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Project Summary

Survey of Town Gas and By-Product Production and Locations in the U.S. (1880-1950)

Robert Eng

This report presents data compiled from available literature identifying plants that manufactured town gas from fossil fuels (e.g., coal, oil) and which existed in the U.S. from 1889 to 1950. The results are the first step of a preliminary study to investigate the fate and potential environmental impact of by-products (such as tar) from the manufactured gas industry. A list of gas manufacturing sites and company names was compiled by reviewing published gas statistics. It is estimated that more than 1,500 manufactured gas facilities existed between 1889 and 1950. In addition, available gasifier/process information and gas and by-product production data are reported.

Based on these data, a rough (order of magnitude) estimate for the total production of tar by the U.S. manufactured gas industry was developed. It is estimated that about 15 x 10^{12} cu ft (425 x 10^{12} L) of gas was manufactured in the U.S. from 1880 to 1950, producing about 11 x 10^{9} gal. (42 x 10^{9} L) of tar as a by-product. Of this estimated tar production, some tars were consumed at the plant site or sold and any excess discarded. Excess quantities of other by-products, such as coke and ammonia, may have been disposed of also. However, this study focused on tar because it is considered the more potentially significant waste disposal problem. The explanations and assumptions used in compiling the data, as well as those used in developing the tar estimates, are also discussed in this report.

This Project Summary was developed by EPA's Air and Energy Engineering Research Laboratory, Research Triangle Park, NC, to announce key findings of the research project that is fully documented in a separate report of the same title (see Project Report ordering information at back).

The Report

Prior to the widespread use of natural gas, the U.S. relied, in part, on town gas produced from fossil fuels (predominantly coal) for heating and lighting during the 1800s and early 1900s. The manufacture of town gas typically resulted in the production of by-products (including tar) from the gas purification processes. The potential environmental impact of the disposal of solid wastes from the manufacture of town gas has become a recent area of interest.

The purpose of this study is to review and summarize pertinent data available in the open literature on the manufactured gas industry so that a preliminary assessment can be made of the quantities of solid wastes that may have been disposed of at gas manufacturing sites. The following steps (listed chronologically) were taken to accomplish this purpose within the scope of the project: (1) a literature search was performed to identify possible sources of data, with special attention to sources containing detailed site and by-product information, (2) based on the available information found in the open literature, data were compiled on plant location, manufacturing process

type, and gas and by-product production rates, (3) a rough estimate for the total tar produced in the U.S. manufactured gas industry was developed based on the compiled data, and (4) a summary report was prepared to present the data and provide documentation of assumptions used in the development of the data tables and the tar production estimates. Details of the first three steps are given in the report.

The Approach and Results is divided into four parts. The first part is concerned with the source of data and the general approach taken to compile useful data. The second part presents the summary data tables and discusses points to consider in using the data, as well as corresponding explanations of column headings and assumptions made in data compilation for each table. This part also includes maps showing the plant sites reported for the year 1889 to give the reader an overall visual impression of the breadth and number of these sites. The main map is broken down into 10 individual maps, each showing a separate EPA region. The third part discusses the steps and assumptions used to develop the tar production estimate. The final part briefly discusses gas manufacturing by-products/wastes other than tar.

The primary source of information in this study was *Brown's Directory of American Gas Companies* (referred to hereafter as *Brown's*), an annual publication (since 1887) that contains statistics for the U.S. gas industry. Based on the scope of the study and the available time and information, data were compiled from *Brown's* for every tenth year beginning in 1890 and ending in 1950, for a maximum of seven years of data for each site.

The section on Site Identification Tables and Maps in the report presents the summary data tables and corresponding discussion for each table. One table shows site tallies and total gas productions by state/territory for the time period, 1880 to 1950. The table presents two important pieces of information for each state: the total number of sites reported and the estimated manufactured gas production, both between 1880 and 1950. Approximately 1,500 manufactured gas sites were identified from 1889 to 1950. Because the number of sites is based solely on the total number of entries found in every tenth *Brown's* publication, the total number of sites is probably underestimated. Another table shows average production rates for plants having an average total production greater than 200×10^6 scf/yr (5.3×10^9 std L/yr).

The report's appendix, which represents the detailed product of this study, shows data reported for each plant in each decennial year, as well as the average production rates for gas and by-products.

Robert Eng is with Radian Corporation, McLean, VA 22102.
***William J. Rhodes** is the EPA Project Officer (see below).*
The complete report, entitled "Survey of Town Gas and By-Product Production and Locations in the U.S. (1880-1950)," (Order No. PB 85-173 813/AS; Cost: $34.00, subject to change) will be available only from:
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Telephone: 703-487-4650
The EPA Project Officer can be contacted at:
Air and Energy Engineering Research Laboratory
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711

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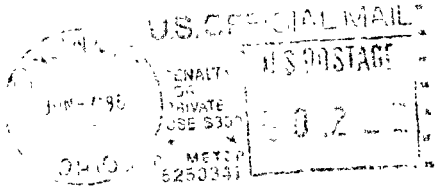

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