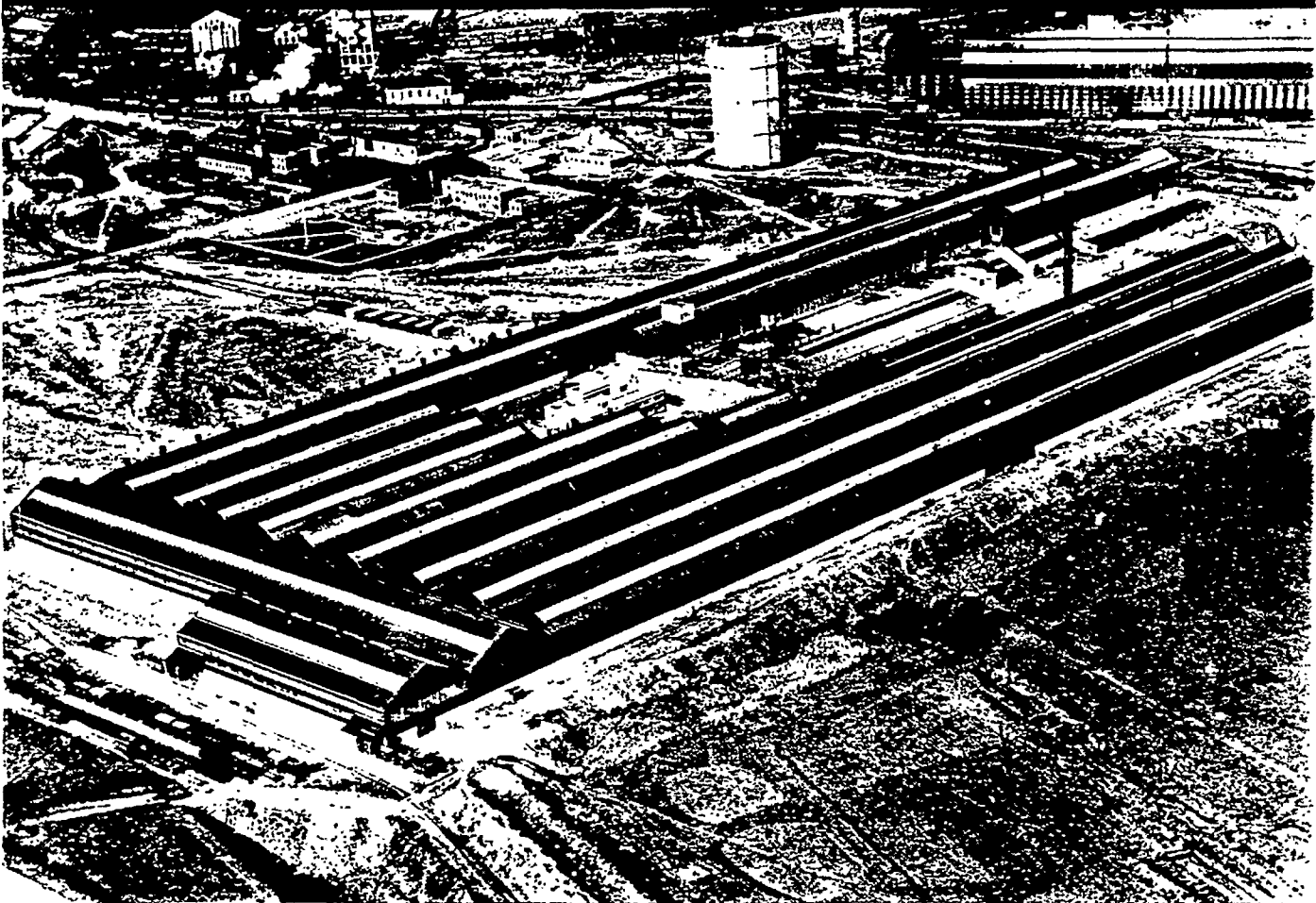


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April 28, 1943

El Paso Smelting Works
El Paso, Texas

Mr. T. J. Woodside, Supt.

