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CENTRAL INTELLIGENCE AGENCY

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50X1-HUM

COUNTRY	Poland	REPORT	
SUBJECT	Zdzieszowice Chemical Coke Plant <i>(Description of plant &amp; air road Sketches, production of coke, tar, benzol, ammonium sulphate)</i>	DATE DISTR.	8 JUN 1959
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SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

[Redacted]

[Redacted]

2. The [Redacted] sketch of the Zdzieszowice Chemical Coke Plant, the legend to which is given in this report, [Redacted]

[Redacted]

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STATE	#	X	ARMY	#	X	NAVY	#	X	AIR	#	X	FBI		AEC				
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INFORMATION REPORT INFORMATION REPORT

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REPORT

COUNTRY : Poland

DATE DISTR. 30 April 1959

SUBJECT : Zdzieszowice Chemical Coke Plant

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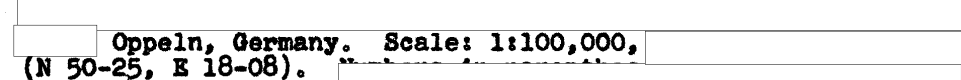
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The Zdzieszowice Chemical Coke PlantGeneral Information

1. The Zdzieszowice Chemical Coke Plant (Zaklady koksochemiczne Zdzieszowice) was 500 meters south of the Zdzieszowice Railroad Station (N 50-25, E 18-07) and 2.5 kilometers east of the Oder River on flat ground covering an area of 900 x 500 meters. It was originally constructed in 1931/32 as a coke plant. A tar distillery and a benzol refinery were added in 1934. A further addition in 1937 included a synthesis plant for the production of hydrocarbons using the Fischer - Tropsch method. During World War II, the plant was not seriously damaged. After the war it was dismantled by the Soviets. In the years 1947 to 1949, the plant was reconstructed, and, by 1950, the production of coke and by-products had reached the pre-World War II level. The tar distillery was in operation till 1950, but after that reverted to the process of removing water from the tar, while the final distillation process was accomplished in other plants. The production of hydrocarbons was not resumed after the war.

Overlay

2.  50X1-HUM  
Oppeln, Germany. Scale: 1:100,000,  
(N 50-25, E 18-08).

- (1) Village of Bergstadt (Lesnica).
- (2) Coke Plant Area.
- (3) Double Rail Line - leading from Oppeln (Opole) to Ratibor (Raciborz).
- (4) Road - 12 meters wide and asphalt covered, running through the village of Odertal (Zdzieszowice).
- (5) Oder River.
- (6) Zdzieszowice Railroad Station.

Coal Processing

3. The Zdzieszowice Chemical Coke Plant processed bituminous coal from several coal mines. Coal was shipped from the Wiktoria, Nowa Ruda, and Mieszkwow coal mines, all in the area of Walbrzych (N 50-46, E 16-17). Coal was also shipped from the Dubensko and Szombierki coal mines, which were in the Upper Silesian coal fields. The average weekly delivery of coal shipped by rail

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was 16,000 tons. Shortages in coal deliveries occurred only during the winter as a result of rail traffic difficulties caused by adverse weather conditions. Delays in coal deliveries were alleviated by coal reserves created in the coke plants in accordance with Polish government regulations requiring each coke plant to stockpile coal for five to 14 days, depending upon the distance from the coal fields and the time of shipping involved. The regulations for the Zdzieszowice Coke Plant called for a coal reserve for 10 days. Besides this regular amount of reserve coal, an additional 16,000 tons of coal could, if necessary, be stored inside the coal blending installation. The coal reserve was used only during the holiday seasons when the mines were not operating.

4. Before World War II, this coke plant used coal only from the Szombierki coal mine. It was shipped to the plant daily in two freight trains, each consisting of 20 railroad cars with each train hauling an aggregate total of 1200 tons. Each train covered the distance from the mine to the plant in approximately five hours. The automatic unloading of the entire train took about 25 minutes. The pre-war coal delivery system was such a smooth operation that the coke plant never had any shortages and did not require any substantial coal reserves.
5. After World War II, the new coal blending system was introduced, requiring the coke plants to mix and use coal from several coal mines. This system aimed at achieving identical coke quality in all Polish coke plants regardless of the disadvantages connected with this new system. The main disadvantage was the loss of time involved in the pickup and delivery of coal from the various mines to the coke plants. As each train had a certain number of cars, it had to transport other goods too. As a result of such mixed loads, the time required for transporting and delivering the coal was considerably increased (to from five to 14 days), including continuous switching within the railroad yards.

#### Importance of the Plant in Future Planning.

6. The importance of this coke plant was its geographical location outside the Polish coal fields in the Upper Silesian region. This plant did not require safety measures, particularly supporting columns and beams, like those in other plants in coal-mining areas. Every square meter of surface land in the rich coal region of Upper Silesia contained about 200 tons of coal. The location of a coke plant in such a region, therefore, meant that either coal could not be mined at all or that special construction measures had to be undertaken. The Zdzieszowice Chemical Coke Plant was in a flat area, and extension was possible in every direction. Plans for two new coke batteries, adjacent to the present ones east of the plant, have been completed.

