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Arizona Geological Survey
1520 West Adams St.
Phoenix, AZ 85007
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http://www.azgs.az.gov
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02/23/94

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: BLACK MOUNTAIN IRON PLACER

ALTERNATE NAMES:
MARTIN GROUP MAGNETITE
FE DELTA
PACIFIC ARIZONA RESOURCES
ARIZONA METAL RESOURCES

PINAL COUNTY MILS NUMBER: 765

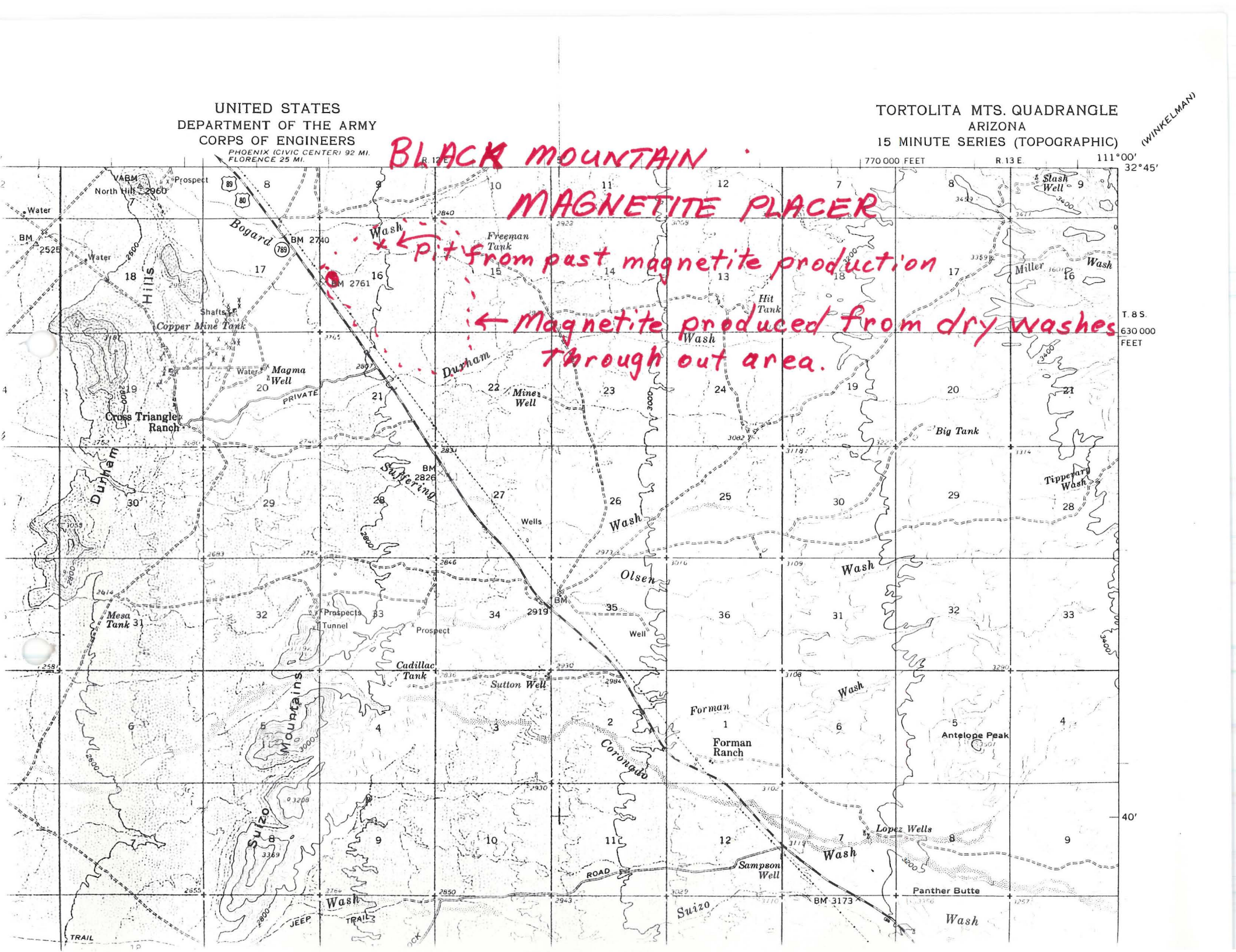
LOCATION: TOWNSHIP 8 S RANGE 12 E SECTION 16 QUARTER NW
LATITUDE: N 32DEG 44MIN 28SEC LONGITUDE: W 111DEG 06MIN 20SEC
TOPO MAP NAME: TORTOLITA - 15 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:

IRON	PLACER
IRON	MAGNETITE
MILL	MAGNETIC SEP

BIBLIOGRAPHY:
ADMMR BLACK MOUNTAIN IRON PLACER FILE
SEE: ADMMR OMEGA IRON PLACER DPSTS FILE 1 & 2
SEE: ADMMR TIAGO MINING CO. FILE
SEE: ADMMR ORO NEGRO MNG. CO. PROPERTIES FILE


UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
PHOENIX (CIVIC CENTER) 92 MI.
FLORENCE 25 MI.
TORTOLITA MTS. QUADRANGLE
ARIZONA
15 MINUTE SERIES (TOPOGRAPHIC)
(WINKELMAN)
BLACK MOUNTAIN
MAGNETITE PLACER
pit from past magnetite production
Magnetite produced from dry washes
Through out area.
R. 12 E.
770 000 FEET
R. 13 E.
111°00'
32°45'
T. 8 S.
630 000
FEET
40'
Hills
Bogard
Wash
Freeman Tank
Copper Mine Tank
Magma Well
PRIVATE
Cross Triangle Ranch
Durham
Mines Well
Hit Tank
Big Tank
Miller
Slash Well
Tipperary Wash
Suffering
Wells
Olsen
Well
Mesa Tank
Prospects
Tunnel
Prospect
Cadillac Tank
Sutton Well
Forman
Forman Ranch
Coronado
Antelope Peak
Mountains
Suizo
Lopez Wells
Sampson Well
ROAD
Panther Butte
JEEP
TRAIL
North Hill 2960
BM 2525
BM 2740
BM 2761
BM 2826
BM 2919
BM 3173

BLACK MOUNTAIN IRON PLACER (file) Pinal Co.

Reynolds Electrical & Engineering Co., Inc.
Post Office Box 98521 • Las Vegas, NV 89193-8521

IN REPLY REFER TO:
525-04-530

September 23, 1992

Barry Moody
Arizona State Land Dept.
1616 West Adams
Phoenix, AZ 85007

PURCHASE ORDER NO. 2317-CUW-01(8) - THE MARTIN GROUP

This is in response to your request for information dated September 18, 1992, regarding Reynolds Electrical & Engineering Co., Inc.'s contract for bulk magnetite with The Martin Group. The subject purchase order has been in place for approximately four years and expires November 30, 1992. The original order was for a three-year period for an estimated requirement of 15,000 tons and was extended for one year through November 30, 1992, with no changes.

REECo has approximately 3,500 tons on hand. We anticipate no further purchases prior to the expiration date, and there is no estimated usage for fiscal year 1993.

This information is the current status as of today; however, it is subject to change. If you have any questions or need additional information, please call Rico DiFulvio at (702) 295-2082.

for H. L. Everett
D. M. Burnett, Manager
Procurement Department

DMB:END:ag

Reynolds Electrical & Engineering Co., Inc.
Post Office Box 98521 • Las Vegas, NV 89193-8521

IN REPLY REFER TO:

525-01-2

OCT 04 1993

Barry Moody
Arizona State Land Department
1616 West Adams
Phoenix, AZ 85007

PURCHASE ORDER 2317-CUW-01(8), THE MARTIN GROUP

I am responding to your memorandum dated October 1, 1993 to Rico DiFulvio who is an employee in my department.

Per your request, I am sending you a copy of the letter sent to The Martin Group on September 14, 1993 by Sharon Cannella, Chief Purchasing Agent, exercising REECo's 30-day option to cancel the balance of the order. A change order was also written and sent to The Martin Group showing the expiration date of October 13, 1993.

