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BAGDAD YAVAPAI COUNTY MILS119B FILE 2 OF 8
GENERAL INFORMATION tmm 12/05/2002

BAGDAD YAVAPAI COUNTY

NJN WR 4/18,25/86: Phil Blacet, geologist with Cyprus Bagdad called to correct the molybdenum figure given for the Cyprus Bagdad mine (f) Yavapai County in the reserve table of our copper report. The molybdenite grade is .03% but the actual molybdenum grade is only .018. Mr. Blacet would be glad to give us directly the company's current reserve information for use in our annual copper report.

BAGDAD COPPER COMPANY

Went to Bagdad Copper Company and visited with Mr. Bonnis who said that until the merger was finallized no work would start on the expansion program. He also stated that a VP of Conco Oil Company had visited their operation and hinted they were looking for a mining staff for their Florence deposit. GW WR 6-11-73

Went to the Bagdad Copper Corp. office and talked with Mr. Bonnis and Mr. Medhi. Mr. Bonnis is trying to make a projection of future increased production but without a decision on the disposal of the concentrates he is encountering considerable difficulty. Mr. Medhi said they were looking for limestone and quartz deposits. When questioned as to the quartz deposits in the vicinity of Bagdad he said they were too small. However, his tonnage figures for their requirements varied more than 100%. The limestone deposit north of Paulden was suggested. GW WR 11/7/73

Went to Bagdad Copper Company and spoke very briefly with Mr. Bonnis who said they continue making feasibility studies. GW WR 12/5/73

Bev Brown of OEPAD telephoned asking about smelter capacity and if there is potential shortage. Discussed future of Douglas smelter, PD's new smelter in New Mexico and its contract with Cyprus Bagdad, and possibility of joint smelter of PD and Cyprus Bagdad when the PD Skull Valley mine starts up. GWI WR 5/26/76

BAGDAD COPPER CORPORATION

Went to Bagdad where Mr. Bogart said things were progressing on schedule. He made a few changes for 1972 in the "Directory of Arizona Mining Activity." GW WR 6/7/72

Stopped at Bagdad Copper Company and saw Mr. Bonnis who said they were continuing exploratory drilling in the vicinity of the pit, and that construction of the mill was progressing rather slowly. GW WR 9/6/72

Went to Kingman; stopped at Bagdad Copper Corp. and visited briefly with Mr. Bogart who said they were continuing to operate as usual and were going back to their research on roasting followed by leaching, which appears logical in view of the amount of acid that will be made available. GWWR 11/1/72

Went to the Bagdad Copper Company and saw Mr. Bonnis who said operations were continuing as usual but that they contemplated expansion is at a stand still awaiting adequate financing. GW WR 12/6/72

Active Mine List - Oct. 1972 - Empl. 510 (1971 figures, 2,025,524 T Ore, 8,897,512 T Waste, 20,035 T Cu).

Went to Kingman; stopped at Bagdad Copper Company and talked with Mr. Bonnis who said things were "rockin along" as usual, no new construction has been started. However, Dave Lowell, Tucson, is cooperating with them in some drilling on adjoining claims. GW WR 1/3/73

Mine visit and interview with Mr. Bonnis and Mr. Chillo at the Bagdad copper mine concerning rockhound group collecting trips to the mine. Discussion included safety problems, type of material, personnel for supervision and collecting areas. Final decision was to allow our office to act as a liaison between the clubs desiring to collect at Bagdad and the mining operation. Mr. Bonnis felt that if I were to visit with the clubs prior to their making a collecting trip and explain the type of material available, the safety requirements, the need to follow the guide's instructions and the itinerary, the visiting group would not only enjoy the trip more, but would also know how they would be expected to conduct themselves. The date of Saturday, April 14, 1973, has been set as a tentative date for the Y.M.C.A. Rockhound Club and the Pebble Pickin' Posse to make a collecting trip to Bagdad. KP Report of 1/29/73

Saw Mr. Bonnis at Bagdad Copper who said he was very busy with Cyprus people who were checking ore reserves, plans, etc., wanted information on the progress at the proposed cement plant at Ashfork. GW WR 2/7/73

Visited Mr. Bonnis, Bagdad Copper Company, who said most of the checking of details by Cyprus had been completed and that plans for the new mill were about 25% finished and that stripping on the new ore deposit would begin sometime next month after ther merger was consumated. They are building 20 new houses on the east end of Bagdad. GW - WR 4-6-73

Stopped at Bagdad Copper Company just as Mr. Bonnis was leaving and Mr. Bogart was in conference; but Mr. Bonnis said Mr. Dresser of Inetics International Corp. demonstrated his blasting agent on a bunch of boulders, the results he didn't know as he hadn't been in the pit since. GW - WR 5-4-73

BAGDAD COPPER CORPORATION

Went to Bagdad Copper Company and talked briefly (at noon) with Mr. Bogart about air pollution. GW WR 11/3/71

Saw Mr. Bogart at Bagdad Copper Co. He spoke briefly of the smelting facilities they are considering which may include Cities Service Co. and Hecla. It was suggested that Bouse be considered as a favorable location for the smelter as it has power, water and transportation readily available. He also inquired as to the status of the Mineral Hill deposit of P.M.C. Because Mineral Hill hasn't been visited lately no worthwhile statement could be made. GW WR 12/1/71

Exploration activity increased over the last quarter of 1970-71. Bagdad Copper Co., Phelps Dodge and Norandex were in the Copper Basin, Copper Creek and Little Copper Creek area. Bagdad Copper Company were installing pumps and a 14 mile 12" pipe line to take water from Burro Creek to Bagdad. They also continued to explore the area around the present ore body and have increased their ore reserves considerably. FTJ QR 9/71

Bagdad Copper Company operated thru the copper strike period and expanded their production some-what. They also began the production of cathode copper resulting from the new L.I.X. process. GW QR 9/71

Stopped at Bagdad; both Messrs. Bogart and Mehdi were out of town, but talked to Mr. Bonnis who is recovering from the flu. Gave him the information on the mica and the Jap Cu smelter. GW WR 1/5/72

Visited Bagdad Copper Company and talked briefly with Mr. Bogart, and met Mr. Medhi, geologist, who wanted information on the status of the White Mesa copper deposit. He was also told of Jack Cropper and James Wright's deposits, as well as John Lemon's. GW WR 2/2/72

Went to Bagdad where Mr. Bogart was in conference and Bonnis was in Mexico on vacation but left the literature on the roadless areas. GW WR 4/5/72

Went to Bagdad Copper Company. Mr. Bogart was out of town, but Mr. Bonnis said their new projects (mills) were progressing satisfactorily. GW WR 5/3/72

Went to Bagdad Copper Co. and saw Mr. Bonnis who was interested in the possibility of selling the remainder of their concentrates. Later he took me into the pit to watch a blast near a big transite pipeline carrying pregnant solution; it wasn't damaged. GW WR 3/3/72

Bagdad Copper Co. has operated to capacity during the period and continues exploratory drilling in the immediate vicinity of their workings. GW QR 2nd ¼ '71-'72 Oct.-Dec.

BAGDAD COPPER CORP.

Visited Bob Bonnis at Bagdad Copper Corp. office - Construction of electrowinning plant on schedule. FTJ WR 6-19-70

The Bagdad Copper Co. was installing an electrowinning plant at Bagdad. The company also has increased their ore reserves substantially. FTJ Annual Report 6-30-70

Interviewed Bob Bonnis at Bagdad Copper Co. office. He said new plant was up to capacity and over, after six weeks - 43,000# Cu/day. Cathode sent to General Cable at Kingman. Also said exploration continuing around the known deposit at Bagdad. FTJ WR 10-23-70

Pat Sayre in Skull Valley said the Bagdad Copper Co. was drilling on their claims which fringe PD big group in Copper Basin but he didn't think much of interest had been found. GW WR 11-20-70

Active Mine List Oct. 1970 - 502 men - George Colville, Mgr.

Bagdad Copper's new plant is up to capacity producing 45,000# Cu/day. Cathodes are shipped to General Cable Corp. plant at Kingman. FTJ QR 1-13-71

"Ad" Bellew said Bagdad Copper rumored to start drilling also in the same vicinity at Copper Basin. FTJ WR 1-22-71

Bagdad drilling on B. White ranch northeast of Skull Valley. FTJ WR 3-22-71

Bagdad Copper was exploring a copper deposit near the B White Ranch north of Skull Valley. FTJ QR 4-5-71

Bagdad was producing as reported in the last quarterly report. FTJ QR 4-5-71

To Bagdad. Interviewed Bob Bonnis. Bagdad examining prospects in strip area of Mohave County. They are trying out a new 75 ton Euclid truck. FTJ WR 6-21-71

To Bagdad and visited with Mr. Bogart, Bagdad Copper Co. He said they were selling some copper to White Pine Copper Co because A.S. & R was about 8 months behind in their work. GW -- WR 9/3/71

Dir. of Mining - August 1971 - 510 men.

BAGDAD COPPER CORP.

Visited with Bob Bogart - Bagdad, in new office building. He said land to be withdrawn for recreation adjoins Bagdad Claims. Withdrawal is for Lion's Club recreation area. He said Holmes and Narver are making plans for LIX plant. FTJ WR 2-21-69

Bagdad Copper Co. produced at their regular rate during the quarter. FTJ QR 4-18-69

Construction of a %5 million solvent extraction plant for its leach operation is scheduled to be started this summer, for Bagdad Copper Corp. at its mine near Bagdad, Arizona. Holmes & Narver, Los Angeles, California, are the engineering contractors for the project. Bagdad President David C. Lincoln said that plans for the plant are now in progress by the engineers, but that initial subcontracts will not be let until sometime this summer. Rocky Mountain Construction 4-1969

Active Mine List April 1969 - 460 men

Reported that Bagdad not now drilling at Parkhill Project. GWI WR 3-15-69

Interview with Bob Bogart - nothing new. FTJ WR 6-20-69

The Los Angeles engineering-construction firm of Holmes & Narver, Inc. has been selected to engineer and construct a 3300-gpm solvent extraction plant and electrowinning facility for Bagdad Copper Corp. in Bagdad, Arizona.
Last year H&N prepared feasibility studies based on Bagdad's solvent extraction pilot plant tests. Study objectives included economics and optimum process and facility requirements to produce cathode copper by solvent extraction and electrowinning. Bagdad is presently completing pilot plant tests based on the recommendations.
Taken from Mining Engineering June 1969, p. 13

Bagdad Copper Co. geologist called re locating claims in Amole district Secs. 28, 29, 32, T14S, R12E FTJ WR 7-11-69

Bagdad Copper Co. were mining and milling at the usual rate. FTJ QR 7-1969

Active Mine List Oct. 1969 - 468 men - George Colville, Mgr. (location S4, 14N, 9W)

Solvent extraction plant to be erected to treat leached copper. Company also considering erecting new 20,000 tpd flotation mill. Mining Magazine 9-1969

Bagdad Copper Co. was constructing the solvent extraction plant during this quarter. FTJ QR 1-16-70

Active Mine List May 1970 - 502 men - George Colville, Mgr.

BAGDAD COPPER CORP.

Bagdad Copper Corp., Bagdad, Arizona, has started to strip the 17,000,000 tons of new ore discussed in the company's annual report. The stripping ratio over this ore, according to David C. Lincoln, president, is estimated at less than 2.5 to 1. The grade of ore was given as 0.71 and is expected to extend the mine life by eight years. Lincoln reported that progress at the refinery is slow and that the plant continues in the red, although the rate of loss is substantially less than last fall. Pay Dirt 6-23-67

Interviewed Mr. R. C. Bogart at Bagdad - Cement copper plant operating at same rate as last visit - not as high as desired. Work force about 423. Thirty college students were layed off September 1. FTJ WR 9-8-67

Interview with Bob Bonnis, mine supt. They are stripping waste estimated at 20,000,000 tons. It will take 3 years. The company has ordered autoclaves made of Titanium which are expected to increase capacity to 80% of designed capacity. FTJ WR 11-10-67

Interview with Bob Bonnis at Bagdad Copper Co. office - Operations normal. FTJ WR 3-22-68

Active Mine List Oct. 1967 - 427 men
Active Mine List April 1968 - 435 men

Visited Bob Bonnis at Bagdad - operations normal. FTJ WR 5-27-68

Visited Bagdad - interviewed Bob Bonnis. Bagdad is still drilling the Swansea mine. They have quite a few college boys working for the summer. Bonnis said a complete and thorough mapping job of the mine and surrounding area is planned. FTJ WR 7-12-68

Active Mine List Oct. 1968 - 445 men

Interviewed Bob Bonnis at Bagdad - Bagdad is doing engineering studies on LIX and electro-winning. FTJ WR 10-18-68

Bagdad continued to be largest copper producer in the county. FTJ QR 12-31-68

Bagdad Copper located 50 claims in Secs. 31, 32, T15N, R9W and Secs. 5 & 6, T14N, R9W. FTJ WR 1-24-69

In the Tucson Mountains just north of the Ajo Highway, Bagdad Mining Co. is drilling on their Park-Hill project. One drill. GWI QR 12-1968

BAGDAD COPPER CORP.

