



CONTACT INFORMATION
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inquiries@azgs.az.gov

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M E M O R A N D U M

TO: Ron R. Short
FROM: Dale H. Allen
DATE: August 6, 1990
RE: Vulture Progress Report

DETOXIFICATION

The cyanide content in the solution has remained steady at around 0.3 pounds per ton for the last couple of weeks. The pH has dropped a little at a time since we started spraying the solution in the air to absorb the carbon monoxide which will eventually lower the pH and thereby enhance the destruction of cyanide. If the pH continues to drop and there is significant loss of cyanide, we should continue circulating solution until it appears to be of no benefit to do so. On the other hand, if there is no improvement in the near future or at least by the end of the bioremediation project, then the plant should be shut down to allow the natural degradation of the cyanide in the heaps to take place.

Our ultimate goal is to reach a .02 pounds per ton of cyanide in the return solution, which will not be achieved by circulating the solution alone. At some point the heaps will be rested to allow nature to take its course. After a reasonable period of time (six months to a year), the heaps will be sampled to see if any residual cyanide remains. If the free cyanide does not meet with ADEQ approval then we will consider an alternative method of detoxification.

BIOREMEDIATION PROJECT

Attached is the most recent report from Western Tech. giving results up to the last sampling period last week. Looking at the graph, it is evident that we are near the completion of the project. Our goal is to attain under 100 ppm hydrocarbon--most of the samples have achieved this. The engineer in charge of our project, Glenn Turny, has indicated that the next series of samples, to be taken in three weeks, should demonstrate that we have reached our target. In September we can dispose of the decontaminated Korn Kob material.

DHA



**WESTERN
TECHNOLOGIES
INC.**

P.O. Box 21387 85036
3737 East Broadway Road
Phoenix, Arizona 85040
602-437-3737 • 470-1341 FAX

August 3, 1990

Mr. Dale Allen
A.F. Budge (Mining) Limited
4301 North 75th Street
Suite 105
Scottsdale, Arizona 85251

**RE: PROJECT UPDATE OF SOIL REMEDIATION SERVICES AT VULTURE MINE, WICKENBURG,
ARIZONA. WT REF. NO. 7120K028.**

Dear Mr. Allen:

Western Technologies Inc. (WT) is pleased to provide A.F. Budge (Mining) Limited (A.F. Budge) with a project update on the soil remediation services currently being performed at the Vulture Mine in Wickenburg, Arizona. A summary of the progress of the remediation process to date is as follows:

WT began remediation of approximately 125 cubic yards of petroleum hydrocarbon contaminated soil on May 31, 1990. Soil samples collected from the soil treatment cell on that date indicated an average total petroleum hydrocarbon concentration of 2772 parts per million (ppm). Following standard soil sampling procedures, the soil was inoculated with hydrocarbon consuming bacteria. WT resampled the soil again on June 28, 1990. The average total petroleum hydrocarbon level had decreased to 98 ppm. The soil was then re-inoculated with bacteria. The most recent WT sampling was performed on July 31, 1990. The average total petroleum hydrocarbon levels were analyzed to be 127 ppm. The associated analytical data is plotted on the attached graph and represents a typical biological degradation pattern for petroleum hydrocarbon contaminated soils.

The project is progressing on schedule and within the proposed budget. WT estimates the project will require 1 to 2 months to complete. The next soil sampling is scheduled for August 28, 1990. WT will contact you upon receipt of the soil sample analysis. If you have any questions or comments regarding this summary, please call me at (602) 437-3737.