If you have any questions, please call Rico DiFulvio at (702) 295-2082.

Don Burnett

D. M. Burnett, Manager
Procurement Department

DMB:END:dkl

Enclosure
As stated

525-04-701

September 14, 1993

The Martin Group
4436 East Wilds Road
Tucson, AZ 85737

CONTINUOUS-USE PURCHASE ORDER NO. 2317-CUW-01(8)

This letter is to inform you Reynolds Electrical & Engineering Co., Inc. is exercising our 30-day option to cancel the balance of this purchase order in its entirety, effective from September 14, 1993.

This cancellation is due to the uncertainty of the future requirements at the Nevada Test Site and is in no way a reflection of your performance.

Thank you for your support. We will continue to send you requests for proposals for any future requirements in your area of expertise.

If you have any questions, please call Enrico DiFulvio at (702) 295-2082.

Original Signed By

Sharon G. Cannella
Chief Purchasing Agent
JIT Contracts Section

SGC:END:jr

bc: Central Files
THRU R. B. Land
File No. 2317-CUW-01(8)

Date Printed: 02/23/94

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

VERBAL INFORMATION SUMMARY

Information from: **"Billy"**

Company: Arizona Securities Division, Az Corp Com

Address:
City, State ZIP:
Phone:

MINE: **Black Mountain Iron Placer**

ADMMR Mine File: Black Mountain Iron Placer
County: **Pinal**
AzMILS Number: **765**

SUMMARY

Billy explained that the "Black Mountain Iron Project" is still actively searching for and raising investment funds.

The Martins (Martin Group) have an agreement with Arizona Metal Resources of which Joe Mason (deceased) was president. Mr. Mason was supposed to raise $2.25 million for the Martin Group.

The Martins (Martin Group) also have an agreement with Pacific Arizona Resources of which Jim Kincannon is president. Pacific Arizona Resources is reported to have a new process for the recovery of metals from the black iron sand concentrate from the deposit.

Ron Haswell has been the chief funds raiser (marketer) for the ventures and is believed to have raised about $600,000 so far. He is not licensed nor are the investments registered for sale.

Copies of contracts between the Martin Group and Pacific Arizona Resources and between the Martin Group and Arizona Metal Resources along with a six page letter/report from Vortex Industries to Joe Mason showing economically viable quantities of gold, silver, and platinum group metals were provided for our file. The Votex Industries letter is being used to help raise investment moneys.

There is no information or basis to suggest that such values have ever been extracted from that property or that the values purported by Vortex Industries have been substantiated by independent evaluation.

The letter is included in the file as historical information only.

Ken A. Phillips, Chief Engineer Date: February 23, 1994

AGREEMENT

Agreement made this 21st day of July, 1993, by and between PACIFIC ARIZONA RESOURCES, a Nevada corporation, hereinafter called PAR, and the MARTIN GROUP, an Arizona partnership, hereinafter called MARTIN GROUP.

Whereas, the MARTIN GROUP represents and warrants that they own or control, by reason of valid Federal unpatented mining claims and Arizona State mineral leases, the exclusive mineral rights for approximately 40,000 acres of mineralized alluvial deposits located within T7 & 8S, R11E and T7 & 8S, R12E, G&SRB&M, Pinal county, Arizona, subject only to the paramount titles of the U.S. Government and the State of Arizona, as described in Schedule A hereto; and further represent and warrant that said mining claims and mineral leases are free and clear of any liens or encumbrances, and

Whereas, the MARTIN GROUP represents that they have the knowledge, experience, expertise and ability to mine and concentrate the said mineral alluvium and to further process such concentrate to produce valuable minerals and precious metals, if any, present in said concentrate, including but not limited to, magnetite, silver, gold and the platinum group, and to so do in sufficient volume to satisfy the production requirements set forth herein. However, the performance of such activities is dependent upon and subject to the availability of adequate equipment, utilities, labor force and operating capital, as inventoried in Schedule B hereto, and

Whereas, PAR represents and warrants that it is capable of providing the necessary financing to supply those needed items set forth in Schedule B hereto, including the initial operating costs for a reasonable period pending marketing of the products and the realization of income therefrom, and

Whereas, PAR represents that it has the knowledge, experience and expertise to market the production contemplated hereunder, and to prepare and keep accurate and complete bookkeeping and accounting records of the expenses and income from such marketing, and

Whereas, the parties agree that $2,000,000 U.S. will provide sufficient and adequate funding and is the maximum amount required to accomplish the goals and purposes set forth herein.

Now Therefore, the parties agree as follows:

1. The operations contemplated hereunder will involve four separate and distinct areas or categories of responsibilities, namely:

a. The mining and concentrating of the said mineralized alluvial deposit into a 90%+ magnetite concentrate; the disposal of the rejected material; and the proper processing of the concentrate.

b. The processing of the concentrate into magnetite and precious metals and any other valuable elements, collectively referred to as "products".

c. The marketing of the products.

d. The bookkeeping, accounting, purchasing and paying, personnel and payroll, and general office management procedures for the entire operation.

The operations contemplated will have a commencement date as of the date the initial increment of the funding is placed.

2. Upon execution of this Agreement and in consideration thereof The Martin Group will receive new shares of PAR to be issued from the Treasury of PAR in such quantity that THE MARTIN GROUP will own 50% of the issued and outstanding shares of PAR.

Subsequent to the issuance of the shares of PAR to THE MARTIN GROUP as contemplated in the preceeding paragraph PAR will take the necessary steps to source $2,250,000.00 U.S. in new Working Capital for the contemplated operations of PAR, from which all initial expenditures for equipment, materials, supplies, vehicles, construction and miscellaneous items will be made and owned by PAR. All ongoing expenses of the operation, including, but not limited to, utilities, maintenance, repairs, fuels, insurance and other ordinary overhead costs, will be contracted for and paid by PAR, which will also be responsible for the payment of those items set forth in paragraph 1.d. above, the payment of taxes and the payment of dividends to its stockholders.

The policy and affairs of PAR will be directed and monitored by a board of our (4) directors who will appoint or elect the corporate officers.

3. PAR agrees to provide the funding for the contemplated operation of the Corporation in the total amount of $2,250,000.00 U.S. which will be made available in tranches as funds become available however the entire amount will be made available within 150 days from the signing of this agreement by both parties. It is expressly understood by all parties to this agreement and is hereby authorized that a payment of $250,000.00 U.S. will be made to the MARTIN GROUP as payment in full for the past and current use of their equipment, materials, supplies and structures presently in use, or available for use, on the subject mining property, to date. Any continued use of said equipment, materials, supplies and structures, will be subject to an agreement between the parties. It is specifically understood that there will be no repayment obligation for the $2,250,000.00 funding other than the participation of the profit of the PAR as provided herein.

4. PAR agrees to assume the responsibilities for the marketing and division in kind of the products produced by the MARTIN GROUP from the 5 million ton ore block and for the preparation and keeping of accurate and complete bookkeeping and accounting records of the expenses and income incurred and realized from such marketing, and of the division of products in kind.

5. MARTIN GROUP agrees to make available to and for the use of the PAR, the right to mine, or otherwise remove, sufficient amounts or volumes of said mineralized alluvial deposits from the areas described in the attached Schedule A, which will yield 5,000,000 long tons of 90%+ magnetite concentrates at the following rates:

a. A minimum of 200 long tons per day for 26 days per month during the first 12 months of operation.

b. A minimum of 300 long tons per day for 26 days per month during the 13th through the 36 months of operation.

c. A minimum of 400 long tons per day for 26 days per month for the time required to satisfy the balance of the committed tonnage of 90%+ magnetite concentrate.

The 90%+ magnetite concentrate involves the feed for a certain process. If a more profitable process is used, requiring a different percentage of magnetite concentrate, the percentage requirement will change accordingly.