Dear Sir;

Confirming my conversation with your engineer, Mr. English, with reference to roofing and siding for both ends of the black arsenic kitchen building. Our engineers advise that R.P.M. should be satisfactory for this service and have estimated a quantity of 103 squares material area of roofing and siding and 12½ squares of flashing will be required. Our estimate for this material, freight allowed El Paso, is based upon our standard form of contract and would amount to \$2,520.70 with freight allowed to El Paso, Texas.

Please be advised that the H. H. Robertson Company does not sell so many squares of asbestos, asphalt and steel, rather we offer years of roofing service based upon our experience and literally thousands of installations. I mentioned this because the first cost of a Robertson installation usually exceeds that of lesser quality materials.

Shipment at the present time can be made in about four weeks based upon engineering information and priorities submitted.

Looking forward to the pleasure of assisting you in solving this problem, I remain.

Very truly yours,

Warren D. Small

cc: Pittsburgh
Los Angeles

WDS:g

CABLE ADDRESSES: ROBERTSON CO PITTSBURGH

ASARCO ELP 0007666

El Paso, Texas

November 9th, 1937

MEMORANDUM OF DETAILS OF VARIOUS ITEMS FOR
CONSTRUCTION OF PROPOSED ARSENIC
PLANT.

The matter of details of construction of the arsenic plant was discussed at a number of conferences at the El Paso Plant. Present at most of the conferences were Messrs. N. L. Stewart, R. C. Stryker, N. B. Fleming, B. N. Rickard and Roscoe Teats.

THE SITE FOR LOCATION OF THE PROPOSED PLANT:

In order to eliminate danger of getting arsenical dust and sulphide concentrates on the poles used in poling anodes, and to eliminate as much as possible the hazard of arsenical dust blowing across to the Mexican settlement located East of the concrete stack, it was decided to locate the roaster and flues in that area East of the copper flue and stack, and as far North as possible, the limitations being the presence of the slag tracks. The proposed arsenic flues would lie in a position about East of the damper at the base of the copper stack.

The Godfrey Roaster would be located adjacent to the tracks serving the converter building. These tracks may need to be moved to allow room for a track serving the arsenic plant. The roaster is to be built on the level of these tracks and the flues on the level of the slag dump, which is from seven to eight feet higher than the roaster. In order to get the desired elevation of the flues above the roaster, it is proposed to fill in the site for the flues to a depth of seven or eight feet with liquid slag, covering an area of approximately 150 feet square.

ORE BINS:

The proposed ore handling system is to consist of a number of open stalls, three hoppers (pill boxes) placed over a belt, a disintegrator and belt conveyors leading to the roaster. The open stalls will have concrete floors and either concrete or wooden sides with no roof, of sufficient size to hold 500 to 1000 tons. These are to be constructed of sufficient strength so that they will stand the necessary hazards encountered in filling the bins with a locomotive crane and removing the various constituents of the Godfrey Roaster charge with the locomotive crane. It is intended to fill the pill boxes with the crane. The pill boxes are to be of a size to hold sufficient charge for one day. Each pill box should have a capacity of 25 tons. The disintegrator should be placed between the pill boxes and the roaster. It should be of a size to pulverize material at a rate of 100 to 125 tons per day. In the operation of the plant it is customary to feed the roaster hoppers intermittently. The disintegrator and conveyor belts will run approximately 1/3 of the time. Therefore, the disintegrator should have a capacity of around five or six tons per hour.

The belt conveyor will have a small tonnage to handle, but in order to trough properly, the belt should be at least 16 inches wide and light enough to be flexible so that it will trough and fit the idlers.

