Friction losses in the pipe are much larger than the head available from the difference in elevations, therefore, pumping will be required. The most critical location in this regard is the section from Station 7 to Station 8 where approximately 4023 feet of head must be overcome. We have selected 3 positive displacement pumps (2 operating, 1 standby) each with an 800 hp motor and located at Station 1. It is possible that by locating smaller pumps -one at Station 2 and another at Station 6, the pump costs could be reduced. It should be noted, however, that any capital cost saving for the pumps could be offset by the cost of a power line to those locations. We did not make an economic study of this alternate.

6.2 WATER LINES - LAGUNA BRAVAS TO MINESITE AND MONTANDON

Based on previous studies done by MECA, Laguna Bravas appears to be the best source of water. Total water requirements amount to approximately 2000 gpm. Pumps will be required at Laguna Bravas (elev. 4215 meters) to provide water to the minesite (elev. 4515 meters), but once at the minesite, the portion needed to satisfy the mill at Montandon will flow by gravity.

The 450 hp pumps, one standby and the other two operating in series, will pump the water to the minesite. At that point approximately 1200 gpm will be diverted into a 1,500,000 gallon reservoir (tank) for distribution to points of need and the remainder, as required, will be piped to a 2,500,000 gallon reservoir (tank) at Montandon. The pipeline from the minesite to Montandon will be laid alongside the slurry line and on the same sleepers (see Figure 6-1).

Differences in head losses as well as flow quantities in various sections of the pipeline permitted changing the pipe sizes. In long pipelines such as this, considerable savings can be realized by optimizing pipe diameters. These changes are shown in the table below.

Stations	Length (ft)	Diam.(in)
L. Bravas - 3	75,460	12
3 - 4	46,010	10
4 - 9	134,950	8
9 - 10	52,500	6

It will be a welded joint steel pipe with a yield strength of 60,000 psi. We have included an allowance for 110 concrete anchors, 12 pressure relief valves and 12 blowoff valves.

6.3 TAILING LINE - MONTANDON TO TAILING DAM

According to the material balance, 1681 gpm of tailing will be generated in the tailing thickener at Montandon. For purposes of this study, we have selected a possible disposal area down the valley approximately 8 kilometers west of Montandon. Further investigation of this site must be done to determine suitability with respect to soil conditions and environmental impact. The area selected can impound 10 years accumulation of tailing with

impact. The area selected can impound 10 years accumulation of tailing with proper earth dam construction. We are, however, recommending a "starter" dam which can provide disposal for 3 years. The dam can be heightened in steps as required to reach full capacity.

The pipeline and pumps are sized for the ultimate dam height. Calculations are based on the pulp having a specific gravity of 1.38, the tailing thickener underflow pumps being located at elevation 2375 meters and top of dam being at 2275 meters.

Two pumps, one operating and one on standby, each with a 300 hp motor have been selected for this service. A 10" welded steel pipe will be used for the entire length. The pipe will be laid on sleepers set on a graded surface.

6.4 RECLAIM WATER LINE - TAILING DAM TO MONTANDON WATER RESERVOIR

Due to possible contaminations which could affect the process, we plan to reclaim only the cleanest portion of water from the tailing dam. Should later tests or operating conditions show that more water can be reclaimed, the amount of makeup water from Laguna Bravas can be reduced accordingly. Our pipeline and pumps at this time are based on reclaiming approximately 250 gpm. Two pumps, one operating and one standby, each with a 75 hp motor have been selected to pump this "clean" water back to the reservoir at Montandon. A 5" steel pipeline will be laid alongside the tailing line and utilize the same sleepers.

SECTION 7

FLOTATION AND REFINING AREA FACILITIES

This section covers the installations located in the vicinity of Montandon and includes both the process facilities and infrastructure. The area was chosen because of existing access by both road and rail, nearby availability of power and a comparatively level plantsite area considering the mountainous terrain. It is at an elevation of approximately 2400 meters. Drawing SK-02 (in Appendix) shows a conceptual plot plan of the area.

7.1 PROCESS DEVELOPMENT

The following paragraphs discuss the various aspects of process development in the beneficiation sections of the plant. The comminution evolution was described in Section 5.2. The work presented in this Section is based upon laboratory and other studies received by Parsons prior to September 1, 1988. A discussion of later laboratory work is contained in Section 12.

7.1.1 DESIGN BASIS

The flotation and refining section of the plant is designed to run concurrently with the grinding section. The design throughput is 360 dmtph. The methodology for arriving at that figure was discussed in detail in Section 5.2.1

7.1.2 PROCESS ASSUMPTIONS

The flowsheet consists of conventional sulfur flotation followed by thickening, filtration and drying of the concentrate prior to melting, sulfur filtration and sulfur forming. A certain amount of test work has been done on some samples of ore but this work cannot be considered sufficiently complete to allow for anything more than a conceptual approach to the development of a material balance and process flow diagram. The following paragraphs discuss the assumptions taken in the development of the process flow diagram:

A. The batch laboratory flotation results indicated that rougher and cleaner recoveries of approximately 87 and 93 percent, respectively, could be obtained from a feed sample assaying some 33 percent sulfur. Even though the actual anticipated feed assay is only 31.2 percent sulfur, considerably superior plant results should be obtainable based upon the indicated behavior of the samples and upon historical metallurgy elsewhere. Thus, Parsons has assumed the following results in the preparation of the material balance:

	Tonnes/ Hour	Assay % S	Recov. Pct.
Rougher Flotation			
Feed	360	31.2	
Concentrate	180	60.68	97.25
First Cleaner Flotation			
Feed	185.57	60.64	
Concentrate	148.45	73.52	97
Second Cleaner Flotation			
Feed	148.45	73.52	
Concentrate	111.34	86.27	88
Cleaner Scavenger Flotation			
Feed	74.23	22.19	
Concentrate	5.57	59.18	20
Refinery			
Second Cleaner Concentrate	111.34	86.27	
Refined Sulfur	81.08	99.51	84
Overall Performance			
Feed	360	31.2	
Refined Sulfur	81.08	99.51	71.83

The recoveries in the first stages of flotation must be kept as high as possible, primarily because there is likely to be a fairly large loss of sulfur in the refining stage. During the melting stage, there will be a rejection of light (kuff) waste material and of coarse or heavy waste. This product may or may not be susceptible to flotation. Parsons, at this time has assumed that it cannot be satisfactorily retreated and the flowsheet shows it as being discarded. The alternative would be to regrind it and return it to the first cleaner flotation circuit. This would allow for a slower float in the rougher circuit and the corresponding production of less middlings by weight. The combined melter waste contains sulfur and it is this sulfur which is either lost or recovered as discussed above. In any event, it would be very expensive to return the melter sulfur-bearing waste product to the flotation circuit if that circuit were not adjacent to the refinery.

The flotation feed density has been maintained at 18 percent solids except in the scavenger where only 5.18 percent was possible. The flotation time in the rougher was dropped from the laboratory 5 minutes to 3 minutes (because of the lower feed assay), which was the time used for each phase of flotation. As is customary, the flotation cell capacity was augmented by the application of suitable factors which take into account cell volume occupied by machinery and air bubbles. These factors were 1.6, 1.5, 1.1 and 1.4 for the rougher, cleaner, recleaner and scavenger flotation banks, respectively.

B. The thickeners were sized on the basis of from 0.3 to 0.4 square meters of area being required per tonne per day being fed to the machine. Flocculant is assumed to be needed in all cases, if not, thickener sizes would be larger than those selected.

C. The disk filter used for dewatering the sulfur concentrate was sized on the basis of 400 kilograms of concentrate being recovered per square meter per hour.

D. The Concentrate dryer was sized using an evaporation factor of 2.5. This is an experience factor which, when multiplied by the anticipated water removal in pounds/ hour, gives the dryer volume in cubic feet. A length to diameter ratio of 7.5:1 has been assumed for the dryer.

E. Conditioners have been provided at both ends of the slurry pipe line, each being designed for one and a half hours of retention time and agitation.