Any additional equipment or labor needed to comply with the minimum production requirements set forth above, will be provided by the PAR.

The MARTIN GROUP represents and warrants that the area described as sections 21-22 and 27-28, T8S, R11E, which is within those areas described in Schedule A hereto, contains sufficient mineralized alluvial deposits to a depth of 25 feet to provide 5,000,000 long tons of 90%+ magnetite concentrates, and hereby specifically commits the said sections to a depth of 50 feet for the production of said magnetite concentrate tonnage. However, the parties agree that the said mining may be done on any available area within said mining claims described in Schedule A hereto, that is economically and physically suitable and conveniently located for the subsequent processing of the mined material.

PAR agrees that the MARTIN GROUP shall retain, as sole owners, the mineral patents issued and pending, which include sections 10, 11 and 12, T8S, R11E, and the additional patents being applied for, not to exceed 4,000 acres, or a grand total of 5600 acres. These are not considered a piece or part of the agreement.

The parties agree that the MARTIN GROUP will be issued 50% of the shares of stock of PAR and have two seats on its board of directors in consideration of the committed 5,000,000 long tons of 90%+ magnetite concentrates.

6. Upon completion of the initial 5,000,000 long tons of 90%+ magnetite concentrate committment set forth herein, the parties agree that PAR will have the option and right ot renew the committment for an additional 5,000,000 long tons of 90%+ magnetite concentrates upon the same terms herein set forth, except for the $2,250,000.00 U.S. funding, which will not be required. Notice of the exercise of such option and right will be given within the 180 day period prior to the completion of the initial committment.

The parties agree that PAR, upon providing the funding set forth in paragraph 3 hereof, will be free to, and may, sell and assign their rights and interest hereunder to a bona-fide purchaser, and to make other investments of the same or a similar nature as that being undertaken hereby.

In the event PAR decides to sell its rights and interest herein to a bona-fide

purchaser, the MARTIN GROUP will have a 30 day right of first refusal to purchase such rights and interest upon the same terms and conditions as the bona-fide purchase offer.

7. The MARTIN GROUP agrees to assume the responsibility for the mining and concentrating of said mineralized alluvial deposits and to properly dispose of the rejects therefrom; for the proper processing of the said concentrates; and for making same available for further processing. The parties agree that these undertakings by the MARTIN GROUP will be done as employees of the PAR at wages customarily paid for the same or similar work in the area. If the MARTIN GROUP becomes unable or unwilling to properly perform such employment, PAR may hire others to carry out the said undertakings.

8. The parties agree to be jointly responsible for the chemical processing of the properly prepared concentrates into the products of magnetite, precious metals and any other valuable elements. Such responsibility to be of a supervisory nature whereby representatives of the respective parties will monitor the operations, check inventories of magnetite concentrates to be processed, observe the actual processing, check the calculated assays and resulting production of precious metals and magnetite residues.

9. Any disputes arising between the parties which they are unable to resolve will be submitted to arbitration under the American Arbitration Association's Rules, and the parties agree to abide by the terms of the arbitrated decision. The parties further agree that the operations as contemplated hereunder will continue on a full time basis during any arbitration period.

10. Written notices required or convenient to be made hereunder, will be deemed made and delivered three (3) days after depositing such notice with a U.S. Post Office, registered or certified, return receipt requested, postage prepaid and addressed as follows:

MARTIN GROUP
P. O. Box 77835
Tucson, Az. 85705

PACIFIC ARIZONA RESOURCES CORP.
PO BOX 99, SONOITA,
Arizona, 856375

11. This agreement supercedes any and all prior agreements or understandings between the parties, and cannot be modified except by a written instrument signed by both parties.

12. Assignment of this agreement by either party in whole or in part will be ineffective and void unless it is consented to in writing by the other party.

13. Time is of the essence hereof.

14. This agreement shall be binding upon and inure to the benefit of the parties and their respective heirs, successors, assigns and personal representatives.

In Witness Whereof, the parties have executed this agreement as of the dates indicated.

PACIFIC ARIZONA RESOURCES CORP.

by: Frank C. Mashburn — 7/21/93
Chairman & C.E.O. — Date

Attest:

_____ — _____
Secretary — Date

MARTIN GROUP

_____ — _____
Owner — Date

_____ — _____
Owner — Date

SUMMARY

From: Mike Rice
State Land Dept.

April 1993

BLACK MOUNTAIN IRON PLACER (f)

1) Acreage under appeal by Mr. Joe Ingram are State Leases 08-99374, 99375 and 99377-99380 in T8S-R12E, Sections 7, 9-12, and 16 totalling 3,930.98 acres in Pinal County.

2) Estimates for iron ore reserves range from 10 million to nearly 2.5 billion tons.

3) Historically, efforts to make and market iron products from this resource has failed due to high transportation cost, no nearby market, and undesirable amounts of titanium.

4) The Martin/Ingram Group attempts to market the magnetite as: a shielding for nuclear devices, oxide pellets, powdered magnetite and as a sand blasting medium.

5) Presently the Martin/Ingram Group has a contract with the DOE to supply approximately **7,000** tons of magnetite to shield nuclear devices on a "as needed" basis. Rico Difulvio, a contracting officer with Reynolds Electrical and Engineering Company (Administrator of the DOE contract) states that the contract which was to expire in November 1991 has been extended to November 1992. This one year contract extension estimated the amount of material needed with no guarantees. The contract has been extended to November 30, 1994 on a "as needed" basis. Presently 46.9% of the magnetite stockpile has been expended with no plans to expand in the near future.

6) In 1991 the BLM reviewed an application for mineral patents submitted by the Martin/Ingram Group for 1,600 acres. After a geologic review, market research, and mineral character determination, it was determined to grant them a patent on **125** acres. They concluded these **125** acres could supply the necessary magnetite for **25** years.

7) Assay work performed by the University of Arizona in the 1960's indicates no significant amounts of gold were taken in Omega deposit samples.

8) No improvements were observed during the field trip of State Trust lands on September 11, 1992.

9) In 1976 Conoco approached the State Land Department to acquire a prospecting permit for copper exploration on the acreage under appeal.

10) The 1988 Annual Report for Tiago Mining lists Joe Ingram as a corporate officer.

11) Magnetite assays performed February 1993 indicated only trace amounts of gold and silver using standard fire assay procedure as well as procedures provided by Ingram group. These tests were performed by Jacobs Assay and Skyline Labs, Inc.

12) Currently Joe Ingram and the Martin Group own **50,080** acres (313 claims) of mining claims on Federal land for magnetite placer deposits.

13) On February 8, 1993 David and George Hill submitted applications for prospecting permits covering **2,559** acres of nearby Trust land. Historically, leases on this acreage have been cancelled due to non-performance and nonpayment.

AGREEMENT

Agreement made this 14th day of Nov., 1992, by and between ARIZONA METAL RESOURCES, an Arizona corporation, hereinafter called AMRC, and the MARTIN GROUP, an Arizona partnership, hereinafter called MARTIN GROUP.

Whereas, the MARTIN GROUP represents and warrants that they own or control, by reason of valid Federal unpatented mining claims and Arizona State mineral leases, the exclusive mineral rights for approximately 40,000 acres of mineralized alluvial deposits located within T7 & 8S, R11E and T7 & 8S, R12E, G&SRB&M, Pinal county, Arizona, subject only to the paramount titles of the U.S. Government and the State of Arizona, as described in Schedule A hereto; and further represent and warrant that said mining claims and mineral leases are free and clear of any liens or encumbrances, and

Whereas, the MARTIN GROUP represents that they have the knowledge, experience, expertise and ability to mine and concentrate the said mineral alluvium and to further process such concentrate to produce valuable minerals and precious metals, if any, present in said concentrate, including but not limited to, magnetite, silver, gold and the platinum group, and to so do in sufficient volume to satisfy the production requirements set forth herein. However, the performance of such activities is dependent upon and subject to the availability of adequate equipment, utilities, labor force and operating capital, as inventoried in Schedule B hereto, and

Whereas, AMRC represents and warrants that it is capable of providing the necessary financing to supply those needed items set forth in Schedule B hereto, including the initial operating costs for a reasonable period pending marketing of the products and the realization of income therefrom, and

Whereas, AMRC represents that it has the knowledge, experience and expertise to market the production contemplated hereunder, and to prepare and keep accurate and complete bookkeeping and accounting records of the expenses and income from such marketing, and

Whereas, the parties agree that $2,000,000 U.S. will provide sufficient and adequate funding and is the maximum amount required to accomplish the goals and purposes set forth herein.