GODFREY ROASTER:

The roaster is to be standard 30 foot Godfrey. This roaster may be used for cadmium work as well as arsenic. It is built like the San Luis roasters in regard to height which is eleven feet from the floor to top of the brick work. The details of the sides and hearth and arches to be similar to the Murray cadmium roaster design except that the springs as shown in the Murray drawing for supporting the arch are to be eliminated. The bearings for the eight trunnions supporting the hearth are to be redesigned so as to make them ample for supporting a load on the hearth of forty tons. The lower half of the bearing to be bronze. The upper half to have a space for packing with waste and an oil cup that will feed oil uniformly to the waste. The hearth of the roaster to be built of Silicel and fire brick and the center to be four inches higher than the outside edge. The steel work of the hearth will be built level. Four inches difference in elevation will be obtained by laying loose Silicel on the steel plates. The loose silicel is covered with 4-1/2 inches natural Silicel brick. The Silicel brick is to be covered with 4-1/2 inches fire brick (local fire brick will be satisfactory). The fire brick will be laid in Laytite or similar mortar. The surface of the brick is to be grouted with Laytite or Calibex; the grouting to be applied with a gun if such can be obtained.

The arch for the roaster is to be constructed of fire brick (El Paso fire brick will serve). If the necessary wedges and keys required for the arch can not be obtained, use the number that may be required of Denver Fire Clay "High Fire" or similar grade fire brick.

The rim of the roaster: There is to be an angle on the outer edge of the steel plate of the hearth with the horizontal leg projecting at least three inches in order to make the calcine drop free of the sand seal. The casting or chute that fits on top of the cooling table should be redesigned so that it fits under this angle so that all the calcines will go into the cooling tub instead of the sand seal. The cooling tub and air cooled rabble arm is to be located in the position that works out the best for discharging onto the conveyor that loads the standard gauge calcine cars. Mr. Stewart is writing Tacoma regarding the material for the rabble arm and blades. Mr. Teets will send specifications for the fan supplying air to cool the arm.

The roaster is to be fired with natural gas, the burner ports to be placed in the ~~chimney~~^{turnage} arch. There are to be three burners, Denver Fire Clay No. 783, with a spud suitable for El Paso gas pressure. The burner ports are to be made according to Murray drawings. The materials used are to be obtained from Mr. Perry, Superintendent of the Murray Plant. Standard Denver Fire Clay or other burner ports can not be used in this case as the special angle desired is not manufactured. Location of the ports in the arch is to be about the same as shown in the drawings of the Murray Arsenic Roasters.

The steel flue leading from the roaster to the steel cooling flue is to be sixty inches in diameter and placed in the arch at a point so that it will be at right angles to the cooling flue. Provision should be made so that a cadmium flue can be connected to this pipe. This means that provision should be made for a blind flange where the sixty inch pipe connects onto the large cooling flue. This sixty inch flue is to be provided with some clean-out doors. There should be one clean-out door for every five feet of length; the opening for the door should be large enough to allow a man to squeeze through if necessary.

STEEL COOLING FLUE:

The steel cooling flue is to have it if the surface area of the steel cooling flues of the two roasters as shown in the Tacone drawings for Nos. 1 & 2 Roasters. This flue should be placed parallel to the first leg of the brick arsenic flues. The shape of the flue is to be similar to the usual balloon flues and is to be nine or ten feet diameter. This flue will require cleaning and clean-out doors along the bottom, every five feet, should be provided. At least two of these doors should be large enough to allow a man to pass through. These will be the slide gate type.

A steel plate is to be placed in the flue according to detail sketch given to Mr. C. Soley by Mr. Tents. The purpose of this plate is to provide means for installing a steel wool filter if this is deemed advisable at some later time. If the steel wool filter can be made to function in this flue it should be better than any device we have contemplated so far, such as the "Rotoclones" at Tacone for keeping the mechanical dust out of the black arsenic or the calcine seal as proposed at the discharge opening.

The Godfrey Roaster is to be housed in suitable building for protection against rain and windstorms. Ventilator in the roof is to be provided to allow smoke and dust to escape.

