

7.0 ARCHITECTURAL ASSESSMENT

CRS No. N12806.001

Name: Krebs Pigment & Color Corporation Building A-47

Address: 205 South James Street, Newport, Delaware

(PIN: 2000300083)

Construction Date: 1937, 1950

Geographic Zone: Upper Peninsula

Applicable Historic Contexts: Time Periods: 1880-1940 Urbanization and Early Suburbanization; 1940-1960 Suburbanization and Early Ex-urbanization. Geographical

Zones: Upper Peninsula. Historic Themes: Architecture, Engineering and Decorative Arts; Manufacturing

7.1 Description:

The Krebs Pigment & Color Corporation Building A-47 (CRS No. N12806.001) is situated within the BASF Newport Plant complex in the Town of Newport. Building A-47 is located along the west side of James Street, immediately northwest of BR 159 over the Christina River. A concrete sidewalk is set along the east elevation of the building. Water Street is north of Building A-47, along with the main entrance to the plant. The Joseph Tatnall House (N12807) pre-dates the origins of the plant and is west of Building A-47 and is surrounded by a macadam pavement. The BASF Newport Plant is composed of over twenty-five industrial buildings and support facilities built between 1902 and circa 2000. The plant is bounded by James Street, to the east; Christina River, to the south; DuPont industrial operations, to the west; and Norfolk Southern railroad, to the north. Building A-47 was constructed in 1937 by the Krebs Pigment & Color Corporation as a research laboratory. The building was later utilized for sales and other administrative purposes. In 1950 a two-story annex was built along the south elevation of the original structure.

The Krebs Pigment & Color Corporation Building A-47 is an example of the Neoclassical Style applied to a commercial/industrial building. The building also retains elements associated with the International Style. The building is composed of three sections; a three-story office (1937), two-story office (1937), and two-story annex (1950). Building A-47 is a raised basement building. The main entrance is located within the three-story section and faces north onto Water Street. A wrought iron fence encloses a landscaped lawn adjacent to the entrance.

The three-story office section has a concrete foundation, brick exterior, and flat roof. A flight of closed concrete stairs leads to the main entrance, located on the first floor. The main entrance is composed of paired glass doors, with a single-pane transom above, flanked by raised brick pilasters and capped by a concrete flat pediment. The first floor doorway opens into a central hall which is flanked on either side by offices of various dimensions. The fenestration along the façade is composed of one-over-one paired windows with aluminum sash. The windows on the basement-level are paired one-over-one windows with brick lentils. The façade includes several distinctive elements of the

Neoclassical Style, including the concrete quoins and concrete cornice below the roof line. A concrete belt course separates the basement level and first floor. These elements embrace classical design, but incorporate modern materials. The west elevation of the three-story office is six-bays deep with a brick exterior and concrete foundation. The fenestration is composed of paired one-over-one windows with formed stone lintels and sills. A course of formed concrete block separates the ground and first floors. A metal staircase, with concrete bases and supported by metal posts, is located along the west elevation. The staircase provides access to a metal door on the third story. A formed stone course is set below the roof line and extends the length of the office. Two original window locations have been enclosed with brick. The infilled window on the third story now includes a modern metal door. The east elevation of the three-story office is six-bays deep with a brick exterior and concrete foundation. The fenestration is composed of paired one-over-one windows with stone lintels and sills. A course of formed concrete block separates the ground and first floors. The basement level windows have iron gates attached.

The two-story office, situated between the three-story office and two-story annex, has a concrete foundation, brick exterior, and flat roof. The two-story office is four rooms deep and includes a central hall which is flanked on either side by offices of various dimensions. The fenestration is composed of paired one-over-one windows with concrete lintels and sills. The first floor windows along the east elevation have iron gates attached. A course of formed concrete block separates the first and second floors. The structure features a concrete capped parapet, but lacks a decorative frieze found on the three-story office.