F. Process fresh water requirements appear to be less than seventy percent of the usual one tonne of water for each tonne of ore milled. However the water design is based on the standard of one-to-one. Thickeners have been provided at the grinding area and for both concentrate and tailing at the flotation area, which arrangement, together with the recovery of water from the tailing disposal area allows for zero discharge to the environment. There could be a greater recovery of water from the tailing pond since traditionally half of the water sent to the settling area can be recovered. However Parsons has chosen to recover somewhat less since there is a serious possibility of metallurgical problems if too much of the old water is reused. The test work has not taken into consideration the suitability of local water for metallurgical response and Parsons has had no choice but to assume, at this stage, that no undue problems will be encountered.

G. It has been assumed that the contaminants in the dried flotation concentrate can be removed by melting. The melters have been designed as long rectangular vessels made of reinforced concrete equipped with heating coils, four mixers and suitable methods for decanting light waste and draining coarse or heavy waste. The addition of some 5 pounds of hydrated lime has been assumed as a satisfactory means for controlling the acidity of the sulfur fed to the leaf filters and also as a filter media. The pumps selected for handling "dirty molten sulfur" are, however, of a type which will not be adversely affected should diatomaceious earth have to be used as a filter media. The material balance around the melter/filter area is only of value as a guide since it shows more filter solids than would normally be permissible. The assumption has been made that the filter will be fed for a given length of time in closed circuit with the sulfur prior to commencing with the actual filtration. A complete cycle will take several hours after which a period of inactivity will be required before the filter can be opened for cleaning. While cleaning should be automatic according to the manufacturers, Parsons has allowed for personnel to aid in the performance of this duty. The wastes from the melter and from the sulfur filter all fall into a waste pit which will require periodic cleanup.

H. The material in the waste pits will require digging and occasional drilling for removal. The product will be stockpiled for eventual covering with dirt prior to abandonment of the property. The environmental acceptability of such a procedure has not been investigated.

I. Sulfur must be kept molten but not too hot. The viscosity of sulfur changes drastically at a temperature slightly over 300°F. Parsons has assumed that steam jacketing of pipes and valves handling molten sulfur will maintain the sulfur at a temperature not exceeding 280°F. Sulfur pumps will be supplied with steam at a pressure not to exceed 35 psig.

J. No one form of sulfur forming has proven to be universally better than the others. Slates, water cooled prills, air cooled prills, pellets and granules are produced in various locations. However, slates, in terms of installed world-wide capacity, appear to be the most common method for forming sulfur. Parsons has for this reason and, also, because of cost, selected the slating method for this study. Other methods will provide a more satisfactory product from the point of view of dusting but the payment will probably not improve because of that fact. There is a possibility that slates might not be acceptable to some buyers so this should be determined during the next phase.

K. The reader will note that quality control has been estimated as gross numbers under the heading of assaying, reagent preparation and instrumentation. These gross numbers need to be refined and distributed into their correct corresponding work areas during the feasibility study.

L. Parsons has some concern over the quality of water available for use in sprays. For this reason we have selected dry dust collectors. However, in the generation of steam and in the sulfur forming process, we have had no alternative but to use water. (The smaller requirements for slating was another reason, albeit a minor one, for selecting that forming method over others). Possibly water can be reclaimed from the thickener overflows, but it may have to come from Lagunas Bravas or even from local wells.

M. Some consideration has been given to treating the refinery tailing for additional recovery of sulfur values either alone or in combination with the original scavenger flotation concentrate*. While reportedly some success has been obtained in Chile when retreating refinery tailing, Parsons would be reluctant to include such treatment without specific test work on this ore. In any event, the refinery tailing will cool quickly and will have to be crushed and reground prior to any further flotation effort. If it is combined with scavenger concentrate, the regrinding can beneficially be done together. Because of the variable size of the refinery tailing, which may occur as fairly large slates or as lumps, an oversized jaw or roll crusher and a regrind mill, probably as large as 8 ft diameter by 12 ft long, will be required.

*See Sections 5.1.2.I, 7.1.2.A and 12.5

7.1.3 MATERIAL BALANCES AND FLOWSHEETS

The material balances and corresponding flow diagrams are to be found in Section 5.1.3.

7.1.4 EQUIPMENT LIST

Table 7-1 shows the major equipment used in the beneficiation sections of the process facility. The same tabulation also shows unit horsepower, total connected horsepower and operating horsepower.

7.1.5 QUALITY CONTROL

The Mine Department will, from time to time, send samples to the quality control laboratory for analysis and evaluation. In addition to that, the process plant will need to constantly keep a check on grinding efficiency and plant behavior in general. The most important aspect of quality control is that the maximum amount of optimum grade sulfur is produced at the least possible cost. In order to accomplish this the metallurgist will sample the plant feed and tailing and the feed, concentrate and tailing from each individual circuit. The samples will be delivered to the laboratory for analysis and some samples will be evaluated by testing in the process laboratory to determine how to improve results. The following areas are required in the laboratory for the purposes shown:

	Square Meters
Routine Wet Analysis	30
Atomic Absorption	10
Balance Room	10
Ore Testing	35
Microscopy	5
Sample Preparation	
Dry Materials	30
Wet Sampling	30
Sulfur Samples	15
Toilets	15
Chemical Storage	40
Total Inside	220

Additionally some 30 cubic meters of space will be needed outside for such items as air compressors, vacuum pumps, venturi blowers and water demineralizers.

Equipment required will include such items as benches, hot plates, muffles, distilling apparatus, colorimeters, a flotation machine, pH meters, grinding and crushing apparatus, sieve shakers, magnetic separators, ovens, dust and fume handling apparatus, glassware and filtration equipment

