using CR 128 just west of SH 72.

This intersection is controlled with a stop sign on the eastbound approach on CR 128. The approach grade on CR 128 is relatively flat. CR 128 intersects SH 72 on the outside of a horizontal curve in an area where there is a 3 to 5 percent grade downward to the south on SH 72. The posted speed limit on SH 72 in the vicinity is 35 miles per hour. The posted speed limit on CR 128 is 20 miles per hour. A motorist stopped at the stop sign on CR 128 has over 400 feet of visibility to the south and 500 feet of visibility to the north along SH 72.

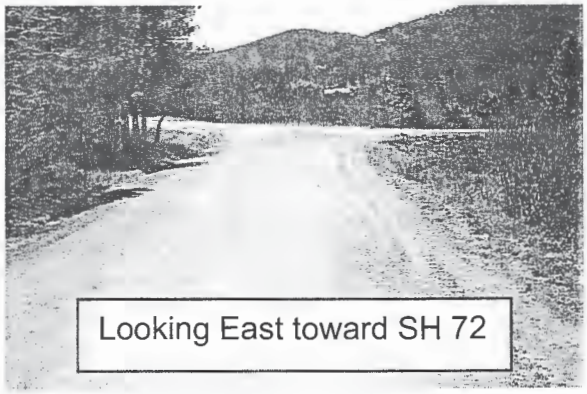


Looking North onto SH 72



Looking South onto SH 72

A peak hour traffic count in this intersection was conducted for this study to document the AM and PM peak hours and how many vehicles passed through this intersection during those peaks. Existing AM and PM peak hour traffic counts are illustrated in figures attached to this report. It was determined that the AM peak hour occurs between 7:30 and 8:30 AM, and the PM peak hour occurs between 5:00 and 6:00 PM.



Looking East toward SH 72

The existing intersection level of service (LOS) was calculated during the morning and evening peak hours and it was concluded that all traffic approaches to this "T" intersection operate with very little delay at LOS A in both peak hours. Detailed LOS calculation sheets are included in the Appendix. A description of intersection LOS letter grades and corresponding traffic conditions is also included in the Appendix.

Projected Near Term PM Peak Hour Conditions with the Addition of Cross Mine Traffic:

As noted above, the day shift outbound traffic from the Cross Mine is the only mine traffic that will likely overlap with the peak hours in the SH 72 / CR 128 intersection. Based on existing traffic patterns in the intersection, it is estimated that 80% of this traffic (8 trips) will turn right toward Nederland and the remaining 2 trips will turn left toward Ward. With this fairly small traffic increase, all approach movements at this intersection will continue to operate at LOS A in the PM peak hour. LOS calculation sheets are included in the Appendix.

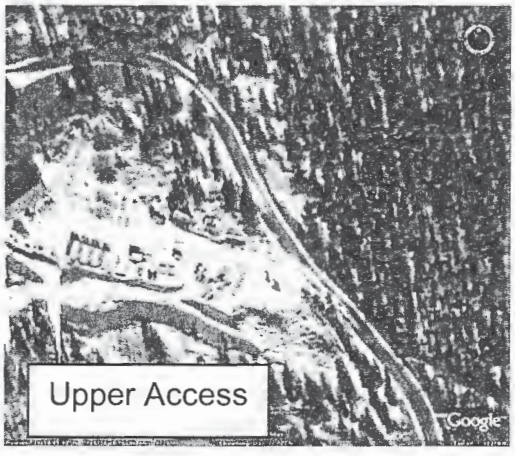
Projected 20-Year PM Peak Hour Conditions with the Addition of Cross Mine Traffic:

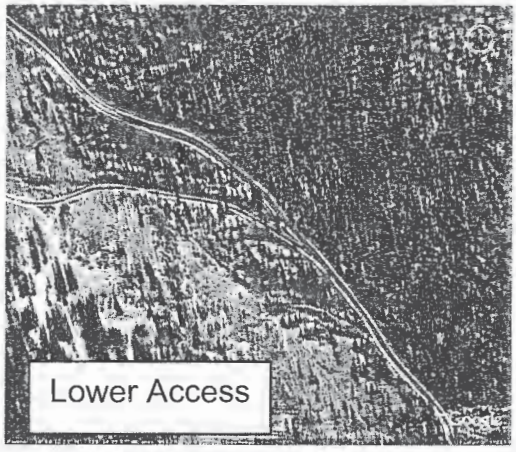
The Colorado Department of Transportation (CDOT) projects a 20-year traffic growth factor of 2.45 in this area along SH 72 (based on historical traffic data). This growth factor has been applied to the existing PM peak hour traffic in the SH 72 / CR 128 intersection and the Cross Mine traffic has been added in. This future year condition is illustrated in an attached Figure. With this future year traffic it is projected that the intersection and all movements will continue to operate at LOS A with the exception of the northbound left turn into CR 128 which will operate at LOS B.

Given this near term and 20-year LOS evaluation, it is clear that this intersection will be easily able to accommodate the additional Cross Mine traffic.

Available Sight Distance at the Mine Access Drives onto CR 128

The existing mine at the Cross Mine site has two driveways onto CR 128, with one at the upper end of the site and one at the lower end (with respect to elevation). It is my understanding that these two existing driveways will continue to serve the expanded mining operation.





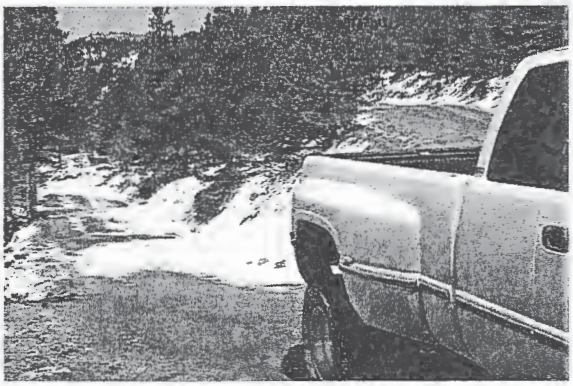
The available intersection sight distance at both driveways is illustrated in the attached photographs. The upper driveway has at least 300 feet of available intersection sight distance in each direction. The lower driveway has over 300 feet of available intersection sight distance in the uphill direction and over 400 feet in the downhill direction. Given the steep topography in the area, the lower driveway has a fairly flat approach angle onto CR 128.

Upper Intersection:





Lower Intersection:









County Road 128 in this vicinity is a narrow unpaved roadway through the surrounding national forest. The lower portion of CR 128 has a posted speed limit of 20 miles per hour. The conditions in the vicinity of the mine make 20 miles per hour a practical limit and the traffic volume in this area is extremely low. Given that the stopping sight distance for 20 miles per hour is approximately 110 feet, there is plenty of stopping sight distance in the vicinity of both mine driveways for mine traffic to access CR 128 safely.

Recommended Traffic Mitigation Measures

SH 72 / CR 128 Intersection:
The low volume of mine related traffic added to this intersection will be easily accommodated by the existing roadways and no mitigation measures are needed.

Mine Driveways Onto CR 128:
These two mountainous intersections have adequate sight distance to allow mine traffic to enter and exit the roadway safely. However, I do recommend that "TRUCKS ENTERING HIGHWAY" warning signs be installed on CR 128 on both approaches to the upper mine access intersection and on the downhill approach to the lower mine access intersection. This sign already exists on the uphill approach to the lower intersection.

Additional Warning Signs:
I recommend the following sign installations be placed a) on westbound CR 128 just west of SH 72, and b) on eastbound CR 128 uphill (prior) to the upper mine access drive:

> A yellow diamond warning sign with the message "TRUCK TRAFFIC" and beneath it on the same pole a yellow placard with the message "NEXT 5 MILES"

Summary and Conclusion

The Cross Mine Expansion project will add a relatively low volume of traffic (less than 50 trips per day) to the CR 128 corridor. The intersection of SH 72 and CR 128 will be able to easily accommodate this additional traffic.

The two historic mine access intersections onto CR 128 have adequate sight distance given the very low traffic volumes and low travel speeds in the area, although a number of additional warning signs have been suggested for the corridor.

I hope this information is helpful.

Sincerely,
Fox Higgins Transportation Group, LLC

William C. Fox, P.E.
Principal

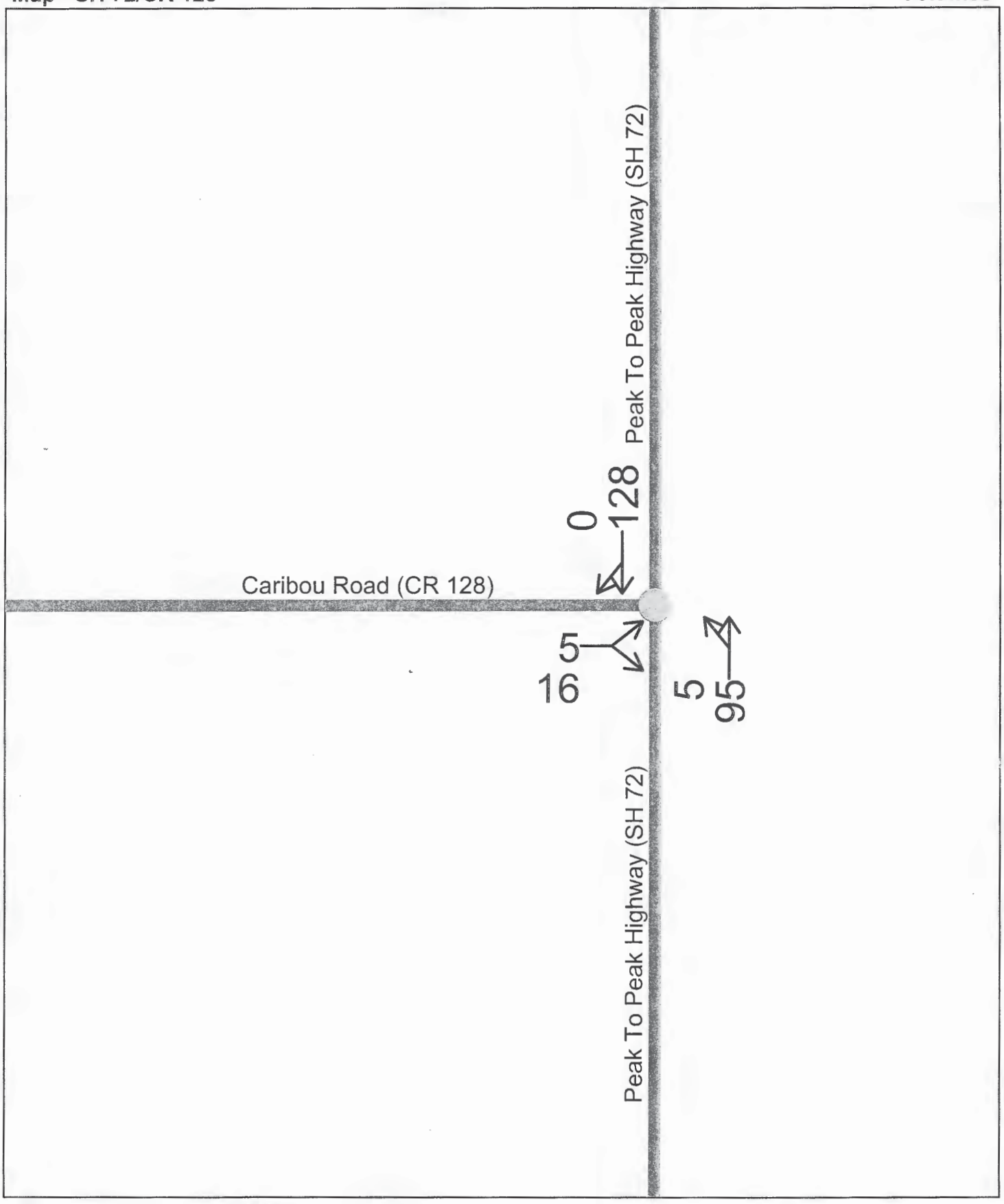
Attachment: Tables, Figures, and LOS Calculation Sheets

FOX HIGGINS
TRANSPORTATION GROUP

Table 1. Cross Mine Trip Generation Estimate

Land Use	Size	Unit	Car Pool Factor	Average Daily Trips				A.M. Peak Hour Trips				P.M. Peak Hour Trips			
				Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
Day Shift Employees	17.00	employees	0.6	2.0	20	10	10	0.00	0	0	0	1.00	10	0	10
Night Shift Employees	17.00	employees	0.6	2.0	20	10	10	0.00	0	0	0	0.00	0	0	0
Ore concentrate trucks	1.00	trucks	1.0	0.8	0.8	0.4	0.4	0.00	0	0	0	0.00	0	0	0
Tailing sand trucks	1.00	trucks	1.0	4.0	4.0	2.0	2.0	0.00	0	0	0	0.00	0	0	0
Material delivery trucks	1.00	trucks	1.0	0.8	0.8	0.4	0.4	0.00	0	0	0	0.00	0	0	0
Waste / recycling trucks	1.00	trucks	1.0	0.8	0.8	0.4	0.4	0.00	0	0	0	0.00	0	0	0
Totals:					**46**	**23**	**23**		**0**	**0**	**0**		**10**	**0**	**10**

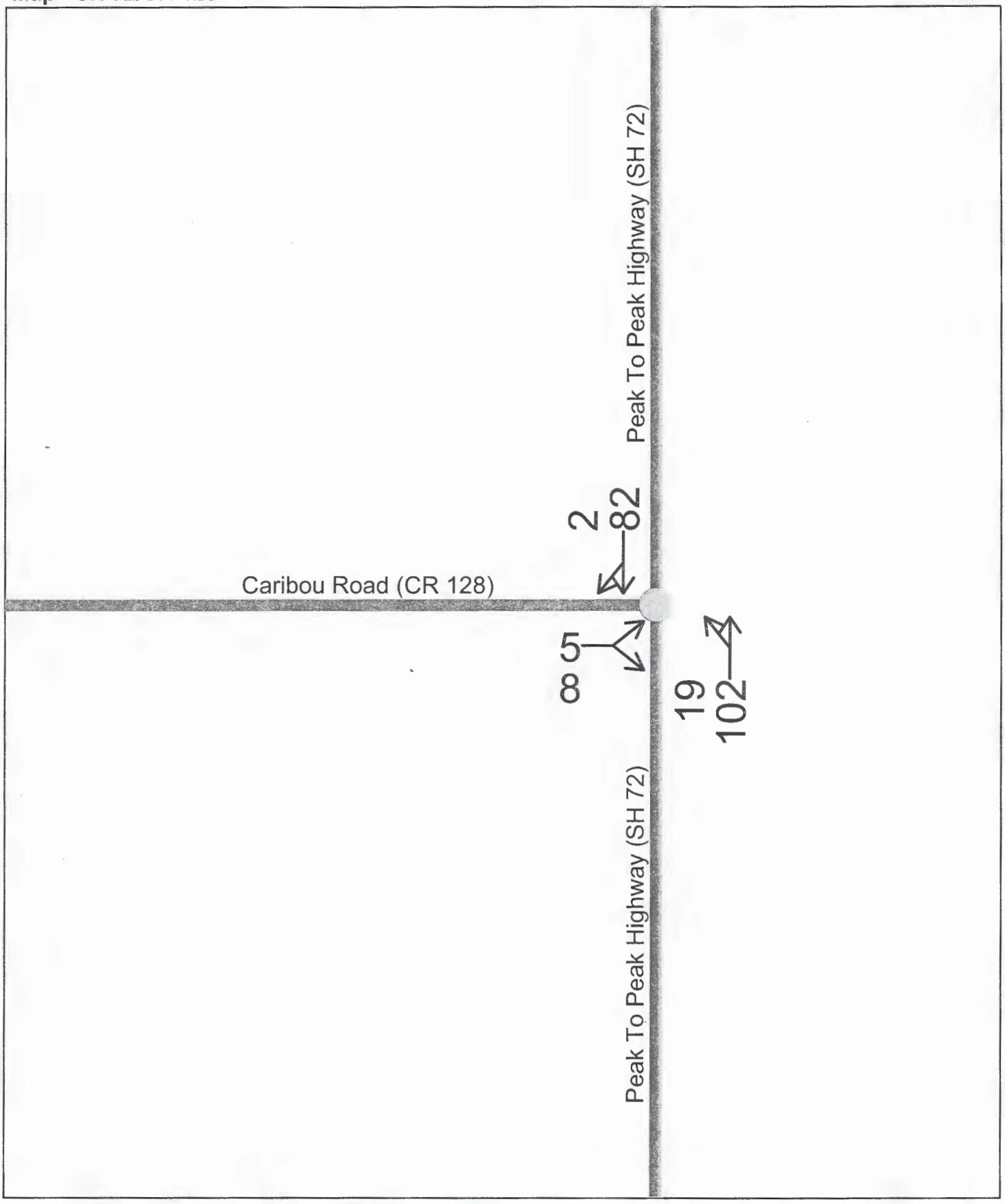
SH 72 / CR 128 Existing AM Peak Hour Traffic
Map - SH 72/CR 128 **Volumes**



SH 72/CR 128 Existing AM Peak Hour

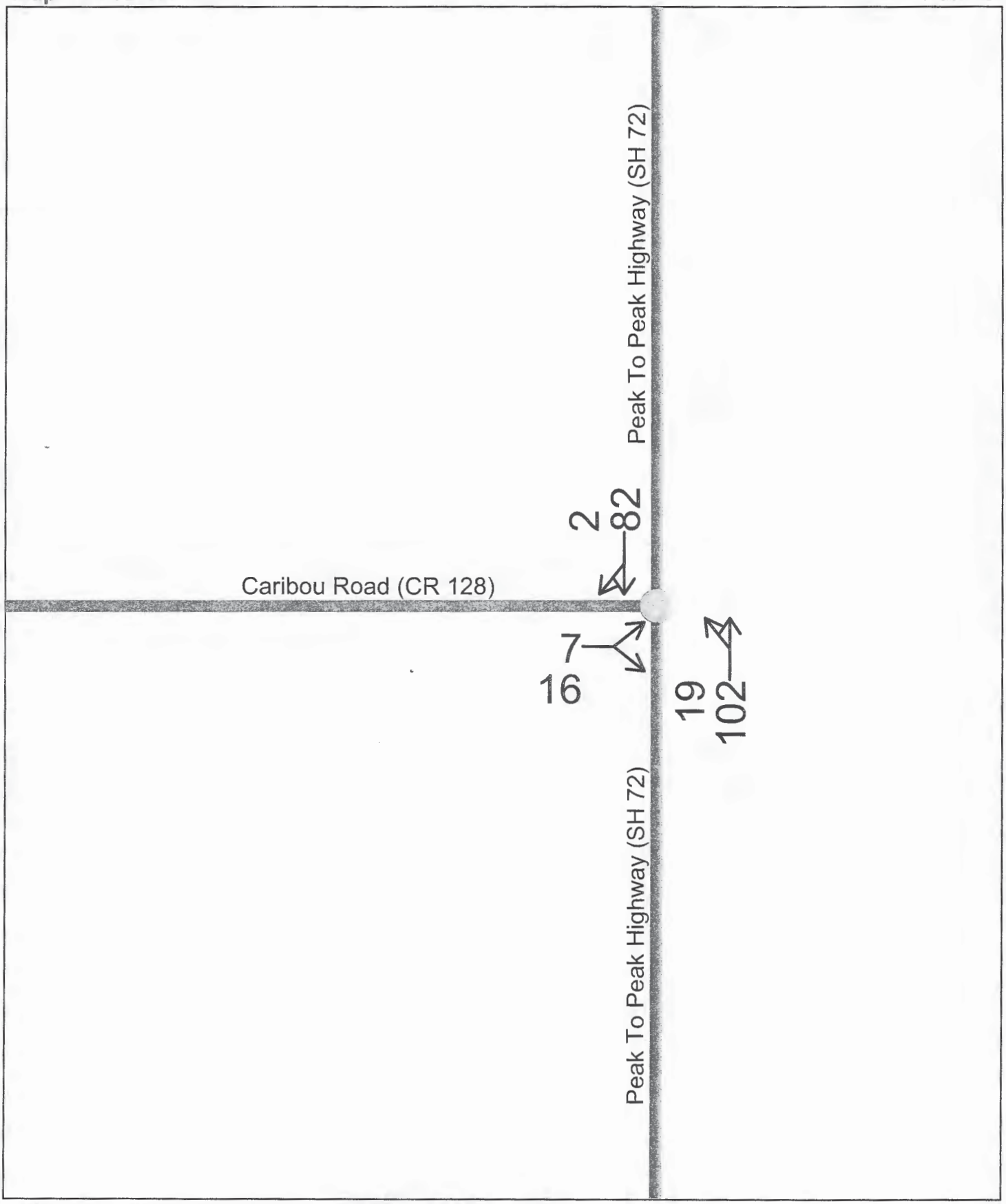
SH 72 / CR 128 Existing PM Peak Hour Traffic
Map - SH 72/CR 128