A two-story annex is located along the south elevation of the original office building. The annex is bounded by James Street, to the east; Christina River, to the south; and the BASF industrial complex, to the west. The annex was constructed in 1950 as an expansion of the research facility and features elements associated with the International Style. The annex has a steel structural system, brick exterior, concrete foundation, and flat roof. The annex is an undistinguished, vernacular commercial structure with modest architectural detailing. The annex features rows of modern one-over-one windows with metal sash along the north and south elevations with formed stone sills. The west elevation of the annex includes metal doors on the first and second floors, but lacks any windows. A metal staircase leads from the ground level to the second floor door. The fenestration on the first floor of the north elevation of the annex consists of grouping of five and six one-over-one windows with metal sashes. A grouping of six one-over-one windows is found at the east end of the second floor of the north elevation. The south elevation is six bays in width. The fenestration on the first and second floors is composed of ribbon windows (groups of three, four, five, and six windows). A concrete sill extends the length of the windows along both the first and second floors. The fenestration is primarily one-over-one windows with aluminum sashes. Two groups of windows at the east end of the south elevation include sliding windows. There are no windows along the east elevation of the annex.

A single story brick structure is located east of the annex. The structure includes a concrete foundation, brick exterior, and concrete capped parapet a top a flat roof. An exhaust fan appears to have been formerly attached to the structure. Windows are located along the south, east, and north elevations. Each window includes iron bars. The structure does not appear on the 1937 Sanborn Map of the plant and appears to have been constructed around the time of the annex's construction in 1950.

7.2 History

The Krebs Pigment & Chemical Company was established in 1901 by Henrik Krebs. Henrik Krebs was born in Denmark and emigrated to the United States in 1879. Henrik Johannes Krebs was born in June 27, 1847 in Lolland in Denmark. He was associated with several companies, including the Delaware Sugar Beet Company and Pusey & Jones Company, before he co-founded the Delaware Chemical Company in 1886. He became the superintendent of the Delaware Sugar Beet Factory. Krebs later joined the firm of Pusey & Jones Company and built the first ice plant in Wilmington, Delaware. In 1886, Krebs, Alfred Wagner (owner of the Delaware Sugar Beet Factory), and William G. Pennypacker founded the Delaware Chemical Company to manufacture ammonium. The Delaware Chemical Company later merged with several other companies to form the National Ammonia Company (Center for History of Chemistry 1987: 96).

In 1901 Henrik Krebs formed the Krebs Pigment and Chemical Company and during 1902 established operations in Newport, Delaware. By the early twentieth century several industrial operations had been established in Newport. The site was conveniently located along the Pennsylvania Railroad line (originally the PW&B Railroad), which provided access to Wilmington and Philadelphia. The factory site also benefited from its position along the Christina River, which allowed barges to transport raw materials to the plant. The plant manufactured a white zinc and barium-based pigment called lithopone which was utilized in paints, inks, paper, linoleum and other products. In 1918 Henrik Krebs retired and his son, August Sonnin Krebs, assumed the presidency of the company. In June 1929 the Krebs Pigment & Chemical Company was sold to E.I. DuPont de Nemours & Company, Inc. for \$5.9 million. During the early twentieth century the DuPont Company sought to diversify into the field of chemicals, which included the acquisition of the Krebs Pigment & Chemical Company. The company was reorganized as the Krebs Pigment & Color Corporation, a wholly owned subsidiary of the DuPont Company.

The Krebs Pigment & Chemical Company was established at Newport, Delaware, in 1902. The primary manufacturers of lithopone in the United States during the nineteenth century had been N.Z. Graves of Philadelphia and Beckton Chemical Company (later known as Becton, Dickinson & Company) of Newark, New Jersey (Krebs 1926: 108). Most lithopone was imported from Europe prior to the twentieth century, mostly from Germany. In 1904 there were approximately 27 workers at Krebs' Newport plant. In 1908, he built a new plant in Newport, Delaware. During the early twentieth century the Krebs Pigment & Chemical Company had its raw materials shipped from Germany to Philadelphia. From Philadelphia, the company utilized rail and barges to ship the