Now Therefore, the parties agree as follows:

1. The operations contemplated hereunder will involve four separate and distinct areas or categories of responsibilities, namely:

a. The mining and concentrating of the said mineralized alluvial deposit into a 90%+ magnetite concentrate; the disposal of the rejected material; and the proper processing of the concentrate.

b. The processing of the concentrate into magnetite and precious metals and any other valuable elements, collectively referred to as "products".

c. The marketing of the products.

d. The bookkeeping, accounting, purchasing and paying, personnel and payroll, and general office management procedures for the entire operation.

The operations contemplated will have a commencement date as of the date the initial increment of the funding is placed.

2. Upon execution of this Agreement and in consideration thereof The Martin Group will receive new shares of AMRC to be issued from the Treasury of AMRC in such quantity that THE MARTIN GROUP will own 50% of the issued and outstanding shares of AMRC.

Subsequent to the issuance of the shares of AMRC to THE MARTIN GROUP as contemplated in the preceeding paragraph AMRC will take the necessary steps to source $2,250,000.00 U.S. in new Working Capital for the contemplated operations of AMRC, from which all initial expenditures for equipment, materials, supplies, vehicles, construction and miscellaneous items will be made and owned by AMRC. All ongoing expenses of the operation, including, but not limited to, utilities, maintenance, repairs, fuels, insurance and other ordinary overhead costs, will be contracted for and paid by AMRC, which will also be responsible for the payment of those items set forth in paragraph 1.d. above, the payment of taxes and the payment of dividends to its stockholders.

The policy and affairs of AMRC will be directed and monitored by a board of our (4) directors who will appoint or elect the corporate officers.

3. AMRC agrees to provide the funding for the contemplated operation of the Corporation in the total amount of $2,250,000.00 U.S. which will be made available in tranches as funds become available however the entire amount will be made available within 400 days from the signing of this agreement by both parties. It is expressly understood by all parties to this agreement and is hereby authorized that a payment of $250,000.00 U.S. will be made to the MARTIN GROUP as payment in full for the past and current use of their equipment, materials, supplies and structures presently in use, or available for use, on the subject mining property, to date. Any continued use of said equipment, materials, supplies and structures, will be subject to an agreement between the parties. It is specifically understood that there will be no repayment obligation for the $2,250,000.00 funding other than the participation of the profit of the AMRC as provided herein.

4. AMRC agrees to assume the responsibilities for the marketing and division in kind of the products produced by the MARTIN GROUP from the 5 million ton ore block and for the preparation and keeping of accurate and complete bookkeeping and accounting records of the expenses and income incurred and realized from such marketing, and of the division of products in kind.

5. MARTIN GROUP agrees to make available to and for the use of the AMRC, the right to mine, or otherwise remove, sufficient amounts or volumes of said mineralized alluvial deposits from the areas described in the attached Schedule A, which will yield 5,000,000 long tons of 90%+ magnetite concentrates at the following rates:

a. A minimum of 200 long tons per day for 26 days per month during the first 12 months of operation.

b. A minimum of 300 long tons per day for 26 days per month during the 13th through the 36 months of operation.

c. A minimum of 400 long tons per day for 26 days per month for the time required to satisfy the balance of the committed tonnage of 90%+ magnetite concentrate.

The 90%+ magnetite concentrate involves the feed for a certain process. If a more profitable process is used, requiring a different percentage of magnetite concentrate, the percentage requirement will change accordingly.

Any additional equipment or labor needed to comply with the minimum production requirements set forth above, will be provided by the AMRC.

The MARTIN GROUP represents and warrants that the area described as sections 21-22 and 27-28, T8S, R11E, which is within those areas described in Schedule A hereto, contains sufficient mineralized alluvial deposits to a depth of 25 feet to provide 5,000,000 long tons of 90%+ magnetite concentrates, and hereby specifically commits the said sections to a depth of 50 feet for the production of said magnetite concentrate tonnage. However, the parties agree that the said mining may be done on any available area within said mining claims described in Schedule A hereto, that is economically and physically suitable and conveniently located for the subsequent processing of the mined material.

AMRC agrees that the MARTIN GROUP shall retain, as sole owners, the mineral patents issued and pending, which include sections 10, 11 and 12, T8S, R11E, and the additional patents being applied for, not to exceed 4,000 acres, or a grand total of 5600 acres. These are not considered a piece or part of the agreement.

The parties agree that the MARTIN GROUP will be issued 50% of the shares of stock of AMRC and have two seats on its board of directors in consideration of the committed 5,000,000 long tons of 90%+ magnetite concentrates.

6. In the event the MARTIN GROUP decides to expand operations on their 40,000 acres beyond the 5,000,000 long tons of 90%+ magnetite concentrate committed herein and has a bona-fide offer from a third party for such expansion, they hereby grant to AMRC a thirty day right of first refusal to match such bona-fide offer and undertake the proposed expansion.

7. Upon completion of the initial 5,000,000 long tons of 90%+ magnetite concentrate committment set forth herein, the parties agree that AMRC will have the option and right ot renew the committment for an additional 5,000,000 long tons of 90%+ magnetite concentrates upon the same terms herein set forth, except for the $2,250,000.00 U.S. funding, which will not be required. Notice of the exercise of such option and right will be given within the 180 day period prior to the completion of the initial committment.

The parties agree that AMRC, upon providing the funding set forth in paragraph 3 hereof, will be free to, and may, sell and assign their rights and interest hereunder to a bona-fide purchaser, and to make other investments of the same or a similar nature as that being undertaken hereby.

In the event AMRC decides to sell its rights and interest herein to a bona-fide

purchaser, the MARTIN GROUP will have a 30 day right of first refusal to purchase such rights and interest upon the same terms and conditions as the bona-fide purchase offer.

9. The MARTIN GROUP agrees to assume the responsibility for the mining and concentrating of said mineralized alluvial deposits and to properly dispose of the rejects therefrom; for the proper processing of the said concentrates; and for making same available for further processing. The parties agree that these undertakings by the MARTIN GROUP will be done as employees of the AMRC at wages customarily paid for the same or similar work in the area. If the MARTIN GROUP becomes unable or unwilling to properly perform such employment, AMRC may hire others to carry out the said undertakings.

10. The parties agree to be jointly responsible for the chemical processing of the properly prepared concentrates into the products of magnetite, precious metals and any other valuable elements. Such responsibility to be of a supervisory nature whereby representatives of the respective parties will monitor the operations, check inventories of magnetite concentrates to be processed, observe the actual processing, check the calculated assays and resulting production of precious metals and magnetite residues.

11. Any disputes arising between the parties which they are unable to resolve will be submitted to arbitration under the American Arbitration Association's Rules, and the parties agree to abide by the terms of the arbitrated decision. The parties further agree that the operations as contemplated hereunder will continue on a full time basis during any arbitration period.

12. Written notices required or convenient to be made hereunder, will be deemed made and delivered three (3) days after depositing such notice with a U.S. Post Office, registered or certified, return receipt requested, postage prepaid and addressed as follows:

MARTIN GROUP
P. O. Box 77835
Tucson, Az. 85705

ARIZONA METAL RESOURCES CORPORATION
7100 East Stone Canyon Drive,
Tucson Arizona, 85715

13. This agreement supercedes any and all prior agreements or understandings between the parties, and cannot be modified except by a written instrument signed by both parties.