Volumes



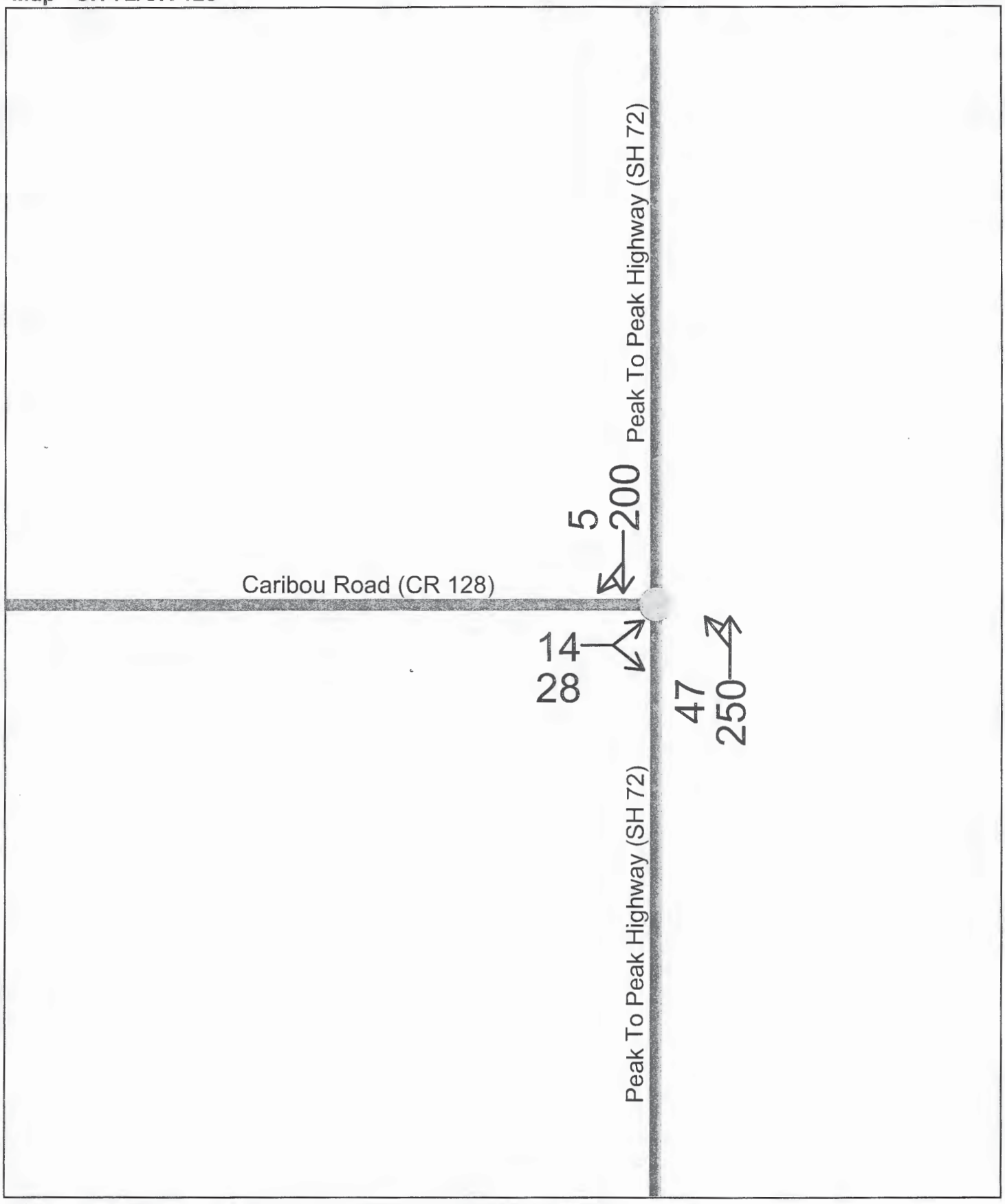
SH 72/CR 128 Existing PM Peak Hour

SH 72 / CR 128 Existing Plus Cross Mine PM Peak Hour Traffic
Map - SH 72/CR 128 **Volumes**



SH 72/CR 128 Existing Plus Cross Mine PM Peak Hour

SH 72 / CR 128 20 Year Plus Cross Mine PM Peak Hour Traffic
Map - SH 72/CR 128 **Volumes**



SH 72/CR 128 20 Year Background Plus Cross Mine PM Peak Hour

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TRANSPORTATION GROUP

LEVEL OF SERVICE DEFINITIONS

In rating roadway and intersection operating conditions with existing or future traffic volumes, "Levels of Service" (LOS) A through F are used, with LOS A indicating very good operation and LOS F indicating poor operation. Levels of service at signalized and unsignalized intersections are closely associated with vehicle delays experienced in seconds per vehicle. More complete level of service definitions and delay data for signal and stop sign controlled intersections are contained in the following table for reference.

Level of Service Rating	Delay in seconds per vehicle *(a)*		Definition
	Signalized	Unsignalized	
A	0.0 to 10.0	0.0 to 10.0	Low vehicular traffic volumes; primarily free flow operations. Density is low and vehicles can freely maneuver within the traffic stream. Drivers are able to maintain their desired speeds with little or no delay.
B	10.1 to 20.0	10.1 to 15.0	Stable vehicular traffic volume flow with potential for some restriction of operating speeds due to traffic conditions. Vehicle maneuvering is only slightly restricted. The stopped delays are not bothersome and drivers are not subject to appreciable tension.
C	20.1 to 35.0	15.1 to 25.0	Stable traffic operations, however the ability for vehicles to maneuver is more restricted by the increase in traffic volumes. Relatively satisfactory operating speeds prevail, but adverse signal coordination or longer vehicle queues cause delays along the corridor.
D	35.1 to 55.0	25.1 to 35.0	Approaching unstable vehicular traffic flow where small increases in volume could cause substantial delays. Most drivers are restricted in ability to maneuver and selection of travel speeds due to congestion. Driver comfort and convenience are low, but tolerable.
E	55.1 to 80.0	35.1 to 50.0	Traffic operations characterized by significant approach delays and average travel speeds of one-half to one-third the free flow speed. Vehicular flow is unstable and there is potential for stoppages of brief duration. High signal density, extensive vehicle queuing, or corridor signal progression/timing are the typical causes of vehicle delays at signalized corridors.
F	> 80.0	> 50.0	Forced vehicular traffic flow and operations with high approach delays at critical intersections. Vehicle speeds are reduced substantially and stoppages may occur for short or long periods of time because of downstream congestion.

(a) Delay ranges based on 2000 Highway Capacity Manual criteria.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	5	16	5	95	128	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	17	5	103	139	0

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	23	109	139
Volume Left (vph)	5	5	0
Volume Right (vph)	17	0	0
Hadj (s)	-0.38	0.04	0.03
Departure Headway (s)	4.1	4.1	4.1
Degree Utilization, x	0.03	0.12	0.16
Capacity (veh/h)	833	853	869
Control Delay (s)	7.2	7.7	7.9
Approach Delay (s)	7.2	7.7	7.9
Approach LOS	A	A	A

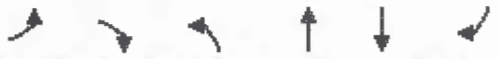
Intersection Summary			
Delay	7.7		
HCM Level of Service	A		
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	5	8	19	102	82	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	9	21	111	89	2

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	14	132	91
Volume Left (vph)	5	21	0
Volume Right (vph)	9	0	2
Hadj (s)	-0.26	0.07	0.02
Departure Headway (s)	4.1	4.1	4.1
Degree Utilization, x	0.02	0.15	0.10
Capacity (veh/h)	825	865	872
Control Delay (s)	7.2	7.8	7.5
Approach Delay (s)	7.2	7.8	7.5
Approach LOS	A	A	A

Intersection Summary			
Delay	7.7		
HCM Level of Service	A		
Intersection Capacity Utilization	23.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	7	16	19	102	82	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	17	21	111	89	2

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	25	132	91
Volume Left (vph)	8	21	0
Volume Right (vph)	17	0	2
Hadj (s)	-0.32	0.07	0.02
Departure Headway (s)	4.1	4.1	4.1
Degree Utilization, x	0.03	0.15	0.10
Capacity (veh/h)	838	858	864
Control Delay (s)	7.2	7.8	7.6
Approach Delay (s)	7.2	7.8	7.6
Approach LOS	A	A	A

Intersection Summary			
Delay	7.7		
HCM Level of Service	A		
Intersection Capacity Utilization	23.1%	ICU Level of Service	A
Analysis Period (min)	15		

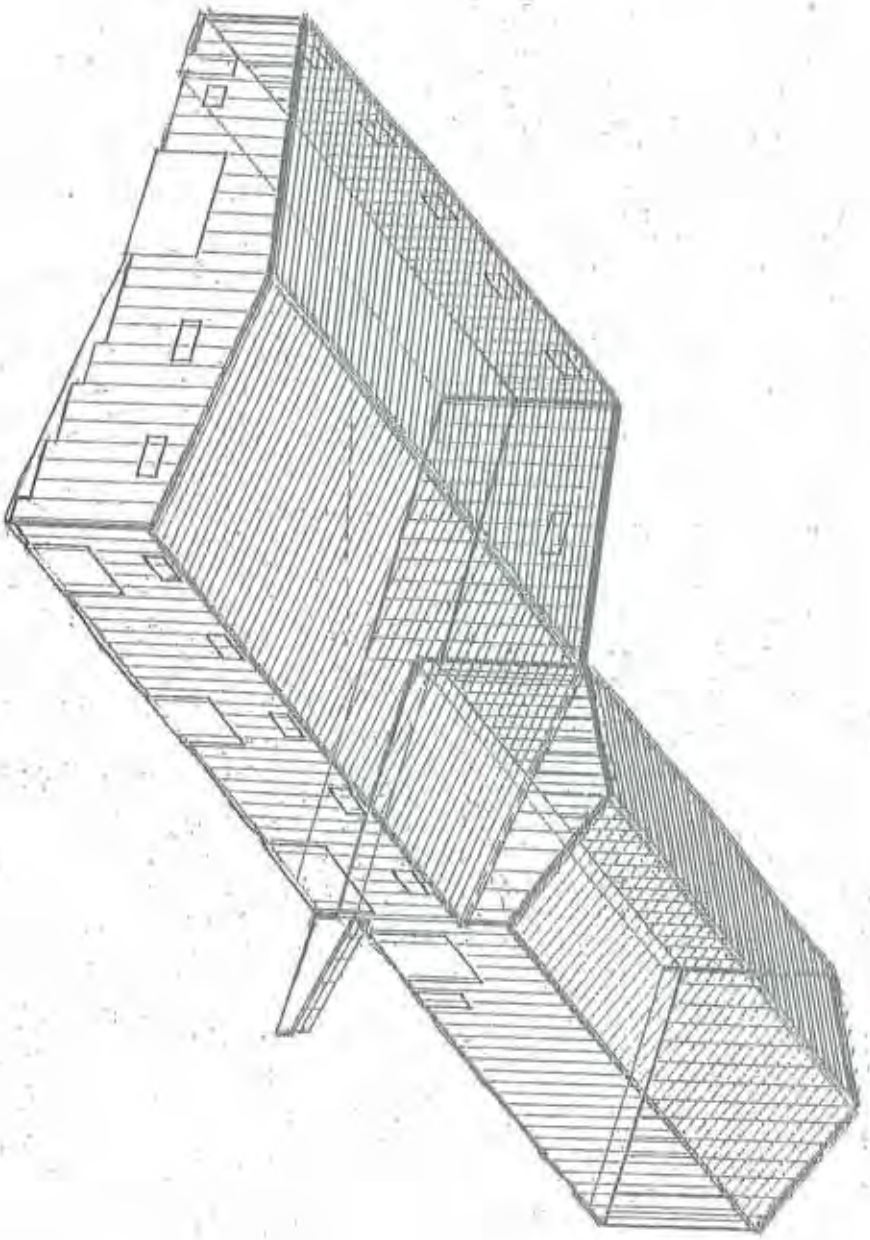


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	14	28	47	250	200	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	30	51	272	217	5

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	46	323	223
Volume Left (vph)	15	51	0
Volume Right (vph)	30	0	5
Hadj (s)	-0.30	0.07	0.02
Departure Headway (s)	4.8	4.3	4.4
Degree Utilization, x	0.06	0.39	0.27
Capacity (veh/h)	671	817	799
Control Delay (s)	8.1	10.0	9.0
Approach Delay (s)	8.1	10.0	9.0
Approach LOS	A	B	A

Intersection Summary			
Delay	9.5		
HCM Level of Service	A		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

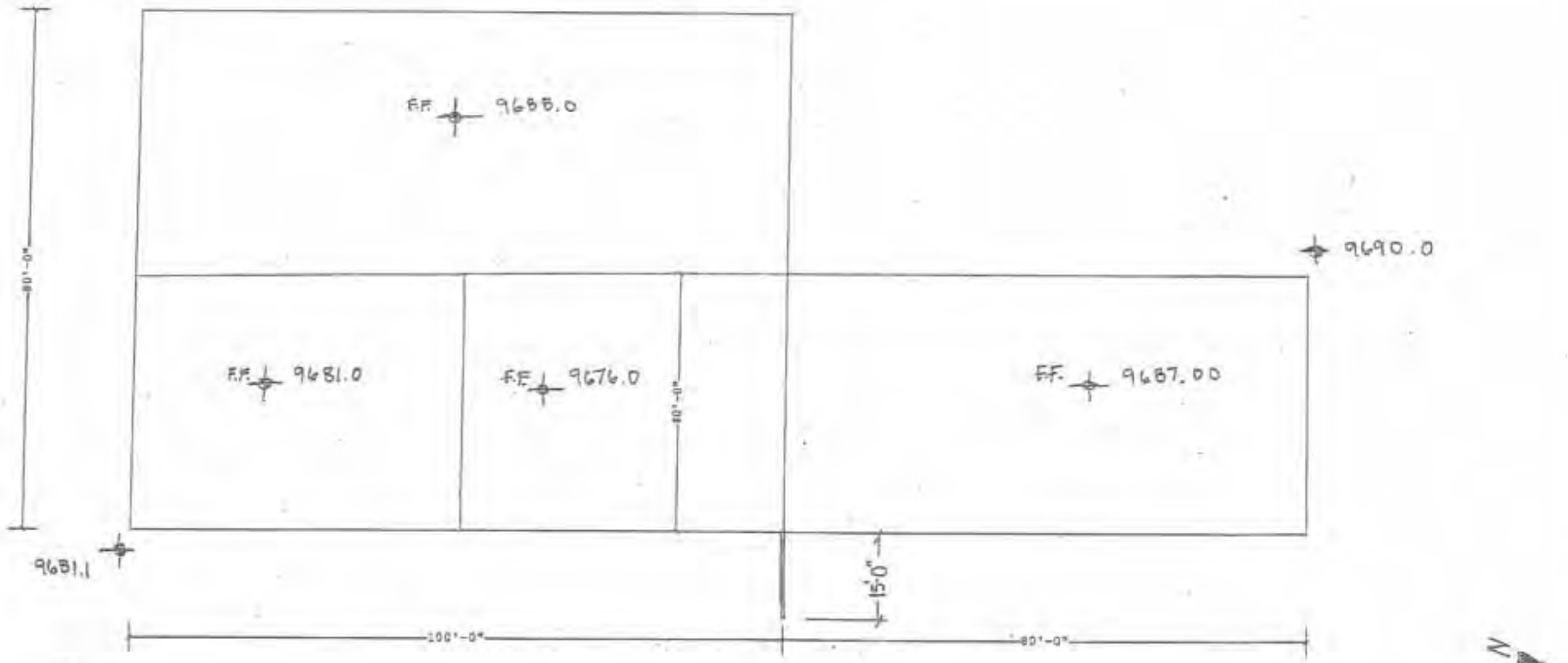
Addendum
Section 2



ORE PROCESSING BUILDING

CALAIS RESOURCES INC.
CROSS MINE SUBMITTAL

CG CONSTRUCTION INC.
12295 WEST 48TH AVE
UNIT C
WHEATRIDGE, COLORADO 80033
303-421-6434



PLAN VIEW

ORE PROCESSING BUILDING

Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)

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VP Buildings, Inc.
2200 Players Club Circle Memphis TN 38125