Visited Bagdad Copper - production is normal - 6000 tpd. 399 employees. The new processing plant is still in the planning stage. EGW WR 2-19-65

According to Robert Bogart, Asst. Mgr., new plant not expected to go on stream before March or April instead of January as reported. Concentrates and cement copper are shipped to AS&R - Hayden. FTJ WR 9-10-65

Visited Bagdad Copper Corp. - work on new plant is progressing although bad weather has hampered the work. FTJ WR 1-7-66

Visited Bagdad Copper Corp. Mr. Bogart stated that a small (100 gpm) pilot plant is to be set up using a liquid ion exchange for copper precipitation. The method was developed by General Mills. Bagdad is still holding lease and option on Blevins Moly-lead near Wikieup. FTJ WR 3-5-66

Bagdad has option to drill copper property not far from Parker - Option on Buckeye Mica. FPK Note 3-24-66

Visited Bagdad office - some delay in the new plant construction. FTJ WR 5-6-66

Visited Chem-Metals - working to capacity. FTJ WR 7-22-66

Interview with Robert Bogart at Bagdad. They were still having some adjustments to make on the new plant but of a minor mechanical nature. FTJ WR 9-9-66

Visited Bagdad Copper Corp - talked with Robert Bogart who said operations were looking better. FTJ WR 11-4-66

Visited with Mr. Bogart - new plant not to capacity but expected to reach capacity in the near future. Salary employees - 69 - hourly employees - 344 total 413. FTJ WR 3-10-67

Visited Chem-Metals plant - operating at capacity. FTJ WR 3-24-67

Interview with Mr. Colville at Bagdad Copper Co. office. He said the cement copper plant is still not up to capacity. Mr. Bogart was away for the day. FTJ WR 6-23-67

BAGDAD COPPER CORP.

Feb. 10 - Visited Bagdad Copper Co. Current mill feed is largely primary ore from the bottom of the pit and consequently the mill rate, at 4700 tpd, is somewhat under normal also grade of mill feed and recovery. 368 men are employed. The leach plant construction contract is about on schedule. The acid plant (normal capacity 200 tpd) manufacturing section was started up on February 8 and it is anticipated that the first acid will be placed on the dumps toward the end of March. Travis P. Lane WR 2-11-61

Visited Bagdad. The milling rate is about 5000 tpd, w/grade of feed around .75% Cu. The acid leach operation was down pending revamping of discharge facilities of the precipitation cells which choked badly. Larger piping together with airlifts replacing existing small pumps is expected to correct the difficulty. Other leach procedures appear to be working out satisfactorily. Travis P. Lane WR 7-29-61

Active Mine List Oct. 1961
Active Mine List Feb. 1962 - 350 men working

Bagdad Copper Corporation, Bagdad, Arizona, has completed the installation of its sixth ball mill; equipment that is expected to increase plant capacity by about 20 percent. The average grade of sulphide ore milled in 1961 was 0.71 percent copper, compared to 0.85 percent in 1960. The company reported that recovery of copper by leaching was disappointing last year, but that difficulties encountered when the plant started up in May had been worked out by November, and January 1962 was the first profitable month for the leaching operation. A production rate of 13 tons per day for the leaching operation is forecast by December of 1962, with original expectations of 20 tons per day to be achieved by 1963. Bagdad's total production in 1961 was 21,939,363 pounds of copper, compared to 23,862,459 pounds in 1960. Of the 1961 production, 1,005,616 pounds came from copper precipitates and 20,933,747 pounds from copper concentrates. George W. Colville is executive vice president and general manager of the company.

Taken from Mining World, June 1962, p. 44

Production thru 1962 $98,528,504 major metal copper - J.W. Still's figures (Corres. file)

BAGDAD (P) YAVAPAI CO.
AZ 05

PUBLIC NOTICE OF THE PRELIMINARY DECISION TO TRANSFER AN AQUIFER PROTECTION PERMIT

Public Notice No. 124-00APP

Published on or about Friday, November 17, 2000, In "The Daily Courier."

Pursuant to Arizona Administrative Code (A.A.C.), Title 18, Chapter 9, Article 1, the Director of the Arizona Department of Environmental Quality intends to transfer an individual Aquifer Protection Permit to the following applicant:

Phelps Dodge Bagdad Incorporated
P.O. Box 245
Bagdad, Arizona 86321

Facilities: Phelps Dodge Bagdad Inc. – Mammoth Wash Tailings Facility and South Waste Rock Disposal Facility

Aquifer Protection Permit: 101353

The Phelps Dodge Bagdad Incorporated facilities are located near the Town of Bagdad in Yavapai County, Arizona. The Mammoth Wash Tailings Facility and the South Waste Rock Disposal Facility are located over groundwaters of the Bill Williams Groundwater Basin as described below using the Gila and Salt River Base Line and Meridian:

Township 14 North, Range 9 West, portions of Sections 5, 6, 7, 8, and 18
Township 14 North, Range 10 West, portions of Sections 1, 2, 3, 11, 12, and 13
Township 15 North, Range 10 West, portions of 34, 35, and 36

The facility has requested a transfer of the Aquifer Protection Permit (APP) from "Cyprus Bagdad Copper Corporation" to "Phelps Dodge Bagdad Incorporated". Phelps Dodge Bagdad Inc. has submitted the necessary information to meet the technical and financial capability requirements in accordance with A.C.C. R18-9-108(B)(7) and (8), and R18-9-117(A). The technical staff who are responsible for maintaining the terms and conditions of the permit will remain the same after permit transfer.

The permit ownership change is available for public review with a 24-hour notice, Monday through Friday, 8:00 a.m. to 5:00 p.m., at the Arizona Department of Environmental Quality (ADEQ), Records Management Center, Lower Level, 3033 N. Central Avenue, Phoenix AZ 85012.

Persons may submit comments or request a public hearing on the proposed action, in writing, to Julie Riemenschneider, ADEQ, Water Permits Section, Mail Code M0401A, 3033 N. Central, Phoenix, AZ 85012 within five (5) days from the date of this notice. Any requests for public hearing must include the reason for such a request.

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Governor Jane Dee Hull Jacqueline E. Chafer, Director

PUBLIC NOTICE OF THE PRELIMINARY DECISION TO TRANSFER AN AQUIFER PROTECTION PERMIT

Pursuant to Arizona Administrative Code, Title 18, Chapter 9, Article 1, the Director of the Arizona Department of Environmental Quality intends to transfer an individual Aquifer Protection Permit to the following applicant(s):

Phelps Dodge Bagdad Inc.
P.O. Box 245
Bagdad, AZ 86321

Facility: Phelps Dodge Bagdad - Hillside Loadout Facility (Truck Wash Impoundment)
Aquifer Protection Permit No. P-102896

The notice will be published in the local newspaper
Public Notice No. 114-00 **On or about Sunday, October 29, 2000**

The facility is located at the Hillside Loadout property in Yavapai County, in Township 13 North, Range 6 West, Section 32, Gila and Salt River Baseline and Meridian.

The facility has requested a transfer of the Aquifer Protection Permit (APP) from "Cyprus Bagdad - Hillside Loadout Facility " to "Phelps Dodge Bagdad - Hillside Loadout Facility". Phelps Dodge Bagdad Inc. has submitted the necessary information to meet the technical and financial capability requirements in accordance A.A.C. R18-9-108(B)(7) and (8), and R18-9-117(A). The technical staff who are responsible for maintaining the terms and conditions of the permit will remain the same after permit transfer. In addition, minor administrative modifications have been incorporated to update the permit.

The permit which includes ownership change is available for public review with a 24 hour notice, Monday through Friday 8:00 a.m. to 5:00 p.m. at the Arizona Department of Environmental Quality, Records Management Center, Lower Level, 3033 N. Central Avenue, Phoenix, AZ 85012.

Persons may submit comments or request a public hearing on the proposed action, in writing, to Chiou L. Chen, ADEQ, at 3033 N. Central, Phoenix, AZ 85012 within ten (10) days from the date of this notice. Any request for public hearing request must include the reason for such request.

BAGDAD / YAVAPAI

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Fife Symington, Governor Russell F. Rhoades, Director

NOTICE OF THE PRELIMINARY DECISION TO ISSUE AN INDIVIDUAL AQUIFER PROTECTION PERMIT

Pursuant to Arizona Administrative Code, Title 18, Chapter 9, Article 1, the Director of the Arizona Department of Environmental Quality intends to issue an individual Aquifer Protection Permit to the following applicant(s):

Public Notice No. 19-96AZAP On or about March 25, 1996
Cyprus Bagdad - Hillside Loadout Facility
Cyprus Bagdad Copper Corporation
P.O. Box 245
Bagdad, AZ 86321

Aquifer Protection Permit No. P-102896

The facility is located at the Hillside Loadout property in Yavapai County, in Township 13 North, Range 6 West, Section 32, Gila and Salt River Baseline and Meridian.

The Hillside Loadout facility serves as the railroad loading point for shipping copper sulfide concentrates produced by the Cyprus Bagdad mine concentrator. Copper concentrates are hauled by truck from Bagdad to Hillside where they are either temporarily stockpiled, or loaded directly into railcars for transport to smelters. Facilities at the Hillside site permitted under the APP program include closure of the former truck wash facility, the new truck wash rack and the southeast effluent surface impoundment for collection of the truck wash water and stormwater runoff.

Cyprus Bagdad Copper Corporation (CBCC) closed the former truck wash facility and performed shallow subsurface soil sampling at the site. The results of laboratory screening indicated that 10 metals including the eight RCRA metals are at non-detectable levels or slightly above laboratory detection limits. Of the 37 organic compounds screened only acetone, methylene chloride, 2-butanone, and toluene were identified in various borehole samples at concentrations slightly above laboratory detection limits. No evidence was found for the use of chemicals containing orgainc compounds at the loadout site. Potential impact to the aquifer from the detected constituents is considered to be minimal. The former truck wash rack was removed from service and the surficial materials from the truck wash, along with any copper concentrate enriched soils were removed and hauled back to the Bagdad mine for reprocessing. The area was returned to its original contour to promote surface drainage.

The wash water from the new truck wash facility is pretreated by a sump and oil/water

separator which are both constructed of concrete materials, and subsequently discharged to a concrete collection sump that leads to the effluent surface impoundment. The effluent surface impoundment is double lined and equipped with a leak detection system. The leak detection system will be inspected monthly for the presence of any fluid and will be monitored for priority pollutants. In addition, the facility will annually monitor ambient groundwater in well HMW 798 and groundwater quality at the Point of Compliance well (HMW-799) for primary drinking water inorganics and 14 priority pollutant metals. The Hillside Loadout property has historically been used solely as a temporary storage and transfer point for mine ores and concentrates. No chemicals have been used nor have mechanical processing activities been conducted at this location throughout the operational life time of this facility.

The permit and related materials are available for public review Monday through Friday 8:00 a.m. to 5:00 p.m. at the Arizona Department of Environmental Quality, Water Protection Approvals & Permits Section Section, 3033 N. Central Avenue, 4th Floor, Phoenix, AZ 85012.

Persons may submit comments or request a public hearing on the proposed action, in writing, to Chiou L. Chen, ADEQ, at 3033 N. Central, Phoenix, AZ 85012 within thirty (30) days from the date of this notice. Public hearing request must include the reason for such request.

BAGDAD (S) YAVAPAI

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Phoenix District Office
2015 West Deer Valley Road
Phoenix, AZ 85027

In Reply Refer to:

3809(020)
AZA 28639
BLM/AZ/PL-95-005

March 5, 1996

Dear Interested Party:

Enclosed is a copy of the Record of Decision for the Environmental Impact Statement (EIS) which analyzed the Cyprus Bagdad Copper Corporation proposed tailings and waste rock storage areas. This decision approves the proposed action.

Since the Final EIS was issued, concerns were raised regarding loss of potential rock hounding areas within the project. The Bureau of Land Management (BLM) determined that only 15 acres of the described potential rock hounding areas were on public land and are not accessible without crossing Cyprus Bagdad lands. In addition, the Environmental Protection Agency (EPA) asked that the signing of the Record of Decision be delayed to ensure that a mitigation and monitoring plan for the Section 404 permit issued by the U.S. Army Corps of Engineers (COE) would be completed. The COE verified in writing that a mitigation and monitoring plan for the Section 404 permit will be required.

Any party who is adversely affected by a decision of an officer of the Bureau of Land Management may file an appeal in accordance with 43 CFR, Part 4. This decision may be appealed for a period of 30 days from the date the Notice of Availability is published in the *Federal Register* (March 6, 1996). The enclosed information sheet provides information on filing appeals.

If you have any questions, please call the Project Manager, Mary Johnson, at (602) 780-8090, ext. 564.