Respectfully submitted,

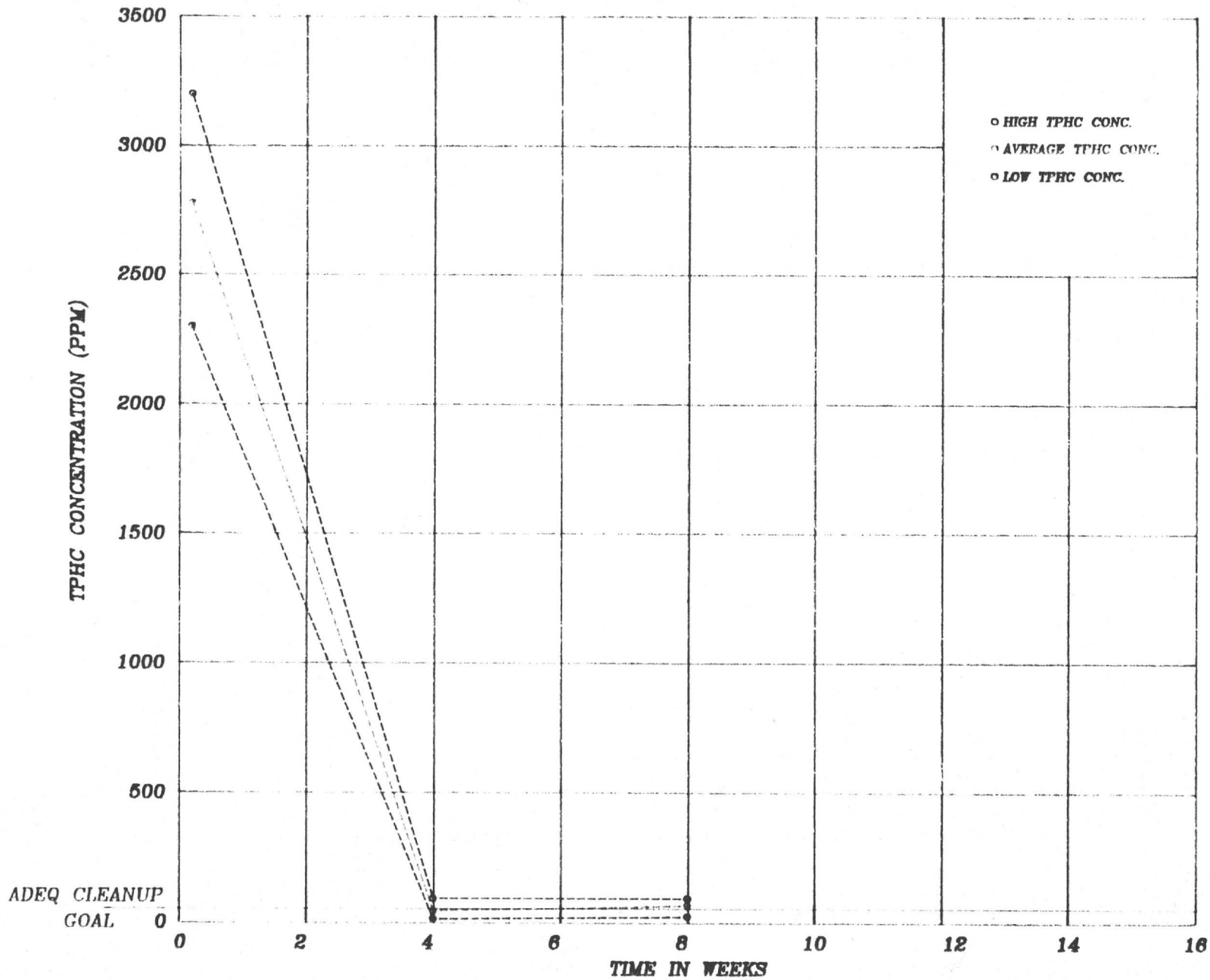
WESTERN TECHNOLOGIES INC.

Glen R. Turney, Ch.E.
Senior Remediation Engineer
Environmental Engineering Services

Attachment:

A.F. BUDGE

Soil Treatment Cell
JOB NO. 7120K028





A.F. Budge (Mining) Limited

(602) 945-4630

4301 North 75th Street
Suite 105
Scottsdale, AZ 85251-3504

FAX (602) 949-1737

*Local number goes to CA
831-7774*

April 12, 1991

VWR Scientific
16290 Shoemaker Avenue
Cerritos, CA 90701
Attention: Vivian

Enclosed is our check in the amount of \$56.07, for one (1) cyanide testing kit, #10044-1, per our order and your reference number 1372486.

