

資料 8-4

日本側提出 据付工事関連資料

(1) プラント建設・実施工程 (案)

MASTERPIANT OF THE JICA-CIM JOINT PROJECT ON
DEVELOPMENT OF UNFILLED PYRITE-RICH POLYMETALLIC ONES IN MEXICO

1987. 2

| | SCHEDULE | | | | | | | | | | | | | | | | | | | | | | |
|---|----------|----|---|------|---|---|---|---|------|---|---|----|----|----|---|---|---|---|---|---|---|---|--|
| | 1986 | | | 1987 | | | | | 1988 | | | | | | | | | | | | | | |
| | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| 1. SCHEDULE IN JAPAN 日本国内 | | | | | | | | | | | | | | | | | | | | | | | |
| (1) DELIVERY OF MACHINES AND EQUIPMENTS 機材運付 | | | | | | | | | | | | | | | | | | | | | | | |
| FIDATION FACILITY 選鉱設備 | | | | | | | | | | | | | | | | | | | | | | | |
| ROASTING FACILITY 焙焼設備 | | | | | | | | | | | | | | | | | | | | | | | |
| CHLORIDE VOLATILIZATION FACILITY 塩化塩素設備 | | | | | | | | | | | | | | | | | | | | | | | |
| GAS TREATMENT FACILITY ガス処理設備 | | | | | | | | | | | | | | | | | | | | | | | |
| (2) DISPATCH OF SUPERVISORS 専門家を送 | | | | | | | | | | | | | | | | | | | | | | | |
| MECHANICAL ENGINEER 機械師 | | | | | | | | | | | | | | | | | | | | | | | |
| ELECTRICAL ENGINEER 電気師 | | | | | | | | | | | | | | | | | | | | | | | |
| (3) DRAWINGS AND EXPERTS 図面作成等 | | | | | | | | | | | | | | | | | | | | | | | |
| DESIGN OF INFORMATION OF EQUIPMENT FOUNDATION 設備設計 | | | | | | | | | | | | | | | | | | | | | | | |
| DRAWINGS OF MACHINES AND EQUIPMENTS TO BE DELIVERED 運送機材の図面 | | | | | | | | | | | | | | | | | | | | | | | |
| DRAWINGS OF EQUIPMENT TO BE PROCURED IN MEXICO 現地調達機材の図面 | | | | | | | | | | | | | | | | | | | | | | | |
| DRAWINGS OF STRUCTURE AND PLATFORM 架台・構造物の図面 | | | | | | | | | | | | | | | | | | | | | | | |
| DRAWINGS OF PIPING 配管図 | | | | | | | | | | | | | | | | | | | | | | | |
| DRAWINGS OF ELECTRIC AND INSTRUMENT CONNECTION 電気計測図 | | | | | | | | | | | | | | | | | | | | | | | |
| INSTRUCTION MANUAL OF EQUIPMENTS MAINTENANCE 設備保守マニュアル | | | | | | | | | | | | | | | | | | | | | | | |
| GUIDANCE FOR INSTALLATIONS AND CONSTRUCTION 設置設計図 | | | | | | | | | | | | | | | | | | | | | | | |
| (4) THE PAPERS ARE TENDERED WITH EQUIPMENTS (機材を同時発注) | | | | | | | | | | | | | | | | | | | | | | | |
| 2. SCHEDULE IN MEXICO メキシコ国内 | | | | | | | | | | | | | | | | | | | | | | | |
| (1) DESIGN AND PROCUREMENT 設計・調達 機材運送及び工事機材調達 | | | | | | | | | | | | | | | | | | | | | | | |
| DESIGN OF EQUIPMENT FOUNDATION 設備設計 | | | | | | | | | | | | | | | | | | | | | | | |
| TENDERING AND CONTRACT AWARD 入札 | | | | | | | | | | | | | | | | | | | | | | | |
| (2) CONSTRUCTION 建設 | | | | | | | | | | | | | | | | | | | | | | | |
| CONSTRUCTION OF BUILDINGS 建築 | | | | | | | | | | | | | | | | | | | | | | | |
| CONSTRUCTION OF FOUNDATION FOR EQUIPMENTS 基礎工事 | | | | | | | | | | | | | | | | | | | | | | | |
| FERRIGATION OF EQUIPMENTS PROCURED IN MEXICO 現地調達機材の搬入 | | | | | | | | | | | | | | | | | | | | | | | |
| INSTALLATION OF EQUIPMENT-FOUNDATION FACILITY 機材設置 | | | | | | | | | | | | | | | | | | | | | | | |
| ROASTING FACILITY 焙焼設備 | | | | | | | | | | | | | | | | | | | | | | | |
| CHLORIDE VOLATILIZATION FACILITY 塩化塩素設備 | | | | | | | | | | | | | | | | | | | | | | | |
| GAS TREATMENT FACILITY ガス処理設備 | | | | | | | | | | | | | | | | | | | | | | | |
| DUCTING OF GAS SYSTEM ガス配管工事 | | | | | | | | | | | | | | | | | | | | | | | |
| PIPING OF LIQUID AND UTILITY SYSTEM 配管工事 | | | | | | | | | | | | | | | | | | | | | | | |
| CONSTRUCTION OF STRUCTURES, PLATFORMS, STEPS, AND HANDRAILS 架台、構造物、階段、手すり工事 | | | | | | | | | | | | | | | | | | | | | | | |
| WIRING OF POWER SYSTEM 電気配線工事 | | | | | | | | | | | | | | | | | | | | | | | |
| WIRING OF INSTRUMENTATION 計測配線工事 | | | | | | | | | | | | | | | | | | | | | | | |
| (3) TRIAL OPERATION 試運転 | | | | | | | | | | | | | | | | | | | | | | | |
| UNLOADING EQUIPMENT-WISE 機材別降卸 | | | | | | | | | | | | | | | | | | | | | | | |
| LOADING BLOCK-WISE 架台別降卸 | | | | | | | | | | | | | | | | | | | | | | | |
| MEETING FOR MAINTENANCE WORK メンテナンス打ち合わせ | | | | | | | | | | | | | | | | | | | | | | | |