Sincerely,

for G. L. Cheniae
District Manager

Enclosures

Information on Filing Appeal

The decision approving the Cyprus Bagdad Mine Plan of Operations may be appealed to the Interior Board of Land Appeals (IBLA), Office of the Secretary, in accordance with the regulations contained in 43 CFR Part 4 and Form 1842-1. The publication date of the Notice of Availability for the Record of Decision constitutes the public notice of decision. If an appeal is taken, your notice of appeal must be filed at:

Bureau of Land Management
Arizona State Office
3707 N. 7th Street
P.O. Box 16563
Phoenix, AZ 85011

The appeal must be filed within 30 days from the release date (March 6, 1996, publication of the Notice of Availability of the Record of Decision in the Federal Register) of this record of decision. The appellant has the burden of showing that the decision appealed from is in error.

If you wish to file a petition, pursuant to regulation 43 CFR 4.21 (58 FR 4939, January 19, 1993) for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the IBLA, the petition for stay must accompany your notice of appeal. A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of the notice of appeal and petition for a stay must also be submitted to each party named in this decision, the IBLA, and to the appropriate Office of the Solicitor (see 43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Standards For Obtaining a Stay

Except as otherwise provided by law or other pertinent regulation, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards:

(1) The relative harm to the parties if the stay is granted or denied;
(2) The likelihood of the appellant's success on the merits;
(3) The likelihood of immediate and irreparable harm if the stay is not granted; and,
(4) Whether the public interest favors granting the stay.

BUREAU OF LAND MANAGEMENT

RECORD OF DECISION

for the
Cyprus Bagdad Copper Corporation
Proposed Waste Rock Tailings and Waste Rock Storage Areas
Final Environmental Impact Statement

AZA-28639 (Mining Plan of Operations)
BLM/AZ/PL-95/005 (BLM Arizona EIS No.)

Cooperating Agency:

U.S. Army Corps of Engineers

Responsible (Approving) Official:

Denise P. Meridith, State Director
Bureau of Land Management, Arizona

3/5/96
Date of Decision

Public Notification (Effective) Date of Decision:
March 6, 1996 (or date Notice of Availability published in *Federal Register*)

I. INTRODUCTION

This Record of Decision (Decision) documents the Bureau of Land Management Arizona State Director's selection of an alternative from the Cyprus Bagdad Copper Corporation Proposed Tailings and Waste Rock Storage Areas Final Environmental Impact Statement (EIS) dated January 1996. This EIS analyzed the Cyprus Bagdad Copper Corporation's (Cyprus Bagdad's) Mine Plan of Operations dated July 6, 1995 (Revision No. 4).

This document states the decision, identifies the alternatives that were considered, states which alternative was environmentally preferable and identifies the reasons considered in selecting the alternative.

II. DECISION

I approve the revised Cyprus Bagdad Copper Corporation Mine Plan of Operations (Revision No. 4 dated July 6, 1995). Based upon the final environmental impact statement, I have determined that mining operations conducted in accordance with this plan will not cause unnecessary or undue degradation of the affected public lands subject to the mitigation measures in this decision. This action is described as the proposed action (or preferred alternative) in the Cyprus Bagdad Copper Corporation Proposed Tailings and Waste Rock Storage Areas Final Environmental Impact Statement dated January 1996 (BLM Arizona EIS No. BLM/AZ/PL-95-005). Cyprus Bagdad will be required to submit a revised Mine Plan of Operations which incorporates all mitigating measures required by this decision as well as a listing of all current mining claims and other Mine Plans of Operations for the company. The revised Plan will be Revision No. 5 and shall be identical to Revision No. 4 in all other aspects.

Operations under this plan of operations cannot commence until the operator is in compliance with all regulations at 43 CFR 3809. This compliance shall include a bond in accordance with 43 CFR 3809.1-9, Bonding requirements. Additionally, all permits and/or approvals required to meet 43 CFR 3809.2-2, Other requirements for environmental protection, must be at the mine site and available for inspection prior to the start of operations. Once the operator is in full compliance with the applicable regulations and has incorporated into the plan of operations all mitigation measures in this decision, a formal letter authorizing the operator to commence operations under the plan of operations will be sent by the authorized officer.

The publication date in the *Federal Register* of the Notice of Availability of Record of Decision constitutes public notice of the decision.

III. ALTERNATIVES INCLUDING THE PROPOSED ACTION

Two alternatives were considered and fully analyzed in the EIS:

A. Proposed Action (preferred alternative in the Final EIS) is based on the Cyprus Bagdad Copper Corporation Mine Plan of Operations (Revision No. 4 dated July 6, 1995).

B. **The No Action Alternative** describes the impacts to Cyprus Bagdad mining operations and the environment if the BLM does not approve the subject plan of operations.

C. Alternatives Considered, but Eliminated from Further Study

A total of twelve sites were identified as potential alternative sites in the EIS. Ten potential tailings sites and three potential waste rock disposal area sites were identified. One site (Bagdad townsite) was identified as a site for both. All alternative sites except for those analyzed as the proposed action were eliminated from further consideration based on three sets of criteria to determine feasibility: 1) Project Feasibility (did not meet the underlying need); 2) Geotechnical Feasibility (did not meet the necessary geotechnical or engineering criteria for safe construction and operation); or 3) Environmental Feasibility (environmental objections and concerns were obvious at the outset and expressed by public agencies).

In addition to these alternatives, the mine plan was revised after it was initially submitted. These revisions (1 through 3) were made to incorporate mitigation measures developed during our initial review and insure compliance with 43 CFR 3809.

IV. MANAGEMENT CONSIDERATIONS & RATIONALE

A. Environmental Impacts

A summary of the impacts for the proposed action as identified in the EIS included:

- extraction of approximately 3.6 million tons of recoverable copper
- incremental increase in disturbance to viewshed
- biological: 1) compensation for the loss of 320 acres of Sonoran desert tortoise (candidate category III species) habitat on public lands; 2) adverse impacts to the lowland leopard frog (candidate category II species)
- dewatering effects on the aquifer in the vicinity of the open pit
- beneficial socioeconomic impacts for 35 years (direct employment and indirect tax revenues and spending)
- impacts to three archaeological sites with expansion of the open pit; the eligibility of these sites being listed in the *National Historic Register* is in the process of evaluation
- use of 320 acres of public lands for tailings and waste rock storage.

B. Rationale for Decision

Federal laws such as the General Mining Law of 1872 (as amended), the Mining and Mineral Policy Act of 1970, and the Federal Land Policy and Management Act of 1976 support national policy to foster and encourage the discovery and development of domestic mineral resources. These laws and the regulations formulated to implement them strongly favor the development of projects such as the Cyprus Bagdad project. The situation is best stated in Title 43 of the Code of Federal Regulations, part 3809. "Under the mining laws a person has a statutory right, consistent with Departmental regulations, to go upon

the open (unappropriated and unreserved) Federal lands for the purpose of mineral prospecting, exploration, development, extraction and other uses reasonably incident thereto. This statutory right carries with it the responsibility to assure that operations include adequate and responsible measures to prevent unnecessary or undue degradation of the federal lands and to provide for reasonable reclamation. The proposed action presented in the FEIS complies with these laws and regulations.

Approval of the proposed action would allow the continuation of copper recovery to occur at the existing Cyprus Bagdad mine for an additional 35 years. By allowing the proposed expansion, Cyprus Bagdad operations would have a direct positive impact on the Arizona economy (for another 35 years vs. six years under the no action alternative). This economic effect is related to personal income, purchase of goods and services and state and local taxes. These direct impacts would be approximately $265 million more under the proposed action than under the no action alternative. Approximately 3.7 million tons of copper would be extracted under the proposed action compared to 164,000 tons under the no action alternative leaving 3.5 tons unrecovered.

After consultation with the Arizona State Historic Preservation Office (SHPO), the BLM and SHPO agreed that a determination of "not eligible" was appropriate for the three cultural resources sites and that no additional data recovery was necessary. This decision was based on the nature of the sites and the extensive archaeological work that has been done on similar sites on Sanders Mesa where the sites are located. Consultation was also done with concerned Native Americans (Hualapai and Yavapai Tribes). Requests were made to the Tribes by the BLM for comments about the cultural resources sites, the proposed treatment of the sites, and any additional information about traditional cultural places or values which might be impacted by the proposed action. No comments were received back.

No differences in hazardous materials or air quality between the two alternatives was identified. The proposed action would be in compliance with National Ambient Air Quality Standards. The only difference regarding potential increase in noise levels would occur at the South Waste Rock Disposal Facility and does not represent a significant impact. There are no conflicts with land use plans or recreational land uses and the impact to grazing would be a temporary loss of 160 animal unit months.

While there would be some new biological habitat disturbance, revegetation at closure would promote habitat recovery. There are no impacts to Threatened or Endangered species. Adverse impacts are expected to occur to a local population of lowland leopard frogs (and even possibly local extinction at one site); however, the construction of the proposed tailings facilities may provide additional lowland leopard frog habitat. The more established population associated with Burro Creek is not expected to be impacted.

The loss of habitat for the Sonoran Desert Tortoise has been fully mitigated by adjusting season of use for livestock grazing on 4,000 acres of habitat in the Bagdad allotment. BLM has issued a grazing decision which restricts this use.

Implementation of the proposed action will incrementally decrease the visual quality of the area over the life of the project and beyond, until rehabilitation measures become fully

effective. However, prior mining activities have already significantly impaired the visual quality of the project area. This impact will affect relatively few viewers and is an acceptable consequence of management actions undertaken in areas classified as Visual Resource Management Class IV by BLM.

V. MITIGATION AND MONITORING

A. Mitigation

Cyprus Bagdad is required to amend the present plan of operations to insure that the Arizona Game and Fish Department's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects" are adhered to during construction of project components.

All practicable means to avoid or minimize environmental harm have been incorporated into the plan of operations as filed and revised. A monitoring and enforcement shall be adopted and summarized where applicable for any mitigation.

B. Monitoring

1. Mine Plan of Operations

BLM personnel will monitor the Cyprus Bagdad project for compliance with the plan of operations as required under regulations at 43 CFR 3809.3-6, as directed by BLM Manual 3809- Surface Management, and as described in the FEIS. BLM personnel will be responsible for all inspection and enforcement procedures under 43 CFR 3809.

2. Water Quality

Arizona Department of Environmental Quality (ADEQ) is responsible for most aspects of water quality monitoring.

Cyprus Bagdad must obtain all necessary approvals and/or permits from ADEQ and the Army Corp of Engineers prior to starting operations.

3. Air Quality

ADEQ will specify all air quality monitoring activities related to this project in the Air Quality Permit. ADEQ is responsible for enforcement of these activities and assuring that applicable air quality standards are maintained.

Cyprus Bagdad must obtain the Air Quality Permit prior to starting construction of the regulated facilities.

VI. PUBLIC COMMENT

Scoping for the Environmental Impact Statement occurred during July 1994. The issues identified during scoping were addressed in the Draft EIS. Public Hearings on the Draft

were held in September 1995 and were attended by a total of approximately 20 people. There were eight written comments received during the comment period and the Final EIS addressed those comments. There was no public controversy related to this proposal. Since all of the comments relating to the Draft EIS were determined to be minor, the BLM issued an abbreviated Final document which was made available for a 30-day period following publication of the Notice of Availability by the Environmental Protection Agency.

BAGDAD (P) YAVAPAI 12HMC

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Fife Symington, Governor Russell F. Rhoades, Director

NOTICE OF THE PRELIMINARY DECISION TO ISSUE AN INDIVIDUAL AQUIFER PROTECTION PERMIT

Pursuant to Arizona Administrative Code, Title 18, Chapter 9, Article 1, the Director of the Arizona Department of Environmental Quality intends to issue an individual Aquifer Protection Permit to the following applicant:

Public Notice No. 18-96AZAP On or about April 29, 1996

Mammoth Wash Tailings Facility &
South Waste Rock Disposal Facility

Cyprus Bagdad Copper Corporation
P.O. Box 245
Bagdad, Arizona 86321

Aquifer Protection Permit No. P-101353

The facilities are located near the Town of Bagdad in Yavapai County, Arizona, over groundwaters of the Bill Williams Groundwater Basin.

Mammoth Wash Tailings Facilities occupy portions of the following sections:
Sections 5,6,7,8,18 of Township 14N, Range 9W
Sections 1,2,3,11,12,13 of Township 14N, Range 10W
Sections 34,35,36 of Township 15N, Range 10W

South Waste Rock Disposal Facility occupies portions of the following sections:
Sections 4,9,10 of Township 14N, Range 9W

The property is operated as an open pit copper mine using solvent extraction, electrowinning, and sulfide flotation process. Approximately 200,000 tons per day of sulfide ore, leach rock, and waste rocks are mined at the facility.