14. Assignment of this agreement by either party in whole or in part will be ineffective and void unless it is consented to in writing by the other party.

15. Time is of the essence hereof.

16. This agreement shall be binding upon and inure to the benefit of the parties and their respective heirs, successors, assigns and personal representatives.

In Witness Whereof, the parties have executed this agreement as of the dates indicated.

ARIZONA METAL RESOURCES CORPORATION

by: _____ 11/11/92
President Date

Attest: _____ 11/14/92
Asst Secretary Date

OSM
MGW

MARTIN GROUP

_____ 11/14/92
Owner Date

_____ 11-14-92
Owner Date

Memo to ADMMR MINE FILE: **BLACK MOUNTAIN IRON PLACER**

Pinal, County AzMILS Number: 765

The attached six page letter/report dated September 17, 1992 from Vortex Industries to Joe Mason is reported to be an analysis of the recovery of precious metals from alluvial magnetite at the Black Mountain Iron Placer, Pinal County, Arizona.

There is no information as to whether such values have ever been extracted from that property or that the values purported by Vortex Industries have been substantiated by independent evaluation.

The letter is included in the file as historical information only.

Ken A. Phillips, Chief Engineer
Arizona Department of Mines and Mineral Resources
February 23, 1994

VORTEX INDUSTRIES, INC.

September 17, 1992

Mr. Joe Mason
6636 River Heights Place
Tucson, AZ 85715

LABORATORY TESTS REPORT

Sample Identification: None Given
Date Received: August 25, 1992
Work Performed:

SUPAC RESIN-IN-CARTRIDGE AMENABILITY TEST:

The test was performed on August 25, 1992. Mr. Haswell and his associates stayed with us during the entire length of the leach test.

Chemical Assay of Head Ore (Aqua Regia Digestion with MIBK Extraction, Atomic Absorption Reading) -

Au: 0.581 oz/T
Ag: 0.974 oz/T
Pt: 0.204 oz/T
Pd: 0.139 oz/T
Rh: 0.027 oz/T

Quantity of Ore Used for the Leach Test: 3,000 grams or 6.615 lbs.

Mesh Size: -100 mesh.

Quantity of Lixiviant Used: 16,000 ml of chlorine solution prepared as follows: 15,428 ml H_20 + 272 ml Ciano BCK + 300 ml concentrated HCl.
Titration of starting solution: 0.497% chlorine solution.

P.O. Box 1767, Sun Valley, ID 83353 • (208) 726-7064

Quantity of Ion-Exchange Resins Used: 100 cc of Dowex 21K resins.

The test was performed with our Supac Universal Leach Test Unit.
The ion-exchange cartridge, loaded with 100 cc of resins, was installed in the 7 gallon mixing tank. The water and the chemicals were added and mixed for approximately 10 minutes to allow the reaction to complete. The weighed ore was added and the slurry was agitated for 5 minutes after which a sample of it was taken. The slurry was then pumped through the accelerator, through the ion-exchange cartridge, and back into the mixing tank; it was circulated in this manner for a total of 19 passages through the accelerator. Samples of the slurry were taken every 30 seconds (= the time it takes for the entire slurry to make one passage through one accelerator).

pH - starting: 1.21
after 4 accelerators: 1.23
after 9 accelerators: 1.25
after 14 accelerators: 1.26
after 19 accelerators: 1.26

Temperature of Slurry - starting: 20.1 degrees C
ending: 20.8 degrees C

The samples were filtered and the filtrates were read for gold, platinum, palladium, and rhodium content with an atomic absorption instrument.

	Au in Solution
After 5 minutes of agitation in the mixing tank	not detected
After 1 accelerator (30 seconds)	0.070 oz/T
After 2 accelerators (1 minute)	0.093 oz/T
After 3 accelerators (1 min. 30 sec.)	0.163 oz/T
After 4 accelerators (2 minutes)	0.218 oz/T
After 5 accelerators (2 min. 30 sec.)	0.311 oz/T
After 6 accelerators (3 minutes)	0.420 oz/T
After 7 accelerators (3 min. 30 sec.)	0.233 oz/T

	Au in Solution
After 8 accelerators (4 minutes)	not detected
After 9 accelerators (4 min. 30 sec.)	not detected
After 10 accelerators (5 minutes)	not detected
After 19 accelerators (9 min. 30 sec.)	not detected

	Pt in Solution
After 5 minutes of agitation in the mixing tank	not detected
After 1 accelerator (30 seconds)	not detected
After 2 accelerators (1 minute)	0.034 oz/T
After 3 accelerators (1 min. 30 sec.)	0.062 oz/T
After 4 accelerators (2 minutes)	0.113 oz/T
After 5 accelerators (2 min. 30 sec.)	0.140 oz/T
After 6 accelerators (3 minutes)	0.054 oz/T
After 7 accelerators (3 min. 30 sec.)	not detected
After 8 accelerators (4 minutes)	not detected
After 9 accelerators (4 min. 30 sec.)	not detected
After 19 accelerators (9 min. 30 sec.)	not detected

	Pd in Solution
After 5 minutes of agitation in the mixing tank	not detected
After 1 accelerator (30 seconds)	0.006 oz/T
After 2 accelerators (1 minute)	0.031 oz/T
After 3 accelerators (1 min. 30 sec.)	0.075 oz/T
After 4 accelerators (2 minutes)	0.123 oz/T
After 5 accelerators (2 min. 30 sec.)	0.148 oz/T
After 6 accelerators (3 minutes)	0.078 oz/T
After 7 accelerators (3 min. 30 sec.)	not detected
After 8 accelerators (4 minutes)	not detected
After 9 accelerators (4 min. 30 sec.)	not detected
After 19 accelerators (9 min. 30 sec.)	not detected

	Rh in Solution
After 5 minutes of agitation in the mixing tank	not detected
After 1 accelerator (30 seconds)	not detected
After 2 accelerators (1 minute)	0.011 oz/T
After 3 accelerators (1 min. 30 sec.)	0.015 oz/T
After 4 accelerators (2 minutes)	0.026 oz/T
After 5 accelerators (2 min. 30 sec.)	0.039 oz/T
After 6 accelerators (3 minutes)	not detected
After 7 accelerators (3 min. 30 sec.)	not detected
After 8 accelerators (4 minutes)	not detected
After 19 accelerators (9 min. 30 sec.)	not detected

The leaching is completed after 8 passages through the accelerator: the chlorine solution is barren and it is assumed that the precious metals values have been adsorbed by the ion-exchange resins in the cartridge.

The ion-exchange cartridge was removed from the mixing tank; the resins were cleaned and transferred to an ion-exchange column for rinsing and stripping.

The resins were first rinsed with 20 bed volumes or 2,000 ml of Ciano R2 - this solution strips all unwanted impurities like base metals off the resins. The Ciano R2 was passed once through the resins at a flow rate of 40 ml solution/minute. The resins were then eluted with 6 bed volumes or 600 ml of Ciano GP - this solution strips the gold and platinum group metals off the resins. The Ciano GP was circulated 4 times through the resins at a flow rate of 40 ml solution/minute, from the bottom of the ion-exchange column to the top.

After stripping the resins, the Ciano GP pregnant solution was pumped out of the ion-exchange column and transferred to a beaker. To recover all GP pregnant solution, an additional 200 ml of distilled water were passed through the resins and added to the beaker.

To precipitate the gold, 30 ml of Ciano Z were added to the solution in the beaker. The solution was stirred and slowly brought to approximately 150 degrees F over a period of 30 minutes.

The gold precipitate was filtered, rinsed with distilled water, dried, wrapped in lead foil, and cupelled. The filtrate (= platinum group metals pregnant solution) was set aside.

The gold bead obtained weighed 58.07 mg (bead handed to customer during his visit on 8.25.92) which corresponds to a recovery of 0.564 oz of gold per ton of ore (assuming the gold bead is 100% gold).

To precipitate the platinum group metals, 0.5 g of Aluminum powder was added to the filtrate from the previous step. The solution was stirred until no more gas bubbles formed, approximately 45 minutes.

