THE S. W. SHATTUCK CHEMICAL COMPANY, INC., HAER No. CO-71-F
BUILDING NO. 6
(Roaster)
1805 South Bannock Street
Denver
Denver
Colorado

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
Rocky Mountain Regional Office
P.O. Box 25287
Denver, Colorado 80225

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The S. W. Shettuck Chemicel Compeny,
Building No. 6
(Roaster)

HAER No. CO-71-F

Part I. Introduction

Locetion:	Building No. 6 (Roester) of the S. W. Shettuck Chemical Compeny, Inc. is loceted et 1805 South Bennock Street in the City end County of Denver, Coloredo (Shettuck site). The Shettuck site is loceted approximetely 4 miles south of Denver's downtown eree neer the intersection of Evens Avenue end Broadway.
Quadrengle:	U. S. Geologicel Survey, Englewood 7.5-minute topogrephic quadrangle, dated 1965, photorevised 1980.
Dete of Construction:	Building No. 6 was constructed in 1956.
Present Owner:	The S. W. Shettuck Chemicel Compeny, Inc. 1805 South Bennock Street Denver, Colorado 80223
Present Use:	Minarel processing operetions et the Shettuck site caesed in April of 1984 due to poor economic conditions essociated with molybdenum and rhenium metals. The site is currently undergoing environmentel remediation in accordance with the terms of e Superfund Record of Decision issued by tha U. S. Environmentel Protection Agency ("EPA") on Januery 28, 1992.
Significance:	The significance of the Shettuck site erises from its role in processing verious metels since 1918. At verious periods of time, molybdenum compounds, radium, uranium compounds, end rhenium were produced at the site. From ebout 1934 to the eerly 1940's, Shettuck was one of only two compenies in the U. S. thet produced redium selts; although, collectively both compenies produced only a smell percentege of the redium used in the U. S. during that period.

Prepared By:

Historic Narretive: Steven F. Mehls, Project Historien, Western Historicel Studies, Inc. June 1993

Architectural end Historical Engineering Processes Informetion: Nenon A. Anderson, AIA, Andrews & Anderson, July end October 1992.

Photogrephy: Arnold Thellheimer, April end Mey 1992

Building No. 6

When Shattuck entered the molybdenite concentrate processing market in 1956, Building No. 6 and a brick chimney were constructed to produce their primary product, molybdic oxide. Before that date, Shattuck had batch roasted molybdenum sulfide with mixed results. The building's two gas-fired roasters, located in about the center of the building, efficiently roasted the feedstock, leaving the powdery white molybdic oxide. Molybdic oxide is used as an additive in steel manufacturing to increase its strength and hardness (See Photographs, HAER No. CO-71-F1 through 4).

Gases rising from the roaster were pretreated before being channeled toward the chimney at the far west side of the building. As the gases rose, they passed through a cyclone section which removed particulates from the burn off. Next in line was the scrubber which cooled the gas and recovered rhenium, a metal discussed under Building No. 2. Finally, an absorber captured the sulfur dioxide by passing ammonium hydroxide countercurrently to the gases which formed ammonium sulfate, a chemical with commercial value as fertilizer. (See Photograph, HAER No. CO-71-F-2).

When market demand for molybdic oxide was low, the chemical could be processed further to produce two other products: ammonia dimolybdate (ADM) or ammonia heptamolybdate (AHM). To create these chemicals, molybdic oxide was dissolved in an ammonia solution in leach tanks on the east side of the building (See Photograph, HAER No. CO-71-F3). In the production of ADM, the solution was sent to an evaporator where it was boiled and crystallized into ADM. ADM was shipped as a powder to companies that used it to prepare a catalyst for removing sulphur from gasoline. ADM can be reduced to molybdenum metal using hydrogen. The molybdenum metal is used as a metal lining for furnaces or high-temperature extrusions.

Molybdic oxide feedstock with a lower pH level was typically used in the production of AHM. Instead of the heating process used in the production of ADM, the ammonia solution was cooled to crystallize AHM. This chemical had a specialty catalyst application in the production of acrylonitrile, a chemical used in the manufacturing of Acrylan carpeting[1].

General Description

Building No. 6 is primarily a one-story, 125' x 210', industrial building constructed of brick veneer over structural tile or concrete block and corrugated metal siding over steel framing. The building illustrates through its various additions the industrial processes that it housed. At the center of the building is a three-story corrugated metal section which contains the two roasters: a 12-foot diameter/10-hearth roaster and a 9-foot diameter/8-hearth roaster. Sections to the west, 55' x 25', and south a 60' x 102' warehouse were added as production and demands on storage capacity grew.

Immediately to the west of the center of the building is a 200' concrete and gunite chimney built in 1976 to replace a brick chimney (See Photographs, HAER No. CO-71-F-1 through 4).

Roof

The roof is constructed of steel frame supporting metal decking with built-up roofing (See Photograph, HAER No. CO-71-F-1).

Windows

The building's primary windows are located in a clerestory on the east facade of the building. Small metal-framed sliders, four-light awnings, and large ten- and twenty-light/fixed and central awning combinations are located sparsely in brick perimeter walls (See Photograph, HAER No. CO-71-F-1 and 3).