To allow for continued mining the facility must expand an existing tailings impoundment, construct a new tailings impoundment, and create a new waste rock disposal facility. These facilities are known as the Mammoth Tailings Impoundment, Upper Mammoth Tailings Impoundment, and South Waste Rock Disposal Facility. The Mammoth Tailings impoundment will have a maximum capacity of 900,000,000

tons, Upper Mammoth Tailings impoundment maximum of 600,000,000 tons, and South Waste Rock Disposal Facility maximum capacity of 600,000,000 tons.

The Mammoth Tailings and Upper Mammoth Tailings Impoundments will be constructed using centerline construction techniques. Both facilities will incorporate finger drains to promote dewatering of the tailings with seepage collected in a seepage collection pond located at the toe of the Mammoth Tailings Impoundment. Both facilities will have monitoring to insure physical stability of the impoundments with storm water controls to divert run-on to the facilities. The South Waste Rock Disposal Facility will be constructed immediately adjacent to the open pit with angle of repose slopes interrupted approximately every 300 foot in elevation by an 115-foot wide bench. Information presented supports appropriate engineering design and operation of these facilities.

Aquifer Water Quality Standards will be maintained at the Points of Compliance. Five Points of Compliance have been established for tailings impoundments with groundwater monitoring required for the duration of the permit. A Point of Compliance has also been established for the South Waste Rock Facility. Facility inspections will be conducted for the duration of the permit to assure proper performance and physical stability. The Cyprus Bagdad Copper Company and the personnel responsible for construction and operation of these facilities have demonstrated technical capability.

The permit and related materials are available for public review Monday through Friday 8:00 a.m. to 5:00 p.m. at the Arizona Department of Environmental Quality, 3033 North Central Avenue, 4th Floor, Phoenix, Arizona 85012.

Persons may submit comments or request a public hearing on the proposed action, in writing, to Jeff Bryan, Arizona Department of Environmental Quality, 3033 North Central Avenue, Phoenix, Arizona 85012 within thirty (30) days from the date of this notice. Public hearing request must include the reason for such request.

DM

Arizona Department of Mines and Mineral Resources
Verbal Information Summary

Date: October 20, 1995 Engineer: Nyal Niemuth

Notes from talk by Jeff Clevenger President, Cyprus Climax Metals Co. to Maricopa Section SME on 10/19/1995.

The talk reviewed Cyprus' copper and molybdenum operations worldwide during the last couple of years, with a focus on cost cutting activities and modernization projects. Below are some comments on the Arizona operations.

General Comments: Cyprus company goal: to significantly increase productivity, reduce the number of employees. How? eliminate unproductive tasks, institute a bonus system for every employee, share cost/price information. At Sierrita the first year of this system resulted in a 20% bonus.

Other goals: 1) invest and modernize the mines. Replace the truck/shovel fleet with 240 ton trucks and 50 cubic yard shovels, 2) increase reserves, 3) produce copper at a cost of 60 cents per pound (at $3 LB molybdenum credit.) Through the end of 1994 73% of the company's truck fleet has been replaced. 11 more trucks replaced since then. The company has achieved a 50% increase in tons milled per man shift and a 50% increase in copper produced per employee. Reserves were increased by raising the copper price used in 1992 from $.65 to $.90 per pound. and the purchase of El Abra in 1994. When the grade turned out to be lower at El Abra Chile, they got the Chilean government to triple the area of the concession (future exploration potential) and grant a huge water allotment to the mine. In moly they were able to cut out $30 MM, mainly through the AMAX merger.

Comments on individual Arizona mines:

Bagdad (f) Yavapai Co. A 1 billion ton resource of 0.38 Cu and 0.028 Mo exists. A new technology, a water flush crusher was installed that takes 20% of oversize for autogenous mill, water flushes fines to floatation circuit. This increased capacity from 75,000 to 80,000 ton per day.

Sierrita (f) Pima Co. CRU International rates Sierrita as the most efficient copper mine in the world and it operates at the lowest grade for a milling operation, 0.28%. A current experiment at Sierrita is a 50-50 joint venture between Cyprus and the vendor. It involves one set of high pressure rolls used for crushing. With it a higher percentage of fines go directly to float cells without grinding. It appears 40% of product may bypass the ball mills. The cost of maintenance on the rolls is still unknown and will be a deciding factor in their success.

Cyprus received $9 per pound for moly in the 2nd quarter of 95, resulting in a cash cost of producing copper of $.07 per pound. Sierrita has both an moly roaster as well as a leach circuit to remove copper from off specification concentrates.

Twin Buttes (f) Pima Co. Cyprus is studying Twin Buttes as underground mine but its iffy as it is high cost even with the high 1.75% Cu grades. Part of the problem is that the ore isn't compatible with the ore at Sierrita so it requires a separate circuit or its own mill.

Lakeshore (f) Pinal Co. Cyprus bought the property to get the roaster due to a worldwide shortage of smelting capacity at the time, now the roaster is shutdown. The property has a 600 MM ton leach resource at 0.5% Cu, but it has a high acid consumption. As an open pit heap leach it can produce 40 to 50 MM lb. per year but at a high cost. A feasibility study is underway to see if it remains a permanent producer.

Inspiration [aka Miami (f)] Gila Co. Cyprus bought the property to acquire the smelter and refinery. When first operated SRP was able to provide cheap electric rates for the electric furnace. When the electric went up Cyprus installed a ISA melt furnace that initially had problems with the off gases hood. A redesign of the hood making it vertical (less heat build up) and increasing the temperature and pressure of the cooling tubes was completed in February of 95 and there have been no further problems. A $280 MM was invested in ISA technology for the electrolytic refinery (annual capacity of 150 MM lb). It uses stainless steel starter sheets. The new technology results in a savings $.02 per pound at the refinery and overall the refinery is now about $.05 per pound cheaper than a custom facility.

Mineral Park (f) Mohave Co. Installed a portable SX-EW plant. In situ leach research project is underway.

BAGDAD (F) TECH INFO. FILE

K-4-7
1005

also make a subject card under:
Mineral Processing - Coleman Flotation

CONCENTRATE UPGRADING
at
CYPRUS BAGDAD COPPER CORPORATION

by
Patrick Finton
Metallurgist

For Presentation at the
Arizona Conference of AIME
December 5, 1988

I N D E X

INTRODUCTION

The Bagdad Concentrator has produced a by-product, molybdenum concentrate, since the mid 1950's. Through the years, the molybdenum separation process has undergone many changes. The initial separation process utilized a Nokes depression scheme. In the mid 60's, the process was modified to include steaming of the feed material. By 1974, safety considerations required that Nokes be replaced as the primary copper depressing reagent. The plant was then converted to thioglycollic acid (TGA) without any detrimental metallurgical results.

For the most of 1984, the concentrator was idle due to the extremely depressed copper prices. When the concentrator was restarted in October 1984, it was discovered that the concentrate steaming vessels had severely deteriorated during the shutdown. Because the TGA process required steaming, and it was imperative that the plant operate, the molybdenum plant was immediately converted to a sodium hydrosulfide circuit. The change proved to be very successful, and we are currently on a hydrosulfide circuit.

One of the start-up conditions in 1984 was that the molybdenum concentrate produced would have a maximum copper content of 0.5% Cu. After several months of working with the new reagent circuit, a concentrate grade containing 0.7% Cu could be routinely achieved. This was considerably better than the initial results, but the molybdenum concentrate still did not meet the 0.5% Cu requirement.

By March 1985, one of the molybdenum plant operators convinced management that the grade problem might be caused by a middling fraction in the final cleaning stages. It was decided that the 2nd cleaner tailing should be cleaned separately from the new advancing 1st cleaner concentrate. After the flowsheet in Figure 1 was initiated, the molybdenum plant was able to consistently make an acceptable molybdenum concentrate. The

problem with this circuit was that a significant amount of molybdenum was in the south 1st cleaner and south 2nd cleaner cells. Because of the larger cleaner circuit load, it generally took a circuit adjustment four (4) to six (6) hours to effect the final concentrate grade.

Column Cells

Although the molybdenum plant was consistently making a good concentrate grade, it was decided in late 1985 to try a column flotation test. After considering numerous cell options, a decision was made to build a three foot (3') diameter "test" cell in the molybdenum cleaner area. The cleaner area was selected because it allowed the column cell to be tested as a scavenger, 1st cleaner or final cleaner. With the cell in the cleaner area, the maximum cell height was 32 feet 3 inches. The column cell diameter selection was considerably less scientific, a three foot diameter piece of pipe was available in the "good" scrap pile.

The column cell was initially piped in as a parallel scavenger cell. The molybdenum content in the plant tailings immediately shot up when the column cell was started and did not come down until the test was abandoned six (6) hours later.

The column cell was repiped so that is was between the 1st cleaner tailing and scavenger feed and operated as a prescavenger cell. This gave much better plant results. For the next several months, the column cell operating parameters were changed, and the results observed. The data in Table A represents the normal conditions of the column cell while it was operated as a prescavenger. The lowest tailing was 2.69% Mo which was unacceptably high. The cell's tailing could be manipulated slightly as the change in feed rate indicates, but the most pronounced change in the cell was caused by changes in the feed to the cell. A number of different variables were changed: air rate, wash water rate, froth level, feed rate, frother addition and NaHS additions. All without any success. Although the cell

would not perform up to reported successes, the real puzzling thing was that the cell could not be deliberately sabotaged. It simply ran the way it wanted to, not good and not bad.

When Cyprus bought Sierrita, we were able to buy more than just the plant, we also got information. As part of the transition group, I talked to Sierrita personnel about their column cells and how they liked them. I was shown some retention time tests that they had done on their 40 foot cells. These tests showed that there was a tremendous amount of short circuiting that was occurring within the cells. This was completely contrary to the idea that the material was going through the column cell in a plug flow fashion. This also explained why I could not get the Bagdad column cell to tail out, and why the cell was so feed dependent.

In May 1986, the column cell was repiped as a cleaner cell. The column cell was then operated in parallel with the moly south 1st cleaner cells. The feed was split approximately evenly between the conventional flotation cells and the column cell. Table B shows some of the typical results of this testing.

In November 1986, the "test" column cell was operated as an additional cleaning stage between the north 1st cleaner and the north 2nd cleaner. This eliminated the need for the south 1st and 2nd cleaners. Figure 2 shows the normal operating flowsheet at that time.

By the end of 1987, consideration was given to the possibility of eliminating the north 2nd cleaners with the addition of a second column cell. Test work indicated that approximately 70% of the time the existing column cell was producing an acceptable final concentrate. Figure 3 shows a typical concentrate profile in the cleaner section when the column cell was and was not operating. It was decided that a final acceptable molybdenum concentrate could be produced using a column-to-column cleaning stage. On February 1, 1988, a second column cell was put into service in a

column-to-column arrangement. This arrangement has proven to be very effective in moly cleaning. The main problem with the cells is that the operators have a tendency to pull the column cells too hard. With the old conventional 2nd cleaner cells, an operator had to work to speed up the cells. With the column cells, all he had to do is turn a knob on the air addition and the cell speeded up. With standard flotation cells, an operational change may take four (4) hours before it impacts the final concentrate. The column cells react much quicker.

Another effect of using column cells, as is shown in Table C, is that the overall plant recovery may be improved. The Bagdad column cells have been taken out of the molybdenum circuit three (3) times to do copper flotation testing. The results in Table C show that the molybdenum plant recovery usually dropped when the cells were not in use. I feel that this is in agreement with my visual observations. Without the column cell's cleaning action, the operators had to crowd the 1st and 2nd cleaners. In doing so, there was a greater tailings load going to the scavenger cells and a correspondingly higher scavenger tailing loss.

Magnetic Separator

In March 1987, Cyprus Bagdad started looking at the possibility of using a Wet High Intensity Magnetic Separator (WHIMS) to remove copper from our molybdenum concentrate. Table D shows the preliminary laboratory test results. Better than 50% of the copper could be removed from the molybdenum concentrate while only 2% of the moly was rejected.

The next step was to plant test a pilot model. A model CF-5MM magnetic separator was used for the field test work in August. Again, Table E, about half of the copper was rejected, but this time approximately 15% of the molybdenum was also removed. The molybdenum rejection was acceptable since this tailing was to be returned to a previous cleaning stage.

In early 1988, a magnetic separator was purchased and installed in the molybdenum plant. From a metallurgical standpoint, the machine performed as anticipated with significant copper reduction in the molybdenum concentrate. Figure 4 is a graph of the actual plant Inscan copper values when the magnetic separator is utilized.

As with most new pieces of equipment, a few operations problems have developed. We have known for several years that we were concentrating plastic in the molybdenum concentrate. The amount of plastic had not been significant enough to present a grade or operational problem. With the production magnetic separator, the plastic plugged the grid sectors and stopped the slurry flow. Upon closer examination of the foreign material, it was determined that there were two (2) types of "plastic". One type of plastic appeared to be from the plastic bags used to line the wet blast holes in the pit. This plastic could be scalped out of the circuit with a DSM or vibrating screen. The second "plastic" consisted of single strands that looked like the bristles from a nylon brush. At this time, we have not positively identified the material or how to keep it out of the magnetic separator. The manufacturer is working on redesigning the separator grids so that they minimize plugging and/or can be periodically cleaned.