The platinum group metals precipitate was filtered, rinsed with distilled water, dried, wrapped in lead foil, and cupelled.

The platinum group metals bead obtained weighed 51.70 mg (bead handed to customer during his visit on 8.25.92) which corresponds to a combined platinum group metals recovery of 0.502 oz per ton of ore (assuming the platinum group metals bead is 100% PGM).

Titration of chlorine solution at the end of the leaching cycle: 0.470% chlorine solution (which corresponds to a chlorine consumption of 1.139 gallons of Ciano BCK and 1.256 gallons of concentrated HCl per ton of ore).

Chemical Assay of Tails - Au: 0.023 oz/T
Ag: 0.416 oz/T
Pt: not detected
Pd: 0.012 oz/T
Rh: 0.008 oz/T

If you have any questions, please feel free to call us.

Thank you !

Maya B. Dunkel

BLACK MOUNTAIN IRON PLACER
(f)

U. S. SPONGE IRON COMPANY
AND THE FUTURE OF SPONGE IRON
IN THE SOUTHWEST COPPER INDUSTRY

INDEX OF EXHIBITS

EXHIBIT I

U. S. SPONGE IRON COMPANY

USSICO

The Company:

U. S. Sponge Iron Company was incorporated in the State of New Mexico, March 9, 1964. It is qualified to do business in Arizona and New Mexico. Its principal office is at 130 Center Street, Socorro, New Mexico and its principal place of business is at the plant site on North Arizona Boulevard in Coolidge, Arizona. The Company is owned 80% by Dotson Minerals Corporation, a New Mexico Corporation, and 20% by Arkota Steel Company, an Arizona Corporation.

The primary business of the Company is the manufacture and sale of sponge iron. Sponge iron is produced by reaction of reducing gases and iron ore. The metal is not melted by this method of production.

The Plant Site and Sponge Iron Plant:

The plant site at Coolidge, Arizona, is eighty acres of level ground. It is on the Southern Pacific railway and has ready access to main highways. Plentiful water is available from wells, power is supplied by Arizona Public Service Company, and natural gas, one of the two principal raw materials for sponge iron manufacture, is supplied by Southwest Gas Corporation. The location of the site is ideal for shipment of the plant products to the principal market for sponge iron, the copper mining industry, many operating units of which are within 300 miles of the Coolidge plant site.

The present plant includes equipment for beneficiating and pelletizing iron ore, retorts for reducing pellets to sponge iron gass treating units for reforming natural gas into the reducing gas needed for reaction with iron ore, an electric furnace for producing molten metal, and auxilliary equipment. The plant is valued at about $1,000,000. The existing facilities have limited production capacity. Increased capacity must be provided so that the plant can be operated at a profitable rate.

Products and Markets:

The largest present market for sponge iron is the copper mining industry which uses iron for precipitation and recovery of copper from mine waters and leach solutions. Precise determination of the size of this market is not easy but it can be said that more than 200,000 tons of specially processed scrap iron are used each year for copper precipitation in the Southwest and this use is increasing. Sponge iron is better for this purpose than the scrap iron now being used and can be produced at favorable cost.

Additional markets are found among specialty steel and alloy producers. Sponge iron produced from pure high-grade ores can be melted and cast into ingots for such use. Prices in this market are relatively high. It will be cultivated along with the copper-precipitant market.

Much metal powder is used in manufacturing "powder metallurgy: items such as small gears. Certain grades of sponge iron will enter this market in which metal is sold by the pound rather than by the ton.

EXHIBIT II

MARKET

MARKET FOR SPONGE IRON IN THE U.S. SOUTHWEST

The largest concentrated market in the world for sponge iron is the copper mining industry of the U.S. Southwest. There, tin-can scrap and sponge iron are used to precipitate copper from mine waters and leach solutions which contain the copper leached from low-grade ores and tailings. This copper is usually the least expensive metal produced by the industry. Further, the use of leach-precipitation-float (LPF) processes in ore treatment plants for recovering sulfide copper minerals and the copper dissolved from oxidized minerals during processing is a growing use for sponge iron in this industry.

Tin-can scrap, shipped from as far away as San Francisco and Houston (and probably Chicago), is the commonly used material for precipitating copper at the mines. The cans are prepared for this use by burning in kilns to remove tin plating, paint, paper and solder, and then by compacting in a hammer mill, toothed rolls, or some other shredding device. Untreated cans weigh only 8 to 12 pounds per cubic foot; after shredding and compacting they weigh 20 to 30 pounds per cubic foot. Further compacting makes the cans less useful for precipitation of copper because the effective porosity is reduced, thus reducing circulation of solutions through them in the copper-recovery process.

Sponge iron, where available, is used in preference to scrap cans because it is better for the following reasons:

1. Greatly increased speed of reaction.

2. Ease of process control and automation.

3. Allows use of advance-design reactors.

4. Improved copper concentrate with use of high-grade sponge iron.

5. Convenience of storage compared to cans.

6. Assured supply from local raw materials at competitive cost.

In 1963, more than 200,000 tons of iron was used for copper precipitation within 300 miles of USSICO'S plant at Coolidge, Arizona. New projects and expansions in present operations indicate a rapidly growing market which we conservatively estimate will approach 350,000 tons per year by 1966. Our present production plans are for a nominal 100 tons per day of high-grade sponge iron, just slightly more than 10% of the estimated 1966 market and less than 20% of the present usage.

The copper mining industry is very concerned about an assured supply of suitable iron materials for the precipitation of copper and several operators are engaged in development of processes for sponge iron manufacture and usage. Two are actually supplying part of their iron needs by captive sponge iron production. The industry; however, would welcome a reliable supplier who would have the cost advantage of volume production. USSICO is in this position with exclusive rights in Arizona and New Mexico to a proven process for direct reduction of iron ore, a plant located in the heart of the Southwest copper mining industry, and guaranteed access to large reserves of high-grade iron ore.

CONSUMPTION OF IRON FOR COPPER PRECIPITATION
BY THE SOUTHWEST COPPER-MINING INDUSTRY IN 1963

AND
TRUCKING COST FOR SPONGE IRON: COOLIDGE, ARIZONA TO PLANT

Company and Division or Mine	Iron Used for precipitation of copper in 1963 Tons/Day	Trucking from Coolidge Miles	Trucking from Coolidge Cost, $/ton
Kennecott Copper Corp. Ray Mines Division Hayden, Arizona			
Ray	45	51	2.65
Hayden	35	72	3.25
Cities Service Co. Miami Copper Div. Miami, Arizona			
Castle Dome	14	58	3.05
Miami	35	63	3.25
Copper Cities	20	71	3.60
Inspiration Consolidated Copper Co. Inspiration, Arizona	67	68	3.75
American Smelt. & Refin. Co. Silver Bell Unit Silver Bell, Arizona	10	75	2.70
Duval Sulfur and Potash Co. Copper Division Tucson, Arizona			
Esperanza Mine	15	95	3.40
Direct Minerals Mame Mine Tombstone, Arizona	10	165	5.80
Phelps Dodge Corp. Douglas, Arizona New Cornelia Branch Ajo, Arizona	No present use but large projects being planned	120	4.20

Company and Division or Mine	Iron Used for Precipitation of Copper in 1963 Tons/Day	Trucking from Coolidge Miles	Cost,$/Ton
Copper Queen Branch Bisbee, Arizona	No present use but large projects being planned	167	6.00
Lavender Pit Bisbee, Arizona	70	167	6/00
Morenci Branch Morenci, Arizona	10	204	8.90 (R.R.@5.25)
Bagdad Copper CO. Bagdad, Arizona	66	183	8.80
The Anaconda Co. Canannea Div. Canannea, Sonora, Mex.	40	212	7.80 (R.R.@4.50)
Kennecott Copper Corp. Chino Mines Div. Hurley, New Mexico	110	341	11.10 (R.R.@6.00)
Banner Mining Co. Bonney-Miser's Chest Mine Lordsburg, New Mexico	5	226	7.00 (R.R.@4.25)
Zontelli Western Mining Co. Copper Trading Post Kaibito, Arizona	10		R.R. to Flagstaff @4.50 - Truck to Mine @4.35
Stovall Copper CO. Bluebird Mine Miami, Arizona	2	62	3.20
Desoto Copper Mining Co. Cleator, Arizona	No present use, project planned	58	3.60
Total 1963 Use	564 Tons/day		

EXHIBIT III

THE FUTURE GROWTH OF THE MARKET FOR SPONGE IRON IN THE SOUTHWEST COPPER INDUSTRY AND THE CHANGING SUPPLY" SITUATION FOR TIN-CAN SCRAP

A substantial fraction of the copper produced by the Southwest copper-mining industry is won by leaching low-grade copper-bearing material from the stripping dumps of open-pit mines and from the caved cap rock of underground mines. The copper is dissolved from these low-grade sources in dilute acid solutions and is precipitated on scrap tin cans or sponge iron by a simple chemical process known as cementation. Copper so produced is called cement copper.