Doors

On the south side are a 4' x 10' pair of double-acting metal doors, and an 8' x 10' sliding metal panel door that accesses the concrete drive and yard at the building's south end (See Photograph, HAER No. CO-71-F-1). On the west side are two metal, sectional, overhead garage-type doors, 10' x 10'; a wood slider, 8' x 8' feet, accessing the train loading dock; and one metal man door (See Photograph, HAER No. CO-71-F-2). The north side has two metal, sectional, overhead, garage-type doors, one 6' x 9', and one 9' x 8', both with adjacent metal man doors (See Photograph, HAER No. CO-71-F-4). Two, metal, sectional, overhead garage-type doors, 10' x 10'; a pair of outswinging metal doors, 5' x 10'; four single and one double, metal man doors access the east side (See Photograph, HAER No. CO-71-F-3).

Foundation

The foundation consists of a concrete slab on grade, perimeter concrete foundation, and concrete piers at the steel posts.

Interior Features

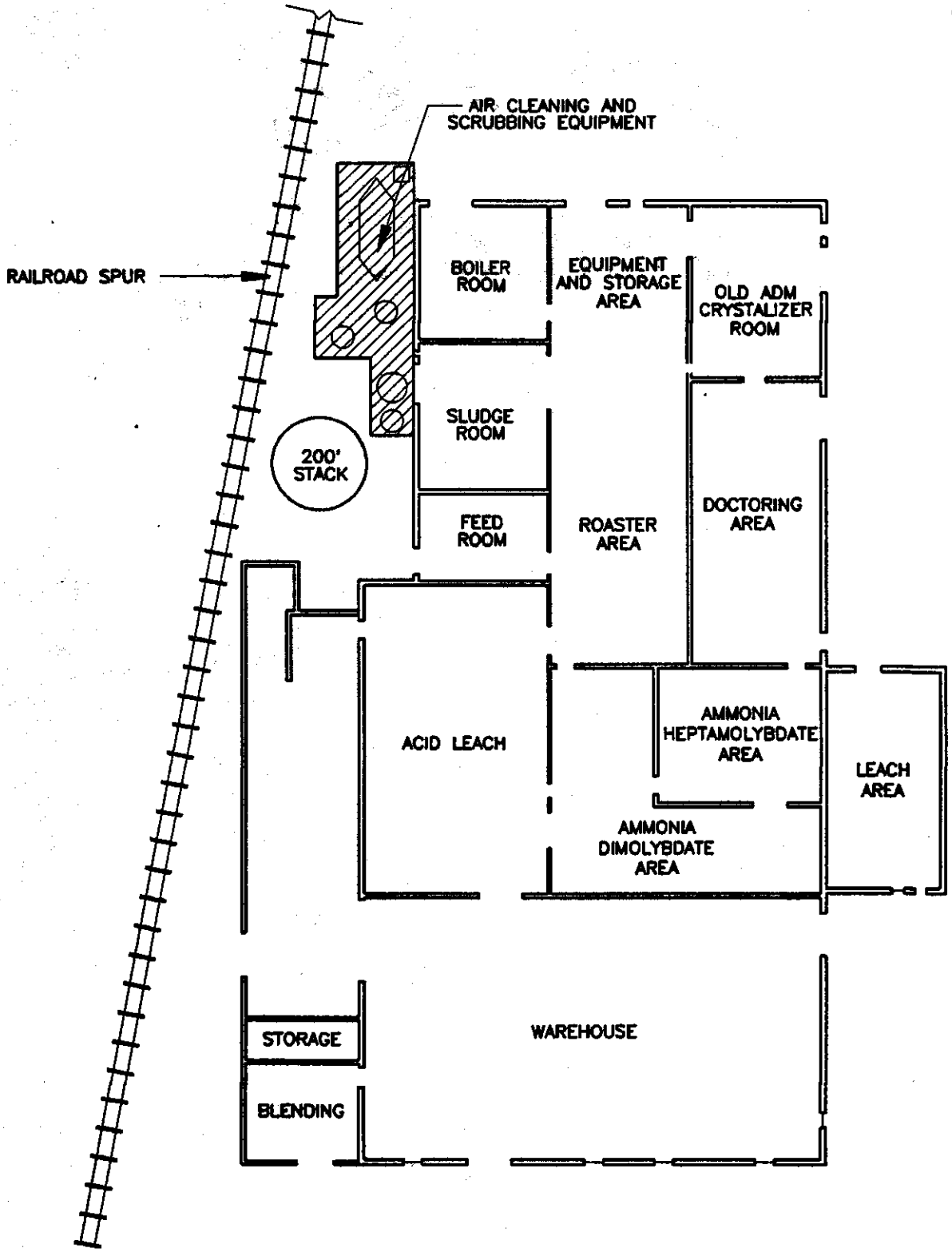
Refer to the sketch plan for equipment layout information.

Exterior Features

Building No. 6 is surrounded by concrete drives and yards which were used for truck access, material storage, and tank platforms. The stack on the west side of the building is a concrete gunite structure with a steel lining tapering from its 12-foot-diameter base. Directly north of the chimney, the scrubbers, absorbers, fans, tanks, etc., which were associated with postroaster processing sit on concrete pads or steel frames. Running parallel and 8 feet to the west of the building is a spur of the Atchison, Topeka and Santa Fe Railway which entered the north end of the site and was used, in Shattuck's early years, to deliver molybdenite, sulfuric acid, and nitric acid. Later, trucking replaced the rail system for most deliveries to and shipments from the site (See Photographs, HAER No. CO-71-F-1 through 4).

Endnote

1. Personal Communication, June 29, 1992, Mr. Henry F. Barry, Vice President - Technology, The S. W. Shattuck Chemical Company, Inc. with Nanon Adair Anderson, Historic Architect.



SCALE 1/32" = 1'-0"

NORTH

0 5 10 20 30 50 75 FEET

0 1 2 3 4 5 10 15 20 METERS