Today our moly plant flowsheet, Figure 5, has been substantially simplified. The use of column cells and the magnetic separator has definitely improved the moly plant performance.

COLUMN CELLS IN THE COPPER-MOLY PLANT

With our successful use of column cells in the moly plant, it was decided to test the column cell as a final Cu-Mo concentrate cleaner to see if our concentrate grade could be improved. In November 1987, the moly column cell was repiped as a copper 3rd cleaner for an eight (8) day test. The test showed that the percent copper in the copper-moly concentrate could be improved by a minimum of 3% Cu, Table F. The problems were that copper

recovery was only 50% and molybdenum was actually being depressed in the column cell.

In January 1988, a second test run was made. This time both the wash water and column cell feed tonnage were reduced. Figures 6 and 7 show the effects of these changes. When the wash water was increased, the copper concentrate grade improved, but the moly recovery dropped. As the feed rate to the column cell was reduced, the copper recovery dropped.

While at the AIME Annual Meeting in Phoenix in January 1988, a number of column cell speakers talked about the fact that column cells have a maximum production capacity. In the two (2) previous tests, I had observed that copper recovery was dependent upon the column cell feed rate. In relookng at the data, Table G, it appeared that our particular column cell had a concentrate production capacity of about 0.34 ton/hr/ft^2.

A third copper column cell test was performed in April and May 1988. In the two (2) previous tests, a sock sparging system had been used to supply the dispersed column cell air. This test run would be used to confirm the cell capacity and to see if a new air sparging system would improve the cell production. The test run was broken into three (3) periods with two (2) different sparger systems. Testing again confirmed that the cell production capacity was about 0.34 ton/hr/ft^2, Table H.

Although column cells are being sized according to their concentrate production capacity, it may be that in copper-moly circuits, the cells will have to be sized according to their moly recovery. Bagdad has observed on several tests that moly recovery can be very sensitive to the cell feed and air rates. Only after the bulk of the copper minerals have floated will the moly be recovered. This is exhibited in Table I where good moly recoveries were achieved when the cell was being worked to its best cleaning capacity as opposed to its production capacity.

Conclusions

In upgrading concentrates at the Bagdad Concentrator, the following observations have been made:

1. Column cells have proven to be very effective at upgrading Bagdad's moly concentrate.

2. It is possible with a series arrangement of column cells to improve and simplify a moly plant cleaner circuit.

3. Once material handling problems have been solved with the magnetic separator, approximately half of the copper in the moly concentrate will be removed.