NO	DATE	BY	DESCRIPTION
1			
2			
3			

NTS

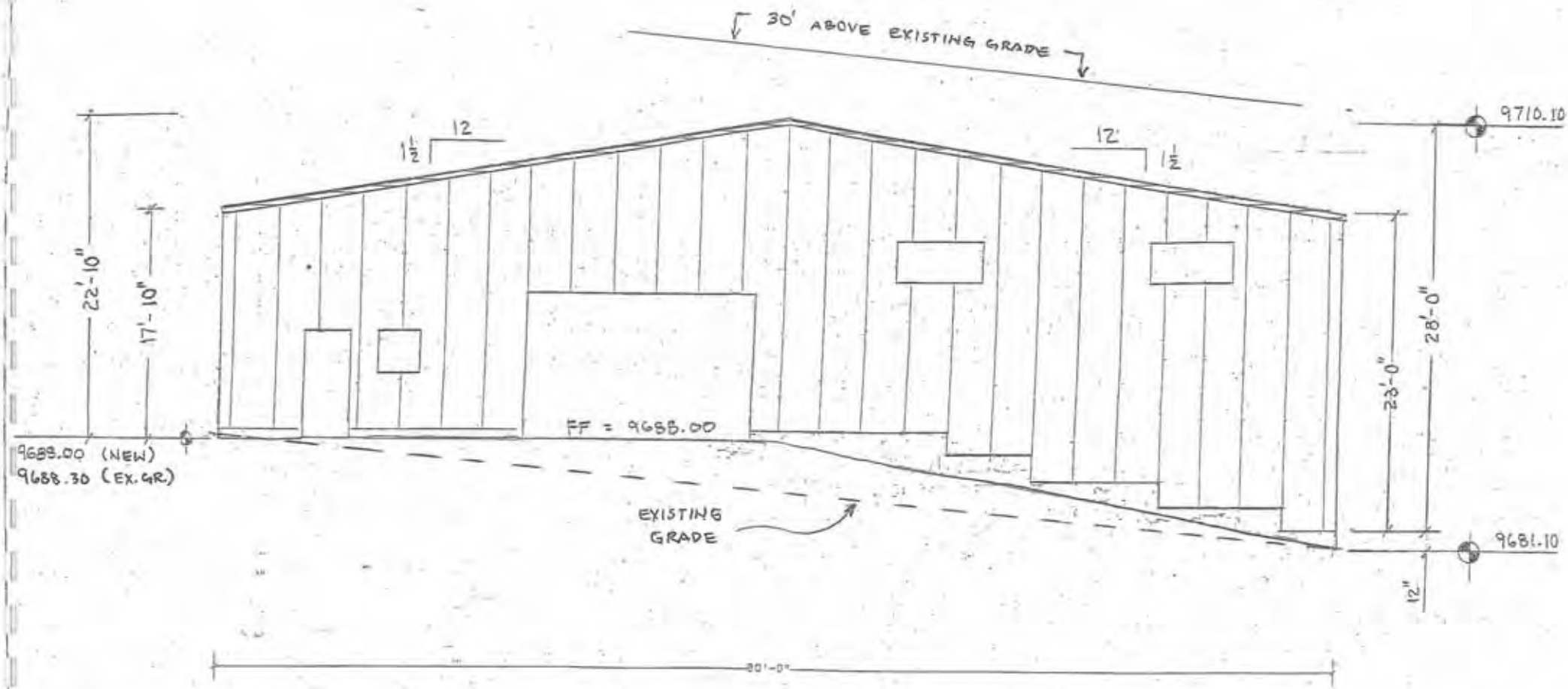
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PLAN VIEW

DESIGNER: CG Construction, Inc.
DRAWN BY: Cassia Resources, Inc.
LOCATION: Henderson, Colorado
PROJECT: Cassia - Cross Mine
DESCRIPTION:
PLANNER: Cassia Resources 3-6-08 SUBMITTAL.VPC

VP BUILDERS

DATE: 8/12/2008
ENGINEER: RLY
SCALE:



SOUTH ELEVATION

—— = NEW GRADE

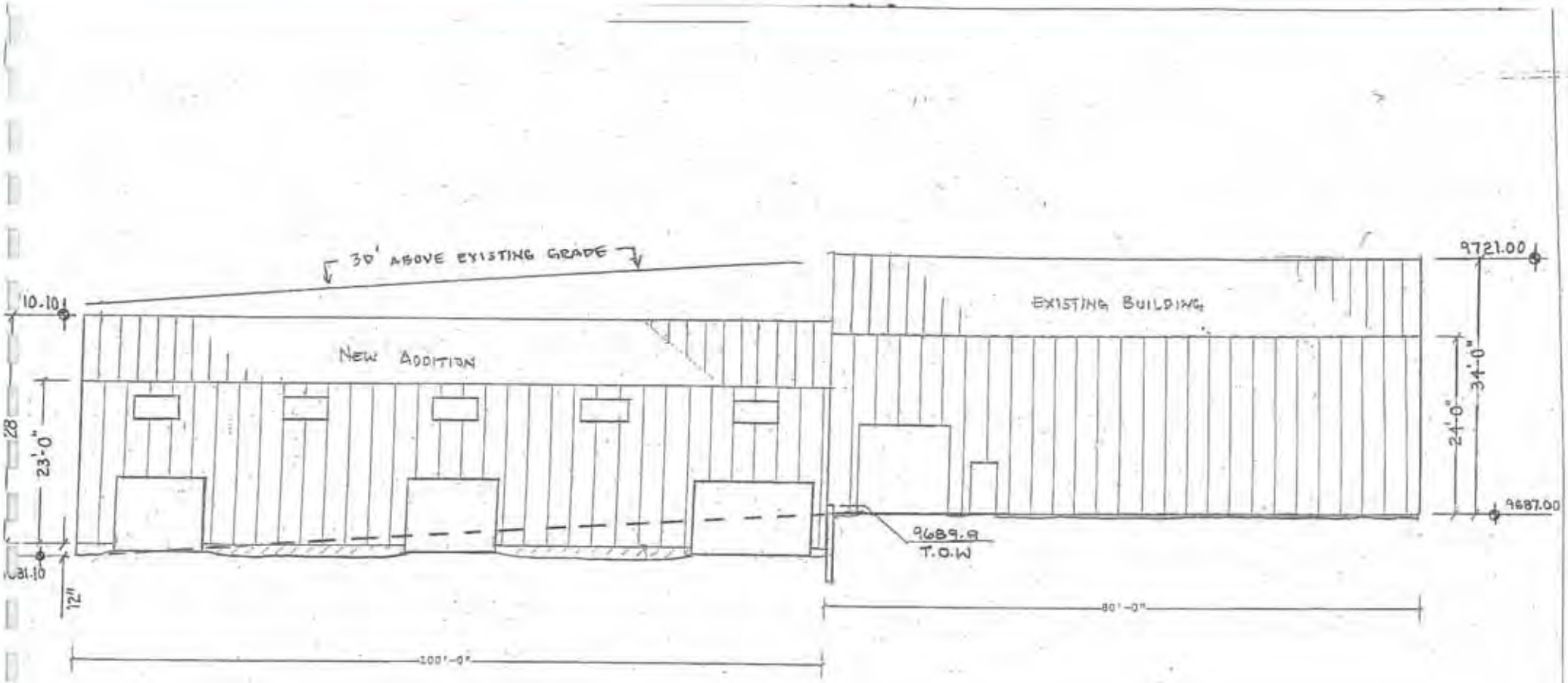
– – – = EXISTING GRADE (EX.GR.)

ORE STORAGE BUILDING

1. PRE-DRILLING 1/8 DIAMETER HOLES FOR WALL STRUCTURAL FASTENERS MAY BE REQUIRED AT 11 GAGE GIRTS, NESTED GIRTS, GIRT LAP LOCATIONS, AND/OR SECONDARY STRUCTURAL BEAMS
2. WALL SHEETS ARE AN INTEGRAL PART OF THE STRUCTURAL SYSTEM. REMOVAL OR ALTERATION WITHOUT PRIOR AUTHORIZATION IS PROHIBITED.
3. PANELS SHOWN WITH A LENGTH LESS THAN 7'-10 3/4" FOR ERP, MAY HAVE TO BE FIELD CUT.
4. SEE "JOB DETAILS FOR SHEETING AND TRIM FASTENER SPECIFICATION.

DRAWING ELEVATION — SOUTH

NTS



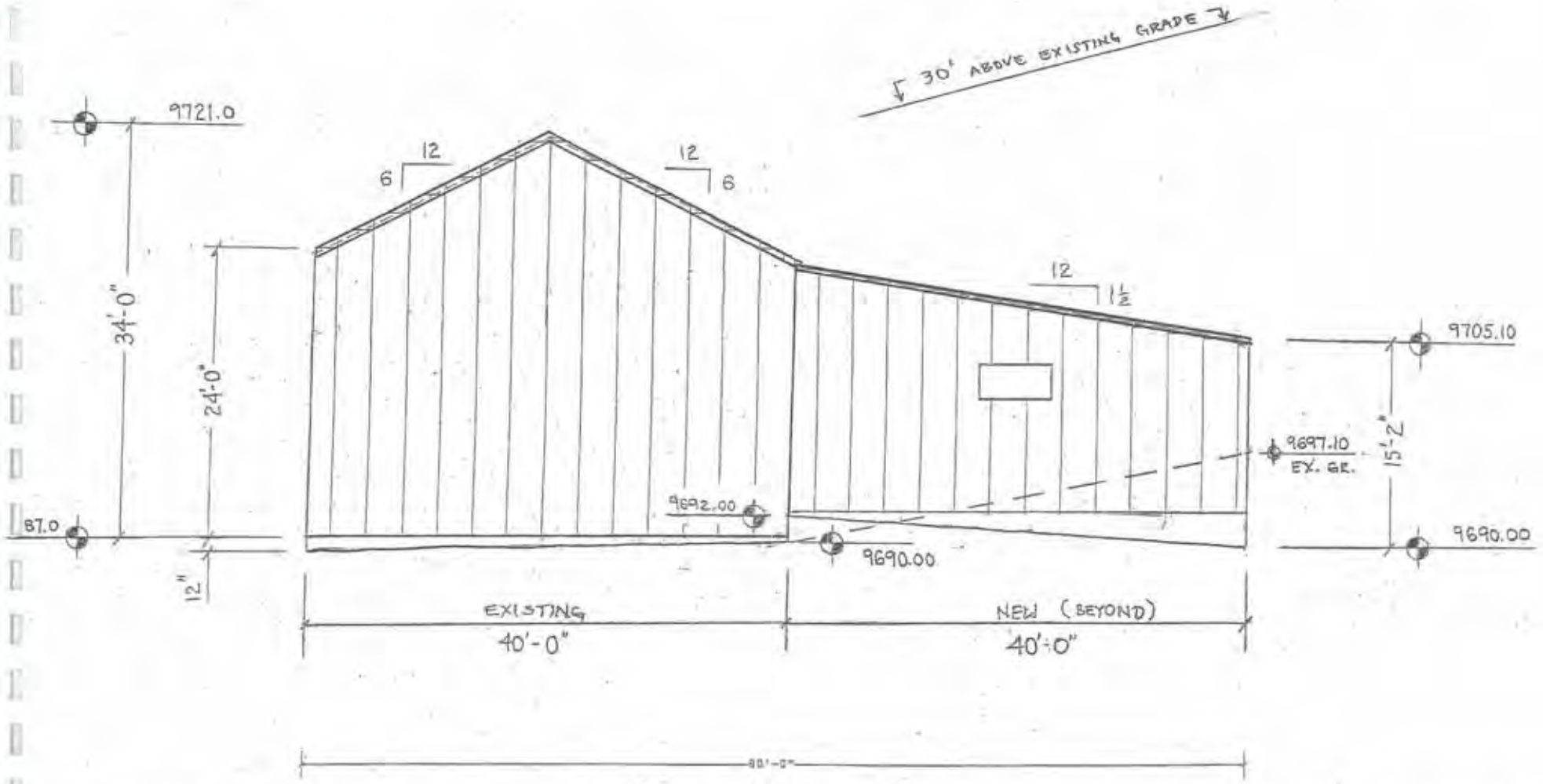
EAST ELEVATION

—— = NEW GRADE

– – – = EXISTING GRADE

ORE PROCESSING BUILDING

COVERING ELEVATION — EAST



NORTH ELEVATION

—— = NEW GRADE

— — — = EXISTING GRADE (EX. GR.)

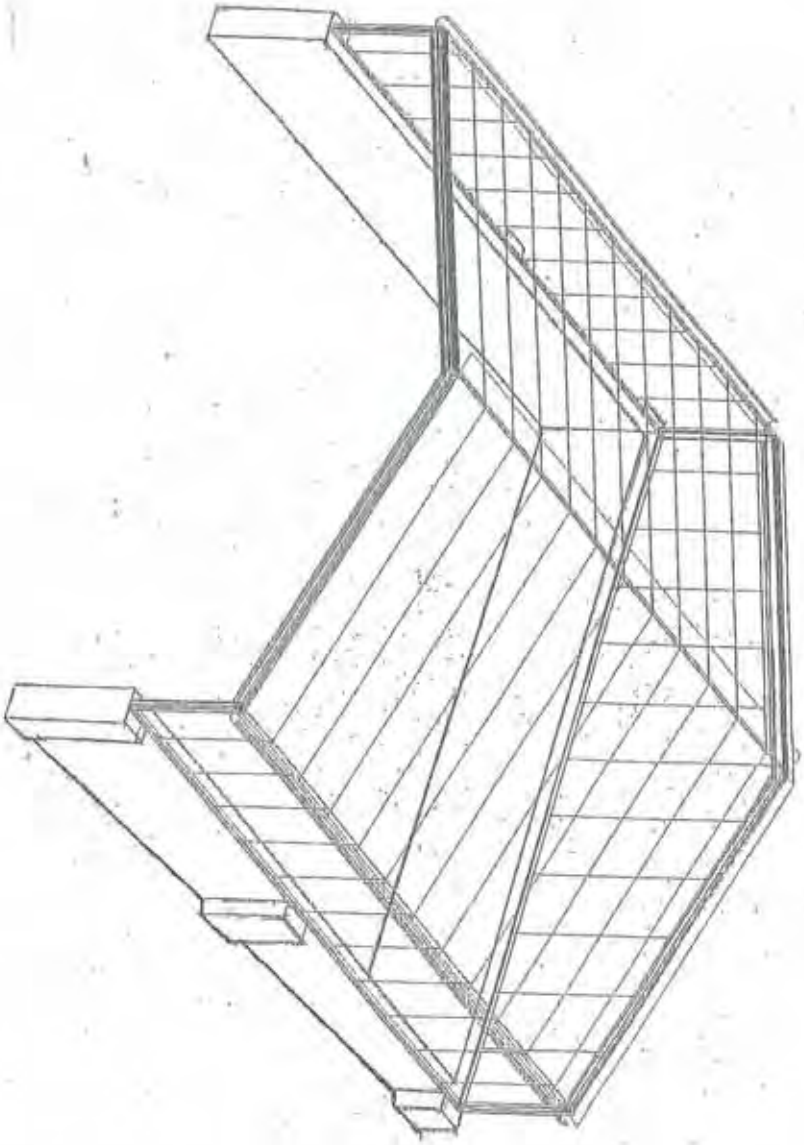
ORE PROCESSING BUILDING

COVERING ELEVATION — NORTH

VP BUILDINGS

NTS

8/10/2009

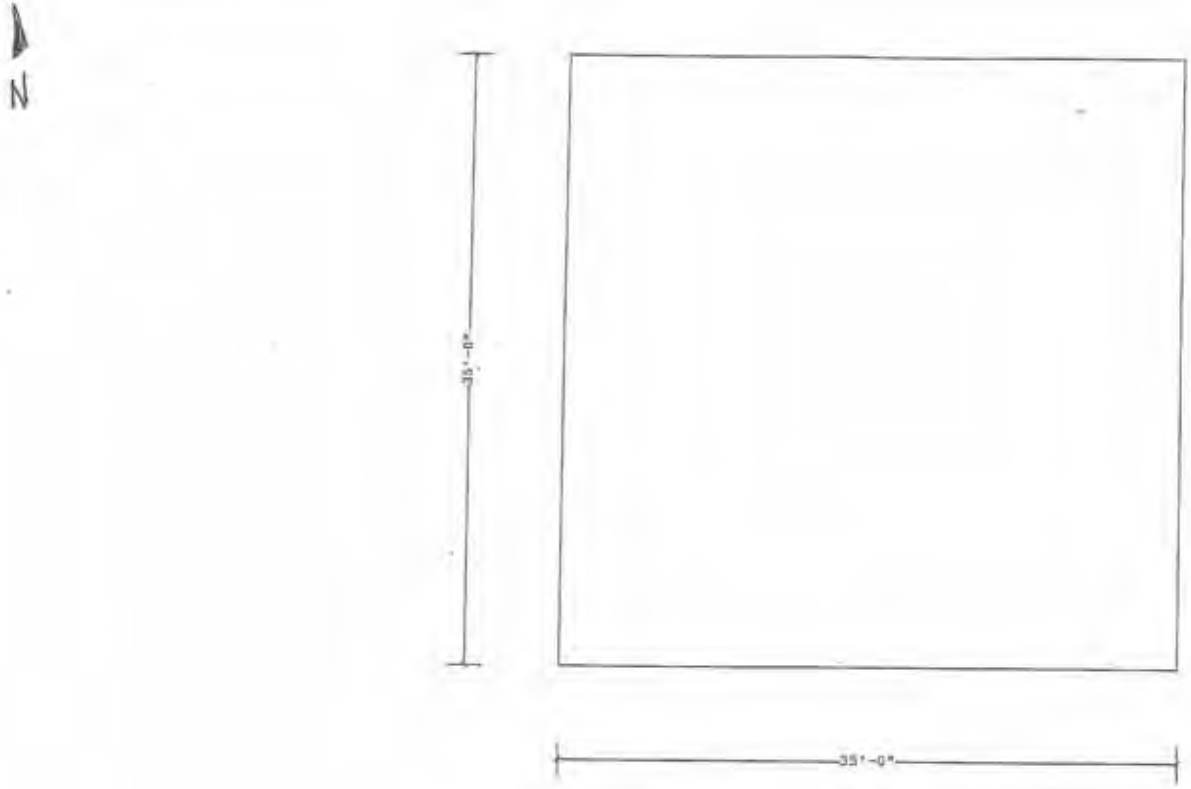


ORE STORAGE BUILDING

CALAIS RESOURCES INC.
CROSS MINE SUBMITTAL

CG CONSTRUCTION INC.