materials to Newport. During the course of World War I the Krebs Pigment & Chemical Company faced a variety of challenges. The war resulted in difficulties obtaining raw materials, which formerly had come from Germany. The company organized the Krebs Mining Company in Cartersville, Georgia, to obtain the barites required for production. During the course of the war, Krebs also expanded its sales department following the decision to no longer use the firm of Heller & Merz for sales and marketing. The firm of Heller & Merz of New York had acted as agents on behalf of Krebs Pigment & Chemical Company for many years and had close ties to the German chemical industry. The armed conflict between the United States and Germany hindered Heller & Merz's outlook in America. In 1918 the management of the company eventually passed to August Sonnin Krebs, son of Henrik and a graduate of Cornell University in chemical engineering. In 1926, 75 tons of lithopone was produced at the Krebs's Newport Plant. Krebs retired from the company in 1921, and his son August Sonin Krebs took over as president. Krebs died on October 7, 1929 after a long illness (Whites 1967: 14-15).

The Krebs Pigment & Chemical Company was a leading manufacturer of lithopone in the United States. Lithopone is a white pigment used primarily in paints, but also for inks, leather, paper and linoleum. Lithopone was first developed during the 1870s as an alternative to lead carbonate, which had several drawbacks for commercial use including toxicity and poor weathering. Lithopone is an insoluble mixture of barium sulfate and zinc sulfide. Lithopone is produced through a filtration process followed by roasting at temperatures over 1,100° F. Lithopone was gradually replaced for use as a pigment by the introduction of titanium dioxide. Lithopone continued to be produced after the introduction of titanium dioxide in a variety of products, including water paints. (Encyclopædia Britannica 2012). Germany was the principal manufacturer of lithopone during the late nineteenth and early twentieth centuries, although several other European countries did manufacture the product. During the early twentieth century tariffs and import duties were initiated to stimulate the American lithopone industry (Uebele 1913). Germany continued to be a leading chemical exporter to the United States until World War I disrupted trade relations.

During the early twentieth century the DuPont Company's resolved to diversify into chemical production. Prior to that, the DuPont Company had engaged primarily in the manufacture of explosives. As part of that diversification the DuPont Company began the manufacturing of pigments. In 1917 DuPont acquired the Harrison Brothers Paint Company, a manufacturer of lithopone. During the late 1920s DuPont acquired additional manufacturers, including the Grasselli Chemical Company and Krebs Pigment & Chemical Company of Newport, Delaware. DuPont acquired the Krebs Pigment & Chemical Company for \$5.9 million in June 1929. Through these acquisitions the DuPont Company became the largest manufacturer of lithopone in the United States.

In 1931 the Commercial Pigment Corporation developed a new process for the manufacture of titanium oxide (TiO₂). DuPont acquired Commercial Pigment Corporation to gain access to its improved processing system. In addition, DuPont controlled Krebs Pigment & Chemical Company, which owned a license to use the National Lead Company's titanium oxide patent. While Krebs Pigment & Chemical

Company only possessed the rights to use TiO₂ as an additive in its lithopone production, the DuPont Company viewed ownership of the company as a means to enter the TiO₂ production market. In 1931 E.I. Du Pont de Nemours & Company and Commercial Solvents Corporation formed a new company to be known as the Krebs Pigment & Color Corporation (Wall Street Journal 1931). In order to avoid drawn out legal proceedings, in 1933 DuPont and National Lead entered into an agreement in regard to sharing patents and TiO₂ production. As a result of cooperation over patent use and through acquisition of existing lithopone manufacturers, such as Krebs and Grasselli, DuPont was positioned to be a national leader in lithopone and titanium oxide production. DuPont continued manufacturing lithopone until the early 1950s, but titanium oxide proved to be a better product and continued in importance for DuPont throughout the mid to late twentieth century.

On August 1, 1931 the Krebs Pigment & Color Corporation was formed by DuPont and Commercial Pigment Corporation. The merger of these two companies allowed the DuPont Company to enter into the titanium oxide field. James Eliot Booge, technical director of the Krebs Pigment & Color Corporation, envisioned an expansion into the field of extended pigments (Hounshell and Smith 1988: 217). In order to achieve that goal Booge encouraged research and development, believing that lithopone would be surpassed TiO₂ production. Part of the expansion of research in the field of TiO₂ production included plans to construct a new laboratory at the Krebs plant in Newport, Delaware. On July 11, 1932 the Krebs Pigment & Chemical Company approved an appropriation for the construction of a new laboratory. The plan was approved by Carl Rupprecht, president of Krebs (Papers of Willis F. Harrington).