4. The size of a column cell in a bulk cleaning operation may depend upon the flotation rate of the slowest mineral.

FIGURE 1

MOLY PLANT FLOWSHEET - 1985

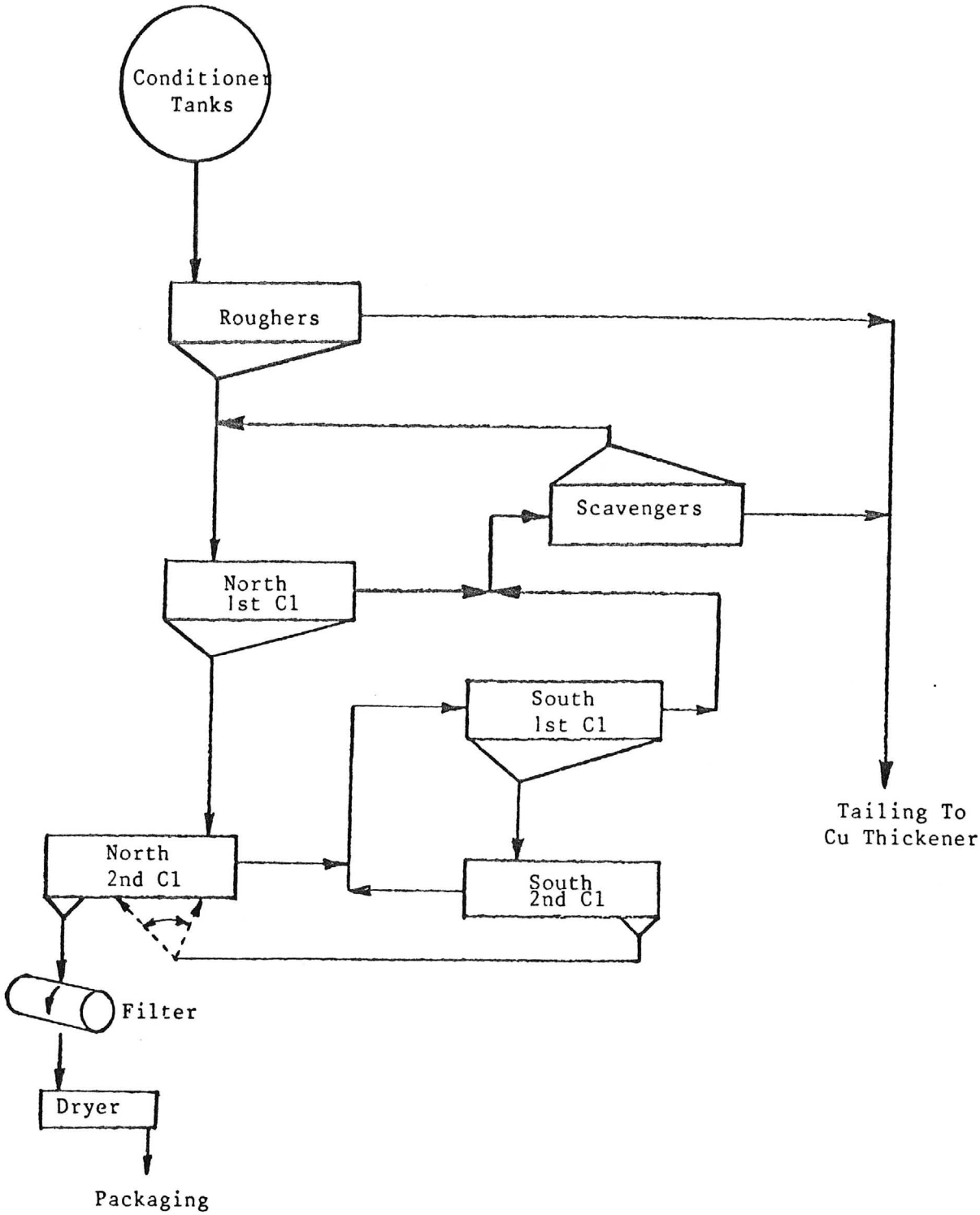

FIGURE 2

MOLY PLANT FLOWSHEET - 1987

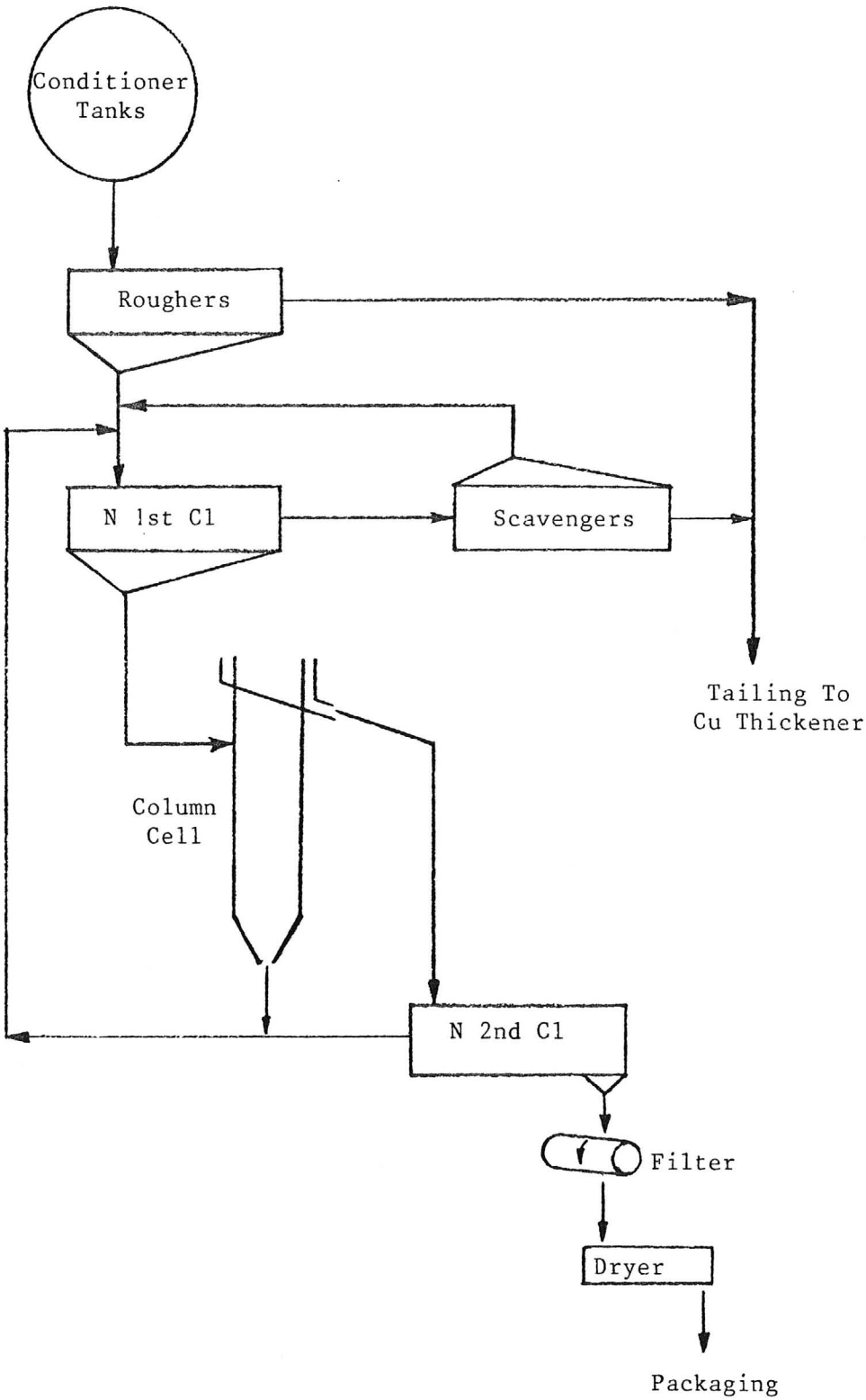

FIGURE 3

MOLY PLANT PROFILES ON NOVEMBER 6, 1987

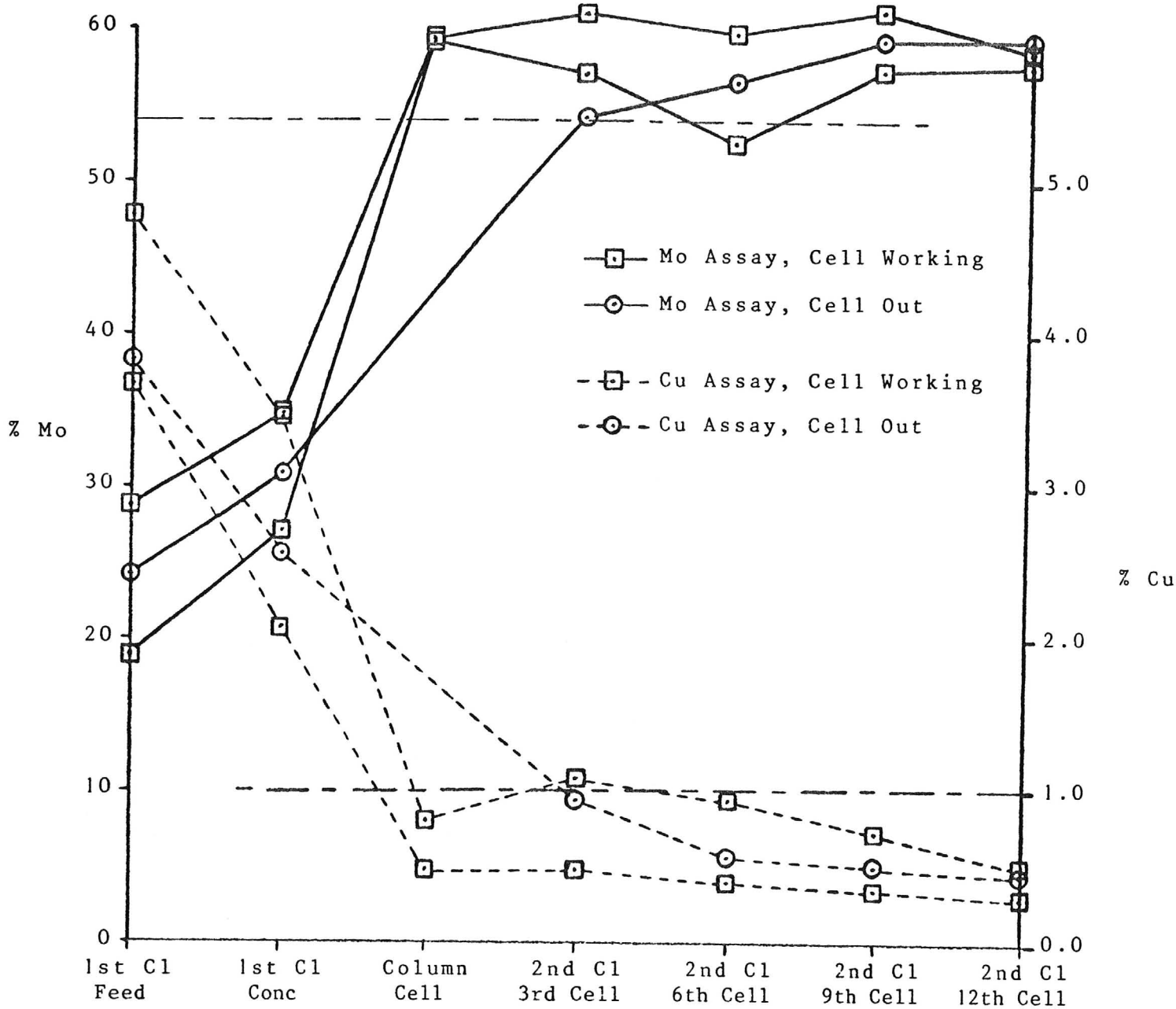

Figure 4

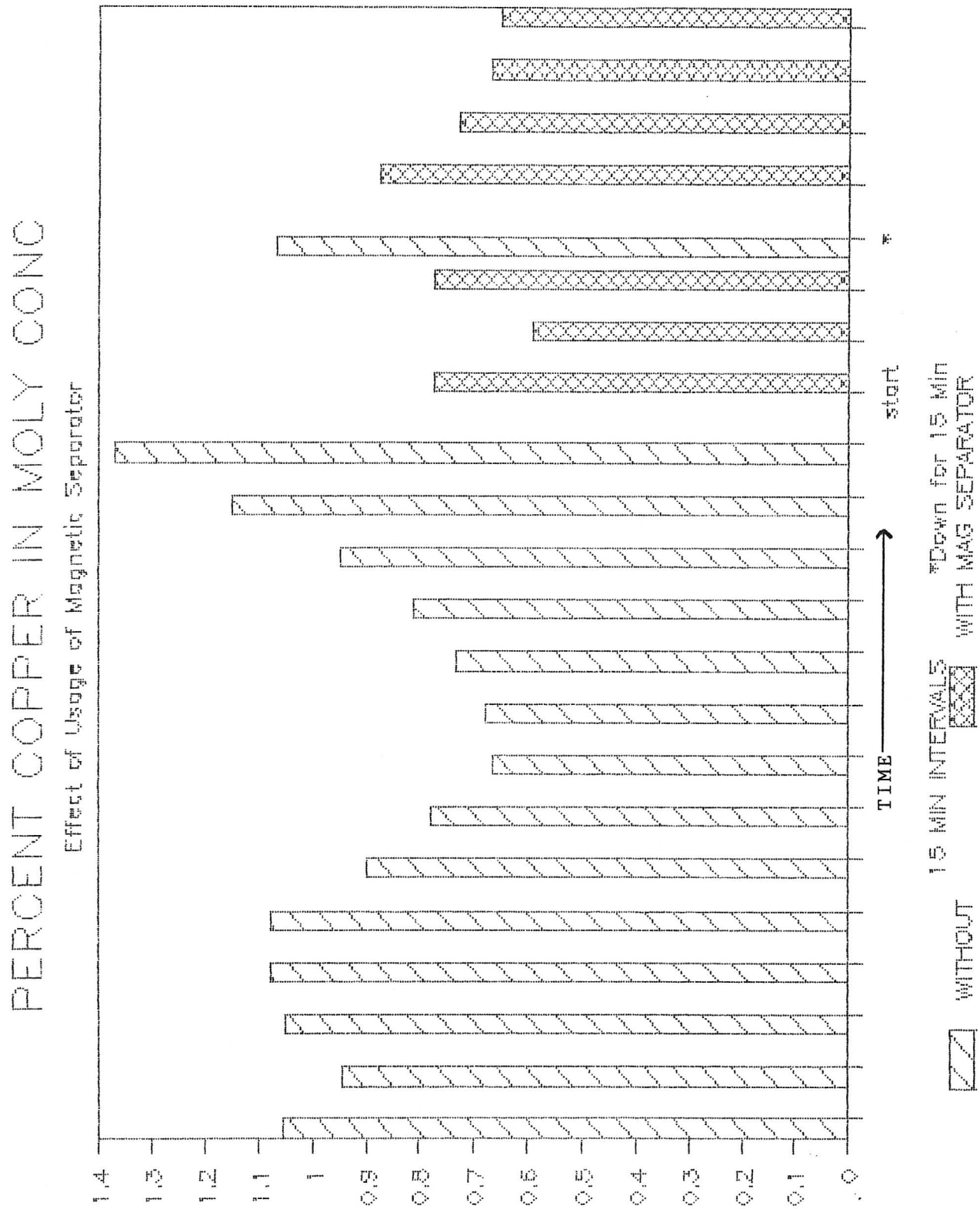
PERCENT COPPER IN MOLY CONC
Effect of Usage of Magnetic Separator
Percent Cu
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
TIME
start
*
15 MIN INTERVALS
WITHOUT
WITH MAG SEPARATOR
*Down for 15 Min