12295 WEST 48TH AVE
UNIT C
WHEATRIDGE, COLORADO 80033
303-421-6434



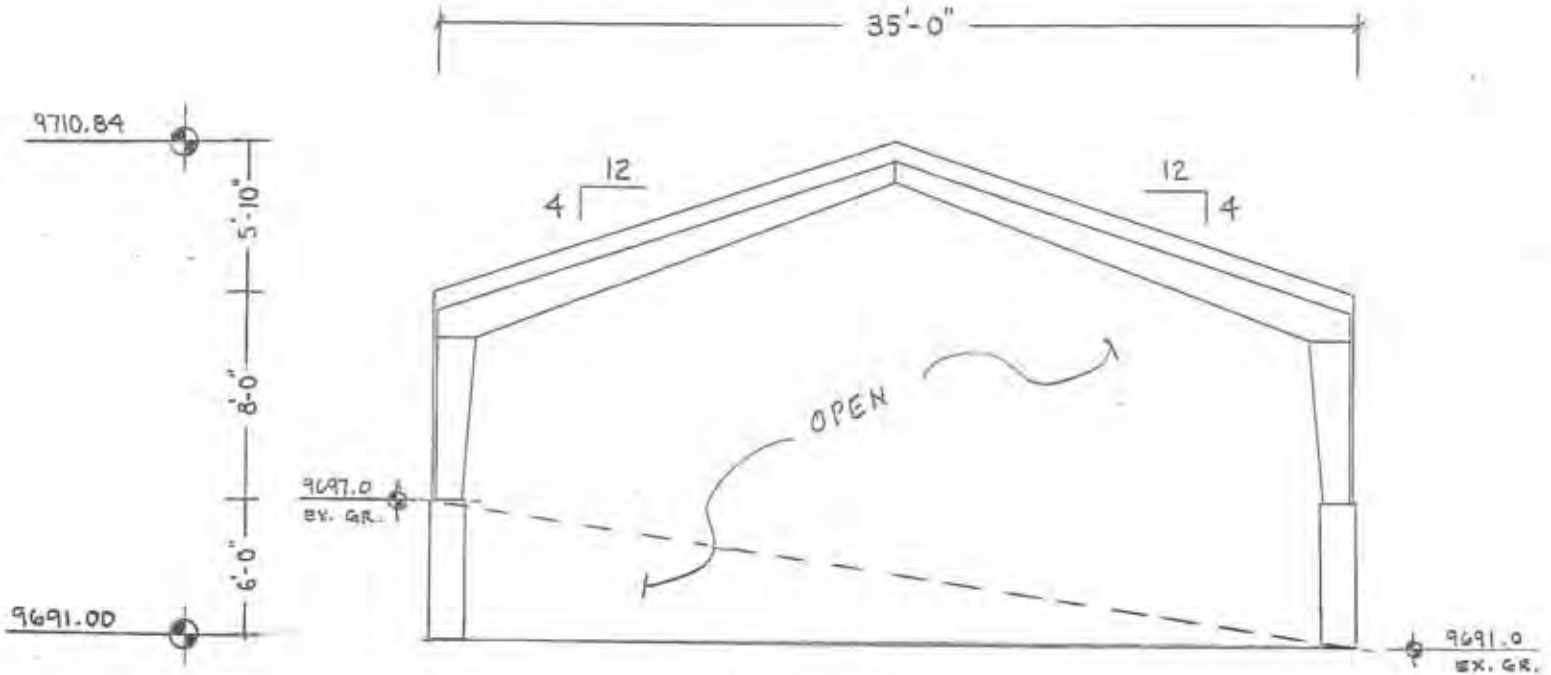
ORE STORAGE BUILDING

PLAN VIEW

Finished Floor Elevation = 100'-0" Unless Noted Otherwise

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	THE GENERAL CONTRACTOR AGREES PERFORM IN STRICT ACCORDANCE WITH THESE DRAWINGS. THAT HAS, DOES IT CONFORMANCE WITH THESE DRAWINGS. DETAILS DEPICTED IN THE GRAY AREA ARE LOCATION STANDARD PURPOSES TO PROVIDE DIRECTION, INCLUDING THE CONTRACT WAS A PART DRAWINGS.	DRN DATE BY DESCRIPTION - - - - - - - - - - - - - - - - DWG	CUSTOMER: CII Construction, Inc. ADDRESS: Cleiba Resources - Crops Mine LOCATION: Mediterranean, Commoon PROJECT: Ore Storage Building DRAWING No#:
		4/8/2008 15:44:32	FILENAME: Cleiba Resources_Ore Storage - 4-7-08.VPC

VP BUILDINGS
DESIGNED: T.Da
DRAWN: SMOB
CHECKED: RLV
PAGE: 1



SOUTH ELEVATION

—— = NEW GRADE

- - - = EXISTING GRADE (EX. GR)

ORE STORAGE BUILDING

1. USE 1/2 X 1 1/2 A325 SNUG TIGHTENED BOLTS FOR PURLIN TO FRAME, GIRT TO FRAME, AND GIRT TO CLIP CONNECTIONS UNLESS NOTED OTHERWISE.
2. SLOT REINFORCEMENT PLATES NEED NOT BE LOCATED ON THE SAME SIDE OF THE WEB AS THE HILLSIDE WASHER.

Sheet Name = Ore Storage Building Wall 4, Frame 1

VP Buildings, Inc.
3200 Players Club Circle Memphis, TN 38125

FRAME CROSS SECTION AT — SOUTH

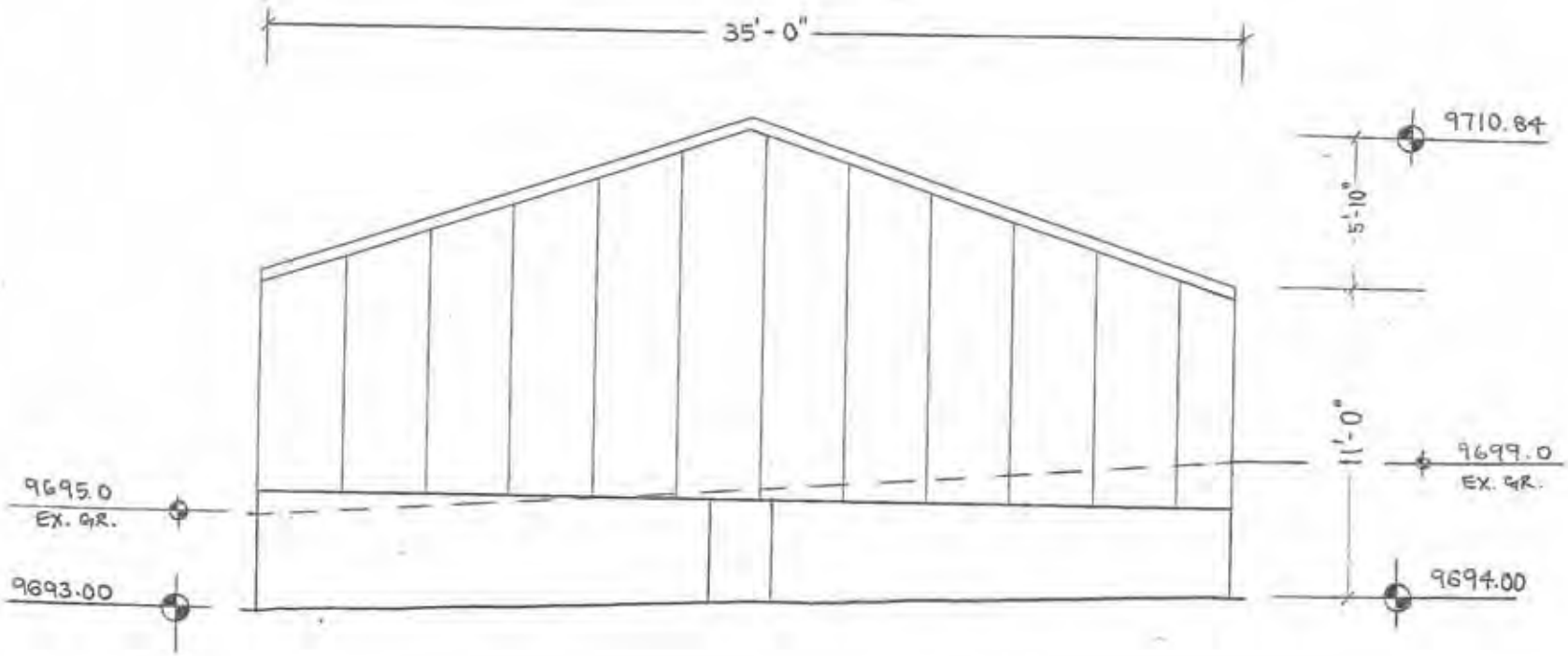
CUSTOMER	CG Construction, Inc.
PROJECT	Cedar Resources - Cross Mine
LOCATION	Nederland, Colorado
BUILDING	Ore Storage Building
DRAWING	
FILENAME	Cedar Resources Ore Storage - 4-7-06.VPC

VP BUILDINGS

NTS

5/12/2006 10:33:48

7.0a



—— = NEW GRADE

– – – = EXISTING GRADE (EX GR.)

NORTH ELEVATION

ORE STORAGE BUILDING

Shape Name = Ore Storage Building, Wall = 3

1. PRE-DRILLING 1/8 DIAMETER HOLES FOR WALL STRUCTURAL FASTENERS MAY BE REQUIRED AT 11 GAGE GIRTS, NESTED GIRTS, GIRT LAP LOCATIONS, AND/OR SECONDARY STRUCTURAL BEAMS
2. WALL SHEETS ARE AN INTEGRAL PART OF THE STRUCTURAL SYSTEM. REMOVAL OR ALTERATION WITHOUT PRIOR AUTHORIZATION IS PROHIBITED.
3. PANELS SHOWN WITH A LENGTH LESS THAN 1-0, 8-0 FOR 65R, MAY HAVE TO BE FIELD CUT.
4. SEE JOB DETAILS FOR SHEETING AND TRIM FASTENER SPECIFICATION.

VP Buildings, Inc.

COVERING ELEVATION AT – NORTH

CG Construction, Inc.

Cassa Resources - Cross Mine

Nederland, Colorado

Ore Storage Building

Cassa Resources Ore Storage - 4-7-08.VPC

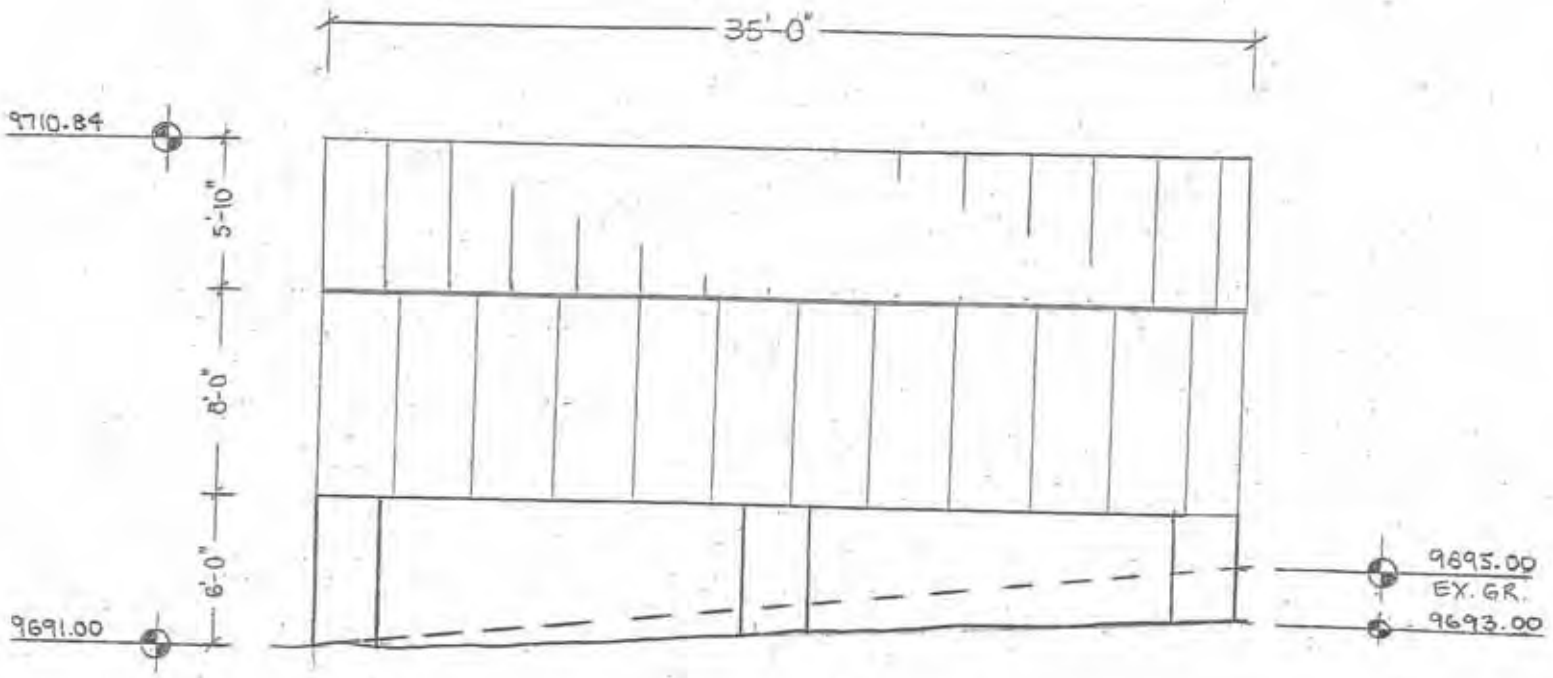
7.0a

8/5/08

RLY

NTS

8/1/2008 10:49:03



—— = NEW GRADE

– – – = EXISTING GRADE (EX. GR.)

EAST ELEVATION

ORE STORAGE BUILDING

PRE-DRILLING 1/8 DIAMETER HOLES FOR WALL STRUCTURAL FASTENERS MAY BE REQUIRED AT 11 GAGE GIRTS, NESTED GIRTS, GIRT LAP LOCATIONS, AND/OR SECONDARY STRUCTURAL BEAMS.

* WALL SHEETS ARE AN INTEGRAL PART OF THE STRUCTURAL SYSTEM. REMOVAL OR ALTERATION WITHOUT PRIOR AUTHORIZATION IS PROHIBITED.

PANELS SHOWN WITH A LENGTH LESS THAN 1-0, 3-0 FOR ESR, MAY HAVE TO BE FIELD CUT.

4. SEE JOB DETAILS FOR SHEETING AND TRIM FASTENER SPECIFICATION.

THE VP BUILDINGS'S JOBS APPLICA SHALL NO TIME BE DEEMED OUT OF VP AND NEITHER ANY PERFORMANCE RESPONSIBILITY BY VP SHALL BE BARRIERS'S JOBS DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER BUILDING OR COMPONENT FURNISHED BY VP SHALL BE TO ANY DESIGN OR PER-FORMANCE RESPONSIBILITIES ASSUMED BY VP.

THE GENERAL CONTRACTOR AGREES THAT VP BUILDINGS, INC. IS NOT RESPONSIBLE FOR ANY ERRORS, OMISSIONS, OR INACCURACIES IN THESE BUILDING SPECIFICATIONS AFTER THE DRAWINGS, DETAILS SUBMITTED BY VP BUILDINGS, INC. AND/OR ITS AGENTS HAVE BEEN APPROVED IN WRITING BY THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR ANY AND ALL LIABILITY ARISING OUT OF OR RELATED TO ERRORS, OMISSIONS, OR INACCURACIES IN THESE BUILDING SPECIFICATIONS AFTER THE DRAWINGS, DETAILS SUBMITTED BY VP BUILDINGS, INC. AND/OR ITS AGENTS HAVE BEEN APPROVED IN WRITING BY THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR AGREES TO INDEMNIFY AND HOLD HARMLESS VP BUILDINGS, INC., ITS OFFICERS, AGENTS, AND EMPLOYEES FROM ANY AND ALL CLAIMS, DAMAGES, LOSSES, AND EXPENSES, INCLUDING ATTORNEY'S FEES, ARISING OUT OF OR RELATED TO ERRORS, OMISSIONS, OR INACCURACIES IN THESE BUILDING SPECIFICATIONS AFTER THE DRAWINGS, DETAILS SUBMITTED BY VP BUILDINGS, INC. AND/OR ITS AGENTS HAVE BEEN APPROVED IN WRITING BY THE GENERAL CONTRACTOR.

Shape Name = Ore Storage Building, Wall = 2

VP Buildings, Inc.
8200 Players Club Circle Memphis TN 38125

Rev	Date	By	Description

NTS

5/13/2008 10:47:21

COVERING ELEVATION – EAST

Project	CH Construction, Inc.
Customer	Cedar Resources - Cross Hollow
Location	Nederland, Colorado
Project	Ore Storage Building
Drawing No.	
Approved	Cedar Resources Ore Storage - A-7.0S VP1

VP BUILDINGS

Job #
Sheet
Rev
Page

Addendum
Section 3

Site Plan Review Fact Sheet

The applicant(s) is/are required to complete each section of this Site Plan Review (SPR) Fact Sheet even if the information is duplicated elsewhere in the SPR application. Completed Fact Sheets reduce the application review time which helps expediate the Director's Determination. Please make duplicates of this SPR Fact Sheet if the project involves more than two structures.

Project Identification:	
Project Name:	Cross Mine Expansion
Property Address/Location:	Caribou Rd
Current Owner:	Calais Resources
Size of Property in Acres:	DRMS permit 9.35 acres

Structure #1 Information

Type of Structure: (e.g. residence, studio, barn, etc.)	Ore Processing Bldg (NEW)		
Total Existing Floor Area: (Finished + Unfinished square feet including garage if attached.)	8,000 sq. ft.	Demolish:	ϕ sq. ft.

Are new floor areas being proposed where demolition will occur?
☐ Yes (include the new floor area square footage in the table below)
☒ No

Proposed Floor Area (New Construction Only)	Finished	Unfinished	Total		
Basement:	ϕ sq. ft.	ϕ sq. ft.	ϕ sq. ft.	Height (above existing grade)	29.0'
First Floor:	8,000 sq. ft.	ϕ sq. ft.	8,000 sq. ft.	Exterior Wall Material	vee rib sheet metal
Second Floor:	ϕ sq. ft.	ϕ sq. ft.	ϕ sq. ft.	Exterior Wall Color	beige
Garage: ☐ Detached ☐ Attached	ϕ sq. ft.	ϕ sq. ft.	ϕ sq. ft.	Roofing Material	vee rib sheet metal
Covered Deck:	ϕ sq. ft.	ϕ sq. ft.	ϕ sq. ft.	Roofing Color	Leaf green
Total:	8,000 sq. ft.	ϕ sq. ft.	8,000 sq. ft.	Total Bedrooms	ϕ

Structure #2 Information

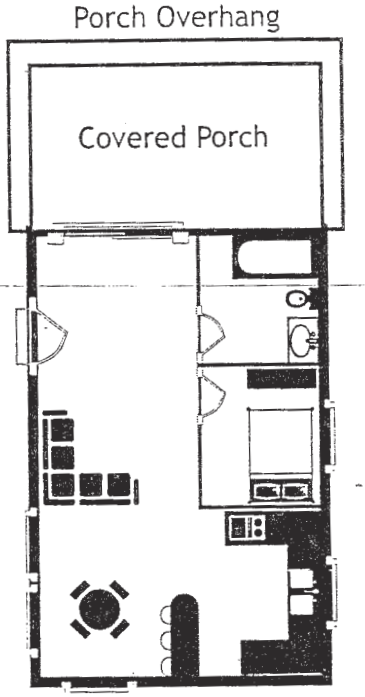
Type of Structure: (e.g. residence, studio, barn, etc.)	Ore Storage Bldg (NEW)		
Total Existing Floor Area: (Finished + Unfinished square feet including garage if attached.)	1,225 sq. ft.	Demolish:	ϕ sq. ft.

Are new floor areas being proposed where demolition will occur?
☐ Yes (include the new floor area square footage in the table below)
☒ No

Proposed Floor Area (New Construction Only)	Finished	Unfinished	Total		
Basement:	ϕ sq. ft.	ϕ sq. ft.	ϕ sq. ft.	Height (above existing grade)	19.84'
First Floor:	1,225 sq. ft.	ϕ sq. ft.	1,225 sq. ft.	Exterior Wall Material	vee rib sheet metal
Second Floor:	ϕ sq. ft.	ϕ sq. ft.	ϕ sq. ft.	Exterior Wall Color	beige
Garage: ☐ Detached ☐ Attached	ϕ sq. ft.	ϕ sq. ft.	ϕ sq. ft.	Roofing Material	vee rib sheet metal
Covered Deck:	ϕ sq. ft.	ϕ sq. ft.	ϕ sq. ft.	Roofing Color	Leaf Green
Total:	1,225 sq. ft.	ϕ sq. ft.	1,225 sq. ft.	Total Bedrooms	ϕ

Determining Floor Area

Floor Area is measured in terms of square feet. The total square footage is as everything within the inside of the outside walls which includes covered porches, garages, and basements. The shaded area on the diagram indicates the area counted as square feet.