During the early 1930s research related to TiO₂ by the DuPont Company and its subsidiaries was conducted at a variety of locations. Laboratories were established at Philadelphia, Baltimore, Newport and Newark, Delaware. At Newport a two-story frame building was in use, but was considered unsafe and lacked space to conduct necessary research. Several options were entertained at Newport by company officials, including reuse of existing buildings at the site. Ultimately, it was decided that reuse of existing buildings could not achieve the goals of the research department. The expressed purpose of the new laboratory was to “allow consolidation of the research on extended titanium pigment.” The company intended to relocate the chemists working in Baltimore, Philadelphia, and Newark to the Newport location as a department focused primarily with extended TiO₂ pigments. The Krebs Corporation anticipated the need and potential for future expansion at its research laboratory during the planning stages. The site was developed to allow an annex to the south elevation of the laboratory.

The plan for the Research Laboratory at Newport was completed in July 1932 (**See Figure 15 and Appendix D**). No architects or building contractors are referenced on the appropriation request. The cost estimates associated with the plan were developed by S.G. Knecht. The building was projected to cost \$28,160. The total anticipated cost, including laboratory equipment, landscaping, and other expenditures was \$55,030. The proposed laboratory was a two-story building measuring 48’ X 66’ X 32’ with a full basement level. The laboratory was planned to have a steel structural system, concrete