*new Ref. → 1570661
6/4/91
Need new letter and check for \$56.07*

Sincerely,

Carole A. O'Brien
Carole A. O'Brien
Financial Coordinator

encl. (1)



A. F. BUDGE MINING, LTD.
4301 N. 75TH ST., STE. 105 602-945-4630
SCOTTSDALE, AZ 85251-3504

6816

12 April 19 91

91-170/1221

PAY TO THE ORDER OF --- VWR Scientific --- \$ 56.07
--- Fifty Six & 07/100 --- DOLLARS



Lincoln & Scottsdale Office (055)
6501 N. Scottsdale
Scottsdale, Arizona 85253

MEMO per letter

Carole A. O'Brien

⑈0006816⑈ ⑆122101706⑆

055⑈727178⑈



A.F. Budge (Mining) Limited

(602) 945-4630

4301 North 75th Street
Suite 105
Scottsdale, AZ 85251-3504

FAX (602) 949-1737

July 10, 1991

Michael A. Milczarek
Arizona Department of
Environmental Quality
Water Permits Unit
Room 202
2005 North Central Avenue
Phoenix, AZ 85004

Re: Heap Leach Facility - Vulture Mine Project
Permit Number: G-0090-07

Dear Mike:

Enclosed, per your request, are copies of our daily logs showing solution flows to the heaps and current cyanide levels.

Very truly yours,

Ronald R. Short
General Manager

RRS/ca

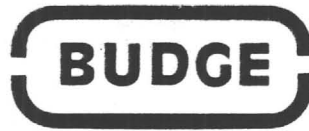
encls.

DATE	CELL #	TIME START	TIME END
6/10	5 & 6	07:00	16:00
	7 & 9	16:00	20:00
	8 & 10	20:00	23:00
	15, 17, 19, 5 & 6	23:00	
6/11	5 & 6		5:00
	15, 17, & 19		23:00
	11, 12, & 13	23:00	
6/12	11, 12 & 13		09:00
	3	9:00	14:00
	1	14:00	18:00
	4	18:00	23:00
	15, 17 & 19	23:00	
6/13	15, 17 & 19		13:00
	7 & 9	13:00	22:00
6/17	15, 17, & 19	22:00	
6/18	15, 17, & 19		09:00
	7 & 9	09:00	13:00
	8 & 10	13:00	16:00
	5 & 6	16:00	23:00
	11, 12, & 13	23:00	

DATE	CELL #	TIME START	TIME STOP	CK16/H
6/19	13		07:00	BARREN 0.20
	11 & 12		13:00	FEED 0.25
	4	13:00	19:30	STREAM 0.25
	1	19:30	23:00	DISCHARGE 0.15
	14, 15, & 16	23:00		
6/20	14, 15, & 16		18:00	
	18 & 19	18:00	24:00	
6/21	5 & 6	24:00	06:00	
	7 & 9	06:00	14:00	
6/23	5 & 6	15:30	6/24 08:00	
6/24	7 & 9	08:00	11:00	
	8 & 10	11:00	13:00	
	18	13:00	22:00	
	15, 17 & 19	22:00		
6/25	15 & 17		09:00	
	19		12:00	
	18	12:00	19:00	
	14 & 16	19:00	23:00	
	11, 12, & 13	23:00		
6/26	11, 12, & 13		13:00	STOP FRESH
	18	18:00	20:00	H ₂ O ADDITION
	15, 17, & 19	20:00		