- (2) 据付工事打ち合せ専門家並びに据付工事専門家業務

THE PROJECT ON THE RECOVERY OF VALUABLE MINERALS FROM
UNUTILIZED PYRITE-RICH POLYMETALLIC ORES IN THE UNITED MEXICAN
STATES

DUTIES OF PROFESSIONAL FOR INSTALLATION
ARRANGEMENT

In order to carry out the installation works safely and exactly as planned, professional for machinery installation shall be sent for comprehensive arrangement prior to the construction.

- (1) They shall research the present status of the plant building, plant foundation and utility installation which will be managed by Mexico, give explanation about the design documents provided by Japan and give advices and instructions as required.
- (2) They shall give advice and instructions regarding the local supply of equipments and materials which will be managed by Mexico for selection of suppliers, preparation of estimates, etc.
- (3) They shall give explanation on the installation guidelines presented by Japan for the installation works to be managed by Mexico and give necessary advices and instructions regarding the equipments and materials to be pre-

pared, selection of suppliers, estimates, working schedules, safety measures, etc.

- (4) Important items of the advice and instructions as mentioned above shall be provided in writing and kept in custody by the both parties.

THE PROJECT ON THE RECOVERY OF VALUABLE MINERALS FROM
UNUTILIZED PYRITE-RICH POLYMETALLIC ORES IN THE UNITED MEXICAN
STATES

DUTIES OF INSTALLATION PROFESSIONALS

Although the installation works will be managed by Mexico, Japan shall send professionals for mechanical and electrical works to attend the installation works and test operations for completion of the construction safely within the project term and trouble-free operation after completion.

(1) Plant Foundation

The installation professionals shall attend the inspection of the position and height of the plant foundation to be managed by Mexico and give advice and instructions as required.

With respect to the plant foundation, Japan shall determine its location, load conditions and external dimensions and Mexico shall carry out design and construction works in consideration of local conditions such as earth strength, aseismic coefficient, reinforced concrete strength and concrete strength.

(2) Installation and assembly

The installation professionals shall attend the plant installation and assembly works to be managed by Mexico to give advice and instructions as required.

With respect to such installation and assembly works, Japan shall provide installation drawings, installation guidelines and instruction manuals, and Mexico shall carry out the construction in a manner to satisfy the precision requirements in accordance with local practices and safety standards.

The installation guidelines and instruction manuals shall include the installation and assembly precision requirements as well as the installation and assembly procedures which are commonly practiced in Japan.

(3) Piping and Gas Duct Installation

In regard to this installation, Japan shall provide system plan charts, rack diagrams, liquid tubing diagrams and gas duct diagrams, and Mexico shall carry out preparation of required construction charts and actual work. The installation professionals shall attend the construction work to give advice and instructions as required.

(4) Rack, Work Floor, Handrail and Staircase Construction

With respect to this construction, Japan shall provide production drawings but Mexico shall perform actual pro-

duction and installation depending on local conditions because some adjustments may be required to match the on-spot conditions.

The installation professionals shall attend the installation works to give advice and instructions as required.

(5) Electric and Instrumentation Equipment Installation

In regard to this installation, Japan shall provide basic design drawings and Mexico shall carry out preparation of required installation drawings as well as wiring and installation works. Mexico shall use wiring materials of specifications equivalent to those specified by the Japanese standards included in the drawings.

The installation professionals shall attend the installation works to give advice and instructions as required.

(6) Inspection

With respect to the installation works as stated above, Mexico shall pass required inspections. The installation professionals shall attend the inspections to give advice and instructions as required.

The required inspections shall include those of external appearances of machines and instruments, installation precision, leakage of piping and gas ducts, operation of electric and instrumentation equipment and grounding.

(7) Test Operation

Test operations shall be managed by Mexico and attended by professionals from respective fields from Japan to give advice and instructions as required.

Japan shall give Mexico an explanation based on the instruction manuals of machines and instruments before starting test operation.

With respect to lubricants, Japan shall provide required Japanese standards and Mexico shall prepare lubricants meeting the provided standards.

(8) Adjustment and Others

The installation professionals shall give Mexico advice and instructions for the items for which the test operation shows the need of adjustment and their treatment as well for the equipment, parts, and expendables considered to be necessary.

(9) Important advice and instructions as described above shall be provided in writing and kept in custody by both parties.