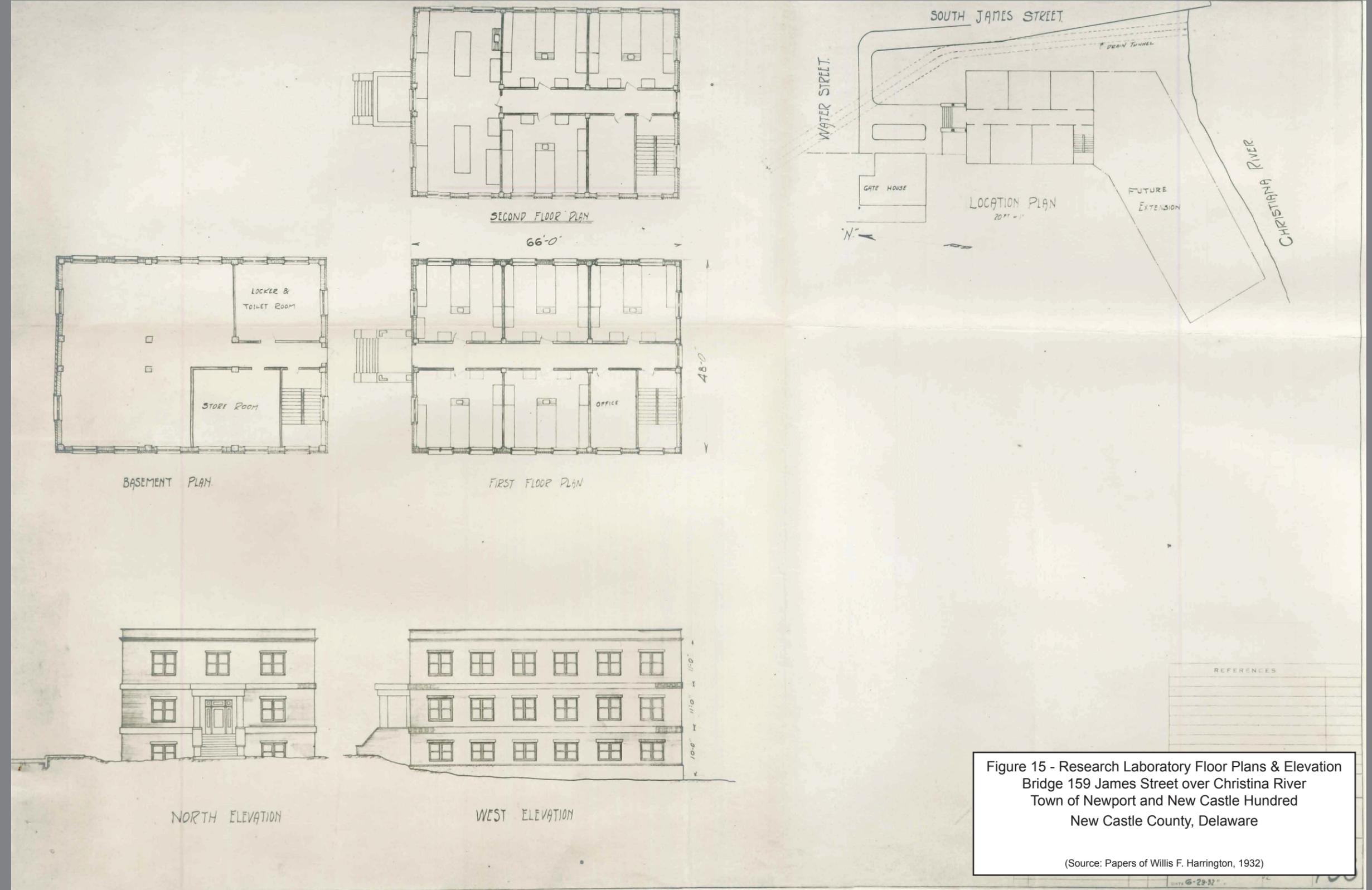


Figure 15 - Research Laboratory Floor Plans & Elevation
 Bridge 159 James Street over Christina River
 Town of Newport and New Castle Hundred
 New Castle County, Delaware

(Source: Papers of Willis F. Harrington, 1932)

foundation, and brick exterior. The laboratory was proposed to include five laboratory rooms and an office on the first floor and three laboratory rooms and a general laboratory on the second floor. The basement level would include a shower and storage area. In 1932 the Krebs Pigment & Color Corporation developed an appropriation request to fund the construction of a new research laboratory at the Newport, Delaware site. It was anticipated that construction would begin in August 1932, but this did not occur. The delay may have been associated with financial difficulties at the time.

In 1934 E.I. DuPont de Nemours & Company acquired Commercial Solvents Corporation's interest in the Krebs Pigment & Color Corporation. The Krebs Pigment & Color Corporation became a wholly owned DuPont subsidiary. As part of the organization of its company, DuPont placed Krebs Pigment & Color Corporation in its Krebs Pigments Department. In 1942 DuPont dissolved Krebs Pigment & Color Corporation's assets and transferred them into the DuPont Company. Following its acquisition by the DuPont Company, Krebs Pigment & Color Corporation expanded its focus beyond lithopone and eventually became a manufacturer of a variety of chemicals.

In 1937 the Krebs Pigment & Color Corporation constructed Building A-47. The building was originally designated as the Research Laboratory for the plant. The research laboratory was designated as Building A-47 by the Krebs Pigment & Color Corporation for administrative purposes and plant management. The original building was constructed in two sections: a three-story office and two-story office. The 1937 Sanborn Insurance Company *Map of Newport, Delaware* notes Building A-47 as having been constructed with a steel structural system, concrete flooring, and brick exterior. In 1950 the company made plans to enlarge Building A-47 with an addition to the rear of the office building. The two-story addition to Building A-47, known as the Chemical and Sales Division Building in 1950, cost approximately \$360,000. The purpose of the annex was to provide additional laboratory space in order to facilitate research activities (DuPont 1950).

By the early 1950s the Newport Plant produced a variety of chemical products, including titanium metal, erifon (a flame proofing product), lithopone, and CPC. In 1953 approximately 800 workers were employed at the Newport plant, with only sixty engaged in lithopone production. By end of 1953 DuPont was no longer producing lithopone at its Newport plant. The company was concentrating on new products, including titanium metal production (Journal-Every Evening 1953). The Newport site then transitioned to manufacturing titanium dioxide as a paint pigment. DuPont also manufactured copper phthalocyanine (CPC), quinacridone (QA), chromium dioxide, high-purity silicon, and other organic and inorganic pigments. In 1984 the Ciba-Geigy (now Ciba Specialty Chemicals) bought the pigment plant. In 2009 Ciba-Geigy was acquired by BASF, the current owners of the Newport plant. BASF continues pigment production operations at the Newport Plant.