The Bagdad Copper Corporation produced slightly over 1,000,000 pounds of cement copper by leaching in 1961 and in 1962 produced over 6,000,000 pounds of cement copper out of a total of about 28,500,000 pounds. Bagdad's present goal is to more than double its cement copper production.[1] Duval Corporation produced five percent of its total copper by leaching and cementation in 1962. Inspiration Consolidated Copper Company also produced about five percent of its total output by leaching in 1962. The Chino Division of Kennecott Copper Corporation has increased its handling of leach liquors by a factor of ten since 1939 and large-scale leaching is practiced by this company at its Ray Mines and Utah Copper Divisions. At the Utah Division, production of copper from dump leaching increased from 18,800,000 pounds in 1961 to 33,300,000 pounds in 1962, and further increases to 144,000,000 pounds per year are planned. Another of Kennecott's Divisions, the

[1] "Leaching Dumps to Recover More Southwest Copper at Lower Cost", George O. Argall, Jr., Mining World, October 1963, p. 23.

Nevada Mines Division, plans to recover three percent of its total metal by leaching and cementation. Miami Copper's Castle Dome Mine is producing copper only by dump leaching--no current metal is from newly-mined ore.

The copper-mining industry is expanding its production of metal from existing dumps because the cement copper recovered from them is the cheapest metal the industry can produce. Bagdad's cement copper production is said to involve a direct cost of only about $0.08 per pound! Further, present mining operations include separation of suitable rock in dumps best suited for subsequent leaching. Though Anaconda's Berkley Pit cannot be considered a Southwest mining operation, its planning is typical of the industry--it, too, stock-piling stripping material in dumps for future leaching.

Thus, the overall picture of cement copper production is large and increasing and is projected into the future even beyond the life of production by new mining (as at Miami Copper's Castle Dome Mine). While our market study revealed that 564 tons of iron per day was used in Arizona and New Mexico in 1963, the same study indicated that within three years the use of iron for cementation of copper would rise to 955 tons per day on the basis of active projects in the industry in the same geographical area.

Burned and detinned tin can scrap is the iron material most commonly used for precipitation of cement copper from mine waters. Its large surface to weight ratio makes it favored over any other common form of scrap iron because the rate of precipitation of copper is directly proportional to the surface area available for chemical

reaction. The percentage of usable iron (Metallic iron) in prepared cans is about 85%. The remainder, 15% of the original metal, is oxidized to useless iron oxides during the removal of paper, paint, and solder from the original cans by burning. In 1963, the cost of cans to the Southwest copper-mining industry varied from about $52, 00 to about $62.00 per ton of cans delivered to the mines, the variations due to market price and transportation charges.

There are irreversible trends in the tin-can picture that are disturbing for their future use in the production of cement copper. First, the can industry is moving to the use of "thin tin" this year, 1964, especially for canned beverages which constitue approximately 60% of the total can market. Thin tin is tinplated steel that is only 0.005 in. thick whereas the tin plate in cans produced in the recent past was 0.008 in. thick. If one calculates the amount of tin-can scrap needed to provide one ton of usable iron for cement purposes he finds that 1.176 tons of 0.008 in. scrap, or assuming the same oxidation during burning, 1.316 tons of 0.005 in. scrap (thin tin scrap) are needed. This means an increase of almost twelve percent in the weight of tin-can scrap needed to have a unit weight of usable iron. One might imagine that a reduction in the price of tin-can scrap might be feasible to maintain the scrap market as is on a usable iron basis. This; however, is unlikely. In order to ship a ton of tin-can scrap, the supplier will have to handle 8/5 or 160%, as many cans of thin tin as with the present standard cans, and inorder to ship a ton of usable iron (which is what the mining industry buys) he will have to handle almost 179% as many thin-tin cans, that is almost 79% more cans. His

costs are mostly materials handling, so will rise steeply. The freight cost will increase about twelve percent per ton of usable iron and probably more because of the greatly increased bulk of the product.

A second unfavorable trend for tin-can scrap is the growth of plastic containers and of paper containers having foil membranes as the only metal component for oil and dry foods such as coffee and candy.

Sponge iron is a better material than tin-can scrap for copper cementation for several reasons. It is very reactive and can be prepared to have almost any desired effective surface to weight ratio so that rapid chemical reaction with leach solutions is possible. Sponge iron, unlike tin-can scrap, is reproducibly uniform as pellets or powders of specific particle size. It is most amenable to bulk storage, easy inventory and automated handling. It is easy to use in applications where tin-can scrap will be difficult, as in the cone reactors that Kennecott is developing for use in its plants. It is true that mining companies are equipped to handle tin-can scrap and that some modifications of practice are required to permit the substitution of sponge iron for tin cans. It is also true that at least two large companies, Kennecott and Phelps Dodge, use sponge iron for part of their iron requirements and that they are engaged in serious study of sponge-iron production for their own use.

As to availability of raw materials, U.S. Sponge Iron Co. has an assured long term supply of high-grade iron ore from a local (Southwest) developed and operating mine. Conservative cost estimates and pilot experience show sponge-iron sales prices can be easily competitive with tin-can scrap at less than U.S. Sponge Iron Co.'s initial operating rate. As production increases, the unit manufacturing cost

will decrease rapidly and sales prices might even be lowered. In any event, sponge iron, a superior product for the intended use, starts commercially competitive with tin-can scrap when the short and long-term prospects are for higher prices for tin-can scrap, possibly lower prices for sponge iron in greater volume, and for increased comsumption of iron by the copper-mining industry.

EXHIBIT IV

U. S. SPONGE IRON COMPANY

100 Ton/Day (Nominal)
85% Fe (Metallic Iron)

91.74% Operating Factor
91.34% Reduction

SUMMARY OF SPONGE IRON COSTS
FIRST OR SECOND YEAR

Operating Costs	Cost/Year		Cost/Ton
Payroll	$257,533		$ 7.69
Payroll Overhead	45,526		1.35
Ore (Pellets)	553,990		16.54
Natural Gas	235,505		7.03
Power	67,000		2.00
Maintenance Materials	27,105		0.81
Taxes and Insurance	31,155		0.93
Office Supplies, Tel. & Tel.	6,700		0.20
Travel & Miscellaneous	12,060		0.36
Total Operating Costs		$1,236,574	$36.91
Capital and Other Costs			
Bond Payment (20 Years)			
Interest only first two years	$88,000		$ 2.63
Lease Fee (Lieu of Taxes)	20,770		0.62
Total Capital Costs		$ 108,770	$ 3/25
Total Costs		$1,345,344	$40.16