Table 7-1 - Equipment List - Flotation and Refining

Key	Description	Size	Connected H P Each	Total Connected H P	Operating H P
AE	Pipeline Discharge Conditioner	48' dia x 56'	125	125	125
BA	Rougher Flotation Machine	1 x 10 x 500 cu ft	400	400	400
BB	Cleaner Flotation Machine	1 x 8 x 300 cu ft	240	240	240
BC	Re Cleaner Flotation Machine	1 x 5 x 300 cu ft	150	150	150
BD	Scavenger Flotation Machine	1 x 7 x 500 cu ft	280	280	280
BE	Concentrate Thickener	125' x 10' SWD	7.5	7.5	7.5
BF	Concentrate Filter w/vac. pump, two filtrate pumps, two 7x84" vacuum receivers.	15 x 12' 6" disks	840	840	840
BG	Dryer Feed Conveyor Belt #P1	24" x 60', 300 fpm	3	3	3
BH	Concentrate Rotary Dryer w/auxilliaries.	12' x 85' (325 GPH Bunker C Fuel)	350	350	350
BI	Dryer Discharge Conveyor Belt #P2	24" x 20', 300 fpm	3	3	3
BJ	Radial Stacker Conveyor Belt #P3	245' x 125', 300 fpm	5	5	5
BK	Three Atmospheric Batch Sulfur Melters (each with 4 Mixers - 10' Shafts)	25'w x 100'l x 10'd	0 50	0 600	0 200
BL	Two Pre-Coated Steam-Jacketed Leaf Filters	44 Leaves 66" x 61"	0	0	0
BM	Sulfur Storage Tank	22' x 30'	0	0	0
BN	Sulfur Forming System Incl. 1 sulfur pit, 2 sulfur pumps, steam-jacketed piping w/flow control & shut-off valves, 3 steel belt slaters 1.5 m x 80 m, exhaust fan, water cooling system, piping, instr. & eng.		150	150	150
BO	Sulfur Stacking Conveyor Belt #P4	30" x 920', 125 fpm	30	30	30
BP	Sulfur Load-Out Conveyor Belt #P5	42" x 65', 100 fpm	20	20	20
BQ	Articulated Front-End Loader	4.5 Cubic Yard Bucket	0	0	0
BR	Steam Generating System	30000#/Hr Boiler @ 55-60 psig (244 GPH Bunker C Fuel)			
BS	Four Flotation Multistage Air Blower	1755 icfm @ 42 oz @ Sea Level	40	40	40
BT	Water Reservoir	2500000 gallons			
BU	Tailing Thickener	190' x 10' SWD	7.5	7.5	7.5
BV	Four Clean-Up Vertical Pumps	3" x 60"	20	80	20
BW	Air Compressor & 400 Gallon Receiver	637 ACFM 125 psi	150	150	150
BX	Sampling System	Allowance	3	3	3
BY	Reagent Preparation & Distribution System	Allowance	20	20	20
54	6 Vertical Dirty Molten Sulfur Pumps	4" x J-120"	15	90	30
68	6 Vertical Dirty Molten Sulfur Pumps	4" x J-120"	15	90	30
29	2 Flotation Feed Slurry Pumps	18" x 16"	150	300	150
36	2 Cleaner Feed Slurry Pumps	14" x 12"	100	200	100
38	2 ReCleaner Feed Slurry Pumps	14" x 12"	75	150	75
41	2 ReCleaner Concentrate Slurry Pumps	10" x 10"	50	100	50
43	2 Cleaner Scavenger Feed Slurry Pumps	16" x 14"	125	250	125
46	2 Total Tailing Slurry Pumps	22" x 20"	250	500	250
50	2 Concentrate Thickener Underflow Slurry Pumps	5" x 4"	15	30	15
62	3 Tail. Thick. O'F Water Pumps (2 op 1 sp)	10" x 12" x 14" Hor. (60' TDH)	125	375	250
63	2 Pairs of Tail. Thick. U'F Pumps (2 op 2 sp)	6" x 6"	250	1000	500
64	2 Tailing Dam Reclaim Water Pumps On Barge	14 Stage 6"Bowl	75	150	75
29	Pump Box	10 cu m			
36	Pump Box	5.2 cu m			
38	Pump Box	4.2 cu m			
41	Pump Box	3.1 cu m			
43	Pump Box	7.7 cu m			
46	Pump Box	16.9 cu m			
50	Pump Box	2.1 cu m			
62	Pump Box	14.7 cu m			
63	Pump Box	2.1 cu m			
64	Pump Box	1.0 cu m			
	Sub-Total Process Area			6739	4694
	Sub-Total Mine and Process Areas			19336.7	14921.7

7.2 MONTANDON PLANT INFRASTRUCTURE FACILITIES

In order to support the process operations at Montandon, the following facilities are required:

- Maintenance Shop and Warehouse
- Water Supply
- Power Supply
- Steam Generation
- Tailing Disposal
- Railroad
- Housing and Messhall Accommodations
- Office and Laboratory

7.2.1 MAINTENANCE SHOP AND WAREHOUSE

These facilities will be housed in one structure about 15 meters wide and 46 meters long. The shop area will include a small machine shop, an electric shop, pipe and welding shop and a light vehicle repair shop. The warehouse will be large enough to store parts and material for both areas and include a large open fenced-in storage area for items which can be stored outside.

In addition to the above, there will be a fuelling station to dispense both diesel and gasoline fuel for the vehicles operating at the site.

7.2.2 WATER SUPPLY

A major source of process water will be obtained by reclaiming the water from the slurry piped from the grinding mill at the minesite. This water is reclaimed from the tailing thickener overflow, the concentrate thickener overflow and the tailing dam. Some makeup water will be obtained from the same source as the minesite supply. A separate pipeline alongside the slurry lines will be installed to transport this additional water requirement. All the reclaimed water and fresh water will be stored in a 2,500,000 gallon reservoir. The reservoir will be designed to maintain 100,000 gallons for fire protection. The reservoir will be located at an adequate elevation above the plantsite to provide the necessary pressure for all uses without pumping.

7.2.3 POWER SUPPLY

It has been assumed that adequate power from the national grid is available within a short distance from the plant. In our capital cost estimate we are including an allowance of a 10 kilometer transmission line from that source to the plantsite as well as a substation at the site.

7.2.4 STEAM GENERATION

Steam is required for the melters, leaf filters,liquid sulfur storage tank and all steam jacketed piping handling liquid sulfur. To provide

the necessary steam, a 30,000 lb/hr oil fired boiler is required. The unit supplies steam at 50-60 psig.

7.2.5 TAILING DISPOSAL

As noted in the flowsheet, Figure 5-2, the thickener underflow will be pumped and piped to a disposal area for settling the solids and reclaiming a portion of the water. With the maps available at this time it appears there is at least one suitable valley which can be "dammed" to provide an adequate disposal area within 10 kilometers of the plant site. Our capital cost estimate includes the cost of constructing an earth starter dam, a 10 kilometer pipeline to the dam and reclaim water pump and pipeline back to the plant water reservoir. Chile has rather stringent laws regarding location and design of tailing dams so these aspects must be carefully reviewed during the next phase of the project.

7.2.6 RAILROAD

Based on transporting the slurry from the mine to Montandon by pipeline, no new track will have to be constructed -except for a spur alongside the refined sulfur stockpile.

For the purposes of this study it is assumed that agreements can be reached with Codelco and the Government to use the existing railroads for shipping the refined sulfur to the port. This cost will be included in the operating cost estimate.

New or refurbished bottom dump rail cars will be required. . For this study we are assuming the following:

- 40 metric tonne bottom dump cars
- 60,000 metric tons/month shipped from Montandon to Chanaral
- 146 kilometers from Montandon to Chanaral
- 3 day round trip (haul to Chanaral, dump cars, return to Montandon).
- 1 train load (2000 metric tons) each day of the month = 60,000 tonnes per month.

This would require 50 cars per day times 3 days per round trip or 150 cars. We are assuming locomotives to haul train are supplied by contract hauler in their haul price.

SECTION 8

PORT FACILITIES

Based on the investigations made by MECA and discussed in Chapter 3 of their report, Chanaral has been selected as the port providing the best facilities. Codelco, the present owners of the site and the related material handling and shiploading equipment, have constructed new port facilities leaving these older one idle. Renovation work will have to be done in the area to accommodate MECA's requirements, but by utilizing these facilities, capital costs will be minimized.

8.1 RAILCAR UNLOADING AND SULFUR STORAGE

The existing facilities include a railroad siding which passes over a dump hopper to receive the sulfur from bottom dump rail cars. The hopper feeds the material onto a 36" conveying system consisting of 3 belt conveyors in series, the last of which feeds the fixed stacking conveyor which in turn discharges the sulfur onto the storage yard. Renovation will consist of the following:

- Removal of all existing conveyor components and replace with new -this includes idlers, pulleys, belts and motors.
- Replacement of all electrical wiring.
- Replacement of walkways alongside conveyors.
- Sandblasting and painting of conveyor support steel.
- Cleanup, grading and bituminous surfacing of the storage yard.

8.2 SULFUR RECLAIM AND SHIP LOADING

The reclaim system under the storage yard is reported to be in good operational condition, so no renovation is necessary.

The existing ventilation system in the reclaim vault, however, is unsatisfactory and needs to be replaced. It is planned to install two exhaust fans, one at the end of each tunnel to pull the air from conveyor portal through the tunnels to obtain four air changes per hour.

The ship loader is reported to be in satisfactory operating conditions and requires no refurbishing.

SECTION 9

CAPITAL COST ESTIMATE

This section includes the basis for the capital cost estimate, a description of the various areas used in the breakdown of the estimate, the capital cost project summary and area cost work sheets. All data in this section is for base case only. See Section 13 for alternate case.

9.1 BASIS OF ESTIMATE

The following criteria itemizes the bases used in developing the estimate.