FIGURE 5

CURRENT FLOWSHEET

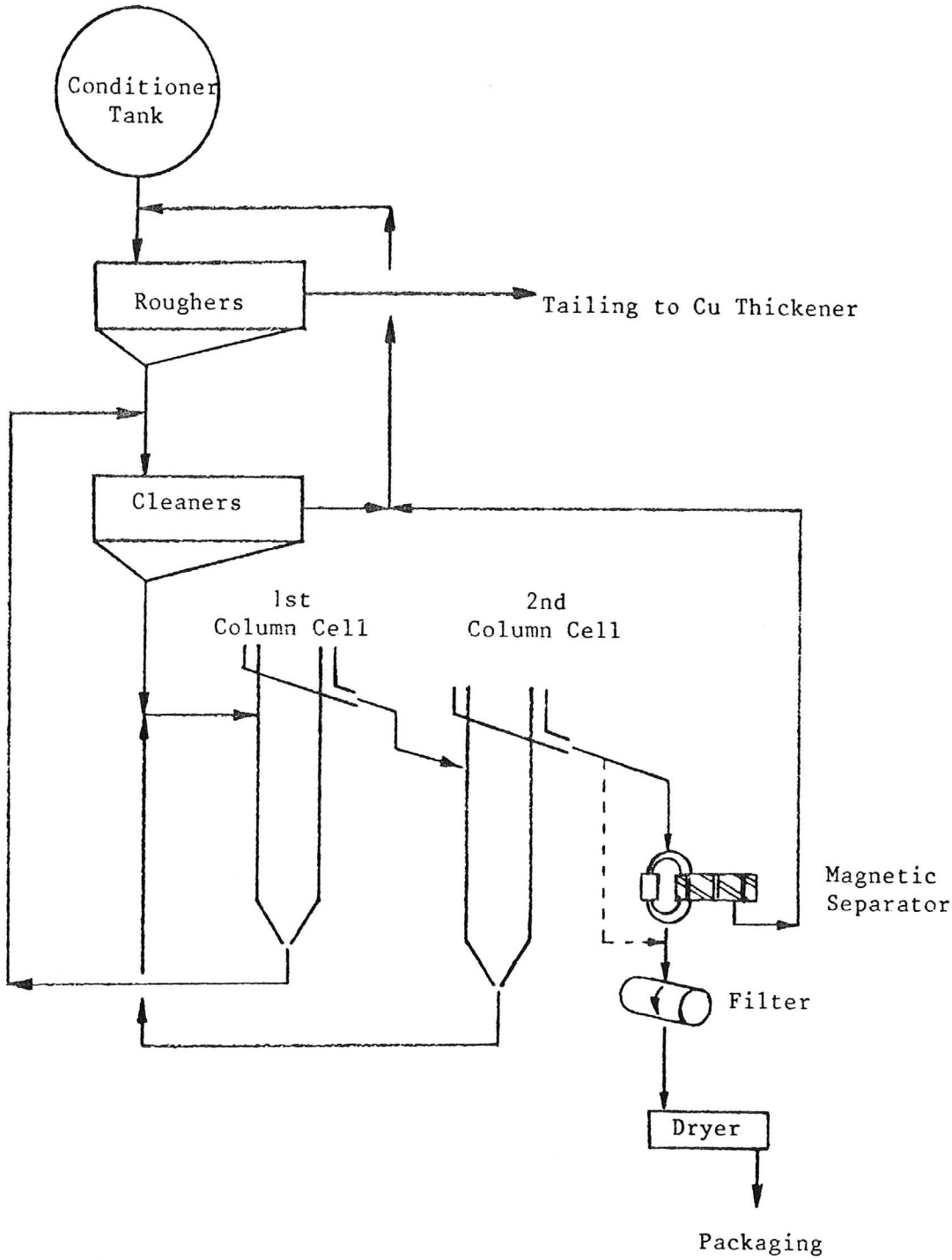

FIGURE 6

EFFECTS OF WASH WATER RATE

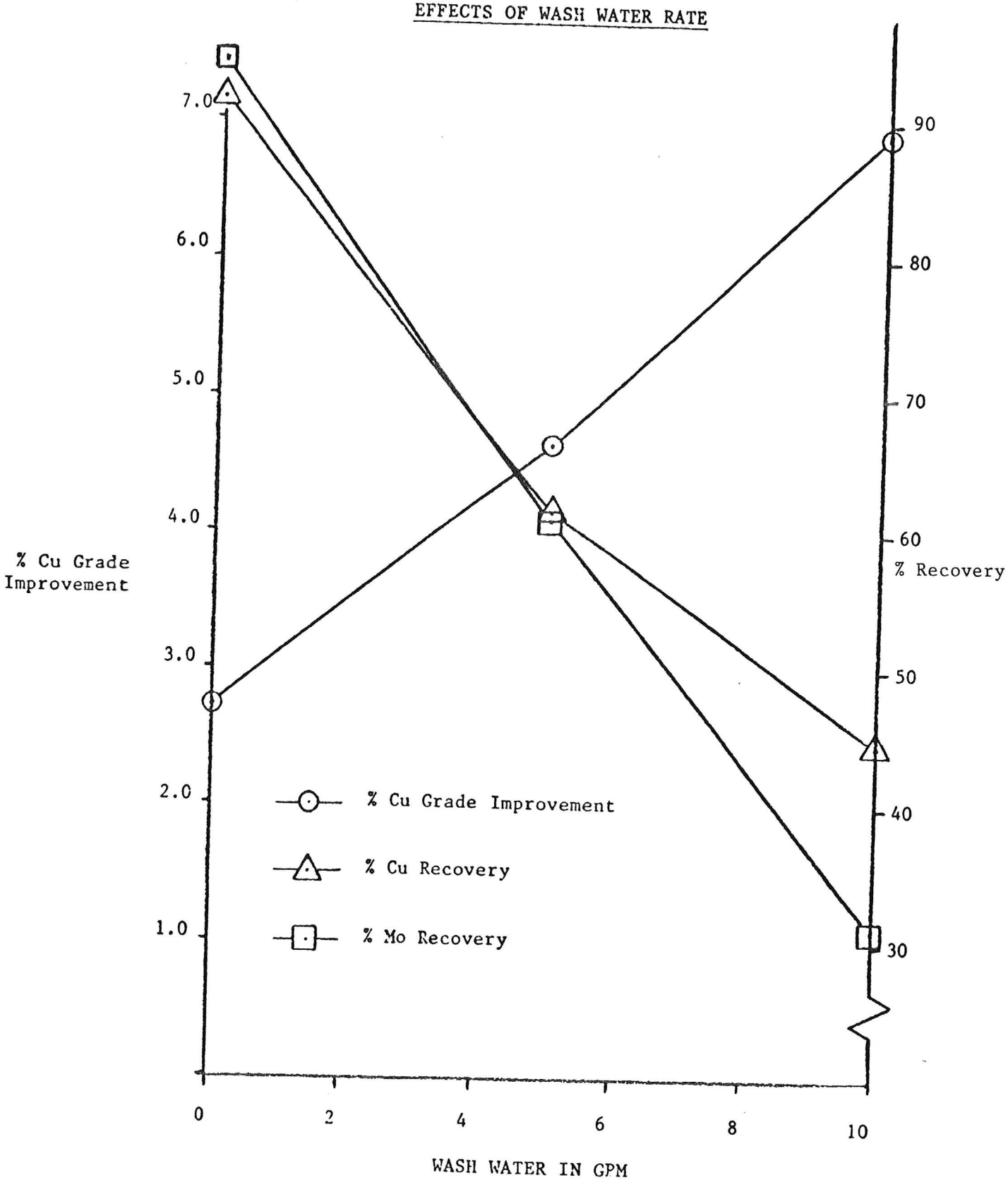

FIGURE 7

COPPER RECOVERY vs FEED RATE

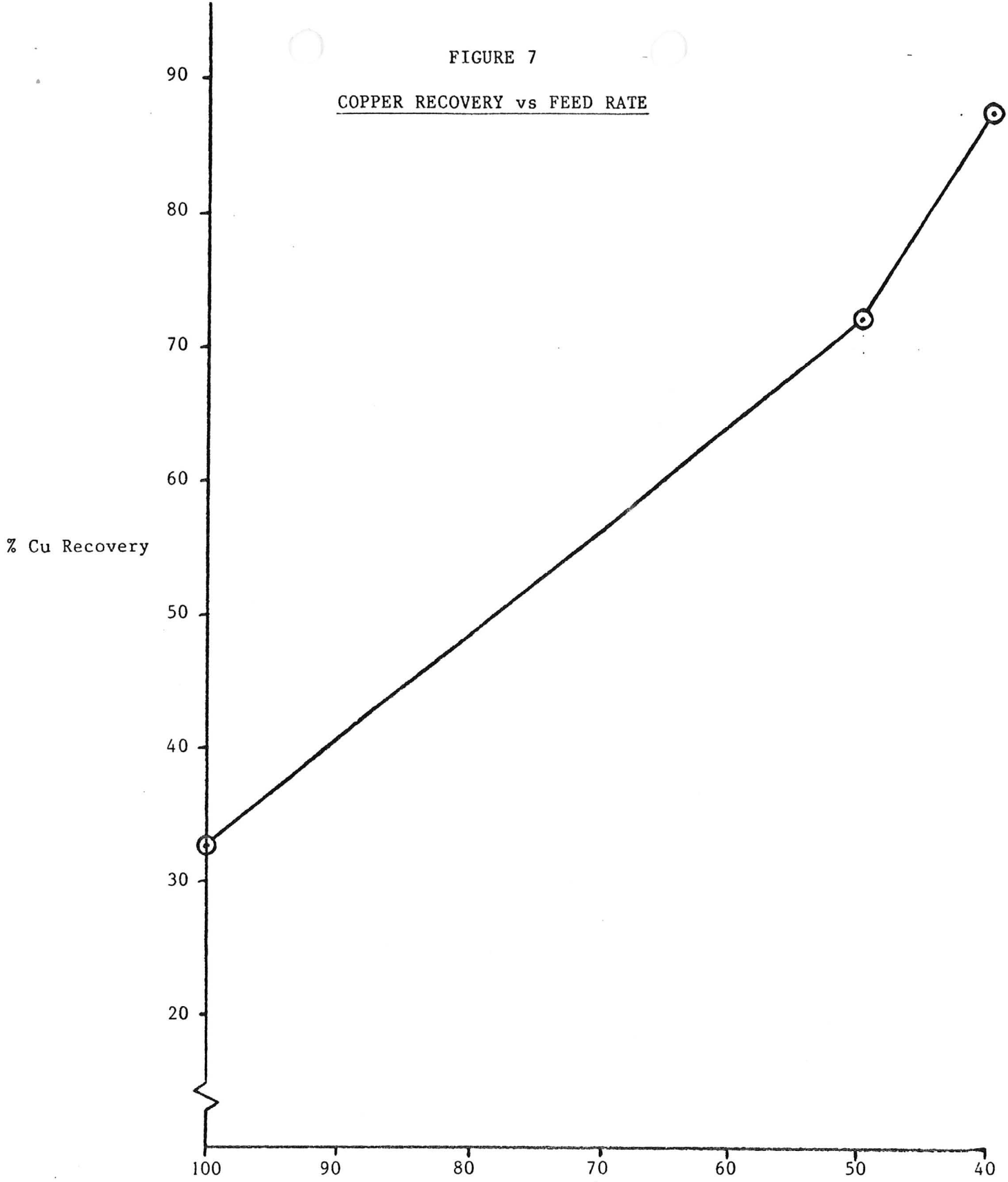

TABLE A

COLUMN CELL AS A PRESCAVENGER

Time	Feed Rate %	Feed Percent Cu	Feed Percent Mo	Feed Percent Insol	Tailings % Cu	Tailings % Mo	Concentrate % Cu	Concentrate % Mo	Concentrate % Insol	Recovery Cu	Recovery Mo	Ratio of Concentration
9:30	100	11.14	8.63	35.02	14.20	5.61	6.67	18.5	39.64	24.33	50.28	4.25
11:00	50	11.76	7.67	34.79	14.98	4.75	6.82	15.5	39.01	22.88	55.01	3.66
12:30	29	13.26	6.28	37.35	20.08	2.95	7.14	13.9	40.90	28.38	67.33	3.29
1:30	21	13.80	6.43	35.16	19.77	2.69	7.45	13.7	40.42	26.16	72.44	2.94
2:30	100	12.47	7.82	31.17	16.94	4.56	6.43	17.4	35.53	21.93	56.46	3.95

Sampling was done on March 21, 1986

TABLE B

COLUMN CELL AS A CLEANER

Test	Feed % Cu	Feed % Mo	Tailing % Moly COL	Tailing % Moly 1st CL	Concentrate % Copper COL	Concentrate % Copper 1st CL	Concentrate % Moly COL	Concentrate % Moly 1st CL	Concentrate % Insol COL	Concentrate % Insol 1st CL	Moly Recovery COL	Moly Recovery 1st CL
1	12.7	16.06	8.20	6.81	3.27	5.10	44.0	38.0	8.86	17.03	60.17	70.19
2	10.8	16.69	6.43	8.87	2.13	2.59	51.1	43.8	8.43	12.39	70.45	58.73
3	7.94	20.76	4.32	9.49	2.60	3.38	48.5	42.9	9.00	11.92	86.94	69.69

Sampling was done on July 2, and 3, 1986

TABLE C

MOLY PLANT OPERATION WITH AND WITHOUT THE COLUMN CELL

Period	Column Cell	Plant Feed Grade % Mo	Final Concentrate % Cu	% Mo	Plant Molybdenum Recovery
11/07 - 11/14/87	Using	1.091	0.71	54.69	90.61
11/16 - 11/23/87	Not Using	0.949	0.92	55.14	82.39
11/25 - 12/02/87	Using	0.886	0.66	55.54	85.82
12/29 - 01/09/88	Using	0.901	0.98	54.93	81.91
01/11 - 01/22/88	Not Using	0.840	0.83	55.02	85.06
01/24 - 02/04/88	Using	1.123	0.66	55.46	91.28
03/11 - 04/09/88	Using	1.028	0.80	55.49	89.04
04/11 - 05/10/88	Not Using	1.011	0.61	54.94	88.05
05/12 - 06/10/88	Using	1.106	0.60	55.65	90.74

Average Recovery When Column Cell In Use 88.23 %

Average When Cell Not In Use 85.17 %

TABLE D

MAGNETIC SEPARATOR LABORATORY RESULTS

Magnetic Field Strength (Gauss)	Product	Weight	Percent Cu	Fe	Mo	Percent Distribution Cu	Fe	Mo
6,000	Mag	4.9	22.2	19.7	15.6	45.0	42.0	1.5
	Non-Mag	95.1	1.4	1.4	52.9	55.0	58.0	98.5
	Feed	100.0	2.4	2.3	51.1			
8,000	Mag	6.0	23.0	19.6	15.4	62.0	55.6	1.8
	Non-Mag	94.0	0.9	1.0	53.6	38.0	44.4	98.2
	Feed	100.0	2.2	2.1	51.4			
8,000	Mag 1	6.8	21.4	19.7	12.8	62.7	56.9	1.7
	Mag 2	1.6	19.8	17.7	18.9	13.6	12.0	0.6
	Non-Mag	91.6	0.6	0.8	54.0	23.7	31.1	97.7
	Feed	100.0	2.3	2.4	50.6			
12,000	Mag	6.3	23.0	19.6	15.7	63.2	56.9	1.9
	Non-Mag	93.7	0.9	1.0	53.9	36.8	43.1	98.1
	Feed	100.0	2.3	2.2	51.4			
20,000	Mag	7.6	23.0	19.2	15.8	75.9	66.4	2.3
	Non-Mag	92.4	0.6	0.8	54.2	24.1	33.6	97.7
	Feed	100.0	2.3	2.2	51.2			

TABLE E

MAGNETIC SEPARATOR PLANT TEST RESULTS

Test	Product	Percent Weight	Percent Mo	Percent Cu	Percent Fe	Percent Distribution Mo	Percent Distribution Cu	Percent Distribution Fe
1	Feed	100.0	57.2	0.41	1.25	100.0	100.0	100.0
	Non-Mag	85.2	57.6	0.26	1.11	85.7	54.0	75.7
	Mag	8.4	55.0	1.10	2.10	8.0	22.4	14.0
	Mid	6.4	56.3	1.50	2.00	6.2	23.6	10.3
2	Feed	100.0	56.8	0.30	0.81	100.0	100.0	100.0
	Non-Mag	88.9	58.0	0.20	0.68	90.8	59.3	74.6
	Mag	10.2	52.0	1.10	1.80	9.1	37.3	22.6
	Mid	0.9	54.2	1.10	2.40	0.1	3.4	2.7
3	Feed	100.0	56.5	0.47	1.31	100.0	100.0	100.0
	Non-Mag	76.4	56.8	0.25	1.07	76.9	40.6	62.4
	Mag	22.5	55.5	1.20	2.10	22.1	57.5	36.1
	Mid	1.1	55.6	0.80	1.80	1.0	1.9	1.5
4	Feed	100.0	56.1	0.90	1.70	100.0	100.0	100.0
	Non-Mag	68.5	56.4	0.40	0.98	68.8	30.4	39.5
	Mag	15.2	52.1	2.40	4.30	14.1	40.5	38.4
	Mid	16.4	54.7	1.60	2.30	17.1	29.1	22.1
5	Feed	100.0	55.7	0.90	1.70	100.0	100.0	100.0
	Non-Mag	88.3	56.1	0.43	1.03	89.0	42.2	53.5
	Mag	5.7	46.2	3.90	7.90	4.7	24.7	26.5
	Mid	6.0	46.6	5.00	5.70	6.3	33.1	20.0
6	Feed	100.0	52.2	1.00	2.00	100.0	100.0	100.0
	Non-Mag	54.6	55.6	0.49	1.15	58.1	26.8	31.4
	Mag	35.1	51.8	1.50	3.00	34.8	52.6	52.6
	Mid	10.3	48.9	2.00	3.10	7.1	20.6	16.0
7	Feed	100.0	51.4	1.50	2.70	100.0	100.0	100.0
	Non-Mag	78.5	53.8	0.59	1.42	82.1	30.9	41.3
	Mag	20.5	44.4	4.90	7.50	17.7	67.0	57.0
	Mid	1.0	47.0	3.10	4.60	0.2	2.1	1.8

TABLE F

COPPER ASSAYS FOR THE FIRST TEST RUN

Test Time		% Cu Feed	% Cu Conc	% Cu Tailing	% Cu Recovery	% Cu* Improvement
Nov 16	10 am	29.70	36.74	30.30	-----	7.04
	12:45	30.22	36.95	31.92	-----	6.73
	3 pm	31.61	38.65	31.93	-----	7.04
Nov 17	10:30	37.97	49.91	38.13	-----	11.94
	1:30	42.16	56.11	41.08	9.56	13.95
	3 pm	43.71	59.83	43.40	2.58	16.12
Nov 18	1:15	44.24	48.30	39.42	59.26	4.06
Nov 19	8 am	40.56	46.60	37.70	36.92	6.04
	10 am	40.72	45.97	38.33	35.32	5.25
	11:30	40.24	47.08	38.01	28.77	6.84
	1:30	38.81	46.12	36.26	30.73	7.31
	3 pm	43.26	51.06	40.24	32.94	7.80
Nov 20	8:30	38.10	43.40	35.68	35.71	5.30
	10 am	38.42	43.56	31.02	66.91	5.14
	11:30	39.54	44.20	31.34	71.28	4.66
	1:30	41.33	44.57	28.68	85.85	3.24
	3 pm	43.02	46.42	29.30	86.47	3.40
Nov 21	1 pm	32.11	39.98	22.98	66.87	7.87
	2:30	35.10	41.56	24.08	74.65	6.46
Nov 22	10 am	33.74	42.95	21.01	73.86	9.21
	11:30	34.99	45.30	23.12	69.29	10.31

Minimum % Cu Improvement 3.24%
Maximum % Cu Improvement 16.12%
Average % Cu Improvement 7.41%

* % Cu Improvement = % Cu in Concentrate - % Cu in Feed

TABLE G

COLUMN CELL CONCENTRATE PRODUCTION

Date	Cell Feed Ton/Hr	Cu Recovery	Concentrate Ton/Hr	Cell Capacity Ton/Hr/ft²
Nov 16	7.54	-----	----	----
17	6.31	6.07	0.38	0.05
18	8.55	59.26	5.07	0.72
19	6.52	32.94	2.15	0.30
20	3.39	77.63	2.63	0.37
21	3.72	70.76	2.63	0.37
22	4.74	71.58	3.39	0.48
Jan 12	2.76	72.77	2.01	0.28
13	2.88	69.02	1.99	0.28
15	4.17	25.62	1.07	0.15
19	4.23	14.26	0.60	0.08
20	3.62	71.40	2.58	0.36
21	4.38	93.65	4.10	0.58
22	3.21	97.64	3.13	0.44
			Average	0.34

TABLE H

THIRD COPPER COLUMN CELL TEST RUN

Period	Average Results* % Cu Improvement	% Cu Recovery	% Mo Recovery	Optimum** Cell Production Ton/Hr/Ft²
1	6.65	56.13	35.49	0.279
2	5.30	65.77	36.02	0.317
3	5.42	63.76	45.68	0.332

* Average results include sampling times when the cell was not operated at its peak efficiency.