THE PROJECT ON THE RECOVERY OF VALUABLE MINERALS FROM
UNUTILIZED PYRITE-RICH POLYMETALLIC ORES IN THE UNITED MEXICAN
STATES

PROBLEMS EXPECTED TO OCCUR DURING THE PROJECT TERM

- (1) Reinforcement, term extension and replacement of professional manpower
- (2) Overall or partial change in the project schedule
- (3) Supplement of the equipment, parts and expendables supplied by Japan
- (4) Procurement of ore as raw material and change in the source of material supply
- (5) Stable supply of power and water of good quality
- (6) Remedies for environmental pollution due to drain effluent, exhaust gas and waste materials
- (7) Procurement and training of the maintenance personnel

(3) 日墨業務分担

Project Operation Classification

The classification for drawings, documents, and equipment is as follows;

| Works | Drawings and documents | | Machine/Material | |
|--------------------|---|--|--|---|
| | JICA | CFM | JICA | CFM |
| Plant building | <ol style="list-style-type: none"> 1. Source for through part of pipeline 2. Source for hoist rail height | All drawings and documents | None | All materials |
| Machine foundation | <ol style="list-style-type: none"> 1. Outside drawing of overall foundation 2. Outside drawing by block 3. Overall loading data 4. Loading data by each piece of equipment | <ol style="list-style-type: none"> 1. Foundation design/calculation 2. Execution drawing | None | All materials |
| Plant equipment | <ol style="list-style-type: none"> 1. Process flow sheet 2. P & I diagram 3. Overall layout drawing 4. Layout drawing by each block 5. Overall layout drawing of work floor 6. Layout drawing by work floor block 7. Nozzle orientation 8. Conceptual design of sulfide ore drying chamber 9. Manufacturing drawing of field procurement material 10. Installation manual | <ol style="list-style-type: none"> 1. Execution drawing | <ol style="list-style-type: none"> i. Equipment/material to be lent (See attached Table I). <p>* The following will not be included:</p> <ol style="list-style-type: none"> a. Packet for foundation adjustment b. Connecting units such as chute, etc. c. Lubrication oil d. Burner compressor e. Instrumentation compressor f. Emergency power source <p>** The material certificate will not be attached.</p> <ol style="list-style-type: none"> 2. Expense for field procurement material (See attached Table II). | <ol style="list-style-type: none"> 1. Procurement of field material 2. Machines materials and parts other than those shown in Tables I and II |

| Works | Drawings and documents | | Machine/Material | |
|---------------------------------|---|--|---|---|
| | JICA | CFM | JICA | CFM |
| Piping and duct | <ol style="list-style-type: none"> 1. Overall layout drawing 2. Liquid piping diagram 3. Air piping diagram 4. Oil piping diagram 5. Water piping diagram 6. Spool drawing 7. Piping support 8. Rack drawing 9. Overall duct drawing 10. Duct manufacturing drawing | <ol style="list-style-type: none"> 1. Piping execution drawing 2. Support/rack execution drawing | <ol style="list-style-type: none"> 1. Material for liquid piping of gas cleaning equipment (See attached Table I). 2. Expense for manufacturing of gas duct (See attached Table II). | <ol style="list-style-type: none"> 1. Material for kerosene piping 2. Material for compressed air piping 3. Material for service water piping 4. Material for air piping 5. Material for instrumentation compressed air piping 6. Material for support/rack 7. Procurement of gas duct |
| Electricity and instrumentation | <ol style="list-style-type: none"> 1. Layout drawing of control panel 2. Power system diagram by equipment 3. Instrumentation diagram by equipment 4. Specification of power wiring cable 5. Specifications of instrumentation wiring cable 6. Cable rack route drawing 7. Plan power wiring diagram 8. Plan instrumentation diagram 9. Conductive piping procedure drawing 10. Instrumentation air piping diagram 11. Power cable connection diagram 12. Instrumentation cable diagram | <ol style="list-style-type: none"> 1. Execution drawing | <ol style="list-style-type: none"> 1. Instrumentation for ore refining is to be lent. (See attached Table I). * The following will not be included; <ol style="list-style-type: none"> a. Illumination materials b. Cable/wiring c. Cooler for control room | <ol style="list-style-type: none"> 1. Machines/Materials and parts other than those supplied from Japan |
| Test operation | <ol style="list-style-type: none"> 1. Test operation manual 2. Instruction manual | <ol style="list-style-type: none"> 1. Operation procedure, etc. | None | All materials |

Division of works is as follows:

JICA ... Advice and instruction in the presence of professionals

CFM Practica of the following;

- a. Selection of vendor
- b. Estimation
- c. Tendering/ordering
- d. Safety measures
- e. Preparation of machines/materials for work
- f. Installation/assembly
- g. Rack, floor, handrail and staircase
- h. Piping/duct
- i. Electrical/instrumentation
- j. Inspection
- k. Test operation and adjustment

ANNEX I: LIST OF THE EQUIPMENTS

(Local procurement equipments included)

1. LABORATORY EQUIPMENTS OF MINERAL PROCESSING, REFINING

AND ANALYTICAL INSTRUMENTS

- (1) Fluorescence X-ray Analyzer
 - (2) X-ray Diffract Meter
 - (3) Vibrating Mill
 - (4) Portable Continuous Flotation Machine
 - (5) Test Furnace for Chlorination
 - (6) Gas Flowmeter, Temperature Controller
 - (7) Pellet Strength Tester
 - (8) Direct Reading Balance
 - (9) V-type Mixer, Sizing Machine, Water Flow Meter, Orsat-Gas Analyzer, pH Meter Specific Gravity Bottle, Hydrometer, Volumetric Meter, Pyrometer, Ribbon Heater, Miscellaneous Chemicals etc.
2. EQUIPMENTS FOR MINERAL PROCESSING REAGENTS
- (1) Agitator for Dissolving Xanthate and Quantitative Pumps
 - (2) Agitator for Dissolving Dithiophosphate and Quantitative Pumps
 - (3) Agitator for Dissolving Lime and Quantitative Pumps
 - (4) Agitator for Dissolving Sulfurous and Quantitative Pumps
 - (5) Agitator for Dissolving CuSO_4 and Quantitative Pumps
 - (6) Quantitative Pumps for H_2SO_4