- The estimate is "pre-feasibility" type and is a factored estimate based on RMP's historical data. The factor includes labor/material to install, hookup and support equipment.
- Items not in factor include the following: (+/- 25% has been added to direct cost items for freight, OH & P)
  - Buildings
  - Roads/Railroads
  - Site Prep
  - Special Pipelines
  - Other Civil Work (Trailings Dam & Yard Cleanup)
  - Elect. Transmission or Generation
  - Power "to" Connect Point
- Chilean labor is based on $5.00/Hr. all-in.
- The "Factor" is pro-rated 70% for material and 30% for labor and indirects and OH & P.
- Equipment prices are budget quotations from reputable vendors.
- Costs of tanks, bins, boxes, etc. are based on steel tonnages calculated from preliminary sketches.
- All costs are in 1988 U.S. Dollars.
- No allowance for the following items is included:
  - Customs, duties or other tax
  - Overtime or other premium pay
  - Labor productivity
  - Equipment availability

9.2 PROJECT AREAS

The project has been divided into the following areas and the estimate is formatted in accordance with these areas.

Area	Description
5	Mine
10	From stockpile through ball mill feed conveyor
15	From ball mill to pipeline feed box and pumps
20	Slurry pipeline including feed box and pumps and pipeline discharge condition
30	From discharge conditioner through flotation, thickening, disk filter, dryer and melter feed conveyor.
40	Water supply system from Lagunas Bravas to and including the minesite and Montandon reservoirs
45	Tailing disposal including thickener, pipeline, dam and reclaim water system
.50	Power supply at minesite and Montandon
60	Auxiliary facilities, i.e., camp, shops, warehouse, office, laboratory, etc.
70	Port

9.3 ESTIMATE SUMMARY AND AREA WORK SHEETS

Table 9-1 shows the summary of the capital costs for the entire project. That table is followed by work sheets used to derive the costs for each of the areas described above.

Table 9-1 - Capital Cost Estimate Summary
($000)

Area	Description	Major Equip	M/E Sub Contract	Bulk Material	Labor & Indirect	Buildings	Roads & Railroad	Site Prep.	Pipeline & Sleepers	Other Civil	Special Elect.	Total
5	Mine	4540					1010					5550
10	Crushing and Conveying	4612	1820	5851	2507	950		370			40	16150
15	Grinding	2017	254	2064	885	336		344			20	5920
20	Slurry Pipeline	2731	135	4012	1720			80	7260			15938
30	Flotation, Filtration and Drying	3898	75	3893	1669	480		590			110	10715
35	Melting and Forming	6897	356	7614	3263	710	1420	590			30	20880
40	Water Supply	118	758	1291	553			90	8670		10	11490
45	Tailing and Reclaim Water	482	116	673	289			460	1400	1250	10	4680
50	Power Supply	108	98	115	49	460		170			9680	10680
60	Auxiliary Facilities	151	33	88	38	3190		530			50	4080
70	Port	348		491	211	10	400			10		1470
	Sub Total	25902	3645	26092	11184	6136	2830	3224	17330	1260	9950	107553
	Home Office Engineering											10000
	Sub Total											117553
	Contingency (15%)											17633
	TOTAL											135186

Table 9-1 - Capital Cost Estimate Summary
($000)

Area	Description	Major Equip	M/E Sub Contract	Bulk Material	Labor & Indirect	Buildings	Roads & Railroad	Site Prep.	Pipeline & Sleepers	Other Civil	Special Elect.	Total
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15	Grinding	2017	254	2064	885	336		344			20	5920
20	Slurry Pipeline	2731	135	4012	1720			80	7260			15938
30	Flotation, Filtration and Drying	3898	75	3893	1669	480		590			110	10715
35	Melting and Forming	6897	356	7614	3263	710	1420	590			30	20880
40	Water Supply	118	758	1291	553			90	8670		10	11490
45	Tailing and Reclaim Water	482	116	673	289			460	1400	1250	10	4680
50	Power Supply	108	98	115	49	460		170			9680	10680
60	Auxiliary Facilities	151	33	88	38	3190		530			50	4080
70	Port	348		491	211	10	400			10		1470
	Sub Total	25902	3645	26092	11184	6136	2830	3224	17330	1260	9950	107553
	Home Office Engineering											10000
	Sub Total											117553
	Contingency (15%)											17633
	TOTAL											135186

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6905-1 | CLIENT: MEGA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY

UNIT/AREA 20 SLURRY PIPELINE

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB $		M/HRS	DOLLARS	M/HRS	DOLLARS	
4100	CONCRETE											
	PIPE ANCHORS (CIP)	30	₵		400				12000			
	DROP BOX	20	₵		350				7000			
	PIPE SLEEPERS (5') .0833 ₵/EA (68₵)	7300	EA		25				183000			
4100	TOTAL AREA 20	6.58	₵						202000			202000
											25%	50
												252500

CES-2000 0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY RD | DATE 10-24-88 | SHEET 1 OF 1

JOB NO.: | CLIENT: | TYPE OF ESTIMATE | CHECKED BY

UNIT/AREA 20 SLURRY PIPELINE

DESCRIPTION

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	Piping - A/G											
	Slurry Pipeline :											
	Rolling Mountain Terrain :											
	String, Install & weld-out Pipeline											
	Use 0.365" WALL 10"	46	KM									
		150920	LF	17	.75							
	Use 0.250" WALL 8"	3	KM									
		9840	LF	10	.6							
	Plains Terrain :											
	Use 0.219" WALL 10"	40	KM									
		131200	LF	9	.55							
	Allow For Fittings 10"ø Pipe & Up (H/Labor)	1	LOT	20000	5000							
	✓ 8"	1	LOT	10000	500							
	Relief Valves 10"ø Avg	10	EA	4000	20							
	Blow Off Valves 10"ø Avg	10	✓	4000	20							
	MTO Allow, Shorts, Rod's, Rework (10% M&L)	1	LOT	40000	1900							
	Total 9.99" ø Avg	89	KM			#	4139500			216140 MH		
		291940	LF									

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6905-1 | CLIENT: MEGA | TYPE OF ESTIMATE Pre Feasibility | CHECKED BY DMT

UNIT/AREA 20 Slurry Pipeline

DESCRIPTION Chilean Sulphur Study

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB $		M/HRS	DOLLARS	M/HRS	DOLLARS	
6300	Site Prep.											
	For Slurry Pipeline	16250	SF		4.00				65000			
6300	Total Area 20	16250	SF						65000			65000
												25% 15
												80000

CES-2000 0 (4/81)

30

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6905-1 | CLIENT: MECA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY [illegible]

UNIT/AREA 30 FLOTATION & DRYING

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT	Description	QUANTITY	UNIT	COST OR M/HRS PER UNIT: MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT: M/HRS	SUBCONTRACT: DOLLARS	LABOR: M/HRS	LABOR: DOLLARS	TOTAL DOLLARS
4900	BUILDINGS											
	FLOTATION FILTER	339000	G		0.82				278000			
	30M X 40M X 8M											
	SOG-100X13.5X.5/27@110%	275	ɤ		200							
	FDN-(30) 8X8X2/27@ 110%	157	ɤ		250							
	GR BM FDN X.67X2/27@110%	43	ɤ		300				108000			
4900	TOTAL AREA 30	339000	G		1.14				386000			386000
		13500	SF		28.59							
											25%	94
												480000

CES-2000 0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6905-1 | CLIENT: MEGA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY: [illegible]

UNIT/AREA 30 FLOTATION & DRYING

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB $		M/HRS	DOLLARS	M/HRS	DOLLARS	
6300	SITE PREP											
	MONTANOOU -	117500	T		4 -				470000			
6300	TOTAL AREA 30	117500	T						470000			470 000
											25%	120
												590 000

CES-2000 0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY YM PRICED BY YM DATE 10/27/88 SHEET ____ OF ____

JOB NO.: 6905-1 CLIENT: CHILE TYPE OF ESTIMATE CHECKED BY [illegible]

UNIT/AREA AREA 30 FLOTATION & DRYING

DESCRIPTION

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	ELECTRICAL											
	2500KVA XFMER 6.6KV PAD MTD. OUTDOOR TYPE	1	EA				43,000			200		
	1500KVA - SAME	1	EA				38,000			150		
	TOTAL				4/5		81,000			350	1750	82,750
											25%	27,000
												110,000