The Krebs Pigment & Color Corporation Building A-47 at Newport is an example of an early-to-mid twentieth century research laboratory associated with the DuPont Company chemical industry. The DuPont Company established research facilities and laboratories

to conduct research in a variety of fields, including explosives, paints, etc. throughout the twentieth century. During the nineteenth century the DuPont Company produced explosives, including gunpowder and dynamite. Research facilities were established as part of the explosives industry, including the laboratory at Gibbstown, New Jersey. The Gibbstown laboratory was a modest one-story frame structure (Hounshell and Smith 1988: 111). During the early twentieth century the DuPont Company began a systematic move away from its previous emphasis on dynamite and explosive toward greater production of chemical, such as paints, pigments, etc. The company required new research facilities to focus on chemicals. In 1902 the DuPont Company established the Eastern Laboratory at Repauno. The following year the company built the Experimental Station, which evolved into a campus-like research facility.

The DuPont Experimental Station, at 200 Powder Mill Road in Wilmington, Delaware, is the largest research and development facility of E. I. du Pont de Nemours and Company and is home to some of the most important discoveries of the modern chemical industry. Neoprene, Nylon, Tyvek, and Kevlar are some of the discoveries made at the Experimental Station during the twentieth century. The campus was established in 1903 and has continued to expand throughout the twentieth century. Currently, the campus retains thirty-five structures engaged in research and development. The structures include a small number from the early twentieth century, although the most (twenty buildings) date from the 1950s and 1960s. The campus has continued to renovate, modernize, and expand buildings throughout its operation. New buildings continued to be added during the 1980s and 1990s. The DuPont Company currently operates over 150 research and development facilities throughout the United States and the world.

The early twentieth research facilities constructed by the DuPont Company exhibited architectural style that typified each respective time period. The laboratory at the Haskell Works in New Jersey, built in 1913, gives the appearance of an academic building and incorporates design features associated with the Colonial Revival style. The Jackson Laboratory at Deepwater Point, New Jersey, was executed in the Prairie style, with hipped roof and dormers, but includes elements of the Beaux Arts style as well (Hounshell and Smith 1988: 118). During the mid twentieth century DuPont expanded its research facilities. During the 1950s the company constructed the Pioneering Research Laboratory, Carothers Research Laboratory, and other research facilities (Pioneering Research Laboratory 1951). The buildings exhibited elements common to the Modern style, including its lack of dependence upon historical precedents and embrace of new materials. Flat roof, unornamented exteriors, and lack of decorative detailing were also common elements of the modern styles of the period (McAlester and McAlester 1988: 469). The Marshall Laboratory in Philadelphia, Pennsylvania, Pigment Sales Service Laboratory at Chestnut Run, and Nylon Research Laboratory at Wilmington were typical of DuPont Company facilities constructed during the 1950s (View of Marshall Laboratory ca. 1950). These buildings exhibited a sleek modern appearance that emphasized uniformity. Many of the early twentieth century research laboratory structures associated with the DuPont Company have been lost due to a variety of reasons, including expansion of facilities or removal due to safety concerns or modernization. In addition, many of the mid twentieth century research laboratories

associated with DuPont have been expanded and modernized, including buildings at the Experimental Station. Still others, including the Marshall Laboratory, have been demolished for redevelopment or other purposes.

7.3 Evaluation

The Krebs Pigment & Color Corporation Building A-47 was evaluated according to the criteria set forth in *National Register Bulletin 15: "How to Apply the National Register Criteria for Evaluation."* The property was operated as a research and office building associated with the Krebs Pigment & Color Corporation throughout much of the twentieth century. Historically, the property was part of a chemical production complex, originally associated with the Krebs Pigment & Color Corporation and later with E.I. DuPont de Nemours & Company, Ciba-Geigy and BASF. The plant had a significant impact on the development and history of the Town of Newport throughout the twentieth and early twenty-first centuries. The Krebs Pigment & Color Corporation Building A-47 is directly associated with the chemical industry in the Town of Newport and is recommended eligible for the National Register under Criterion A.