3. INSTALLMENTATION EQUIPMENTS FOR MINERAL PROCESSING

- (1) pH Controller
 - (2) Thermometer
 - (3) Constant Feeder
4. ROASTING APPARATUS
- (1) Dryer
 - (2) Feeding Machine with Disintegrator
 - (3) Fluidizing Bed Roaster
 - (4) Dust Collector
 - (5) Miscellaneous Equipments

5. PELLETIZING CHLORINATION APPARATUS

- (1) Feeder
 - (2) Mixer
 - (3) Beltconveyor
 - (4) Kneading Mill
 - (5) Pelletizer
 - (6) Dryer
 - (7) Rotary Kiln
 - (8) Miscellaneous Equipments
6. GAS CLEANING EQUIPMENTS
- (1) Cooling Tower
 - (2) Washing Tower
 - (3) Solution Cooler
 - (4) Electrostatic Precipitator
 - (5) Exhaust Fan
 - (6) Cone Tank
 - (7) Solution Treatment Apparatus
 - (8) Pump and Pump Tank
 - (9) Miscellaneous Equipments

7. MEASURING SYSTEM FOR ROASTING AND CHLORINATION

- (1) Draft Gauge
 - (2) Temperature Indicator
 - (3) Temperature Controller
 - (4) Temperature Recorder
 - (5) Flow Indicator
 - (6) Flow Controller
 - (7) pH Controller
 - (8) Miscellaneous Equipments
8. Stack for Pollution Control

Attached Table II Field procurement articles

| Items |
|---|
| <p>1. Roasting equipment</p> <p>(1) No. 1 sulfide ore hopper</p> <p>(2) No. 2 sulfide ore hopper</p> <p>(3) Rack, work floor, handrail and staircase</p> |
| <p>2. Chloride volatile/baking equipment</p> <p>(1) Cinder hopper</p> <p>(2) Bucket</p> <p>(3) Pot mixer</p> <p>(4) Kerosene tank</p> <p>(5) Rack, work stand, handrail</p> |
| <p>3. Gas cleaning equipment</p> <p>(1) Cone tank 5 m³, 2 m³ for two units</p> <p>(2) Raw liquid tank</p> <p>(3) Neutralization reactor vessel</p> <p>(4) Pump tank</p> <p>(5) Stack and damper</p> <p>(6) Rack, work floor, staircase handrail</p> |
| <p>4. Stack</p> <p>(1) Frame, anti-vibration</p> |

(4) 図 面 目 録

| | | | |
|------|----------|------|----------------|
| 工事番号 | B160-144 | 工事名称 | JICA ローディングデータ |
|------|----------|------|----------------|

| 図 面 番 号 | 名 称 | rev | | | | | 備 考 |
|---------------|--------------------------------|------|---|---|---|---|-----|
| | | 0 | 1 | 2 | 3 | 4 | |
| 86-001-B31000 | 焙焼, 塩化揮発工程基礎配置図 | 2/10 | | | | | |
| B31001 | 焙焼工程, 共通架台ローディングデータ | 2/10 | | | | | |
| B31002 | DR-101 硫化鉄乾燥室 R. D | 2/10 | | | | | |
| | HF-101 熱日発生ユニット " | | | | | | |
| B31003 | FA-102 エアープローア " | 2/15 | | | | | |
| B31004 | FA-103 エアープローア " | 2/15 | | | | | |
| B31005 | RT-101 焙焼炉 " | 2/15 | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| B31100 | 排ガス洗浄工程基礎配置図 | 2/20 | | | | | |
| B31101 | " " 共通架台 R. D | 2/20 | | | | | |
| B31102 | PU301 PU302, 303 ポンプ " | 2/20 | | | | | |
| B31103 | PU304 ポンプ " | 2/20 | | | | | |
| B31104 | PU305 ポンプ " | 2/20 | | | | | |
| B31105 | PU306 ポンプ " | 2/20 | | | | | |
| B31106 | PT301 PT302, 303 ポンプ, タンク " | 2/20 | | | | | |
| B31107 | PT304 ポンプ, タンク " | 2/20 | | | | | |
| B31108 | PT305 PT306, 307 タンク " | 2/20 | | | | | |
| B31109 | CT-301 No.1セッター " | 2/20 | | | | | |
| B31110 | CT-302 No.2セッター " | 2/20 | | | | | |
| B31111 | FA-301 エアープローア " | 2/20 | | | | | |
| B31112 | FA-303 排ガスファン " | 2/20 | | | | | |
| B31113 | ST-301 煙突 " | 2/20 | | | | | |
| B31114 | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| | | |
|---------------|--------------------|--|
| 工事番号 B160-144 | 工事名称 JICAローディングデータ | |
|---------------|--------------------|--|

| 図面番号 | 名称 | rev | | | | | 備考 |
|---------------|---------------------------------|------|---|---|---|---|----|
| | | 0 | 1 | 2 | 3 | 4 | |
| 86-001-B31201 | RK-201 ロータリーキルン RD | 2/25 | | | | | |
| B31202 | " " 給鋳側作業床 RD | 2/25 | | | | | |
| B31203 | " " 排鋳側 " " | 2/25 | | | | | |
| B31204 | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| B-001-B32001 | TK204 オイルタンク PU201 オイルポンプ RD | 2/24 | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