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY _____ PRICED BY _____ DATE 11/88 SHEET _____ OF _____

JOB NO.: 6905-1 CLIENT: MECA TYPE OF ESTIMATE PRE FEASIBILITY. CHECKED BY _____

UNIT/AREA 35 REFINING & FORMING

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	SUMMARY											
0800	PACKAGED PLANTS						4 350 000					
1000	HOISTS & CRANES						60 000					
1400	FURNACES, FIRED HEATERS						312 000		812 000			
1500	PUMPS & DRIVERS						151 000					
1600	BOILERS						200 000					
1900	STORAGE TANKS						—		144 000			
2000	MATERIAL HANDLING EQUIPMENT						562 000					
2300	SEPARATION EQUIPMENT						550 000					
3700	MOBILE MINING EQUIPMENT						195 000					
	SUB TOTAL						6 386 000		356 000			
	FREIGHT	8%					511 000					
	TOTAL MAJOR EQUIPMENT						6 897 000		356 000			
										2.5		
	FACTORED TOTAL.											18 130 000
	ELECT								800			
	BUILDINGS								710 000			
	ROADS, RAILROADS								1 420 000			
	SITE PREP								90 000			
												2 750 000
	TOTAL CONSTR COST AREA 35											20 880 000
	MAJOR EQUIP 2897K											
	" " S/C 356K											
	BULK MTL (70%) 7614K											
	LABOR 3263K											
	BUILDINGS 710K											
	ROADS/RR 1420K											
	SITE 590K											
	ELEC 30K											
	TOTAL 20,880K											

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6905-1 | CLIENT: MECA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY [illegible]

UNIT/AREA 35 REFINING & FORMING

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
4900	BUILDINGS											
	SLATING SYSTEM	333700	CF		1.02				340000			
	105M X 15M X 6M											
	SOG: 710X50X.5/27@110%	357	CY		200							
	FDN (45) 6X6X2/27@110%	132	CY		250				120000			
	GR BM ▮ 550X.67X3/27@108%	51	CY		300							
	TOTAL.	333700	CF						460000			460000
	STEAM GEN BLDG											
	15MX10MX7M	37100	CF		1.86				69000			
	SOG- 50X33X.83/27@110%	56	CY		200							
	FDN (8) 6X6X2/27@110%	42	CY		250				26000			
	GR BM ⊟ 199X.83X3/27@108%	14	CY		300							
	INT FINISH- ADD								10000			
	TOTAL	37100	CF						105000			105000
4900	TOTAL AREA 35	370800	CF		(1.52)				565000			565000
		19150	SF		29.50							
											25%	145000
												710000

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6905-1 | CLIENT: MECA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY

UNIT/AREA 35 REFINING & FORMING

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
4600	ROADS, PAVING, RAILROADS.											
	8" BASE	21600	SY		6.00				130000			
	4" A/C PAVING	21600	SY		6.00				130000			
	PRIME/SEAL .03 GAL/SY	43200	SY		.05				2000			
	REFURBISH USED 40 TON Bottom Dump Rail Cars	LSD	EA		5000				75000			
	SIDING @ MONTANDON GAGE-1M. RAIL WT: 80# TES @ 25°C	1	Km						125000			
4600	TOTAL AREA 70	1	LS						1137000			1137000
											25%	283
												1420000

CES 2000 0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY	PRICED BY	DATE 11/88	SHEET ___ OF ___
JOB NO.: 6905-1	CLIENT: MECA	TYPE OF ESTIMATE PRE FEASIBILITY.	CHECKED BY DMA

UNIT/AREA 35 REFINING & FORMING
DESCRIPTION CHILEAN SULPHUR STUDY.
CAPACITY

ACCNT		QUAN-TITY	UNIT	COST OR M/HRS PER UNIT: MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT: M/HRS	SUBCONTRACT: DOLLARS	LABOR: M/HRS	LABOR: DOLLARS	TOTAL DOLLARS
6300	SITE PREP											
	MONTANDON	117500	[illegible]		4-				470000			
6300	TOTAL AREA 35	117500	[illegible]						470000			470000
												25% 120000
												590000

CES 2000 0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY VM PRICED BY VM DATE 10/27/88 SHEET ____ OF ____

JOB NO.: 6905-1 CLIENT: CARE TYPE OF ESTIMATE CHECKED BY AMV

UNIT/AREA AREA 35 REFINING & FORMING

DESCRIPTION

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	ELECTRICAL											
	500KVA XFMR 13.2KV/480V PAD MTD OUTDOOR TYPE	1	EA				13000			100		
	112.5KVA - SAME	1	EA				5000			80		
	TOTAL					$5	18000			180	900	18900
											25%	11220
												30,000

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY _____ PRICED BY _____ DATE 11/88 SHEET ____ OF ____

JOB NO.: 6905-1 CLIENT: MECA TYPE OF ESTIMATE PRE FEASIBILITY. CHECKED BY _____

UNIT/AREA 40 WATER SUPPLY

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	SUMMARY											
1500	PUMPS & DRIVERS						109 000					
1900	STORAGE TANKS								758 000			
	SUB TOTAL						109 000		758 000			
	FREIGHT	8%					9 000					
	TOTAL MAJOR EQUIPMENT						118 000		758 000			
	FACTORED TOTAL											2 716 000
	ELECT								10 000			
	CONC. SLEEPERS/ANCHORS								1 200 000			
	PIPING								4 698 000			
	SITE PREP								90 000			8 770 000
	TOTAL CONSTR COST AREA 40											11 486 000
	MATOR EQUIP 118K											
	" " SK 758K											
	BULK MAT'L BOP 12.91K											
	LABOR 553K											
	PVE & SLEEPERS 8.670K											
	SITE 90K											
	ELECT 10K											
	TOTAL 11490K											

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6905-1 | CLIENT: MEGA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY

UNIT/AREA 40 WATER SUPPLY

DESCRIPTION CHILEAN SULPHUR STUDY

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
4100	CONCRETE											
	PIPE SLEEPERS (5') .0883 Y EA. 608 Y	7300	EA		25'				182 500			
	PIPE ANCHORS (CIP)	35	Y		400				14 000			
	PIPE SLEEPERS (3') .05 Y EA 41 Y	820	EA		20				16 400			
4100	TOTAL AREA 40	684	Y						213 000			213 000
											25%	57 000
												270 000

CES 2000 0 (4/81)

P. .SONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ____ OF ____

JOB NO.: 6905-1 | CLIENT: MECA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY DMR

UNIT/AREA 40 WATER SUPPLY

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
5200	PIPE, VALVES, FITTINGS A/G											
	SEE DETAILS	308400	F				$ 136700			27778		
	FRT 3%	4 use					$ 4100					
	PROD. @ 80%									56946		
							$ 295000			284725	1422000	6717000
											25%	1679250
												8400000

CES 2000 0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY RD | DATE 10-24-85 | SHEET 1 OF 1

JOB NO.: | CLIENT: | TYPE OF ESTIMATE | CHECKED BY RS

UNIT/AREA 40 Water Supply

DESCRIPTION

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	Piping - A/G											
	Water Pipeline:											
	Rolling Mountain Terrain:											
	Stringing, Install & weld-out Pipeline											
	use 0.250" WALL 12"	23	KM									
		75500	LF	16	.8							
	use 0.322" WALL 9"	15	KM									
		49200	LF	14	.65							
	use 0.280" WALL 6"	16	KM									
		52500	LF	10	.5							
	Plains Terrain:											
	use 0.307" WALL 10"	14	KM									
		45900	LF	13	.72							
	use 0.346" WALL 8"	26	KM									
		85300	LF	14	.57							
	Allow for Fittings 2% Avg (10% Pipe $)	1	LOT	40000	7000							
	Relief Valves 10" ϕ Avg	12	EA	400	20							
	Blow off Valves 10" ϕ Avg	12	—	400	20							
	MTO Allowance, Shacks, Rail, Rework (10% M&L)	1	LOT	43000	20000							
	Total 8.3% Avg	99	KM				5 138 700			227,780 MH		
		308400	LF									