ARSENIC FLUES:

The brick arsenic flues are to be made according to the drawing of the Tacoma flues, connected with the Nos. 1 and 2 Roasters, except for these changes: The flues are to be seven feet high and there are to be three additional legs to provide means for additional settling of arsenic. This set of flues is to be connected with the main copper plant flue at a point South of the damper at the base of the copper stack. The connecting flue is to be the same width as the regular brick flues, six feet high, and to be built of brick with the necessary steel stays and tie rods required for supporting a flue with a longitudinal arch. The flues are to be built of common, hard burned, stiff mud brick. The mortar will be of lime, sand and cement mixture. It is very important that all joints be filled completely with mortar. The purpose of this is to reduce to a minimum the leakage of air into the flues. In order to get such a job of brickwork, it will be necessary to have a brick inspector on the job at all times. After the flues are constructed, in order to further cut leakage to a minimum, all outside walls including the arches are to be coated with "Gunite".

The arsenic flues are to be built on a five-inch concrete slab laid on top of the slag fill. This slab should extend out from the sides of the flue twenty feet on each side to provide handling space for the black arsenic. It should extend sufficiently beyond the ends of the flues to make each side easily accessible. Any low spots in the slag fill are to be leveled off with dirt before pouring the concrete slab. The slag fill on which the arsenic flues are to be built has a very considerable volume and will require several weeks to cool off, therefore, this slag fill should be the very first work started.

The flues are to be equipped with Bagley Scrapers like those at Tacoma. Mr. N. L. Stewart has written for details on this. The Bagley scrapers should be also installed in the connecting flue.

When building the flues, damper slots should be placed near the hot end and two damper slots should be placed in the connecting flue. The reason for two damper slots in the connecting flue is to provide positive draft ^{regulation} ~~regulation~~ in case there is a high draft in the copper flue. The dampers are to be steel plates provided with counterweights.

On account of the low rain fall in El Paso, a roof over the brick arsenic flues is not required. The twenty feet of concreted space on each side of the flues should slope away from the flues, so that rain water will not run into the flues; the slope should be two inches in twenty feet. This concreted area should be covered with a wood frame covered with a galvanized corrugated roof and galvanized corrugated sides provided with windows and doors wherever necessary. This is to provide protection for the arsenic from winds and rain.

BLACK ARSENIC BINS:

Bins should be provided for storing 300 tons of black arsenic of a shipping grade, and 300 tons of black arsenic that is to be returned to the roaster. These bins are to be located north of the black arsenic flues. They are to have a concrete floor and wooden sides and are to be approximately ten feet deep, covered with a nearly flat galvanized corrugated iron roof, with one or more runways on top of the roof, and to have suitable openings for dumping black arsenic into the bins. The arsenic is to be loaded into cars by wheeling buggies. The necessary ramps for loading into steel gondola or hopper bottom coal cars should be provided.

A sufficient number of buggies should be provided, similar in design to those used at San Luis. These buggies should be made with ball or roller bearings and rubber tires.

CADMIUM PLANT:

Mr. Rickard has asked for preliminary drawings and an estimate for means of cadmium roasting. As this roaster will not be used continuously for arsenic, it may be used for cadmium. A separate steel flue and baghouse should be provided, similar to the system installed this summer at Murray. The baghouse should have three sections of about forty bags each. It is recommended that the ~~cellars~~ be made of the usual concrete walls with steel thimble. The structure above the thimble to be of structural steel with galvanized corrugated steel roof and sides; the gases to leave the bag chamber through louvers in the roof to the atmosphere, and will not be connected to the flue system.

RECORDING INSTRUMENTS:

The following recording instruments will be necessary for the operation of the plant:

- 1 - Recording Pyrometer : 0° to 1000° C.
- 2 - Recording Thermometers : 0° to 300° C.
- 2 - Recording Draft & Pressure Gauges ± 1" water.

Yours very truly,

Roscoe Teats

ROSCOE TEATS

RT:s