DATE	CELL #	TIME START	TIME STOP		ON 16/TON
6/27	15, 17, & 19		5:30	BARREN	.20
	4	5:30	11:30	PREG (FEED)	.25
	1	11:30	15:30	STREAM	.25-.30
	3	15:30	22:00	DISCHARGE	.15
	18	22:00			
6/28	18		01:00		
	14 & 16	01:00	09:00		
	5 & 6	09:00	15:00		
6/30	5 & 6	16:00	23:00		
	15, 17, & 19	23:00			
7/1	15, 17, & 19		12:30		
	7 & 9	12:30	16:30	RESTART ADDITION	
	10 & 8	16:30	19:30	OF H ₂ O (FRESH)	
	14, 16, & 18	19:30	23:30		
	11, 12, & 13	23:30			
7/2	11, 12, & 13		8:45		
	1 & 3	08:45	19:00		
	15, 17, & 19	19:00			
7/3	15 & 19		04:00	BARREN	.2 AH 8.9
	14 & 18	04:00		PREG (FEED)	.25 PH 8.5
	17		13:30	STREAM	.25 PH 8.6
	16	13:30	23:00	DISCHARGE	.15 PH 9.3
	15	23:00			

DATE	CELL #	TIME START	TIME STOP
7/4	14, 15, & 18	10:30	10:30
	11 & 12	10:30	15:00
7/7	15, 17, & 19	16:00	
7/8	15, 17, 19		7:00
	7 & 9	07:00	10:15
	8 & 10	10:15	13:15
	5 & 6	13:15	22:00
	11, 12, & 13	22:00	
7/9	11, 12 & 13		6:30
	14, 16, & 18	6:30	
	1 & 3	6:30	



A.F. Budge (Mining) Limited

(602) 945-4630

4301 North 75th Street
Suite 105
Scottsdale, AZ 85251-3504

FAX (602) 949-1737

January 10, 1992

Mr. Jerry Stout
Arizona Department of
Environmental Quality
2005 North Central Avenue
Phoenix, Arizona 85004

Re: Heap Leach Facility
Vulture Mine Project
Permit: G-0090-07

Dear Jerry:

We continue our program of detoxification at the Vulture Mine site according to the methodology outlined in our letter of June 18, 1991 to Mike Milczarek.

Solutions coming off the pads collect in the pregnant pond. From here it is pumped into a mixing tank where dry calcium hypochlorite is added to oxidize and neutralize the cyanide. From the mixing tank, the solution then flows to the barren pond where fresh water from the well is added at a rate of approximately 25 gallons per minute. Water from the barren pond is pumped and sprayed on the individual cells on the pads on a rotating basis.

Copies of our pumping logs and weekly sample results during the period July 1, 1991 through December 31, 1991 are enclosed for your information.

Ronald R. Short
General Manager

encls.



A.F. Budge (Mining) Limited

(602) 945-4630

4301 North 75th Street
Suite 105
Scottsdale, AZ 85251-3504

FAX (602) 949-1737

*local number goes to CA
831-7774*

April 12, 1991

VWR Scientific
16290 Shoemaker Avenue
Cerritos, CA 90701
Attention: Vivian

Enclosed is our check in the amount of \$56.07, for one (1) cyanide testing kit, #10044-1, per our order and your reference number 1372486.

*new Ref.
6/4/91* 1570661

Sincerely,
Carole A. O'Brien
Carole A. O'Brien
Financial Coordinator

encl.(1)



A. F. BUDGE MINING, LTD.
4301 N. 75TH ST., STE. 105 602-945-4630
SCOTTSDALE, AZ 85251-3504

6816

12 April 19 91

91-170/1221

PAY TO THE ORDER OF --- VWR Scientific --- \$ 56.07

--- Fifty Six & 07/100 --- DOLLARS

S SECURITY PACIFIC BANK ARIZONA
Lincoln & Scottsdale Office (055)
6501 N. Scottsdale
Scottsdale, Arizona 85253

MEMO per letter

Carole A. O'Brien

⑈0006816⑈ ⑆122101706⑆ 055⑈727178⑈

PCLANKE - CA 188