CE8-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY KMD PRICED BY KMD DATE 10/27/88 SHEET ____ OF ____

JOB NO.: 6905-1 CLIENT: CHILE TYPE OF ESTIMATE CHECKED BY

UNIT/AREA AREA 40 WATER SUPPLY

DESCRIPTION

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB $		M/HRS	DOLLARS	M/HRS	DOLLARS	
	ELECTRICAL											
	25KVA XFMER 6.6 KV/440V PAD MTD OUTDOOR TYPE	1	EA				5000			60		
	TOTAL					15	5000			60	300	5300
											25%	4300
												10,000

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6905-1 | CLIENT: MECA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY JMW

UNIT/AREA 45 TAILING & RECLAIM WATER

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LABS	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	SUMMARY											
1500	PUMPS & DRIVERS						146 000					
3200	LAUNDERS & SUMPS								6 000			
3300	THICKNERS & THICKENING MECHANISMS						300 000		110 000			
	SUB TOTAL						446 000		116 000			
	FREIGHT	8%					36 000					
	TOTAL MAJOR EQUIPMENT						482 000		116 000			
	FACTORED TOTAL									2.6		1560 000
	CONC / SLEEPERS / ANCHORS								50 000			
	PIPE, VALVES, FITTINGS								130 000			
	OTHER CIVIL (TAILINGS DAM)								120 000			
	SITE PREP								460 000			
	ELECT								10 000			930 000
	TOTAL CONSTR COST AREA 45											4 680 000
	MAJOR EQUIP 482K											
	" " S/C 116K											
	BULK MTL (30%) 673K											
	LABOR 289K											
	PIPE, SLEEPERS 1400K											
	OTHER CIVIL 1250K											
	SITE PREP 460K											
	ELECT 10K											
	TOTAL 4680K											

CES-2000 0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY AB | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6905-1 | CLIENT: MEGA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY CMA

UNIT/AREA 05 MINE

DESCRIPTION CHILEAN SULPHUR STUDY

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB $		M/HRS	DOLLARS	M/HRS	DOLLARS	
3700	MOBILE MINING EQUIPMENT											
	FEL 992 C	1	EA				688 000					
	HAUL TRUCK 773 B	6		346 000			2 076 000					
	DOZER D-9	1					348 000					
	DOZER D-8	1					234 000					
	GRADER 14 G	1					278 000					
	WATER TRUCK	1					83 000					
	LUBE / FUEL TRUCK	1					64 000					
	WELDING TRUCK	1					60 000					
	TIRE FORK LIFT	1					85 000					
	SHOP FORK LIFT	1					40 000					
	MAN BUS	1					25 000					
	AMBULANCE	1					49 000					
	PICK-UP W/MOBILE RADIO	3		16 000			48 000					
	BASE STATION RADIO	1					6 000					
	MOBILE LIGHT PLANT	4		10 000			40 000					
	SUB TOTAL						4 124 000					
	MISC EQUIPMENT @ 2%						82 000					
	PRE-PRODUCTION COST (HAUL ROAD CONSTRUCTION)	203 000 CY							1 010 000			
	FREIGHT	8%					334 000					
	TOTAL MOBILE MINING EQUIPMENT						4 540 000		1 010 000		40	5 550 000
	MAJOR EQUIP = 4540K ROADS 1010K 5 550K											

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY AB | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6905-1 | CLIENT: MEGA | TYPE OF ESTIMATE Pre Feasibility. | CHECKED BY [illegible]

UNIT/AREA 10 Crushing & Screening

DESCRIPTION Chilean Sulphur Study.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	SUMMARY											
1000	HOISTS & CRANES						440 000					
2000	MATERIALS HANDLING						1 126 000					
2100	REDUCTION EQUIPMENT						1 716 000					
2600	BINS & CHUTES						—		1 820 000			
2700	CLASSIFICATION & SCREENING EQUIP						982 000		—			
2800	OTHER MAJOR EQUIPMENT						—					
3700	MOBILE MINING EQUIPMENT						195 000		—			
3800	WEIGHING & PACKAGING EQUIP						—					
2900	DUST CONTROL						91 000					
	SUB TOTAL						4 270 000		1 [illegible]			
	FREIGHT	8	%				342 000					
	TOTAL MAJOR EQUIPMENT						4 612 000		1 [illegible]			
										2.3		
	FACTORED TOTAL											14 890 000
	ELECT								40 000			
	BUILDINGS								[illegible]			
	SITE PREP								370 000			
												1 260 000
	TOTAL CONSTR COST AREA 10											16 150 000

MAJOR EQUIP 4612 K
" " S/C 1820 K
BULKS MATL (70%) 6851 K
" LABOR 2507 K
BLDGS 950 K
SITE 370 K
ELECT 40 K

TOTAL 16,150

CES-2000 0 (4/81)

(10)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6905-1 | CLIENT: MECA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY

UNIT/AREA 10 CRUSH & SCREEN

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
4900	BUILDINGS											
	PRIMARY (JAW) CRUSHER (STRUCT) 15M x 15M x 10M	79.500	CF	$/C	100				79 500			
	SOG - 50'x50'x.5/27 @ 110%	50	CY		200							
	EDNS - (8) 8'x8'x2/27 @ 110%	42	CY		250				24 400			
	GRBm (5) 50x.67x2/27 @ 108%	13	CY		300				100			
	TOTAL - HSG			41.60 $/C	125	CF						104 000
	SECONDARY (STD) CRUSHER 20M x 15M x 15M	158900	CF	$/C	.91		HSG		145 000			
	SOG - 66'x50'x.5/27 @ 110%	66	CY		200							
	EDNS - (12) 8'x10'x2.5/27 @ 110%	98	CY		250				46 000			
	GRBm - 345'x1'x2/27 @ 108%	28	CY		300							
	TOTAL			58 $/C	.77	CF						191 000
	TERTIARY (SN) CRUSHER 22M x 17M x 40M	526300	CF		.77				407 000			
	SOG 75'x55'x.5/27 @ 110%	87	CY		200							
	EDNS (12) 10'x10'x3/27 @ 110%	122	CY		250				57 000			
	GRBm 370'x1'x2/27 @ 108%	30	CY		300							
	TOTAL			112 $/C	.88	CF						464 000
4900	TOTAL AREA 10	766700	CF	.99					759 000			759 000
		9875	SF	76.86							25%	191 000
												950 000

CES 2000 0 (4/81)

PANSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6905-1 | CLIENT: MECA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY [illegible]

UNIT/AREA 10 CRUSHING & SCREENING

DESCRIPTION CHILEAN SULPHUR STUDY

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB $		M/HRS	DOLLARS	M/HRS	DOLLARS	
6300	SITE PREP											
	JAW CRUSHING & FOB TO CAR	74500	T		4-				298000			
6300	TOTAL AREA 10	74500	T						298000		25%	298000 TRADE 372500

CES 2000 0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY AB | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6905-1 | CLIENT: MEGA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY [illegible]

UNIT/AREA 15 GRINDING

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	SUMMARY											
1040	HOISTS & CRANES						120 000					
1500	PUMPS & DRIVERS						119 000					
1800	COMPRESSORS & BLOWERS						29 000					
1900	STORAGE TANKS						54 000		133 000			
2100	REDUCTION EQUIPMENT						1 100 000					
2600	BINS & CHUTES								6 000			
2700	CLASSIFICATION & SCREENING EQUIP						120 000					
3300	THICKENAS, THICKENING MECHANISMS						325 000		115 000			
	SUB TOTAL						1 867 000		254 000			
	FREIGHT	8%					150 000					
	TOTAL MAJOR EQUIPMENT						2 017 000		254 000			
	FACTORED TOTAL											5 220 000
	ELECT								200 000			
	BUILDINGS								336 000			
	SITE PREP								344 000			
												700 000
	TOTAL CONSTR COST AREA 15											5 920 000
	MAJOR EQUIP						2017K					
	" " S/C						254K					
	BULK MTL						2064K					
	LABOR						885K					
	BLDGS						336K					
	SITE						344K					
	ELECT						20K					