The Krebs Pigment & Color Corporation Building A-47 is not known to have been associated with any person or persons of local, state or national significance. The industrial complex was associated with Henrik Krebs, who established the company in Newport in 1901, and died in 1929. The Newport Plant was acquired by E.I. DuPont de Nemours & Company in 1929. Building A-47 was constructed during the ownership of E.I. DuPont de Nemours & Company. The architect and builder/contractor of the building has not been established. The Krebs Pigment & Color Corporation Building A-47 is not recommended eligible under Criterion B.

The Krebs Pigment & Color Corporation Building A-47 is a representative example of the Neoclassical Style in commercial/industrial architecture. The Krebs Pigment & Color Corporation Building A-47 retains the physical features that characterize the type, period, and method of construction of an early twentieth century Neoclassical Style office building. Building A-47 retains the classical form emphasized by the Neoclassical Style along with a sufficient degree of integrity to convey its significance. While the building has undergone minor alterations to improve safety, those alterations do not overwhelm or obscure the original design and construction. Building A-47 retains a strong degree of integrity of location, setting, design, workmanship, materials, feeling, and association. The 1950 annex to the Krebs Pigment & Color Corporation Building A-47 is a largely unaltered example of a mid twentieth century laboratory with elements of the International Style. The annex was planned at the same time as the original laboratory building. The Krebs Pigment & Color Corporation Building A-47 is a largely unaltered example of a DuPont Company related research laboratory. The Krebs Pigment & Color Corporation Building A-47 is recommended eligible for the National Register under Criterion C.

Archaeological investigations have not been conducted on the property; therefore, the resource's eligibility under Criterion D (potential to yield information important to history or prehistory) cannot be assessed at this time.

The Krebs Pigment & Color Corporation Building A-47 is recommended eligible for the National Register of Historic Places under Criterion A for its association with the chemical industry in the Town of Newport and Criterion C as a representative example of the Neoclassical Style applied to a commercial structure. The period of significance proposed for the Krebs Pigment & Color Corporation Building A-47 is recommended as 1937 to 1962. The research laboratory building was constructed in 1937, and a large annex was completed in 1950. The building continued use as a research facility, and later as a sales and administrative office, associated with the chemical industry in Newport throughout the twentieth century. The Krebs Pigment & Color Corporation operated the plant until 1942, when it was formally merged with the DuPont Company. DuPont retained the plant until it was purchased by Ciba-Geigy in 1984. In 2009 BASF acquired the plant from Ciba-Geigy. The plant has continued operation as a chemical manufacturer from its inception to the present. The period of significance for the Krebs Pigment & Color Corporation Building A-47 has been established as beginning in 1937, the date of construction, and continuing to 1962, which was selected as the fifty (50) year guideline of recognition for National Register consideration. The Krebs Pigment & Color Corporation Building A-47 continues to the present to function as an administrative office building associated with chemical manufacturing. The boundary recommended for the Krebs Pigment & Color Corporation Building A-47 conforms primarily to the footprint of the structure. The boundary was developed to include the fenced enclosure adjacent to the north elevation which was historically used as an entrance to the Krebs Pigment & Color Corporation Building A-47. The boundary was developed to include the building, annex, and the landscaped area historically associated with the functioning of the Krebs Pigment & Color Corporation Building A-47.

The Krebs Pigment & Color Corporation Building A-47 has the potential to be considered as a contributing element of a potential historic district associated with the industrial plant in Newport. At this time, there appears to be integrity issues with the entire plant facility due to the introduction of modern structures and alteration/loss of original historic structures. As the result of many retrofits and alterations of this manufacturing plant, many of the older buildings could not be readily distinguished from contemporary structures. Further research would need to be conducted to fully reach a conclusion regarding the eligibility of the Krebs Pigment & Color Corporation plant for its contribution and association to the chemical manufacturing.