1. ローディングデータの数値は、すべて据付面を基準としたものである。
2. 架精等の長期荷重は運転重量とする。(運転重量=機器重量+デッキ重量 300kg/m²)
3. 短期荷重

1) 風力

風によって生ずる圧力及びサクシオンはつねに表面に垂直に作用するものと仮定する。
 静的な圧力の値は次式で計算されるものとする。

$$P = 0.005 C_r^2$$

ここで

$$P = \text{圧力 } \text{kg/m}^2$$

$$V = \text{設計速度 } \text{km/hr}$$

(今回のローディングデータでは $Z \leq 10\text{m}^H$ 215kg/hr とした。)

$$C = \text{スラスト係数 (風力係数)}$$

高さによる風速の変化

高い所にある構造物に対しては10mを越える設計速度は地上高さZについて次式で定義する。

$$V_z = (0.1Z)^{0.085r}$$

ここでZは地上の高さをmで表わした値である。

スラスト係数 (風力係数)

$$C = 0.7$$

$$C = 3 \times 0.9 = 2.7$$

煙突 → ○

煙突架構 → □ (ラテス実面積に対して)

(ラテス構造物)

排気ガス洗浄設備架構 $C = 1.2$

2) 地震力

運転重量 × 0.3とする。(運転重量=機器重量+デッキ重量 250kg/m²)

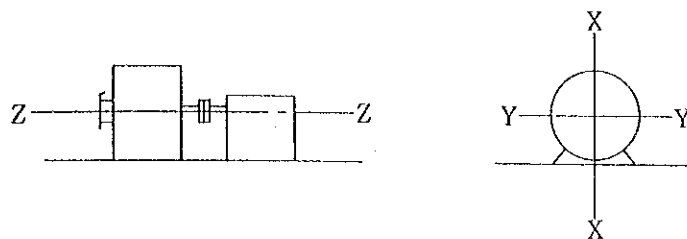
$$F_s = 0.3 L_p$$

ここに

$$F_s = \text{地震による水平力 } \text{kg}$$

$$L_p = \text{運転 } \text{kg}$$

4. ファン及びブロワーの運転時動荷重の方向



5. 垂直荷重の方向

+は下向荷重

-は上向荷重とした。

1. 現地施工及び現地調達図面

1) 共通図面

| | |
|-------------------|------|
| (1) プロウルフワベト | 1枚 |
| (2) P & I | 3 |
| (3) 全体配置図 | 1 |
| (4) ブロック別配置図 | 3 |
| (5) 作業床全体配置図 | 1 |
| (6) 作業床ブロック配置図 | 3 |
| (7) ノズルオリエンテーション | 16 |
| (8) 全体基礎外形図 | 1 |
| (9) ブロック別基礎外形図 | 3 |
| (10) 全体ローディングデータ | 1 |
| (11) 各機器ローディングデータ | 30 |
| | (63) |

2) 現地施工及び現地調達図面

| | |
|-------------------|----|
| (1) 配管全体図 | 1 |
| (2) 液配管図 | 5 |
| (3) 空気配管図 | 1 |
| (4) オイル配管図 | 2 |
| (5) 水配管図 | 1 |
| (6) スプール図 | 5 |
| (7) 配管サポート | 10 |
| (8) ラック図 | 3枚 |
| (9) タクト全体図 | 1 |
| (10) タクト製作図 | 3 |
| (11) 作業床詳細図 | 10 |
| (12) 架台詳細図 | 10 |
| (13) No.1 硫化物ホッパー | 2 |
| (14) No.2 " | 2 |
| (15) バケツ | 1 |
| (16) No.1 コーンタンク | 2 |
| (17) No.2 " | 2 |

| | |
|--------------|---|
| (18) 煙突架構 | 3 |
| (19) 原液タンク | 2 |
| (20) ボンク・タンク | 2 |
| (21) 灯油タンク | 2 |

(70)

3) 電気計装図面

| | |
|-----------------|----|
| (1) コントロール電盤配置図 | 1枚 |
| (2) 機器別動力系統図 | 4 |
| (3) " 計装 " | 4 |
| (4) 動力配線ケーブル一覧表 | 1 |
| (5) 計装 " " | 1 |
| (6) ケーブルラックルート図 | 1 |
| (7) 動力 面配線図 | 3 |
| (8) 計装 " " | 3 |
| (9) 導圧配管要領図 | 5 |
| (10) 計装用エアー配管図 | 1 |
| (11) 動力ケーブル接続図 | 2 |
| (12) 計装 " " | 2 |

(28)

2. 施工要領書及び取扱説明書

1) 施工（据付）要領書

| | |
|---------------|-----------|
| (1) *ロータリーキルン | 10枚 (A-4) |
| (2) 造 機 | 4 |
| (3) ミマトコットレル | 6 |
| (4) バンドドライヤー | 4 |
| (5) 液冷却塔 | 4 |
| (6) 冷却器 | 4 |
| (7) 煙突 | 4 |
| (8) 煙突 | 6 |
| (9) ボイルミル | 4 |
| (10) ファン・ボンク | 4 |
| (11) 焙焼炉 | 4 |
| (12) スネコン | 4 |

| | |
|--------------------|------|
| (13) コンスタントフィードウエア | 6 |
| (14) 計装及び動力工事要領 | 14 |
| | (78) |