TOTAL 5920K

CES-2000 0 (4/81)

15

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ____ OF ____

JOB NO.: 6905-1 | CLIENT: MEGA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY DNT

UNIT/AREA 15 GRINDING

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB $		M/HRS	DOLLARS	M/HRS	DOLLARS	
4900	BUILDING											
	BALL MILL BUILDING 26M X 15M X 15M (USE SECONDARY CRUSH-AREA 10)	206600	CF		1.20				246000			
	ADD INSUL SIDING/ROOF	14750	SF		6.00				88500			
4900	TOTAL AREA 15	206600 14900	CF SF		1.43 7.81							334,000

CES-2000 0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY VM PRICED BY VM DATE 10/24/88 SHEET ___ OF ___

JOB NO.: 6905-1 CLIENT: CHILE TYPE OF ESTIMATE CHECKED BY [illegible]

UNIT/AREA AREA 15 GRINDING

DESCRIPTION

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	ELECTRICAL											
	500KVA XFMER 6.6KV/480V PAD MTD OUTDOOR TYPE	1	EA				13000			100		
	TOTAL					#s	13000			100	500	13500
											25 $/hr MH	6500
												20000

CE8-2000-0 (4/81)

P...SONS

ESTIMATE WORKSHEET

M.T.O. BY:
PRICED BY:
DATE: 11/88
SHEET ___ OF ___
JOB NO.: 6905-1
CLIENT: MECA
TYPE OF ESTIMATE: PRE FEASIBILITY.
CHECKED BY: [illegible]
UNIT/AREA: 45 TAILING & RECLAIM WATER
DESCRIPTION: CHILEAN SULPHUR STUDY
CAPACITY:

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT: MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT: M/HRS	SUBCONTRACT: DOLLARS	LABOR: M/HRS	LABOR: DOLLARS	TOTAL DOLLARS
4100	CONCRETE											
	PIPE ANCHORS (CIP)	15	CY		400				6000			
	PIPE SLEEPERS (5') .0833 CY/EA	1310	EA		25				32750			
									38750		UAA	39000
											25%	11
												50000

CES 2000 0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY RD | DATE 10-24-88 | SHEET 1 OF 1

JOB NO.: | CLIENT: | TYPE OF ESTIMATE | CHECKED BY KS

UNIT/AREA 45 TAILINGS & RECLAIM WATER

DESCRIPTION

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	Piping - A/C											
	Tailing Line / Water Line:											
	Plains Terrain:											
	String, Install & Weld-out Pipeline											
	VSC 0.258" WALL 5"	8	KM									
		26250	LF	8	.35							
	VSC 0.365" WALL 10"	8	KM									
		26250	LF	11	.7							
	Allow for Fittings 8"ϕ Avg (10% Pipe $)	1	LOT	41000	4000							
	Relief Valves 5"ϕ	3	EA	2000	15							
	10"ϕ	3	✓	4000	20							
	Blow Off Valves 5"ϕ	3	✓	2000	15							
	10"ϕ	3	✓	4000	20							
	MTO Allow, Shacks, Berms, Rework (10% mat'l)	1	LOT	74000	3180							
	Total 7.5"ϕ Avg	16	KM				$ 832300			34980		
		52500	LF							MH		

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6905-1 | CLIENT: MEGA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY [illegible]

UNIT/AREA 45 TAILING & RECLAIM WATER

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE			SUBCONTRACT			LABOR			TOTAL DOLLARS
				MATL	M/H	LABS				M/HRS	DOLLARS		M/HRS	DOLLARS		
5300	OTHER CIVIL WORK															
	TAILING DAM.															
	SOIL/ROCK COMPACTED FILL	90,000	CY		4.00						360,000					
	IMPERVIOUS MAT'L COMPACTED (INCL. 4" 1½"/SCREENING)	45,000	CY		5.-						225,000					
	RIP RAP. (MACH PLACE/SLOPE PROTECT)	20000	CY		20.-						[illegible]					
	6"Ø PVC PERFORATED PIPE	2300	LF		3.-						7,000					
	FINAL DRESS.	1	LS								8,000					
5300	TOTAL AREA 45.										1,000,000					1,000,000
														25%		250,000
																1,250,000

CES-2000 0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ___ OF 1

JOB NO.: 6905-1 | CLIENT: MEGA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY

UNIT/AREA 45 TAILING & RECLAIM WATER

DESCRIPTION CHILEAN SULPHUR STUDY

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
				MATL	M/H	LAB $		M/HRS	DOLLARS	M/HRS	DOLLARS	
6300	SITE PREP											
	FOR TAILING & RECLAIM WATER LINES - CUT & FILL	1600	℄		4⁻				7000			
	STARTER DAM.	90.000	℄		4⁻				Blank			
6300	TOPIC AREA 45	91600	℄						347000			347000
												460 000

CES 2000 0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY VM PRICED BY VM DATE 10/27/88 SHEET ___ OF ___

JOB NO.: 6905-1 CLIENT: CHILE TYPE OF ESTIMATE CHECKED BY

UNIT/AREA AREA 46 TAILING & RECLAIM WATER

DESCRIPTION

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	COST OR M/HRS PER UNIT M/H	COST OR M/HRS PER UNIT LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	ELECTRICAL											
	112.5 KVA XFMER 13.8KV/480V PAD MTD OUTDOOR TYPE	1	EA				5000			80		
	TOTAL					45	5000			80	4000	5[illegible]
											25%	4[illegible]
												14[illegible]

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6925-1 | CLIENT: MECA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY

UNIT/AREA 50 Power Supply

DESCRIPTION CHILEAN SULPHUR STUDY

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LABS	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	SUMMARY											
1000	HOISTS & CRANES						100 000					
1900	STORAGE TANKS								98 000			
	SUB TOTAL						100 000		98 000			
	FREIGHT	8%					8 000					
	TOTAL MAJOR EQUIPMENT						108 000		98 000			
	FACTORED TOTAL											370 000
	BUILDINGS								460 000			
	SITE WORK								170 000			
	ELECT								9 680 000			10 310 000
	TOTAL CONSTR COST AREA 50											10 680 000
	MAJOR EQUIP 108K											
	" " S/C 98K											
	BULK MTL (Mat'l) 115K											
	LABOR 49K											
	BLDGS 460K											
	SITE 170K											
	ELECT 9,680K											
	TOTAL 10,680K											

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY ___ PRICED BY ___ DATE 11/88 SHEET ___ OF ___

JOB NO.: 6905-1 CLIENT: MEGA TYPE OF ESTIMATE PRE FEASIBILITY. CHECKED BY [illegible]

UNIT/AREA 50 POWER SUPPLY

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT: MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT: M/HRS	DOLLARS	LABOR: M/HRS	DOLLARS	TOTAL DOLLARS
4900	BUILDINGS											
	POWER GEN PLANT 30M X 18M X 8M	152600	$		1.50				222,000			
	ADD INSUL SIDING - 14,640 LESS LOUVERS . 1670	13000	$		6.00				78,000			
	SOG 100X60X.83/27 @ 110%	203	CY		200							
	FDNS. (12) 8X8X2/27 @ 110%	63	CY		250				66,000			
	GR BMS 440X.83X2/27 @ 108%	30	CY		300							
4900	TOTAL AREA 50	152600	$		2.40				366,000		25%	366,000
		6000	SF		61.00							94
												460,000

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET ___ OF ___

JOB NO.: 6905-1 | CLIENT: MECA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY JMR