EXHIBIT IV

U. S. SPONGE IRON COMPANY

100 Ton/Day (Nominal)
85% Fe (Metallic Iron)

91.74% Operating Factor
91.34% Reduction

SUMMARY OF SPONGE IRON COSTS
THIRD AND SUBSEQUENT YEARS

Operating Costs	Cost/Year		Cost/Ton	
Payroll	$257,533		$ 7.69	
Payroll Overhead	45,526		1.35	
Ore (Pellets)	553,990		16.54	
Natural Gas	235,505		7/03	
Power	67,000		2.00	
Maintenance Materials	27,105		0.81	
Taxes and Insurance	31,155		0.93	
Office Supplies, Tel. & Tel.	6,700		0.20	
Travel & Miscellaneous	12,060		0.36	
Total Operating Costs		$1,236,574		$36.91
Capital and Other Costs				
Bond Payment (20 Years)				
Principal and Interest	142,300		$ 4.25	
Lease Fee (Lieu of Taxes)	20,770		0.62	
Total Capital Costs		$ 163,070		$4.87
Total Costs		$1,399,644		$41.78

U.S. SPONGE IRON COMPANY
100 Ton/Day Dircect Reduction Plant

COST OF PURCHASED MATERIALS, SUPPLIES, SERVICES

A. Ore, Pelletized incl. $1.00 for Pelletizing — 43,450 tons (64% Fe) required @ $12.75.L.T. equivalent to $16.54/ton sponge — $553,990

B. Natural Gas

	Cfh	Hrs/Day	MCF/Yr.	@	
Boiler	2,800	24	24,200	$0.4356/MCF	10,500
Reformer Burner	12,400	24	107,400		46,700
Process Gas	21,700	24	187,600		81,800
Checkers (for both)	39,800	13	181,500		79,000
Pellets Pre-heating	7,000	16	40,200		17,500
					$235,500

Cost per ton Sponge =$7.03

C. Power, Estimated for 120 ton/day basis

	HP	Hrs/Day	KWH/yr.	@	
Compressor	450	24	2,332,800	$0.01/KWH	23,326
Blowers	400	12	1,036,800		10,368
Service	40	9	77,760		778
Water Pumps	75	24	388,800		3,888
Lighting	40	10	144,000		1,440
					$39,802

Cost per ton Sponge = $0.92 for 120 ton/day increased to $2.00 for 100/day including allowance for possible additional compressors to increase future plant capacity.

D. Maintenance Materials for buildings and reduction equipment @ 2 1/4%/yr. — $27,105

Cost per ton=$0.81

Total Cost per ton = $26.38

U. S. SPONGE IRON COMPANY
100/Ton/Day Direct Reduction Plant

SALARY AND LABOR COSTS

	No. of Jobs	No. of Men Employed	Salary	Hours wkd/wk	Hours pd/wk	Hours pd/yr	Cost $/Year
A. Management and Administration	3	3					$35,000.00
Secretary	1	1	400.00/mo				4,800.00
Clerk	1	1	360.00/mo				4,320.00
Total	5	5					$44,120.00
Cost per Ton: $1.32							
B. Plant Supervision & Tech.	1						
Superintendent	1	1	800.00/mo				9,600.00
Shift Foremen	1	4	600.00/mo				28,800.00
Chemist	1	1	600.00/mo				7,200.00
Technician	1	1	400.00/mo				4,800.00
Total	4	7					$50,400.00
Cost per Ton: $1.50							
C. Direct Reduction - 3 shifts/ day - 7 days/wk							
Gas Operator	1	4	3.00/hr	168	172	8944	26,832.00
Gas Helpers	2	8	2.25/hr	336	344	17888	42,037.00
Craneman	1	4	2.45/hr	168	172	8944	21,913.00
Materials Handling	2	8	2.25/hr	336	344	17888	40,248.00
Total	6	24				62608	$131,030.00
Cost per Ton: $3.91							

U. S. SPONGE IRON COMPANY
100 Ton/Day Direct Reduction Plant

SALARY AND LABOR COSTS

	No. of Jobs	No. of men employed	Salary	Hours wkd/wk	Hours pd/wk	Hours pd/yr	Cost $/year
D. Maintenance							
Leadman	1	1	3.00/hr	48	52	2704	$ 8,112.00
Electrician	1	1	2.75/hr	48	52	2704	7,436.00
General Plant	1	3	2.45/hr	126	129	6708	16,435.00
Total	3	5				12116	$31,983.00

Cost per Ton: $0.95

Summary Total

A. Sales Administration	5	$44,120.00
B. Plant Super vision & Tech.	7	50,400.00
C. Direct Reduction	24	131,030.00
D. Maintenance	5	31,983.00
	41	257,533.00

Total Cost Per Ton: $7.69

U. S. SPONGE IRON COMPANY
100 Ton/Day Direct Reduction Plant

PAYROLL OVERHEAD

A. Vacation Benefits - 5% of Payroll		$12,357.00
B. Arizona State Unemployment Tax (2.7% of Payroll or $145.80/person max.) 41 x $145.80		5,977.80
C. Federal Unemployment Tax (o.8% of payroll or $24.00/person max.) 41 x $24.00		984.00
D. F. I. C. A. (3.125% of payroll or $150.00/person max.) 41 x $150.00		6,150.00
Subtotal (A - D)		$25,468.80
Turn over Expense - 15% of A-D		3,820.32
Medical Examinations 39 men x 15% turn-over at 17.50/person		88.00
Sick Leave (6 Days/yr. hourly employee) 29 x 6 x 2.47/hr average x 8 hrs.		3,438.00
Workmen's Compensation		
.0012 of clerical	$ 529.44	
.06 of balance	12,181.00	
	$12,710.44	12,710.44
Total Payroll Overhead		$45,525.56

Cost per Ton: $1.35

EXHIBIT V

U. S. SPONGE IRON COMPANY

100 Tons/Day Direct Reduction Plant
85% Fe (Metallic Iron)

91.78% Operating Factor
91.34% Reduction

PROJECTED P & L STATEMENT
FIRST OR SECOND YEAR

Income	Per Ton Sponge	Per Yeaf	Net
Sales 33,500 tons @	$52.00	$1,742,000	$1,742,000
Less			
Cost of ore	16.54	553,990	
Other costs of operation	20.37	682,584	
	$36.91	$1,236,574	505,426
Less			
Bond retirement, interest only first two years	2.63	88,000	417,426
Less			
Lease Fee (Lieu of Taxes)	0.62	20,770	396,656
Pre-Tax Profit	11.84	396,656	
After Tax Profit (est)	5.92	198,328	198,328

EXHIBIT V

U. S. SPONGE IRON COMPANY

100 Tons/Day Direct Reduction Plant
85% Fe (Metallic Iron)

91.78% Operating Factor
91.34% Reduction

PROJECTED P & L STATEMENT
THIRD AND SUBSEQUENT YEARS

Income	Per Ton Sponge	Per Year	Net
Sales 33,500 tons @	$52.00	$1,742,000	$1,742,000
Less			
Cost of ore	16.54	553,990	
Other costs of operating	20.37	682,584	
	$36.91	$1,236,574	505,426
Less			
Bond retirement and interest	4.25	142,300	363,126
ess			
Lease Fee (Lieu of Taxes)	0.62	20,770	342,356
ax Profit	10.22	342,356	
x Profit (est.)	5.11	171,178	171,178

TOWNSHIP 8 SOUTH RANGE 12 EAST

E 38200 E 40150 E 41750 E 43350 E 44950

SEE MAP 099-01

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SEE MAP 113-01

S 16390 S 18000 S 19590 S 21190

E 38250 E 40210 E 41820 E 43420 E 45020

SEE MAP 133-01

Lower Tank

PIPELINE

Landing Strip

NORTH HILL

Bogard

Wash

Prospect

14575

BOGARD

Bogard Open Pit Mine

Freeman Tank

LOCATION OF PAST MAGNETITE PRODUCTION

LOCATION OF TEST PLANT

M.P. 109

Prospects

Copper Mine Tank

Mine Shafts

Magma Well

RANCH RD.

CROSS TRIANGLE

Durham

Mine Well

Guzzler

DURHAM

Suffering

Mesa Tank

4WD

E. CADILLAC WASH RD