2) 取扱説明書

| | |
|--------------|-----------|
| (1) ロータリーキルン | 20枚 (A-4) |
| (2) 造粒機 | 8 |
| (3) ボールミル | 5 |
| (4) バンドドライヤー | 15 |
| (5) ミストコットレル | 25 |
| (6) 反応用攪拌機 | 5 |
| (7) バーナー類 | 20 |
| (8) バッグミル | 7 |
| (9) 解砕機 | 7 |
| (10) ファンボンダ | 8 |
| (11) パネル計器 | 25 |
| (12) 現場計器 | 25 |

資料 8-5

メキシコ側 原材料供給計画

comisión de fomento minero



punta de tacamachalco 26
lomas de chapultepec
apartado postal 10-762
teléfono 540-34-00
telex 01771382
11000 México, d. f.

PROGRAM FOR THE PYRITE CONCENTRATE PRODUCTION

1.- THE MINING PROGRAM AT THE CAMPO MORADO MINE.

The mining work plan at the Campo Morado Mine can be - -
classify into following steps:

1st. Step : Conditioning of 10 Km. of dirt road

2nd. Step : Conditioning of the No. 6 adit.

- (1) Cleaning of the adit for a smooth working of the workers.
- (2) Instalation of mining facilities
- (3) Cleaning and propping of the No.2 cross-cut

3rd. Step : Preparation of the works and sampling

- (1) Sampling to determinate the exploitation points
- (2) Sampling of 500 Kg. for laboratory tests
- (3) Laboratory works

4th. Step : Explotation and transportation of the ore

comisión de fomento minero



pueblo de tecamachalco 26
lomas de chapultepec
apartado postal 10-762
teléfono 540 34 00
telex 01771382
11000 México, d. f.

2.- SUPPLY OF THE PYRITE CONCENTRATE FROM THE REAL DE ANGELES MINE.

The Laboratory tests show that over 1,000 tons. of tailing from the Real de Angeles concentrator will be required - to obtain 60 tons. of pyrite concentrate.

That is the reason why we propose an insite operation of pyrite flotation, using suitable size flotation machines such as Denver No.18 at the concentrator.

This pyrite concentrate also will be utilized for an - - operation test of pilot plant equipments.

The insite operation of pyrite flotation will be carried - out in the latter part of July.

8 - 6

1987年度CFM予算要求及び1987年度南東試験センター運営予算



comisión de fomento minero

pueblo de Tecomaucha 26
Mexico D. F. Lomas de Chapultepec
apartado postal 10-762
telefono 340-34-00
telex 01771382

11 de Marzo de 1987.

SPF / 024

ING. RODOLFO FELIX FLORES
Director General de Minerometalurgia
Subsecretaría de Minas e Industria Básica
Francisco Márquez # 160, 1er. piso,
México, D. F.

En relación con su comunicado 320/007/87, adjunto me permito enviarle el Programa de Inversión Física del Organismo 1987, en los formatos que para tal efecto nos fueron remitidos por usted; con el propósito de solicitarle su intervención ante la Secretaría de Programación y Presupuesto, a fin de que sea tramitado el oficio correspondiente, en el caso de no haber inconveniente por parte de esa Dirección General.

COMISION
DE FOMENTO MINERO
* MAR 13 1987 *
DIRECCION GENERAL
RECIBIDO

Sin otro particular, reitero a usted la seguridad de mi distinguida consideración.

RECIBIDO
OFICIALIA DE PARTES
* MAR 11 1987 *
DIRECCION GENERAL CE
MINERO-METALURGIA

RECIBIDO
DIRECCION GENERAL
MINERO-METALURGIA

Atentamente

CLEMENTE LICON AVILA
Subdirector de Planeación
Financiera

COMISION DE FOMENTO
MINERO
* MAR 13 1987 *
RECIBIDO
CONTRALORIA INTERNA

C.c. p. Dirección General - CFM
Subdirección de Desarrollo - CFM
Coordinación de Contraloría Interna - CFM
Dirección de Finanzas - SEMIP (Anexos)
Gerencia de Finanzas - CFM *022 13-III-87*
Subgerencia de Planeación y Control Presupuestal - CFM
✓ LRC:mtsa*

SOLICITUD PARA AUTORIZACION DE INVERSION FISICA

| | | | | | | |
|---|----------|---------------|-----|-----------------------|-------------|----|
| SOLICITUD | DE FECHA | | | RECIBIDO OGP. Y P. | HOJA | |
| | DIA | MESES | AÑO | | No. | DE |
| 000001 | 10 | 03 | 87 | | | |
| DIRECCION GENERAL DE PROGRAMACION Y PRESUPUESTO | | | | | | |
| FECHA | | No. DE OFICIO | | TIPO DOC. | DEPENDENCIA | |
| | | | | | | |

G. LIC. JAVIER GALA PALACIOS

PRESENTE Director General de Programación y Presupuesto, Energético e Industria
Secretaría de Programación y Presupuesto,

DE CONFORMIDAD Con lo preceptuado por los artículos 32, fracción VII de la Ley Orgánica de la Administración Pública Federal y 5°, 15 y 16 de la Ley de Presupuesto, Contabilidad y Gasto Público Federal, solicito a usted autorización del Programa de Inversión Física a cargo de Comisión de Fomento Minero hasta por la cantidad de \$8'529,900,000.00 (Ocho mil quinientos veintinueve millones novecientos mil pesos 00/100 M.N.) a nivel de Flujo de Efectivo y Devengable, de acuerdo a la siguiente distribución.