UNIT/AREA SO Power Supply

DESCRIPTION CHILEAN SULPHUR STUDY

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT: MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT: M/HRS	DOLLARS	LABOR: M/HRS	DOLLARS	TOTAL DOLLARS
6300	SITE PREP											
	POWER PLANT STORAGE TANKS	34400	℔						138000			
6300	TOTAL AREA 50	34400	℔						138000			138000
											25%	32
												170000

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY VM PRICED BY VM DATE 10/24/88 SHEET ___ OF ___

JOB NO.: 6905-1 CLIENT: CHILE TYPE OF ESTIMATE CHECKED BY CWD

UNIT/AREA AREA 50, POWER SUPPLY

DESCRIPTION GENERATOR & 13.8KV LINE

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	ELECTRICAL											
	DIESEL ENGINE GENERATOR 3275 BKW/ALTERNATOR RATED 3110KW, 600 RPM, 6.6KV/ 3Φ, 50HZ - COMPLETE WITH ALL ACCESS. AND PROTECTIVE SWGR. - QUOTED BY HAWKER SIDDELEY - MARELESS BLACKSTONE	4	EA	1,675,000	2500		6,700,000			10,000		
	3 - MIRRLESS KB D.E.G. SET = $5,019,540											
	5,019,540 ÷ 3 = $1,673,180/EA											
	$1,673,180 X 4 UNITS = $6,700,000											
	CABLING BETWEEN SWGR & GEN	1	LS	LS	LS		100,000			1000		
	13.2KV TRANSMISSION LINE 10 KILOMETERS - TO SUBSTA #1 5 KILOMETERS - PUMPS AS PER JOHN EKMAN USE $5,000/KM BASED ON HISTORICAL DATA AS PER JOHN EKMAN	15	KM	LS	LS		—		82,500		—	
	13.2KV DISTRIBUTION LINE AT 7K & 14K ELEVATION WORK SITES INCLUDES: 30' WOOD POLE, SINGLE CROSS ARM, INSULATORS, XFMERS, GUYING, GROUNDING & 3-4/0 ACSR W/STATIC.	5000	FT	LS	LS		—		44,000		—	
							6800000		889,000	11,000	55,000	7744,000
											25%	1936,000

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET | OF

JOB NO.: 6905-1 | CLIENT: MECA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY

UNIT/AREA 60 AUXILIARY FACILITIES

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
	SUMMARY											
1000	HOISTS & CRANES						140 000					
1900	STORAGE TANKS								33 000			
	SUB TOTAL						140 000		33 000			
	FREIGHT	8%					11 000					
	TOTAL MAJOR EQUIPMENT						151 000		33 000			
										1.7		
	FACTOR TOTAL											310 000
	ELECT								50 000			
	BUILDINGS								3 190 000			
	SITE PREP								90 000			
												3 730 000
	TOTAL CONSTR COST AREA 60											4 080 000
	MAJOR EQUIP 151K											
	" " S/G 33K											
	BULK MTL (30%) 89K											
	LABOR 38K											
	BLDGS 3190K											
	SITE 590K											
	ELECT 50K											
	TOTAL 4080K											

CES-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET 1 OF 3

JOB NO.: 6905-1 | CLIENT: MEGA | TYPE OF ESTIMATE: PRE FEASIBILITY. | CHECKED BY [illegible]

UNIT/AREA: 60 AUXILIARY FACILITIES

DESCRIPTION: CHILEAN SULPHUR STUDY.

CAPACITY:

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
4900	BUILDINGS.											
	WAREHOUSE/SHOP	24500	SF		15.00				322000			
	45M x 15M x 9M			(INCL. INSUL. PANELS)								
	SOG 150x50x.5/27 @ 110%	153	CY		200							
	FDNS (16) 8x8x2/27 ✓	84	CY		250				61000			
	GR BM 400x.67x3/27 @ 108%	32	CY		300							
	WAREHOUSE/SHOP EQUIP.	1	LS						200000			
	TOTAL								583000			583000
	LUBE/FUELING	47500	SF		1.19				57000			
	12M x 14M x 8M											
	SOG 47x40x.5/27 @ 110%	39	CY		200							
	FDN (8) 8x8x2/27 ✓	42	CY		250				22000			
	GR BM 214x.67x2/27 @ 108%	12	CY		300							
	LUBE/FUEL EQUIP	1	LS						10000			
	TOTAL								89000			89000
	WORKERS QTRS. (3 @ 25400 SF)	76200	SF		366		FOR 3		279000			
	30M x 6M x 4M											
	100' x 20' x 13'											
	SOG 100x20x.5/27 @ 110% (3)	122	CY		200				56000			
	FDN (10) 6x6x2/27 @ 110% (3)	88	CY		250							
	GR BM 260x.5x2/27 @ 108% (3)	31	CY		300							
	FURNITURE	3	SETS		4000				12000			
									347000			347000
	CARRY FORWARD											1019000

CEB-2000 D (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET V OF 3

JOB NO.: 6905-1 | CLIENT: MEGA | TYPE OF ESTIMATE: PRE FEASIBILITY. | CHECKED BY [illegible]

UNIT/AREA: 60 AUXILIARY FACILITIES

DESCRIPTION: CHILEAN SULPHUR STUDY

CAPACITY

ACCNT	DESCRIPTION	QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LAB $	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
4900	BUILDINGS (CONT'D)											1019000
	STAFF QUARTERS (2@ 2(400)	50800	CF		3.66				186000			
	35 X 6M X 4M											
	(USE WORKER'S QTRS)						FOR 2					
	CONCRETE 56000 ÷ 3 X 2								38000			
	ADD PLUMBING	2	BLDGS		10000				20000			
	ADD INTERIOR PARTITIONS	4000	SF		4.00				16000			
	(2@ 2000 ¢)											
	FURNITURE	2	SETS		(10000)				(20000)			
	TOTAL								280000			280000
	MESS & RECREATION	38100	CF		3.20				122000			
	30M X 9M X 4M											
	SOG 100X30X.5/27@110%	61	CY		200							
	FDN (10) 6X6X2/27@110%	30	CY		250				28000			
	GR BM 290X.5X2/27@105%	12	CY		300							
	FOOD SERVICE EQUIP (	1	LS						(61000)			
	FURNITURE	1	SET						(35000)			
	SPECIAL FINISHES	1	LS						10000			
	TOTAL								256000			256000
	SHOPS/WAREHOUSE	155700	CF		1.50				234000			
	42M X 15M X 7M											
	(USE PREV PRICING)											
	CONCRETE								61000			
	WAREHOUSE/SHOP EQUIP								(306000)			
	TOTAL								601000			601000
	CARRY FWD											2156000

CEB-2000-0 (4/81)

PARSONS

ESTIMATE WORKSHEET

M.T.O. BY | PRICED BY | DATE 11/88 | SHEET 3 OF 3

JOB NO.: 6905-1 | CLIENT: MEGA | TYPE OF ESTIMATE PRE FEASIBILITY. | CHECKED BY

UNIT/AREA 60 AUXILIARY FACILITIES

DESCRIPTION CHILEAN SULPHUR STUDY.

CAPACITY

ACCNT		QUANTITY	UNIT	COST OR M/HRS PER UNIT MATL	M/H	LABS	MATERIAL EXPENSE	SUBCONTRACT M/HRS	SUBCONTRACT DOLLARS	LABOR M/HRS	LABOR DOLLARS	TOTAL DOLLARS
4900	BUILDINGS (CONT'D)											2156000
	OFFICES/LAB. LNG PORTION (COMPLETE)	31100	SF		9.26				288000			
	OFC.	16600	CF		4.40				74000			
	OFC. CONC- SOG: 40X35X.5/27@110%	29	CY		200							
	FDNS: (6) 6X6X2/27	18	CY		250				18000			
	GRDBM: 150X.67X2/27@108%	8	CY		300							
	OFC FURNITURE	1	LS						(4000)			
									378000			378000
4900	TOTAL AREA 60	613900	CF	4.15								2551000
		35090	SF	72.70							7.0%	439
												3190000

CES-2000 0 (4/81)