Note: If an existing wall(s) and/or roof(s) are removed and a new wall(s)/roof(s) are constructed, the associated floor area due to the new wall(s)/roof(s) are considered new construction and must be included in the calculation of floor area for the Site Plan Review and shown on this Fact Sheet.

If a Limited Impact Special Review is required, then call 303-441-3930 and ask for a new Preapplication conference for the Limited Impact Special Review.

Site Plan Review Fact Sheet

The applicant(s) is/are required to complete each section of this Site Plan Review (SPR) Fact Sheet even if the information is duplicated elsewhere in the SPR application. Completed Fact Sheets reduce the application review time which helps expediate the Director's Determination. Please make duplicates of this SPR Fact Sheet if the project involves more than two structures.

Project Identification:
Project Name: Cross Mine Expansion
Property Address/Location: Caribou Rd
Current Owner: Calais Resources
Size of Property in Acres: DRMS permit: 9.35 acres

Structure #1 Information

Type of Structure: (e.g. residence, studio, barn, etc.)	Cross Mine Shop (existing)		
Total Existing Floor Area: (Finished + Unfinished square feet including garage if attached.)	2209 sq. ft.	Demolish:	ϕ sq. ft.

Are new floor areas being proposed where demolition will occur?
- ☐ Yes (include the new floor area square footage in the table below)
- ☐ No

Proposed Floor Area (New Construction Only)	Finished	Unfinished	Total		
Basement:	sq. ft.	sq. ft.	sq. ft.	Height (above existing grade)	17'3" roof center
First Floor:	sq. ft.	sq. ft.	sq. ft.	Exterior Wall Material	corrugated steel siding
Second Floor:	sq. ft.	sq. ft.	sq. ft.	Exterior Wall Color	light gray
Garage: ☐ Detached ☐ Attached	sq. ft.	sq. ft.	sq. ft.	Roofing Material	metal
Covered Deck:	sq. ft.	sq. ft.	sq. ft.	Roofing Color	light brown
Total:	sq. ft.	sq. ft.	sq. ft.	Total Bedrooms	ϕ

N/A

Structure #2 Information

Type of Structure: (e.g. residence, studio, barn, etc.)	Cross Warehouse (existing)		
Total Existing Floor Area: (Finished + Unfinished square feet including garage if attached.)	3,200 sq. ft.	Demolish:	ϕ sq. ft.

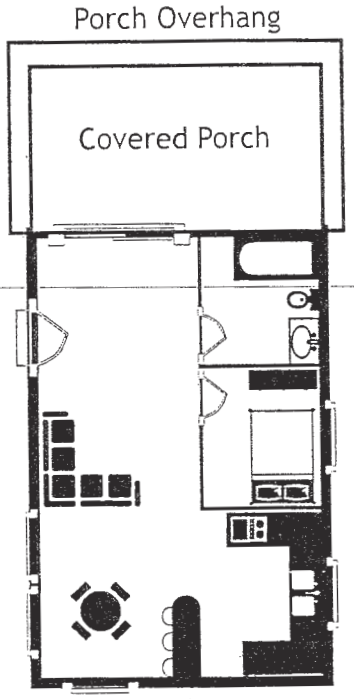
Are new floor areas being proposed where demolition will occur?
- ☐ Yes (include the new floor area square footage in the table below)
- ☐ No

Proposed Floor Area (New Construction Only)	Finished	Unfinished	Total		
Basement:	sq. ft.	sq. ft.	sq. ft.	Height (above existing grade)	34' roof center
First Floor:	sq. ft.	sq. ft.	sq. ft.	Exterior Wall Material	metal siding
Second Floor:	sq. ft.	sq. ft.	sq. ft.	Exterior Wall Color	green
Garage: ☐ Detached ☐ Attached	sq. ft.	sq. ft.	sq. ft.	Roofing Material	metal siding
Covered Deck:	sq. ft.	sq. ft.	sq. ft.	Roofing Color	green
Total:	sq. ft.	sq. ft.	sq. ft.	Total Bedrooms	ϕ

N/A

Determining Floor Area

Floor Area is measured in terms of square feet. The total square footage is as everything within the inside of the outside walls which includes covered porches, garages, and basements. The shaded area on the diagram indicates the area counted as square feet.



Note: If an existing wall(s) and/or roof(s) are removed and a new wall(s)/roof(s) are constructed, the associated floor area due to the new wall(s)/roof(s) are considered new construction and must be included in the calculation of floor area for the Site Plan Review and shown on this Fact Sheet.

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Site Plan Review Fact Sheet

The applicant(s) is/are required to complete each section of this Site Plan Review (SPR) Fact Sheet even if the information is duplicated elsewhere in the SPR application. Completed Fact Sheets reduce the application review time which helps expediate the Director's Determination. Please make duplicates of this SPR Fact Sheet if the project involves more than two structures.

Project Identification:
Project Name: Cross Mine Expansion
Property Address/Location: Carbon Rd
Current Owner: Calais Resources
Size of Property in Acres: DRMS permit: 9.35 acres

Structure #1 Information

Type of Structure: (e.g. residence, studio, barn, etc.)	Carbon office/showers (existing)		
Total Existing Floor Area: (Finished + Unfinished square feet including garage if attached.)	2,320 sq. ft.	Demolish:	ϕ sq. ft.

Are new floor areas being proposed where demolition will occur?
- ☐ Yes (include the new floor area square footage in the table below)
- ☐ No

Proposed Floor Area (New Construction Only)

	Finished	Unfinished	Total		
Basement:	sq. ft.	sq. ft.	sq. ft.	Height (above existing grade)	roof center 24'
First Floor:	sq. ft.	N/A	sq. ft.	Exterior Wall Material	corrugated metal siding
Second Floor:	sq. ft.		sq. ft.	Exterior Wall Color	gray metal
Garage: ☐ Detached ☐ Attached	sq. ft.	sq. ft.	sq. ft.	Roofing Material	barn siding
Covered Deck:	sq. ft.	sq. ft.	sq. ft.	Roofing Color	gray metal
Total:	sq. ft.	sq. ft.	sq. ft.	Total Bedrooms	ϕ

Structure #2 Information

Type of Structure: (e.g. residence, studio, barn, etc.)	Carbon Office Trailer (existing)		
Total Existing Floor Area: (Finished + Unfinished square feet including garage if attached.)	480 sq. ft.	Demolish:	ϕ sq. ft.

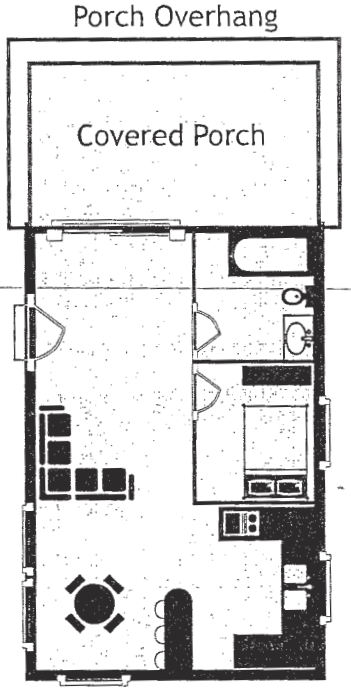
Are new floor areas being proposed where demolition will occur?
- ☐ Yes (include the new floor area square footage in the table below)
- ☐ No

Proposed Floor Area (New Construction Only)

	Finished	Unfinished	Total		
Basement:	sq. ft.	sq. ft.	sq. ft.	Height (above existing grade)	14'
First Floor:	sq. ft.	N/A	sq. ft.	Exterior Wall Material	metal siding
Second Floor:	sq. ft.		sq. ft.	Exterior Wall Color	gray
Garage: ☐ Detached ☐ Attached	sq. ft.	sq. ft.	sq. ft.	Roofing Material	tar/gravel
Covered Deck:	sq. ft.	sq. ft.	sq. ft.	Roofing Color	black
Total:	sq. ft.	sq. ft.	sq. ft.	Total Bedrooms	ϕ

Determining Floor Area

Floor Area is measured in terms of square feet. The total square footage is as everything within the inside of the outside walls which includes covered porches, garages, and basements. The shaded area on the diagram indicates the area counted as square feet.



Note: If an existing wall(s) and/or roof(s) are removed and a new wall(s)/roof(s) are constructed, the associated floor area due to the new wall(s)/roof(s) are considered new construction and must be included in the calculation of floor area for the Site Plan Review and shown on this Fact Sheet.

If a Limited Impact Special Review is required, then call 303-441-3930 and ask for a new Preapplication conference for the Limited Impact Special Review.

Grading Calculation

Cut and fill calculations are necessary to evaluate the disturbance of a project and to verify whether or not a Limited Impact Special Review (LISR) is required. A LISR is required when grading for a project involves more than 500 cubic yards (minus normal cut/fill and backfill contained within the foundation footprint).

If grading totals are close to the 500 yard trigger, additional information may be required, such as a grading plan stamped by a Colorado Registered Professional Engineer.

Earth Work and Grading

This worksheet is to help you accurately determine the amount of grading for the property in accordance with the Boulder County Land Use Code. Please fill in all applicable boxes.

Note: Applicant(s) must fill in the shaded boxes even though foundation work does not contribute toward the 500 cubic yard trigger requiring Limited Impact Special Use Review. Also, all areas of earthwork must be represented on the site plan.

Earth Work and Grading Worksheet:

	Cut	Fill	Subtotal
New Road — Driveway and Parking Areas	2,000 yd³	1,000 yd³	3,000 yd³
Berm(s)	ϕ	2,600 yd³	2,600 yd³
Other Grading Building drainage, Septic/leach field	1,767 yd³	376 yd³	2,143 yd³
Subtotal	3,767 yd³	3,976 yd³	7,743 yd³ Box 1

* If the total in Box 1 is greater than 500 cubic yards, then a Limited Impact Special Review is required.

	Cut	Fill	Total
Foundation	2,778 yd³	580 yd³	3358 yd³
Material cut from foundation excavation to be removed from the property			ϕ

Excess Material will be Transported to the Following Location:

Excess material will be used on-site for road improvement, upgradient berms, and runoff control. Any extra material may be used at adjacent Calais properties, subject to prior approval from BCLU.

Narrative

Use this space to describe any special circumstances that you feel the Land Use Office should be aware of when reviewing your application. If more room is needed, feel free to attach a separate sheet.

Cut/fill overall balance: 5545 yd³ cut : 5556 yd³ fill → net ~0 yd³. Calcs for cut/fill of new road are included in April 2008 submittal. Calcs for building cut/fill provided later in this section. Topographic data is limited; a precise survey of the buildings and road areas will be performed for the Grading Permit application.

Is Your Property Gated and Locked? Sometimes – please call ahead of time at 303-258-3800

Note: If county personnel cannot access the property, then it could cause delays in reviewing your application.

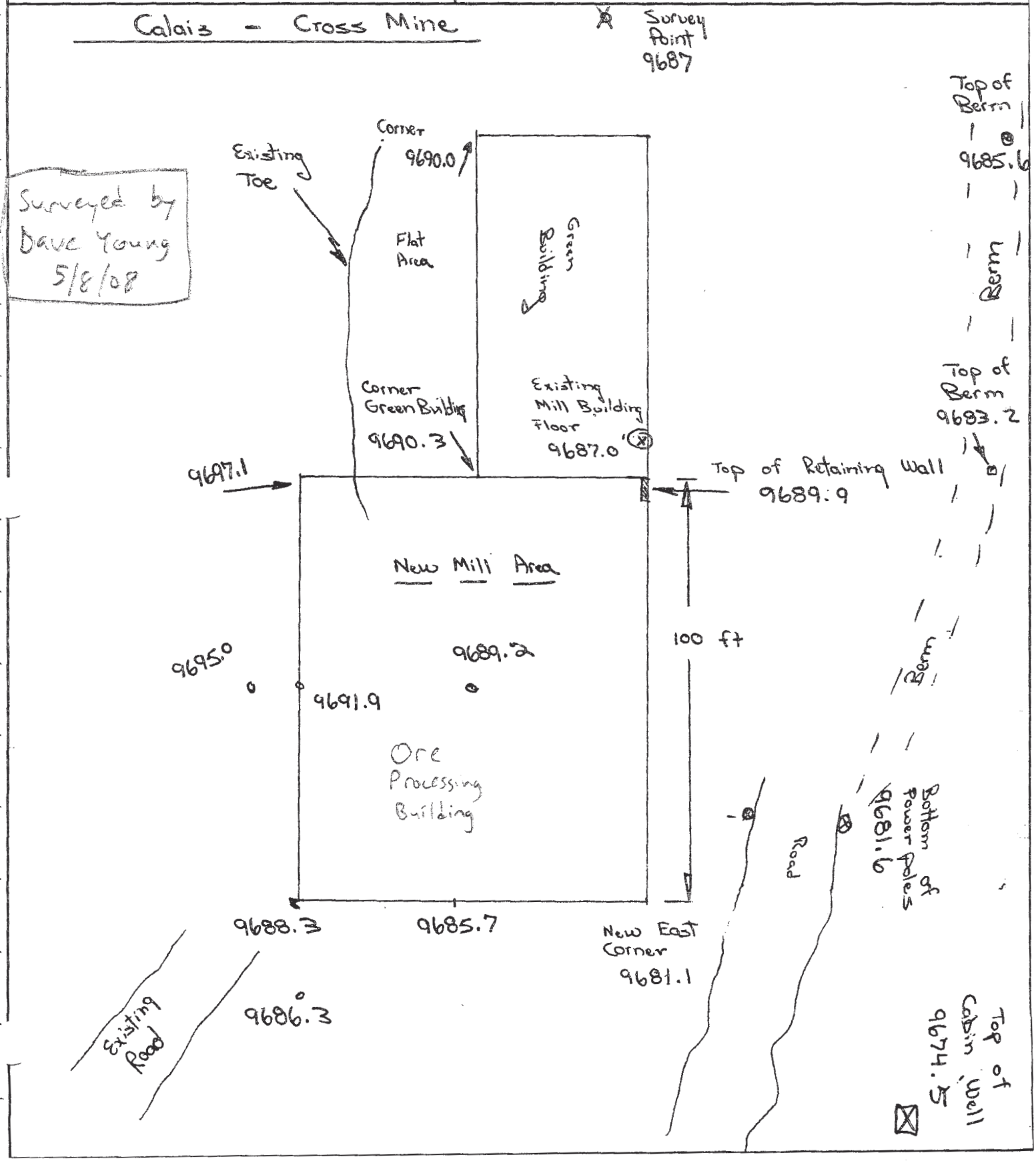
Certification

I certify that the information submitted is complete and correct. I agree to clearly identify the property (if not already addressed) and stake the location of the improvements on the site within four days of submitting this application. I understand that the intent of the Site Plan Review process is to address the impacts of location and type of structures, and that modifications may be required. Site work will not be done prior to issuance of a Grading or Building Permit.

Signature: _____ Date: 5/14/08

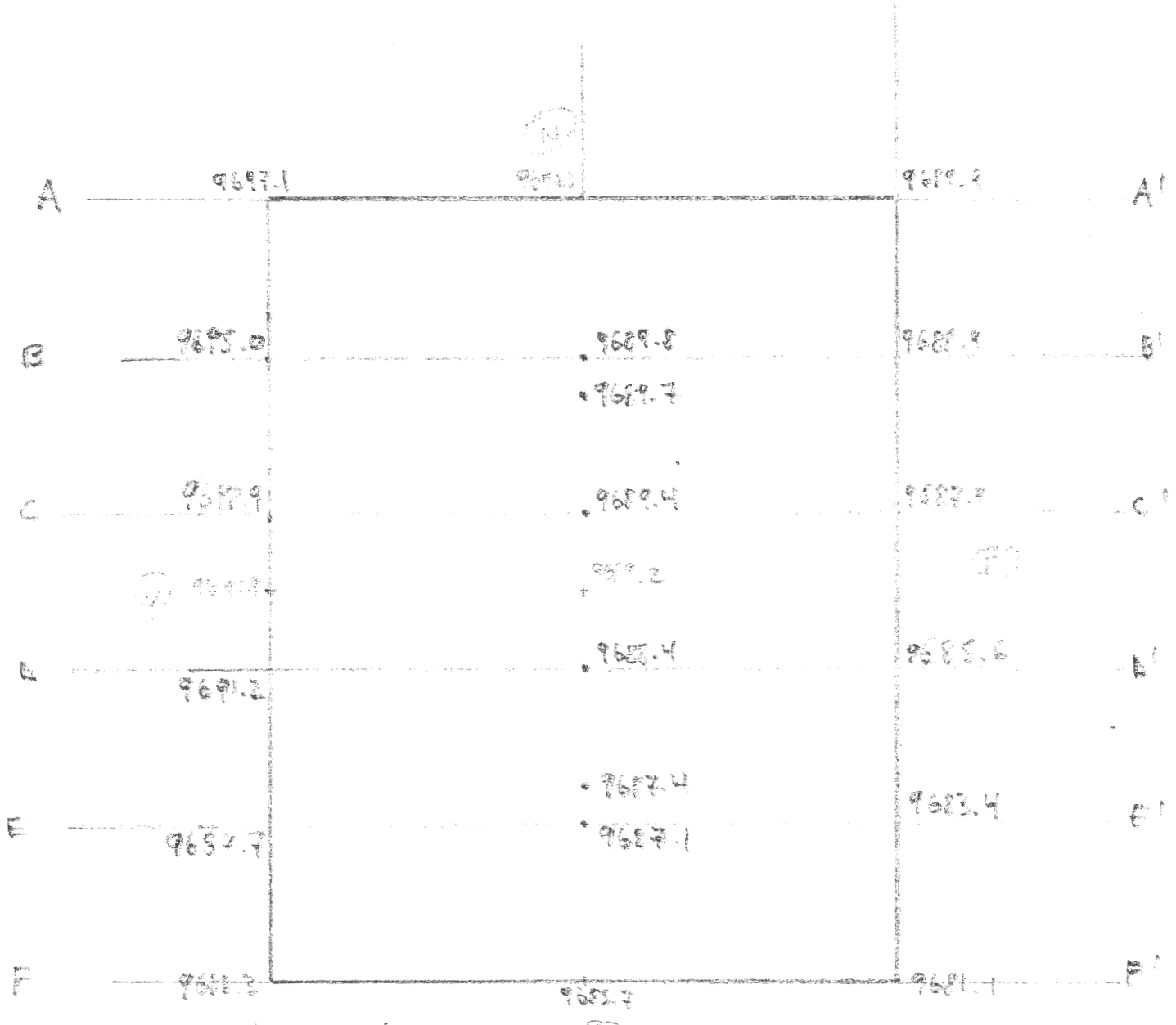
SRK Consulting Engineers and Scientists	PROJECT:	NO.
	CALCULATED BY:	DATE: May 8, 2008
	CHECKED BY:	DATE:
	SHEET OF	