ASIGNACIONES PARA INVERSION

8' 529' 900' 000

| DESCRIPCION | OBJETO | | | IMPORTE (MILES DE PESOS) | FUENTES DE FINANC. | | PROCEDENCIA | | LOCALIZACION. |
|---|--------|---|---|-----------------------------|--------------------|-----|-------------|---|---------------|
| | C | M | A | | TIPO | % | N | I | |
| <u>JZ ADMINISTRACION CENTRAL</u> | | | | <u>6'179,448</u> | | | | | |
| 01 <u>General</u> | | | | <u>21,421</u> | | | | | |
| <u>Oficinas Generales</u> | x | | | <u>21,421</u> | AF | 100 | | | 09 |
| Mobiliario y Equipo de Of. | | | | 21,421 | | | x | | |
| 02 <u>Regional</u> | | | | <u>46,348</u> | | | | | |
| <u>Sucursal Morelia</u> | x | | | <u>28,224</u> | AF | 100 | | | 16 |
| Construc. de Ofnas. y Bodegas en Terreno donado por el Estado | | | | 28,224 | | | x | | |
| <u>Unidad Parrilla</u> | x | | | <u>7,126</u> | AF | 100 | | | 10 |
| Mobiliario y Eqpo. de Ofna. | | | | 3,175 | | | x | | |
| Mobiliario y Eqpo. p/Hab. | | | | 3,951 | | | x | | |
| <u>Unidad Carbonifera</u> | x | | | <u>10,998</u> | AF | 100 | | | 05 |
| Eqpo. de Computación, integrado por 3 terminales y - | | | | | | | | | |

ASIGNACIONES PARA INVERSION

| DESCRIPCION | OBJETO | | | IMPORTE (MILES DE PESOS) | FUENTES DE FINANC. | | PROCEDENCIA | | LOCALIZACION. |
|--|--------|---|---|-----------------------------|--------------------|----------|-------------|---|---------------|
| | C | M | A | | TIPO | % | N | I | |
| una impresora. | | | | 10,998 | | | X | | |
| 05 <u>Proyectos</u> | | | | 4'023,485 | | | | | |
| <u>Jica</u> | | X | | 425,756 | RD* AF | 69 31 | | | 20 |
| Estanteria | | | | 2,800 | | | X | | |
| Programa Computador | | | | 700 | | | X | | |
| Televisión (p/Cámara Video porporcionada por JAPON) | | | | 700 | | | | X | |
| Muebles p/campamento (Planta Piloto) | | | | 1,700 | | | X | | |
| Reguladores de Voltaje | | | | 700 | | | X | | |
| Costo Rehabilitación Eqpo. Planta Piloto | | | | 4,250 | | | X | | |
| Mantenimiento Mayor Equipo de Transporte | | | | 4,208 | | | X | | |
| Ingeniería | | | | 28,224 ✓ | | | X | | |
| Obras por Contrato consistente en montaje electromecánico. | | | | 17,340 G.C. 169,344 ✓ | | | X | | |
| Gasto Corriente de Invers. | | | | 97,390 ✓ | | | X | | |
| Herramientas | | | | 1,400 8.03 ✓ | | | X | | |
| Graficadores | | | | 8,500 G.L. ✓ | | | | X | |
| Equipo Complementario | | | | 105,840 ✓ | | | X | | |
| <u>El Aquila</u> | | X | | 449,880 | AF | 100 | | | 26 |
| Camiones 35 Tons. | | | | 169,050 | | | X | | |
| Banda Transportadora | | | | 1,932 | | | X | | |
| Equipo Eléctrico (Lote) | | | | 60,825 | | | X | | |
| Transformador | | | | 12,075 | | | X | | |

OBSERVACIONES

OBJETO : C = CONSERVACION DE LA CAPACIDAD ACTUAL. M = MEJORAMIENTO DE LA CAPACIDAD ACTUAL. A = AMPLIACION DE LA CAPACIDAD ACTUAL.

FUENTES DE FINANCIAMIENTO : R.P. = RECURSOS PROPIOS. A.F. = APOYOS FISCALES. A.C. = APORTACION DE CAPITAL. C.I. = CREDITO INTERNO. C.E. = CREDITO EXTERNO.

PROCEDENCIA : N = NACIONAL. I = IMPORTACION.

COMISION DE FOMENTO MINERO
FLUJO DE EFECTIVO DE LABORATORIOS.

PRESUPUESTO 1987
(MELES DE PESOS)

