SOIL AND FOUNDATION INVESTIGATION REPORT

Converter Building Evacuation System

El Paso Plant

El Paso, Texas

SHB Job No. E76-2004

SERGENT, HAUSKINS & BECKWITH

CONSULTING SOIL AND FOUNDATION ENGINEERS
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March 29, 1976

ASARCO, Inc.
P. O. Box 1111
El Paso, Texas 79946

SHB Job No. E76-2004

Attention: Mr. Bill Nasmyth

Re: Converter Building
Evacuation System
El Paso Plant
El Paso, Texas

Gentlemen,

Our Soil and Foundation Investigation Report on the referenced project is herewith submitted. The report includes the results of test drilling, laboratory analysis and recommended criteria for foundation design and site grading.

Should any questions arise concerning the report, we would be pleased to discuss them with you.

Respectfully submitted,
Sergent, Hauskins & Beckwith Engineers

By George H. Beckwith
George H. Beckwith, P.E.

Reviewed by John J. Moran
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Copies: Addressee (5)

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SHB Job No. E76-2004

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1. INTRODUCTION

This report is submitted pursuant to a soil and foundation investigation made by this firm of the site of the proposed Converter Building Evacuation System, located at the American Smelting and Refining Company, El Paso Plant in El Paso, Texas. The object of the investigation was to evaluate the physical properties of the subsoils underlying the site to provide recommendations for foundation design and slab support.

2. PROPOSED CONSTRUCTION

Tentative features of the proposed construction were provided to us by representatives of Kaiser Engineers and ASARCO, Inc. Final design details have, as yet, not been determined. It is understood that an above ground fume duct will be constructed to convey stack emissions to the proposed baghouse, a distance of about 200 feet. Large induced draft fans may be placed in the system between the 825 foot stack and the baghouse. Another duct, 350 feet long, will carry exhausts to the baghouse from the converter building. The ducts will be 12 to 14 feet in diameter and may be elevated as much as 78 feet above ground.

The duct system between the converter building and the baghouse will be placed on bench supports. The reactions on the foundation pedestals are tentatively estimated as follows:

Approximate Location	Total Vertical Load (DL & LL)	Maximum* Overturning Moment	Base Shear
E670 S1646	146 kips	640 kips/feet	11 kips
E630 S1646	250 kips	1200 kips/feet	19 kips
E500 S1646	409 kips	1300 kips/feet	24 kips
E400 S1646	250 kips	860 kips/feet	18 kips

*Primarily due to wind load. Dead load overturning moments are from about 21 to 38 percent of total.

The baghouse will be a steel frame structure supported on three rows of columns. Foundation loads are not known at this time.

Details of the fans are also not presently known. Dynamic loads are often critical to foundation design for fans of this general type.

When final details of the project are established, this firm should be notified for review of recommendations.

3. INVESTIGATION

3.1 Previous Investigations

Among previous soil and foundation investigations made by this firm at the ASARCO El Paso Plant are six site investigations in the general vicinity of the present project. In addition, an investigation is currently underway for a new acid treatment facility near the area of the project. The six earlier investigations pertinent to this project are as follows:

Project Name	SHB Job No.
825 Foot Chimney	E65-310
Ore Receiving & Lead Plant Rehabilitation	E69-60
Additional Cottrell Facilities	E69-191
Elemental Sulfur Pilot Plant	E70-83
500TPD Converter Gas Acid Plant	E70-157
Converter Flue System	E71-193

The site plan included in Appendix A of this report shows the locations of the borings from the above investigations near this project. This information was carefully considered in evaluating fill depth in the present investigation.

3.2 Subsurface Exploration

Nine exploratory borings were drilled to depths of about 24 to 40½ feet. Borings were begun with 6 5/8" O.D., 3¼" I.D. hollow stem auger which, in most cases, refused on coarse fill or very firm native soils. Three of the borings were advanced beyond hollow stem auger refusal using 4½ inch diameter continuous flight auger and/or tricone gear bits. Special carbide insert teeth were used on the auger. Standard penetration testing and open-end drive sampling were performed at selected intervals in borings.

Results of the field investigation are presented in Appendix A which includes a brief description of drilling and sampling equipment and procedures, a site plan showing boring locations and logs of the test borings. The