Calais - Cross Mine

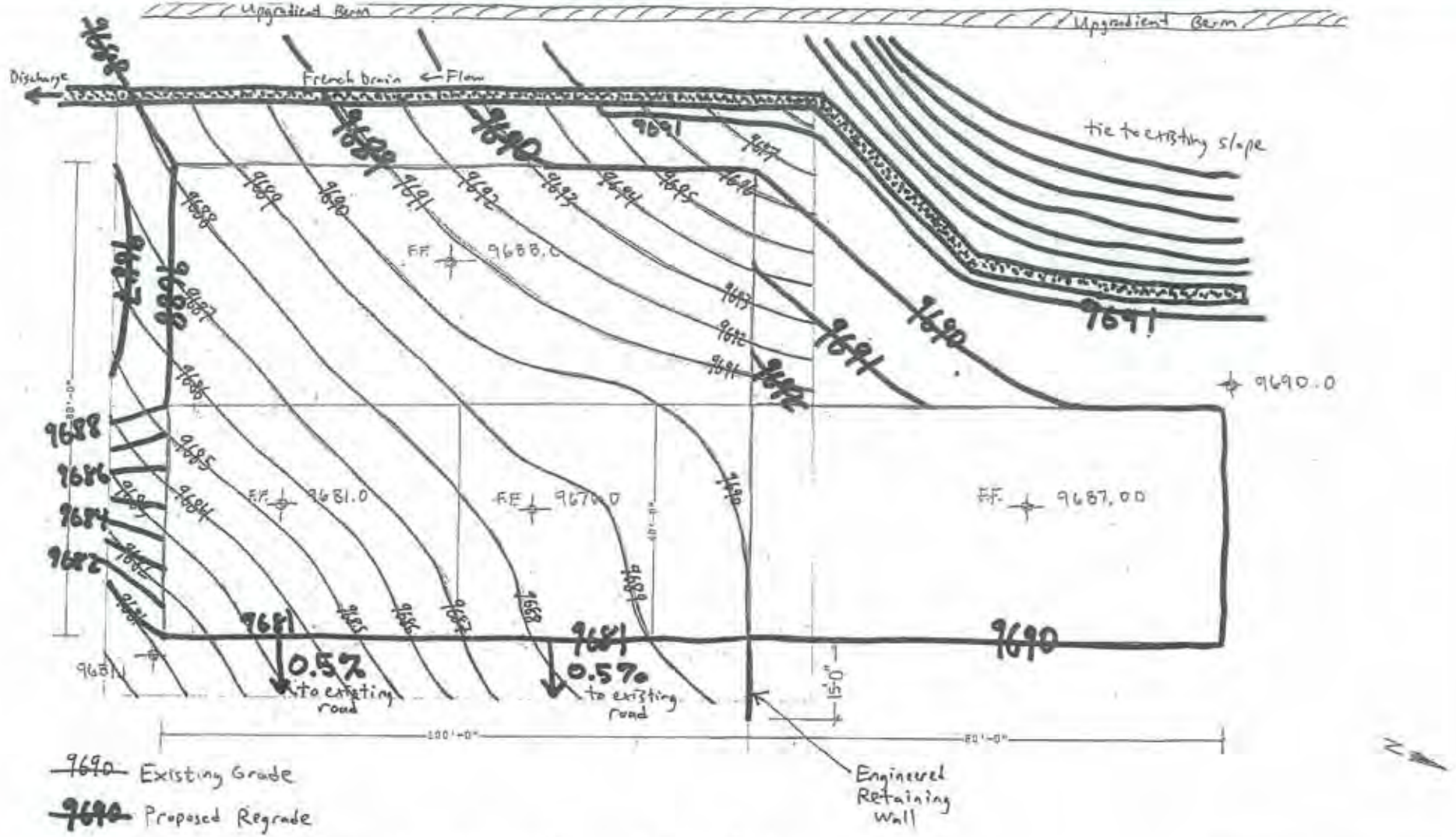


Civil 155 Cross Mark Index: 20 of 24
Earthwork Estimates

Interpolated elevations - using survey data and topographic contour info



A → A'	9697.1	9679.3	9689.9
B → B'	9691.0	9689.8	9688.9
C → C'	9692.9	9689.4	9687.9
D → D'	9691.2	9685.4	9685.6
E → E'	9687.4	9687.1	9682.7
F → F'	9682.3	9685.7	9681.1



PLAN VIEW

ORE PROCESSING BUILDING

Finished Floor Elevation = 9690' (Unless Noted Otherwise)

PLAN VIEW

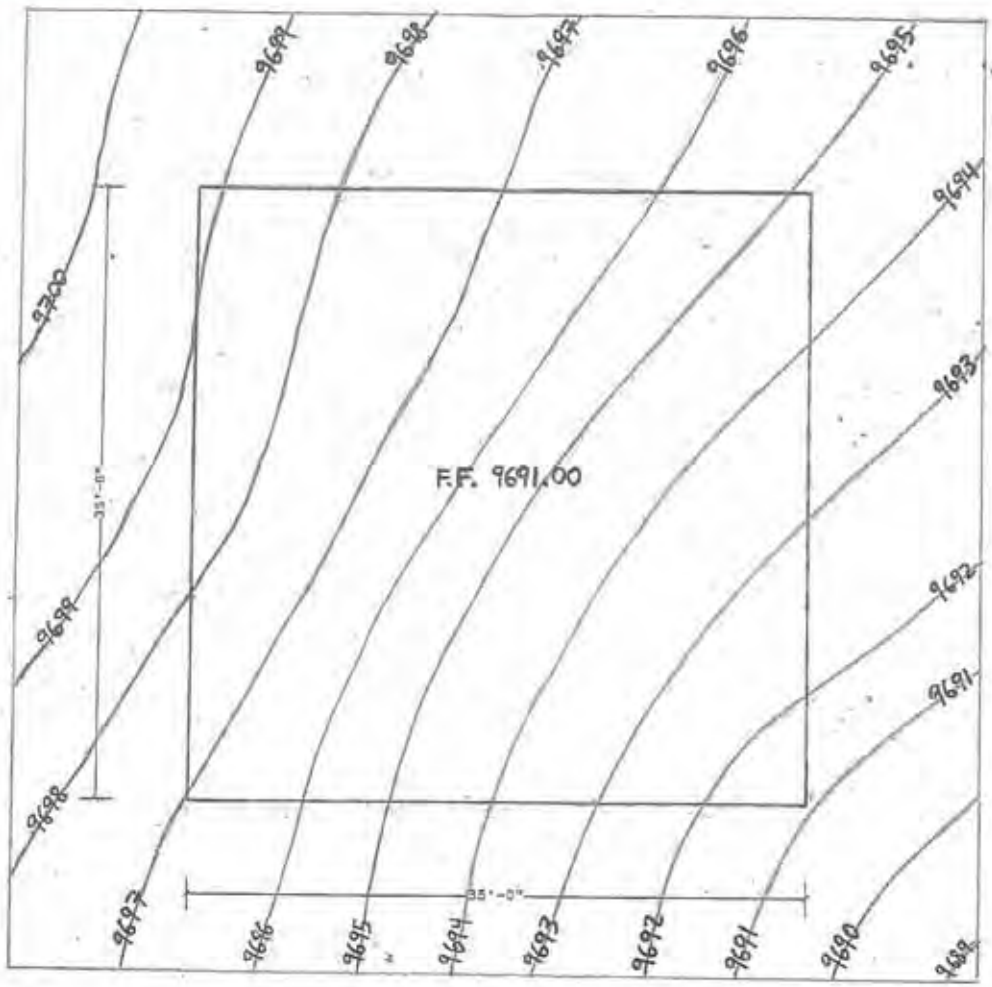
US Buildings, Inc.
2000 Regency Circle Cmby Memphis TN 38138

DIS Construction, Inc.
Caldera Resources, Inc.
Hacienda, Colorado
Caldera - Chivo Mine

HTS

3/12/2008 1:42:50

Caldera Resources 3-9-08 BUSINESS.dwg



PLAN VIEW

ORE STORAGE BUILDING

Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS STIPULATED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP SUBJECT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.

THE ORIGINAL DRAWINGS AND DESIGNS IS SOLELY PROPRIETARY TO VP BUILDINGS, INC. AND ARE NOT TO BE USED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF VP BUILDINGS.

THE ORIGINAL ENGINEER'S SEAL AFFIXED IS SOLELY APPLICABLE FOR ESTIMATE, SPECIFICATION AND DIRECTIVE. THE SEAL DOES NOT APPLY TO ANY ALTERATIONS MADE TO THE ORIGINAL DESIGN & PERFORMANCE SPECIFICATIONS BY OTHERS WITHOUT THE WRITTEN CONSENT OF VP BUILDINGS.

VP Buildings, Inc.
3200 Players Club Circle Memphis TN 38125

MARK	DATE	BY	DESCRIPTION

NTS

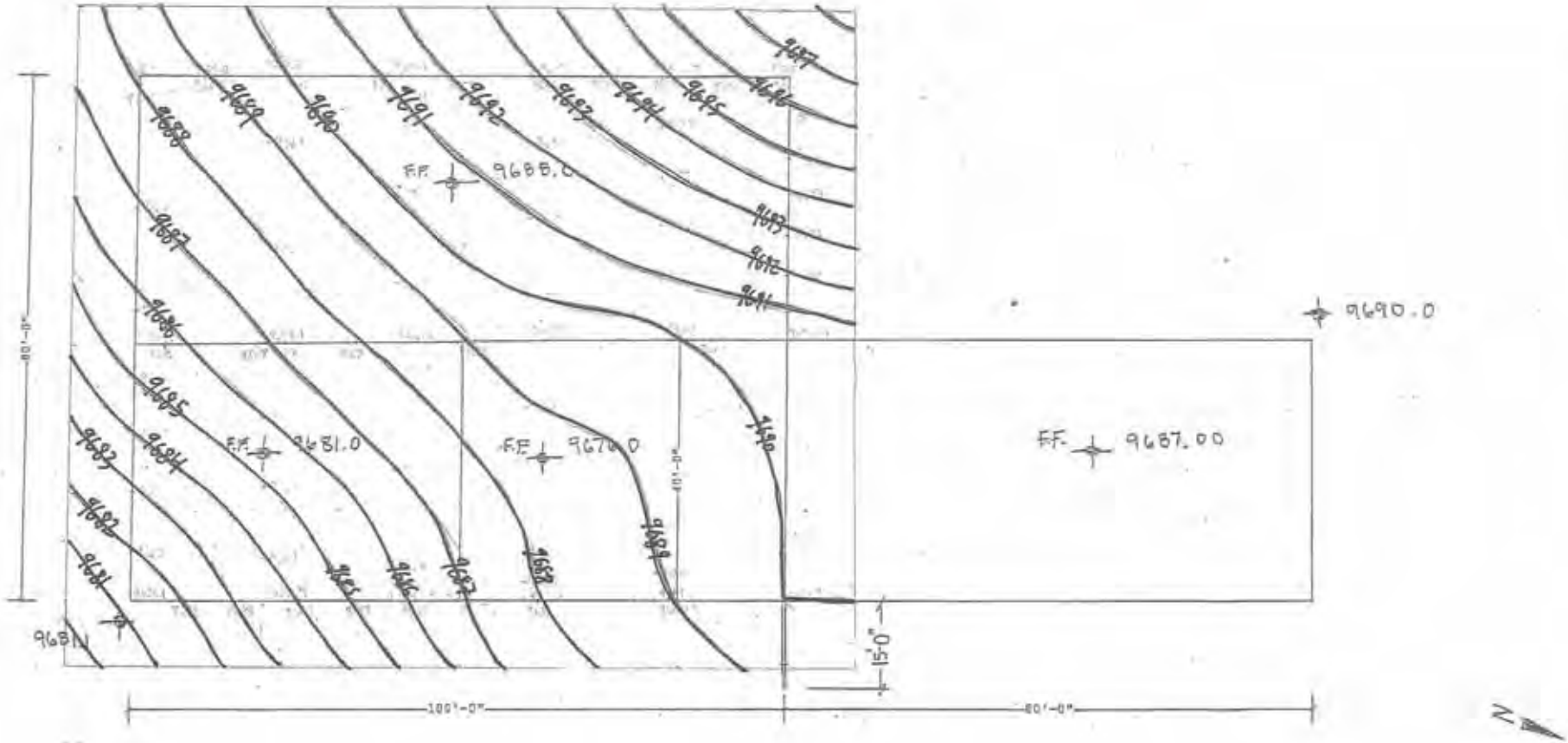
4/8/2009 10:44:23

PLAN VIEW

CUSTOMER: CG Construction, Inc.
PROJECT: Cabela Resources - Cross Mine
LOCATION: Nederland, Colorado
PROJECT: Ore Storage Building
BUILDING NO.:
DRAWING: Cabela Resources Ore Storage - 4-7-09.VPC

VP BUILDINGS
www.vpbuildings.com
7.De

DRAWN: TMCB
CHECKED: RLY
SHEET: 1



PLAN VIEW

ORE PROCESSING BUILDING

Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS EXPRESSED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ACT DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.

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TECHNICAL INFORMATION AND/OR SPECIFICATIONS SHOWN ON THIS DRAWING ARE APPLICABLE ONLY WHEN ACCURATELY INTERPRETED IN CONJUNCTION WITH THE ENTIRE DRAWING. THE USE AND INTERPRETATION OF THIS DRAWING SHALL BE LIMITED TO THOSE PERSONS OR FIRMS QUALIFIED BY EDUCATION AND EXPERIENCE TO UNDERSTAND THE INFORMATION CONTAINED HEREIN. VP BUILDINGS ASSUMES NO RESPONSIBILITY FOR THE USE OF THIS DRAWING BY PERSONS OR FIRMS NOT QUALIFIED AS DESCRIBED ABOVE.

VP Buildings, Inc.
3200 Players Club Circle Memphis TN 38125

NO	DATE	BY	DESCRIPTION
1			

NTS

5/13/2008 1:42:05 PM

PLAN VIEW

BUILDER	CG Construction, Inc.
OWNER	Cassia Resources, Inc.
LOCATION	Nephi Area, Colorado
PROJECT	Cassia - Cross Wire
INCLUDES FOR	
FILENAME	Cassia Resources 5-9-08 SUBMITTAL.VPC

VP BUILDINGS

VERSION 7.0a

JOB #

DATE 5/13/2008

APPROVED RLY

DRAWN

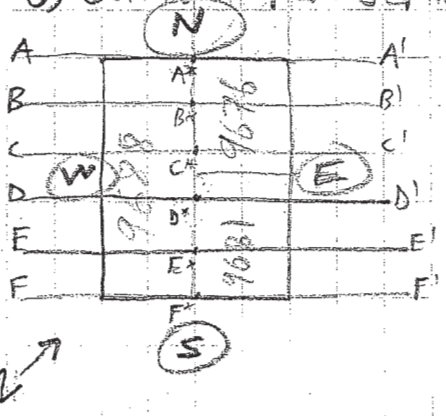
Overall Site Cut/Fill Calculations

	Cut	Fill	Notes
Ore Processing Building:	3935 yd^3 cut	864 yd^3 fill	cut 2412 for found fill 497
Ore Storage Building:	610 yd^3 cut	92 yd^3 fill	386 83 for Fou
New Access Road: (Calcs in April 2008 submittal)	1000 yd^3 cut	2000 yd^3 fill	
Onsite Upgradients Diversion Berms	-0-	2600 yd^3 fill	
total	5545 yd^3 cut	5556 yd^3 fill	

Calais Cross Mine
Cut/Fill Estimate
5/12/08

Ore Processing Building

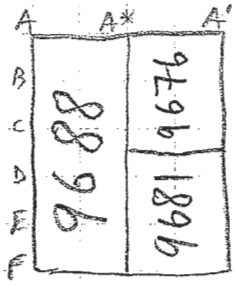
Cut/fill steps
1) Cut/fill footprint to floor level
2) Cut outside slope (W and N) @ 2.5:1 from 9688 to existing slope
3) Cut outside slope (E) to 9681, 0.5% grade to road
4) Cut 6' deep trench around perimeter for footers - 3' wide, 1:1 slope
5) Cut/Fill outside slope (W, N, S) for positive drainage
6) Cut/fill for septic leach field.



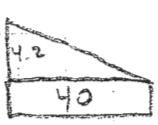
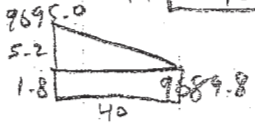
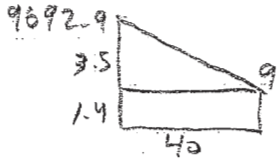
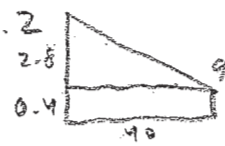
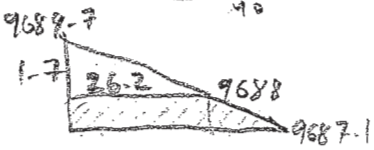
A	9697.1	C	9692.9	E	9689.7
A*	9690.3	C*	9689.4	E*	9687.1
A'	9689.9	C'	9687.9	E	9683.4
B	9695.0	D	9691.2	F	9688.3
B*	9689.8	D*	9688.4	F*	9685.7
B'	9688.9	D'	9685.6	F'	9681.1

END AREA METHOD

1) Cut footprint to floor level.



a) Cut to 9688:

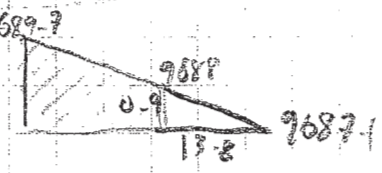
		Area =	Average
A → A*		84 + 196 = 280 ft²	> 228
B → B*		104 + 72 = 176 ft²	> 151
C → C*		70 + 56 = 126 ft²	> 99
D → D*		56 + 16 = 72 ft²	> 47
E → E*		22.3 = 22.3 ft²	> 14
F → F*		6 = 6 ft²	

	Avg	20' between sections (ft^3)
AB	228	4560
BC	151	3020
CD	99	1980
DE	47	940
EF	14	280
		10780

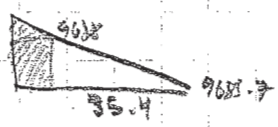
→ 400 yd^3 cut

b) Fill to 9688

E → E'



F - F'

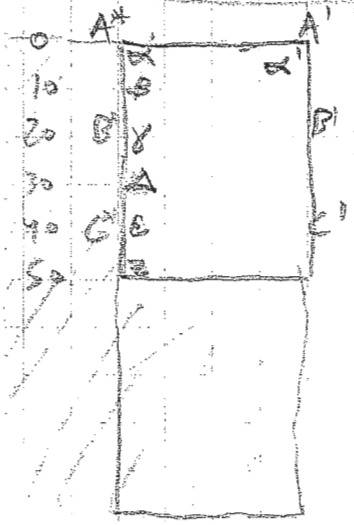


Area = 6.2 ft^2

Avg = 40.7 ft^2

Avg 23.5 → 20' Section 470 ft^3 → 17 yd^3 fill

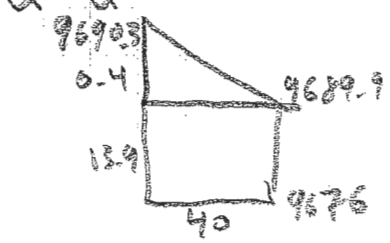
c) Cut to 9676



Convert to 10' sections

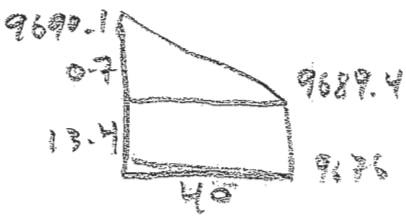
α → α'	9690.3 − 9689.9
β → β'	9690.1 − 9689.4
γ − γ'	9688.8 − 9688.9
Δ − Δ'	9689.6 − 9688.4
ε − ε'	9689.4 − 9687.9
ζ − ζ'	9688.9 − 9686.8

α − α'



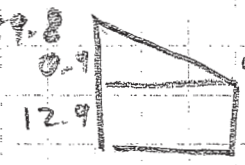
$\frac{0.4 \cdot 40}{2} = 8 + 556 = 564\ ft^2$

β − β'

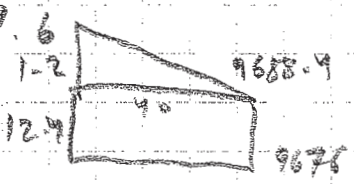


14 + 536 = 550 ft^2

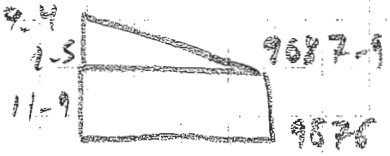
1c) cont.