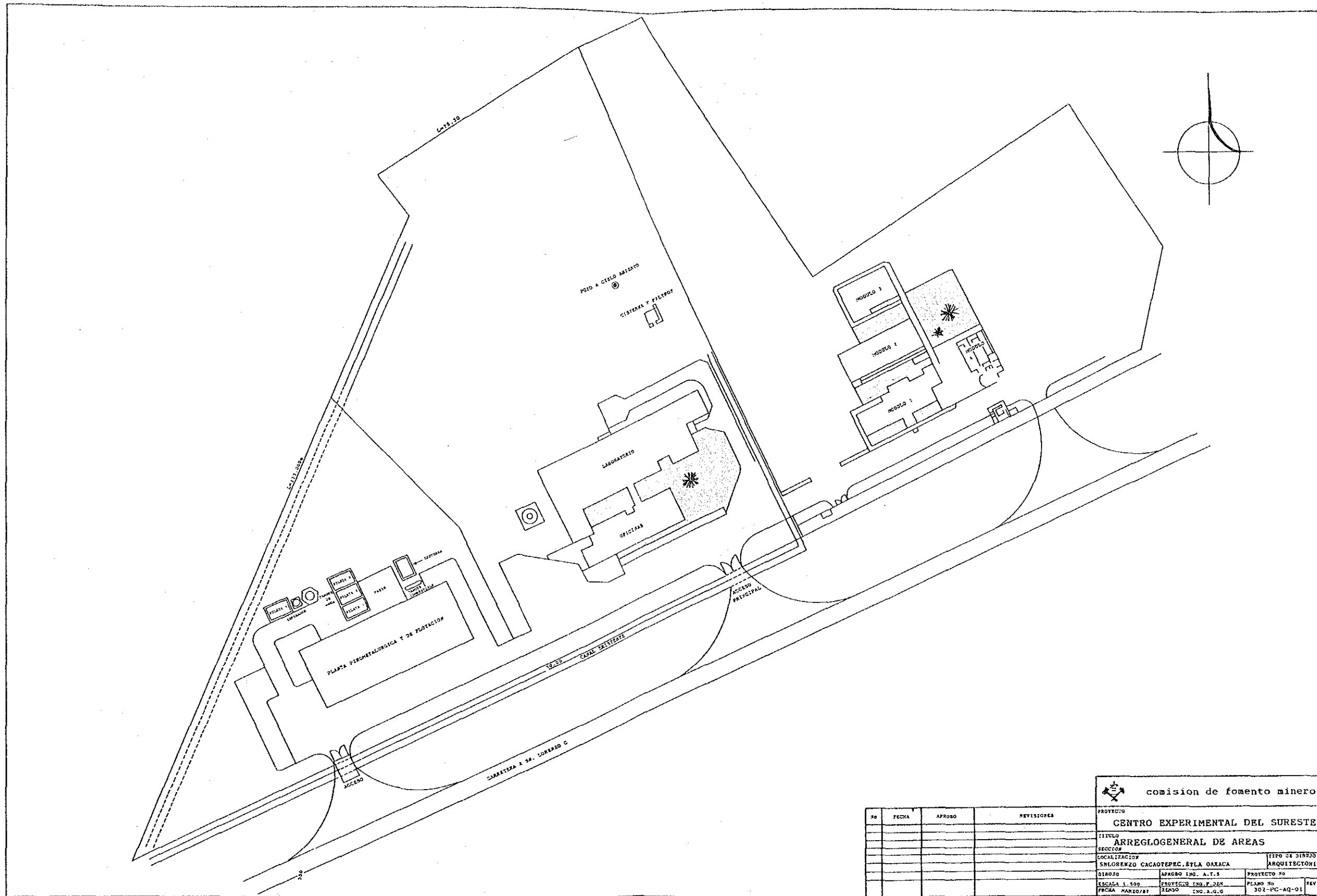
DEPENDENCIA : LABORATORIO OAXACA


| C O N C E P T O | F L U J O D E E F E C T I V O | | |
|-----------------------------------|-------------------------------|-------------|-------------|
| | EJERCICIO 85 | EJ. EST. 86 | PROYECTO 87 |
| - VENTA DE SERVICIOS | 819 | 2,317 | |
| . Ingresos de Laboratorio | 819 | 2,317 | |
| - INGRESOS DIVERSOS | | | |
| . Productos Diversos | | | |
| - OPERACIONES AJENAS | | | |
| . Retención I.S.P.T. | | | |
| . Retención Fondo de Ahorro | | | |
| . Descuento Préstamos a Empleados | | | |
| . I.V.A. Retenido (Por Pagar) | | | |
| . Otras Retenciones | | | |
| Total de Ingresos : | | | |
| - GASTO CORRIENTE | 59,271 | 69,484 | 159,789 |
| . Servicios Personales | 41,167 | 58,016 | 107,000 |
| . Materiales y Suministro | 5,464 | 3,812 | 24,675 |
| . Servicios Generales | 12,640 | 7,656 | 28,114 |
| - INVERSION FISICA | | | |
| . Adquisición de Bienes | | | |
| . Obras Públicas | | | |
| - OPERACIONES AJENAS | | | |
| . Pago de I.S.P.T. Retenido | | | |
| . Préstamos a Empleados | | | |
| . I.V.A. Por Recuperar | | | |
| . Otras Erogaciones Recuperables | | | |
| Total Egresos : | | | |
| REMANENTE O (DEFICIT) | | | |

JLP'pln*

資料 8-7

CFM南東試験センターレイアウト



| | |
|---|----------------------|
|  comision de fomento minero | |
| PROYECTO GENTRO EXPERIMENTAL DEL SURESTE | |
| TITULO ARREGLOGENERAL DE AREAS | |
| SECCION | |
| LOCALIZACION SINLORENZO CACAOTEPEC, STLA OAXACA | |
| TIPO DE DISEÑO ARQUITECTONICO | |
| DISEÑO | PROYECTO No |
| ESCALA 1:500 | PROYECTO ING. F. ZEN |
| FECHA MARZO/87 | RENO INC. A.G.S. |

| No | FECHA | APROBO | REVISIONES |
|----|-------|--------|------------|
| | | | |
| | | | |
| | | | |
| | | | |

JICA