** The Optimum Cell Production was calculated in each period using the period's regression formula and the conditions of 42% of the 2nd cleaner feed and an air rate of 30 scfm.

TABLE I

Mo Assays - Third Period

Date/Time		% of Feed	Air SCFM	% Mo Feed	% Mo Conc	% Mo Tailing	% Mo Recovery	Cell Prod Ton/Hr/Ft²
5/08/88	2:30	100	30	1.52	0.86	1.41	(11.32)	----
	3:30	100	30	1.27	0.77	1.29	2.33	0.02
5/09/88	10 a.m.	42	10	1.25	0.62	1.39	9.02	0.08
	11 a.m.	42	15	1.07	0.69	1.59	37.26	0.27
	1 p.m.	42	20	1.23	0.78	1.78	34.88	0.25
	2 p.m.	42	25	1.44	1.24	1.42	(9.57)	0.37
	4 p.m.	42	30	1.69	1.53	0.29	102.21	0.37
5/10/88	10 a.m.	25	30	0.85	0.84	0.20	100.37	0.28
	11 a.m.	33	30	0.75	0.68	1.20	78.46	0.41
	12 noon	42	30	0.73	0.58	1.06	54.62	0.41
	1 p.m.	50	30	0.78	0.58	0.96	35.22	0.34
	2 p.m.	58	30	0.81	0.77	1.12	84.20	0.74
	2:45	58	30	0.74	0.60	1.02	54.05	0.55
	3:45	58	30	0.82	0.65	1.09	48.64	0.51
	Average			1.07	0.80	1.13	45.68	0.35

ARIZONA DEPARTMENT OF HEALTH SERVICES

Division of Environmental Health Services

BRUCE BABBITT, Governor
JAMES E. SARN, M.D., M.P.H., Director

JOINT NOTICE OF PROPOSED ACTION

by the

U.S. Environmental Protection Agency, Region IX [W-5-1]
215 Fremont Street
San Francisco, CA 94105

415/974-8058

On Application(s) for National Pollutant Discharge Elimination System Permit(s) to Discharge Pollutants to Waters of the United States

State of Arizona
Department of Health Services
1740 West Adams Street
Phoenix, AZ 85007

602/255-1277

On Application(s) for Certification for Compliance with Applicable Effluent Limitations and Appropriate Requirements of State Law

On the basis of preliminary review of the requirements of the Clean Water Act (the Act), as amended, and implementing regulations, the Regional Administrator, Region IX, EPA, proposes to issue an NPDES permit(s) to the following applicant(s), subject to certain effluent limitations and special conditions:

Public Notice No. 11-82-AZ

April 5, 1982

Cyprus Bagdad Copper Mine
P.O. Box 245
Bagdad, Arizona 86321

NPDES Permit No. AZ0022268

The applicant operates a copper mining operation (Standard Industrial Code 1021) located near the Town of Bagdad, County of Yavapai, State of Arizona. The proposed discharges consist of storm water runoff and process wastewater. There will be six discharge points:

Discharge Serial No.	Location and Receiving Water
001:	To Copper Creek, tributary to Boulder Creek latitude: 34° 36' 15" N longitude: 113° 13' 45" W

The Department of Health Services is An Equal Opportunity Affirmative Action Employer. All qualified men and women, including the handicapped, are encouraged to participate.

002: To Mulholland Wash, tributary to Boulder Creek

latitude: 34° 35' 30" N
longitude: 113° 15' 15" W

003: To Mulholland Wash, tributary to Boulder Creek

latitude: 34° 36' 00" N
longitude: 113° 15' 30" W

004: To Copper Creek, tributary to Boulder Creek

latitude: 34° 36' 15" N
longitude: 113° 13' 45" W

005: To Mulholland Wash, tributary to Boulder Creek

latitude: 34° 35' 50" N
longitude: 113° 15' 35" W

006: To Mammoth Wash, tributary to Burro Creek

latitude: 34° 35' 15" N
longitude: 113° 17' 30" W

The protected uses of Boulder Creek are Aquatic Life and Wildlife, Agriculture Irrigation and Agriculture Livestock Watering. The protected uses of Burro Creek are Aquatic Life and Wildlife, Partial Body Contact and Agriculture Livestock Watering. This permit, as proposed, will expire July 31, 1987.

Public Notice No. 8-82-AZ April 5, 1982

Shadow Mountain Mobile Home Park
Dewey Route
Prescott, Arizona 86301

NPDES Permit No. AZ0022241

The applicant operates the wastewater treatment plant serving the Shadow Mountain Mobile Home Park located in Prescott Valley, County of Yavapai, State of Arizona. The proposed discharge would consist of treated domestic wastewater. The discharge, at latitude 34° 34' 37" N, longitude 112° 19' 29" W, would be to Lynx Creek, tributary to the Agua Fria River. The protected uses of the Agua Fria River (above Lake Pleasant) are Aquatic Life and Wildlife, Full Body Contact, Agriculture Irrigation and Agriculture Livestock Watering. This permit, as proposed, will expire June 30, 1987.

The State is considering a request to certify the discharges described above, pursuant to Section 401 of the Act. The certification will set forth any limitations and monitoring requirements necessary to assure compliance with any applicable effluent limitations and other limitations, under Sections 301 and 302 of the Act; standard of performance under Section 306 of the Act; or prohibition, effluent standard, or pretreatment standard under Section 307 of the Act; and any other appropriate requirement of State law. No permit will be granted if certification is denied by the State.

The Administrative Record, which includes the application, draft permit conditions and other relevant documents, is available for public review Monday through Friday from 9:00 a.m. to 4:00 p.m. at the EPA address shown above.

A copy of the draft permit, and other pertinent documents, may be obtained by calling or writing to the NPDES Records Clerk at the Regional Office of EPA at the above address.

Persons wishing to comment upon or object to the proposed determinations or request a public hearing pursuant to 40 CFR 124.12 should submit their comments or request in writing, within 30 days from the date of this notice, either in person or by mail, to:

NPDES Records Clerk [E-4-1]
U. S. Environmental Protection Agency
Region IX, Enforcement Division
(at the address above)

All comments or objections received within 30 days from the date of this notice will be considered in the formulation of the final determinations regarding the applications. If the response to this notice indicates a significant degree of public desire for a public hearing, the Regional Administrator shall hold one in accordance with 40 CFR 124.12.

If no public hearing is held, final determinations will be made shortly after the close of the comment period. The permit will become effective 30 days following the date when final determinations are signed.

A request for an evidentiary hearing may be submitted to the Regional Hearing Clerk within 30 days following the final determinations, in accordance with 40 CFR 124.74. If granted, applicable provisions of the permit will be stayed pending the results of the hearing.

Persons wishing to comment upon or object to certification by the State should submit their comments in writing within 30 days from the date of this notice, either in person or by mail to the State at the address given above.

Please bring the foregoing notice to the attention of all persons who you know would be interested in this matter.

STATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA 85007

July 20, 1976

COPY

Mr. R. J. Bonnis, Mine Manager
Cyprus Bagdad Copper Company
P.O. Box 245
Bagdad, Arizona 86321

Dear Mr. Bonnis:

Thank you very much for furnishing the Department of Mineral Resources with the 1975 production data for your Arizona mining operations.

Enclosed is a copy of the completed 1974-1975 tabulations for all large Arizona copper producers.

If the Department, or I, can be of assistance to you at any time, please contact us.

Sincerely,

Glenn A. Miller
Mineral Resources Specialist

Enclosure

GAM:jm File: Cyprus Bagdad Copper Co.
Yellow Alpha "C", Copper Report, GAM file

STATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA 85007

File: Cyprus-Bagdad Copper
X-Ref: Mineral Museum
Alpha: "C"
Pink Reading Copy

June 16, 1976

COPY

Mr. R. C. Bogart
General Manager
Cyprus Bagdad Copper Company
P. O. Box 245
Bagdad, Arizona 86321

Dear Mr. Bogart:

I want to thank you for your graciousness in permitting the Mineral Museum Curator to visit the mine property and obtain some specimens. The original intent of our visit was to obtain a specimen to be made into a memento for Governor Castro to present to the President of Sudan.

Our Curator was very warmly received by Messrs. P. K. Medhi and Wilbur Sweet of your staff. They were most courteous and helpful. We appreciate this very much. In addition to the original specimen, we were provided with a beautiful specimen to place on display in the Museum. We very much needed a Bagdad specimen.

The two specimens your company contributed were specimens of chrysocolla and malachite. The memento specimen is 12 cm x 13 cm x 7.5 cm. The Museum specimen is 39 cm x 35 cm x 22 cm. It has been given the Museum number 3125, and will become a part of the State's official collection.

I am sure the citizens of the State appreciate your company's generosity.

Sincerely yours,

John H. Jett
Director

cc: William Kane
OEPAD

JHJ:pp

ATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA 85007

April 21, 1976

R. J. Bonnis, Mine Manager
Cyprus Bagdad Copper Company
P.O. Box 245
Bagdad, Arizona 86321

Dear Mr. Bonnis:

The Department of Mineral Resources is compiling data for its annual report on the copper industry, "The Copper Industry Statistics For 1975 Compared With Other Years - Arizona, The United States and The World". We would appreciate having your 1975 production figures for: (1) tons of ore mined, (2) pounds of recoverable copper, and (3) pounds of recoverable molybdenum. Please insert the data in the space provided on the attached tabulation sheet.

Similar requests are being sent to all large Arizona copper producers and a copy of the completed 1974-1975 tabulations will be returned to you.

Thank you very much.

Sincerely,

Glenn A. Miller
Mineral Resources Specialist

Enclosures

jm
cc: Cyprus Bagdad file
Pink reading, Yellow Alpha "c"
Copper Report file, GAM file

BAGDAD COPPER CORPORATION
55 EAST THOMAS ROAD, PHOENIX, ARIZONA 85012
279-3060

October 1, 1971

To the Shareholders of Bagdad Copper Corporation:

Plans for expansion of the Mine at Bagdad are sufficiently far along that our Board of Directors feels we should marshall resources to this end. At a meeting on October 1, 1971, your Board decided to give no further financial support to Hurricane Car Wash Systems, Inc., a Bagdad subsidiary. Since it is unclear whether Hurricane will be able to continue operations without this support, it has been decided to write off our interest in Hurricane, consisting of $1,680,000 ($1.17 per share of Bagdad stock) advances and investment in Hurricane stock. After-tax loss will be $860,000 ($.60 per share) if Bagdad receives the maximum tax benefit; the actual impact on earnings may be between these two figures. If Hurricane ceases operations, additional, but much smaller losses may result on equipment that Garland Steel Company has manufactured for Hurricane.

To place matters into perspective, the Mine expansion should double or triple total production of copper. Our forecasts show a similar effect on earnings compared to the present operation and Mine life should be extended half again. Under the most favorable circumstances, it would not be possible for Hurricane to approach these figures.

The car wash industry has excellent prospects, and we believe the Hurricane product line is as good as any in the industry. However, marketing at Hurricane needs a great deal of strengthening. Due in large part to lawsuits arising from transactions prior to Bagdad's gaining control of Hurricane, it was decided not to advance the substantial additional funds required to carry Hurricane until marketing effort could pay off.

An additional factor reducing third quarter earnings is the recent copper industry strike. The smelter to which Bagdad ships was closed from July 1 to mid-September, and concentrates had to be stockpiled during that period. Profit on these will not be realized until they are sold, which may be after year-end.

The Hurricane writeoff, plus the strike, will cause a severe reduction in earnings for 1971. However, the reduction should be small compared to the improved position of Bagdad if we are able to complete planning and financing for our expansion and bring the larger operation into production.

Sincerely,

BAGDAD COPPER CORPORATION

David C. Lincoln, President