$\gamma - \gamma'$ 

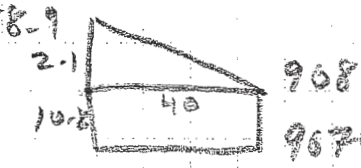
$18 + 516 = 534\ ft^2$

$\Delta - \Delta'$ 

$24 + 496 = 520\ ft^2$

$\varepsilon - \varepsilon'$ 

$30 + 476 = 506\ ft^2$

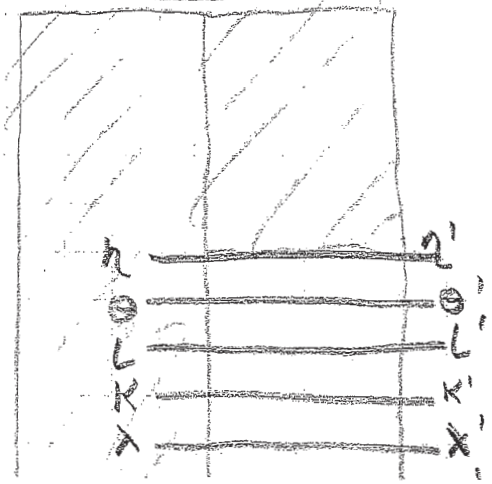
$Z - Z'$ 

$42 + 432 = 432\ ft^2$

	area (ft²)	Avg	w/10' section (ft³)
K	564	557	5570
B	550	542	5420
H	534	527	5270
Δ	520	513	5130
E	506	469	4690
Z	432		

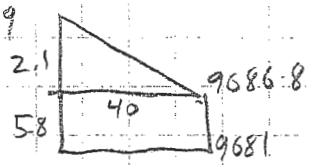
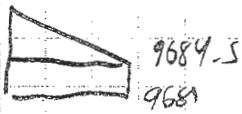
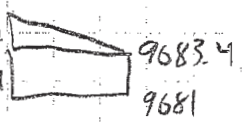
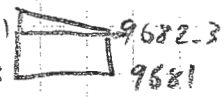
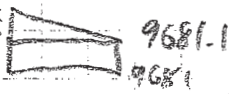
$26080\ ft^3 \longrightarrow \underline{966\ yd^3\ cut}$

d) cut to 9681



$\eta - \eta'$ 9688.9 − 9686.8
$\theta - \theta'$ 9688.4 − 9685.6
$\iota - \iota'$ 9687.8 − 9684.5
$\kappa - \kappa'$ 9687.1 − 9683.4
$\lambda - \lambda'$ 9686.4 − 9682.3
$\mu - \mu'$ 9685.7 − 9681.1

1d) cont.

			Avg (ft²)	# w/ 10 Secm	Cft³
η - η'		42 + 232 = 274 ft²	229	2290	
θ - θ'		56 + 184 = 184 ft²	195	1950	
ι - ι'		66 + 140 = 206 ft²	188	1880	
κ - κ'		74 + 96 = 170 ft²	152	1520	
λ - λ'		82 + 52 = 134 ft²	115	1150	
μ - μ'		92 + 4 = 96 ft²			

8790 ft³

326 yd³ cut

Step 1 summary

a) cut to 9688 → 400 yd³ cut
b) fill to 9688 → 17 yd³ fill
c) cut to 9676 → 966 yd³ cut
d) cut to 9681 → 326 yd³ cut

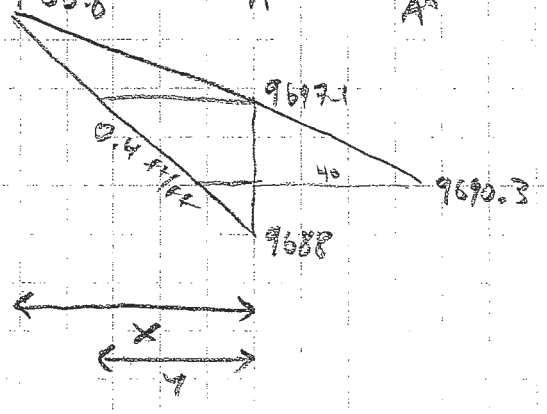
1692 yd³ cut
17 yd³ fill

(for foundation)

Step 2 Cut outside slope (W and N) @ 2.5:1 from 9688 to existing slope

Assume: constant slope through A–A* and all other transects

1) W side

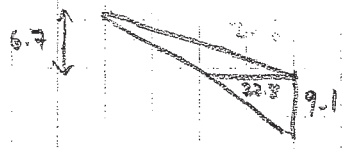


existing slope: $\frac{9697.1 - 9690.3}{40} = 0.17$ ft/ft

$9697.1 + 0.17x = 9688 + 0.4x$

$9.1 = 0.23x$

$x = 39.6'$

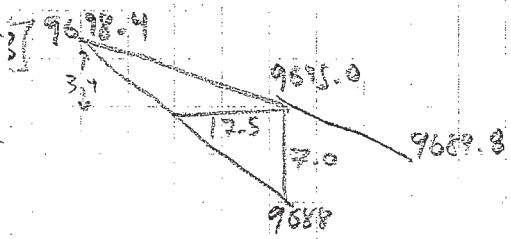


$9688 + 0.4y = 9697.1$

$y = 22.8'$

$\text{Area} = \frac{1}{2}(6.7 \cdot 22.8 + 9.1 \cdot 22.8) = \underline{180.1 \text{ ft}^2}$

2)



existing slope: 0.13 ft/ft

$9688 + 0.4x = 9695 + 0.13x$

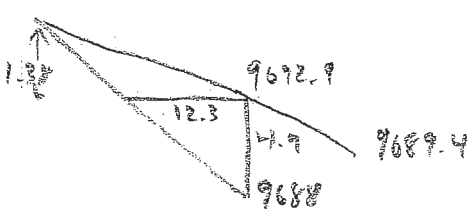
$x = 25.9'$

$9688 + 0.4y = 9695.0$

$y = 17.5'$

$\text{Area} = \frac{1}{2}(17.5 \cdot 3.4 + 17.5 \cdot 7.0) = \underline{91 \text{ ft}^2}$

3)



existing slope = 0.0875 ft/ft

$9688 + 0.4x = 9692.9 + 0.0875x$

$0.3125x = 4.9$

$x = 15.7'$

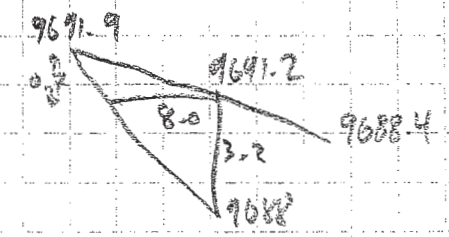
$9688 + 0.4y = 9692.9$

$y = 12.3'$

$\text{Area} = \frac{1}{2}(12.3 \cdot 1.38 + 12.3 \cdot 4.9) = \underline{38.6 \text{ ft}^2}$

Step 2 cont.

D



existing slope = 0.07 ft/ft

$9688 + 0.4x = 9691.2 + 0.07x$

$x = 9.7'$

$9688 + 0.4y = 9691.2$

$y = 8.0'$

$\text{Area} = \frac{1}{2}(8.0 \cdot 0.7 + 8.0 \cdot 3.2) = \underline{15.6 \text{ ft}^2}$

E



existing slope = 0.065 ft/ft

$9688 + 0.4x = 9689.7 + 0.065x$

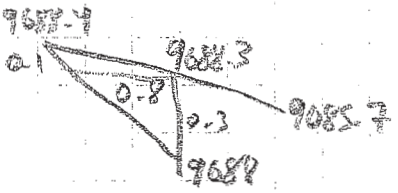
$x = 5.1'$

$9688 + 0.4y = 9689.7$

$y = 4.3'$

$\text{Area} = \frac{1}{2}(0.4 \cdot 4.3 + 5.1 \cdot 4.3) = \underline{11.9 \text{ ft}^2}$

F



existing slope = 0.065 ft/ft

$9688 + 0.4x = 9688.3 + 0.065x$

$0.3 = 0.335x$

$x = 0.9'$

$9688 + 0.4y = 9688.3$

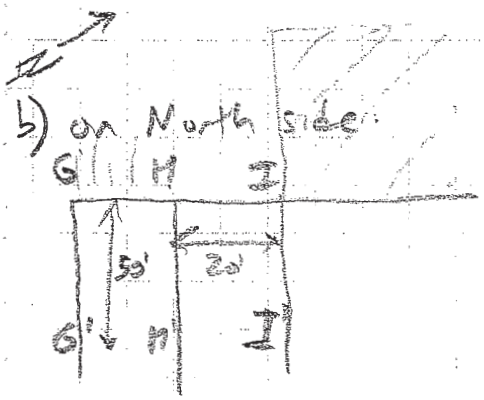
$y = 0.8'$

$\text{Area} = \frac{1}{2}(0.8 \cdot 0.3 + 0.8 \cdot 0.1) = \underline{0.2 \text{ ft}^2}$

	Area (ft²)	Avg	20' bench section
A	180.1	135.6	2712 ft³
B	91.0	64.8	1296
C	38.6	27.1	542
D	15.6	13.8	276
E	11.9	6.1	122
F	0.2		

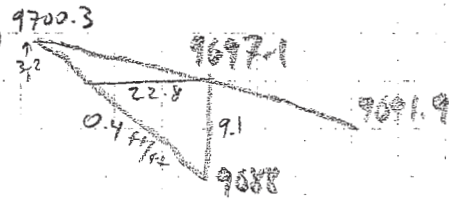
$4948\ ft^3 \longrightarrow \underline{183\ yd^3\ cut}$

b) on North side:



G	9697.1
G'	9691.9
H	9693.7
H'	9690.6
I	9690.3
I'	9689.2

G

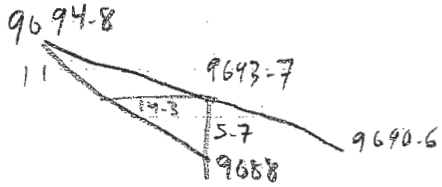


$$\text{existing slope} = \frac{9697.1 - 9691.9}{50} = 0.104$$

$$9688 + 0.4x = 9697.1 + 0.104x$$
$$0.296x = 9.1$$
$$x = 30.8'$$
$$9688 + 0.4y = 9697.1$$
$$y = 22.8'$$

$$\text{Area} = \frac{1}{2}(22.8 \cdot 3.2 + 22.8 \cdot 9.1) = \underline{140.2\ ft^2}$$

H

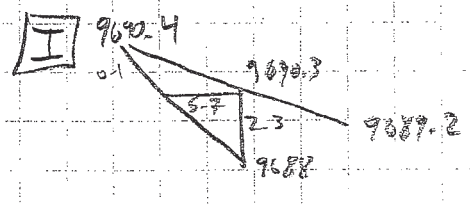


$$\text{existing slope} = 0.062\ ft/ft$$

$$9688 + 0.4x = 9693.7 + 0.062x$$
$$0.338x = 5.7$$
$$x = 16.9'$$
$$9688 + 0.4y = 9693.7$$
$$y = 14.3'$$

$$\text{Area} = \frac{1}{2}(14.3 \cdot 5.7 + 14.3 \cdot 1.1) = \underline{48.6\ ft^2}$$

Step 2 cont.



existing slope = 0.022 ft/ft

$9688 + 0.4x = 9690.3 + 0.022x$

$0.378x = 2.3$

$x = 6.1'$

$9688 + 0.4y = 9690.3$

$y = 5.7'$

Area $= \frac{1}{2}(5.7 \cdot 0.1 + 5.7 \cdot 2.3) = \underline{6.8\ ft^2}$

		Avg	20' between sections
G	140.2	> 94.4	1888
H	48.6	> 27.7	554
I	6.8		

2442 ft^3 → 91 yd^3 cut

Step 2 Summary

a) West side: 183 yd^3 cut

b) North side: 91 yd^3 cut

274 yd^3 cut

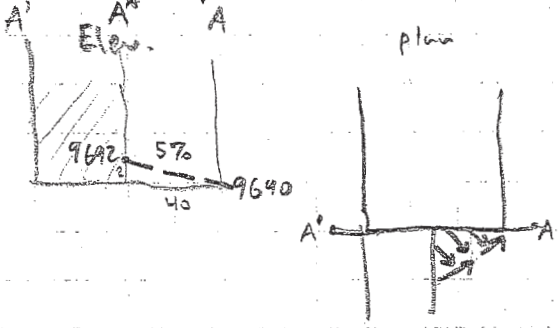
Step 3 cont. East side 0.5% regrade

	Area		Avg (ft^2)	20' sections
A'	418	>	373	7460
B'	328	>	484	9680
C'	640	>	404	8080
D'	168.3	>	104	2080
E'	39	>	20	400
F'	0.5			

27700 ft^3 ⟶ 1026 yd^3 cut

Note 5 Fill outside slope on W, N, S sides for positive drainage

a) North side

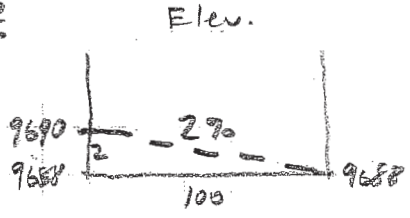


Area at A-A* = $\frac{1}{2}(2 \cdot 40) = 40\ ft^2$

For simplicity, estimate 40 ft out from building

$40\ ft^2 \cdot 40\ ft = 1600\ ft^3 \rightarrow$ 60 yd^3 fill

West Side



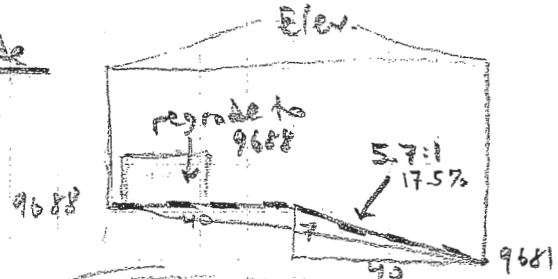
French drain

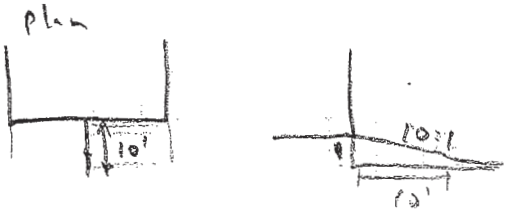
Area = $\frac{1}{2}(2 \cdot 100) = 100\ ft^2$

Assume = drainage area 6' out from building toe

Volume = $(100\ ft^2)(6\ ft) = 600\ ft^3 \rightarrow$ 22 yd^3 fill

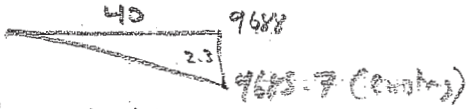
South side





Left side (SW)

↳ Fill to 9688



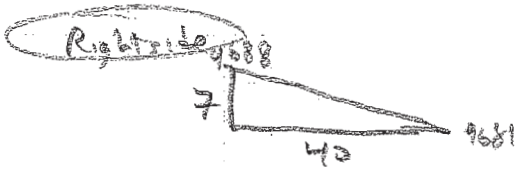
Follow existing grade up to ramp

Ramp 10% grade 10' out from bldg

Area = $40 \cdot 2.3\left(\frac{1}{2}\right) = 46\ ft^2$

Estimate = Extending 20' out $\Rightarrow (20)(46) = 920\ ft^3 \rightarrow$ 34 yd^3 fill

Right side





extending 20' out

for estimation, $\left(\frac{\text{Area}}{2}\right)(L) \approx$ volume

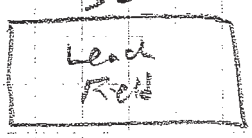
$\frac{1}{2}(7 \cdot 40) \cdot 20 = 1400\ ft^3 \rightarrow$ 52 yd^3 fill

Step 5 summary

North side: 60 yd^3 fill
West side: 22 yd^3 fill
South side 86 yd^3 fill

Step 6 Cut/fill for Septic Leach Field:

Size from existing on-site leach field.



depth of excavation: 6 feet
Volume cut = (52)(18)(6) = 5616 ft^3 / 208 yd^3 cut

Leach field backfill: 90% of pit = 187 yd^3 fill

Tank, pipes, etc:

1500 gallon tank → 200 ft^3 → 8 yd^3 cut

Pipe: 100' from building, depth 2', trench wide 2' = 400 ft^3 / 15 yd^3 cut

Backfill pipe trench = estimate 80% of trench = 12 yd^3 fill

Step 6 summary

Cut = 208 + 15 = 223 yd^3 cut

Fill = 187 + 12 = 199 yd^3 fill

Ore Processing Building

Cut/Fill Summary

	Cut	Fill	Notes
Step 1	1692 yd^3	17 yd^3	(foundation)
Step 2	274 yd^3	-0-	
Step 3	1026 yd^3	-0-	
Step 4	720 yd^3	480 yd^3	(foundation)
Step 5	-0-	168 yd^3	
Step 6	223 yd^3	199 yd^3	
Total	3935 yd^3 cut	864 yd^3 fill	
for Foundation	2412 yd^3 cut	497 yd^3 fill	
Non-foundation	1523 yd^3 cut	367 yd^3 fill	

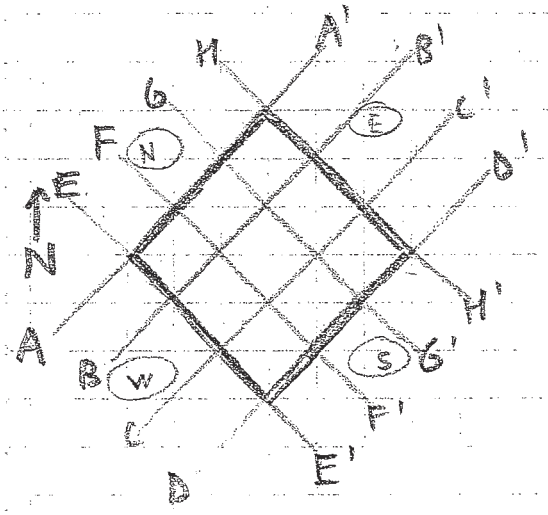
Net total cut/fill balance = 3071 yd^3 excess cut

Calais Cross Mine
Cut/Fill Estimates 5/13/08

Ore Storage Building

Cut/Fill Steps

1) Cut footprint to 9691'
2) Cut exterior slopes (all 4 sides) at 2.5:1 from 9691' to existing grade
3) Cut 4' deep trench for footers - 3' wide, 1:1 slope
4) Fill exterior slopes for drainage



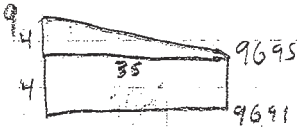
END AREA METHOD

A	9699'	E	9699
A'	9695	E'	9697
B	9699	F	9697.7
B'	9694	F'	9695
C	9698	G	9696.3
C'	9693	G'	9693
D	9697	H	9695
D'	9691	H'	9691

Step 1 Cut footprint to 9691'

(ft²) Average — (ft³) × 11²/₃' sections

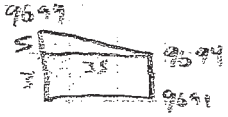
A → A'



Area = 70 + 140 = 210 ft²

> 201.25 2347.

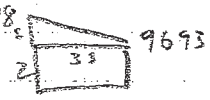
B → B'



Area = 87.5 + 105 = 192.5 ft²

> 175 2041.7

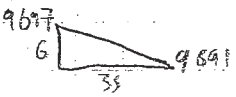
C → C'



Area = 87.5 + 70 = 157.5 ft²

> 131.25 1531.3

D → D'



Area = 105 = 105 ft²

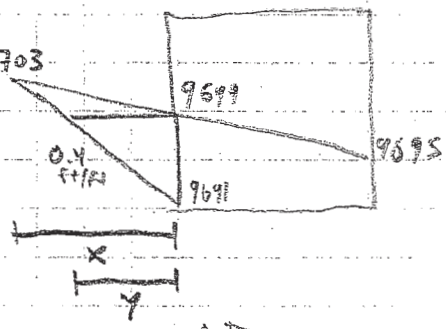
5920.9 ft

220 yd³ cu

Step 2 Cut exterior slopes (all 4 sides) @ 2.5:1 (0.4 ft/ft) from 9691' to existing slope

Assume: slopes within footprint are same as exterior

2) **West Side** A–A'



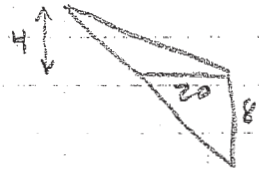
existing slope = $\frac{9699 - 9695}{35} = 0.114$ ft/ft

$9699 + 0.114x = 9691 + 0.4x$

$x = 30.0'$

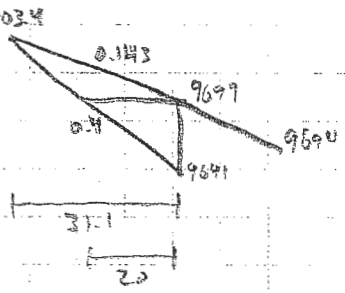
$9691 + 0.4y = 9699$

$y = 20.0'$



$\text{Area} = \frac{1}{2}(20 \cdot 8 + 20 \cdot 4) = \underline{120 \text{ ft}^3}$

B → B'



existing slope = $\frac{9699 - 9691}{35} = 0.143$ ft/ft

$9699 + 0.143x = 9691 + 0.4x$

$x = 31.1'$

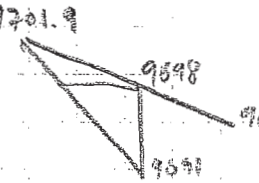
$9691 + 0.4y = 9699$

$y = 20'$



$\text{Area} = \frac{1}{2}(20 \cdot 8 + 20 \cdot 4.4) = \underline{124 \text{ ft}^3}$

C → C'



existing slope = $\frac{9698 - 9693}{35} = 0.143$ ft/ft

$9698 + 0.143x = 9691 + 0.4x$

$x = 27.2'$

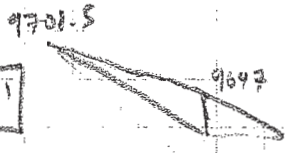
$9691 + 0.4y = 9698$

$y = 17.5'$



$\text{Area} = \frac{1}{2}(17.5 \cdot 7 + 17.5 \cdot 3.9) = \underline{95.4 \text{ ft}^3}$

D → D'



existing slope = 0.171 ft/ft

$9697 + 0.171x = 9691 + 0.4x$

$x = 26.2'$

$9691 + 0.4y = 9697$

$y = 15'$



$\text{Area} = \frac{1}{2}(15 \cdot 6 + 15 \cdot 4.5) = \underline{78.8 \text{ ft}^3}$

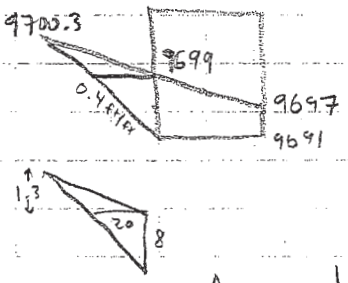
Step 2 a) cont.

	Area (ft^2)	Avg	Volume of 113' between Sections
A	120	> 122	1423
B	124	> 109.7	1280
C	95.4	> 87.1	1016
D	78.8		

$3719\ ft^3 \longrightarrow \underline{138\ yd^3\ cut}$

b) **North Side**

E → E'



existing slope = 0.057 ft/ft

$9699 + 0.057x = 9691 + 0.4x$

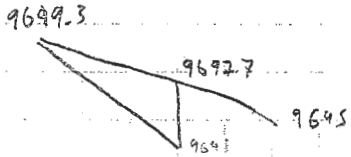
$x = 23.3'$

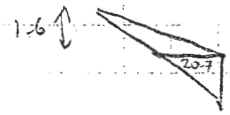
$9691 + 0.4y = 9699$

$y = 20.0'$

$\text{Area} = \frac{1}{2}(20.8 + 20 \cdot 1.3) = \underline{93\ ft^2}$

F → F'





existing slope = 0.077 ft/ft

$9697.7 + 0.077x = 9691 + 0.4x$

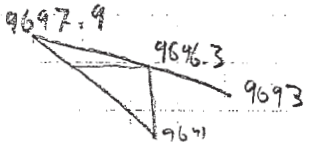
$x = 20.7'$

$9691 + 0.4y = 9697.7$

$y = 16.8'$

$\text{Area} = \frac{1}{2}(20.7 \cdot 1.6 + 20.7 \cdot 6.7) = \underline{85.9\ ft^2}$

G → G'





existing slope = 0.094 ft/ft

$9696.3 + 0.094x = 9691 + 0.4x$

$x = 17.3'$

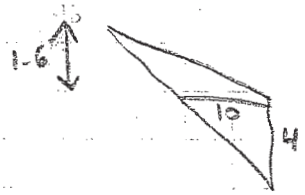
$9691 + 0.4y = 9696.3$

$y = 13.3'$

$\text{Area} = \frac{1}{2}(13.3 \cdot 5.3 + 13.3 \cdot 1.6) = \underline{45.9\ ft^2}$

H → H'





existing slope = 0.114 ft/ft

$9695 + 0.114x = 9691 + 0.4x$

$x = 14.0'$

$9691 + 0.4y = 9695$

$y = 10'$

$\text{Area} = \frac{1}{2}(10 \cdot 4 + 10 \cdot 1.6) = \underline{28\ ft^2}$

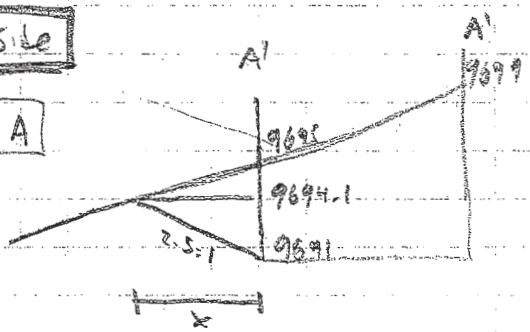
Step 2b) cont - North side

	Area (ft^2)		Avg	V_i with 11 2/3' section
E	93	>	89.5	1044
F	85.9	>	65.9	769
G	45.9	>	37.0	432
H	28			

$2245\ ft^3 \longrightarrow$ **83 yd^3 cut**

c) East side

A'→A



existing slope = $\frac{9699-9695}{35} = 0.114$ ft/ft

$9691 + 0.4x = 9695 - 0.114x$

$x = 7.8'$

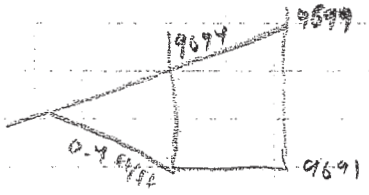
Intersection at:

$9691 + 0.4(7.8) = y$

$y = 9694.1$

Area = $\frac{1}{2}(7.8 \cdot 3.1 + 7.8 \cdot 0.9) =$ **15.6 ft^2**

B'→B



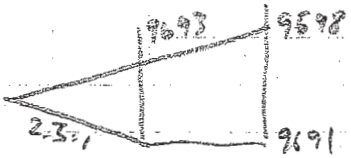
existing slope = $\frac{9699-9694}{35} = 0.143$ ft/ft

$9691 + 0.4x = 9694 - 0.143x$

$x = 5.5'$

Area = $\frac{1}{2}(5.5 \cdot 3) =$ **8.3 ft^2**

C→C



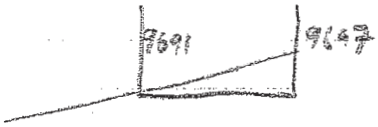
existing slope = $\frac{9698-9693}{35} = 0.143$ ft/ft

$9693 - 0.143x = 9691 + 0.4x$

$x = 3.7'$

Area = $\frac{1}{2}(3.7 \cdot 2) =$ **3.7 ft^2**

D'→D



OK

0 ft^2

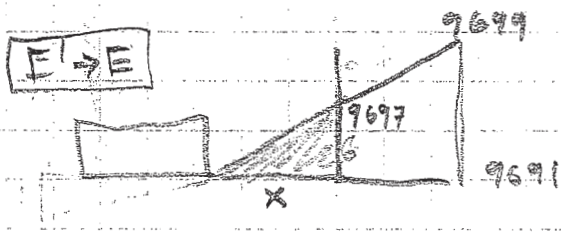
	Area (ft^2)		Average	11 2/3' section
A	15.6	>	12.0	140
B	8.3	>	6	70
C	3.7	>	1.9	22.2
D	0			

$\longrightarrow$ **9 yd^3 cut**

2d) **South Side**

Need smooth, uniform slope from One Storage Bldg floor (9691') to elevation of Existing Warehouse (9690'), 100' to SE.

E'→E



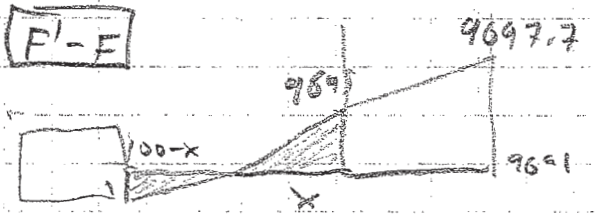
existing slope = $\frac{9699-9697}{35} = 0.057$ ft/ft

$9697 - 0.057x = 9691$

$x = 105$

Area = $(\frac{1}{2})105 \cdot 6 = 315\ ft^2$

F'-F



slope = $\frac{9697.7-9695}{35} = 0.077$

$9695 - 0.077x = 9691$

$x = 51$

Area = $\frac{1}{2}(51.4) + \frac{1}{2}(49.1) = 126.5\ ft^2$

G'-G



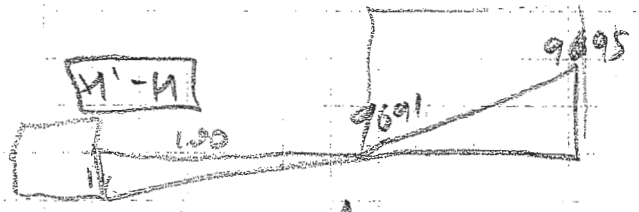
slope = $\frac{9696.3-9693}{35} = 0.094$

$9693 - 0.094x = 9691$

$x = 21$

Area = $\frac{1}{2}(21.2) + \frac{1}{2}(79.1) = 60.5\ ft^2$

H'-H



Area = $\frac{1}{2}(100.1) = 50\ ft^2$

	Area	Avg
E'	315	221
F'	126.5	93.5
G'	60.5	55.3
H'	50	

369.8 ft^3 → 14 yd^3 cut

Step 2 Summary

West	138 yd^3	cut
North	83 yd^3	cut
East	9 yd^3	cut
South	14 yd^3	cut

244 yd^3 cut

Step 3 Cut 4' deep trench around perimeter for footers



Cross-sectional area: $\frac{1}{2}(4\cdot4 + 4\cdot4) + (3\cdot4) = 28\ ft^2/LF$

Perimeter of bldg = $4(35) = 140\ ft$

Cut amount: $(28\ ft^2)(140\ ft) = 3920\ ft^3 \rightarrow$ **146 yd³ cut**

Assume: footers are 4' deep, 3' wide

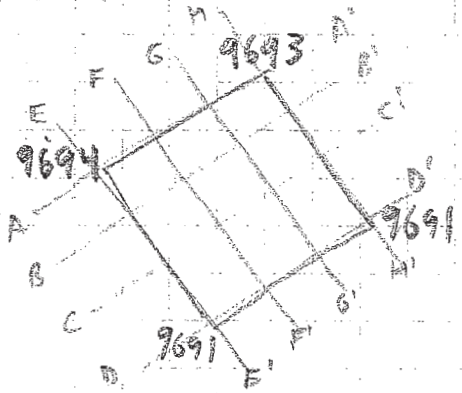


Fill: $\frac{1}{2}(4\cdot4 + 4\cdot4) = 16\ ft^2 \times 140\ ft = 2240\ ft^3$

↓

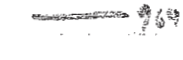
83 yd³ fill

Step 4 Fill exterior slopes for drainage



Exterior slopes already at 2.5:1
Uniform slopes wanted

West Side

			Area	11.3 yd³ sections
at A		Area: $\frac{1}{2}(7.5\cdot3) = 11.3\ ft^2$	> 8.2	41
at B		Area: $\frac{1}{2}(5\cdot2) = 5\ ft^2$	> 3.2	16
at C		Area: $\frac{1}{2}(2.5\cdot1) = 1.3\ ft^2$	> 0.7	3.5
at D		ok	$0\ ft^2$	

60.5 ft

↓

3.4 yd³ fill

Step 4 cont.

				Avg	11 2/3' sections
North side	at E	7.5 / 3 / 2.5:1 / 9694 / 9691	Area: $\frac{1}{2}(7.5 \cdot 3) = 11.3\ ft^2$	> 10.2	51 ft^3
	at F	6.75 / 9693.7 / 9691	Area: $\frac{1}{2}(6.75 \cdot 2.3) = 7.1\ ft^2$	> 7.9	39.5
	at G	5.75 / 9693.3 / 9691	Area: $\frac{1}{2}(5.75 \cdot 2.3) = 6.6\ ft^2$	> 5.8	29
	at H	5 / 2 / 9693 / 9691	Area: $\frac{1}{2}(2 \cdot 5) = 5\ ft^2$		

119.5 ft^3

5 yd^3 fill

				Avg	11 2/3' sections
East Side	at A'	5 / 2 / 2.5:1 / 9693 / 9691	$\frac{1}{2}(5 \cdot 2) = 5\ ft^2$	> 3.6	18 ft^3
	at B'	3.25 / 9692.3 / 9691	$\frac{1}{2}(3.25 \cdot 1.3) = 2.1\ ft^2$	> 1.4	7
	at C'	1.75 / 9691.7 / 9691	$\frac{1}{2}(1.75 \cdot 0.7) = 0.6\ ft^2$	> 0.3	1.5
	at D'	9691	0'c	0 ft^2	

26.5 ft^3

1 yd^3 fill

South side

None

Step 4 summary

West side	3 yd^3 fill
North side	5 yd^3 fill
East side	1 yd^3 fill
South side	0
	9 yd^3 fill

Ore Storage Building Cut/Fill Summary

	-cut-	-fill-	
Step 1	220 yd^3 cut	0 fill	(foundation)
Step 2	244 yd^3 cut	0 fill	
Step 3	146 yd^3 cut	83 yd^3 fill	(foundation)
Step 4	0 cut	9 yd^3 fill	
	610 yd^3 cut	92 yd^3 fill	

Net = 518 yd^3
excess cut

For Foundation = 366 yd^3 cut, 83 yd^3 fill



Cross Mine Expansion
Excess Cut Material
Proposed Berms and Fill

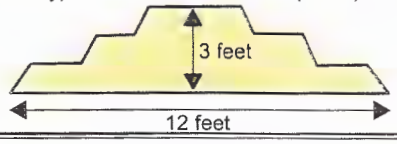
Proposed Berm

Proposed Incidental Fill

Berms approx 2450 feet,
at cross-section 18 ft2.
Total berms = 1630 yd3

Incidental fill of three
decommissioned ponds
approx 970 yd3.

Typical berm cross-section (18 ft2)



0 35 70 140 210 280 Feet

1 inch equals 134.8 feet

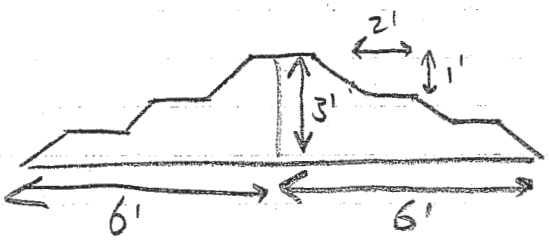
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Excess Material
Proposed Berms and Fill

Berms



cross-section =
$\frac{1}{2}(6 \cdot 3 + 6 \cdot 3) = 18\ ft^2$

From GIS mapping of berms, estimate 2450 linear feet of berms.

$(2450\ ft)(18\ ft^2) = 44100\ ft^3 = \underline{1633\ yd^3}$

Fill

Three Ponds exist on-site that must be filled.

"Pond 1" near Cross Shop building -
surface area $3846\ ft^2$
estimate 3' average depth
$V = (3)(3846) = \underline{11538\ ft^3}$

Pond near Caribou tunnel
surface area = $1278\ ft^2$
estimate 6' average depth
$V = (6)(1278) = \underline{7668\ ft^3}$

other pond near Caribou tunnel
surface area = $997\ ft^2$
estimate 7' average depth
$V = (7)(997) = \underline{6979\ ft^3}$

Total $26815\ ft^3 \longrightarrow 970\ yd^3$

Total fill for berms & ponds = $1633 + 970 = \underline{2603\ yd^3}$

Walsh

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