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7. In connection with the advantageous geographical location of the Zdzeszowice plant, the Association of Coke and Metallurgical Industry planned to consolidate the coke plants in Poland into four plants. All were to be located outside of, but adjacent to, coal fields. The reasons for this consolidation were as follows:

- a) To reduce production costs, which would be relatively smaller in large plants.
- b) To use manpower more economically.
- c) To eliminate the traffic problem caused by the congestion of daily commuting workers.
- d) To reduce the need to transport coal to several distant plants.

#### Organization

8. The Zdzeszowice Plant was subordinate to the Association of Coke and Metallurgical Industry (Zjednoczenie Przemyslu koksochemiczno-hutniczego) in Katowice, headed by General Director Sikora (fnu). The association technical director for the coke and by-product industry was Engineer Kotlarz (fnu). The Association was in turn subordinate to the Ministry of Heavy Industry.
9. The Zdzeszowice plant employed about 1200 people, including seven chemical engineers. Benkowsky (fnu) was the director; Kassa (fnu) was in charge of a laboratory located near the tar distillation plant; Leszczyński (fnu) was in charge of another laboratory; Meissner (fnu) was in charge of the purchasing office; and Derszko (fnu) was in charge of the repair shop.

#### Production Figures

10. The capacity of this plant as given in the 1932 statistics by the Still constructing firm in [redacted] was 2300 tons of dry coal every 24 hours from both coke batteries. In 1958, the capacity attained was 2200 tons of dry coal. [redacted] a capacity of from 2400 to 2500 tons could be reached if the ovens could be heated to a temperature of 50 degrees Centigrade above the present temperature without endangering the oven material. The results of the coal processing were: 85 percent dry coke, 3.2 to 3.6 percent tar, 1.2 to 1.3 percent benzol, and the rest gas and ammonia water. The daily plant output was : 1900 tons of coke, 75 tons of tar, 30 tons of crude benzol, 24 tons of ammonium sulphate, and 5.2 tons of a sodium phenolate solution containing 25 percent of phenol for every ton of raw naphthalene.

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Sketch

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10. Inclosure 1 is a  sketch of the Chemical Coke Plant in Zdzieszowice. Numbers in parentheses below refer to corresponding numbers on the sketch. 50X1-HUM

- (1) Road - eight meters wide, asphalt covered, leading from the Zdzieszowice railroad station to Lesznica.
- (2) Road - 12 meters wide, asphalt covered, leading to and through the plant.
- (3) Dispensary - a two-story brick building, measuring 25 x 10 meters. The dispensary and snack bar were on the first floor, and waiting rooms were on the second floor.
- (4) Sulphur Removal Section - using the dry method process, hydrogen sulphide was removed from the gas in purification boxes containing bog iron ore.
- (5) Water Cooling Towers - four 20-meter-high wooden towers, with a 15 x 15 meter foundation; used to cool the circulating water from the power plant.
- (6) Thermal Power Plant - a 20-meter-high, reinforced concrete brick building measuring 80 x 25 meters. Two 5000-kilowatt turbines were in operation supplying power for the coke plant. Till 1945, this plant was equipped with 50,000-kilowatt turbines. With the projected enlargement of the plant by adding two coke batteries, a substantial increase in electrical power would be needed.
- (7) Power Plant Chimney - 95 meters high, with a diameter of eight meters at the base.
- (8) Three Air Raid Shelters - barrel-type construction, measuring 25 x 10 meters, with a two-meter-deep underground pit. The concrete walls were 2.5 meters thick.
- (9) Guardhouse - a brick building, measuring 5 x 8 x 5 meters. It housed the offices of the uniformed civilian guards and a waiting room. The entrance gate consisted of two iron wings, which were normally open all day. An iron chain was used to stop all vehicle traffic for checking purposes.
- (10) Fence - a 2.5-meter-high chicken-wire fence surrounding the entire coke plant and the former synthesis plant to the south of it. Two-winged gates were used at all places in the fence where railroad tracks entered the plant. They were opened only when rail traffic was passing, and were otherwise kept closed.

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- (11) Warehouse - a brick building, measuring 25 x 10 x 8 meters, used for storing spare parts for the plant's equipment, as well as material for the maintenance shop.
- (12) Repair Shop - a brick building, measuring 25 x 10 x 8 meters, used for all repair work including that on railroad cars and engines.
- (13) Open Air Coke Dump - covering an area of 150 x 80 meters. It was originally used as a coke storage point, but, as a result of the Communist doctrine requiring immediate consumption of goods produced, it was almost always empty.
- (14) Overhead Mobile Crane - moved along two parallel tracks located on both sides of the coke dump. It had an hourly loading capacity of 200 tons and a lifting capacity of seven tons. The crane was seldom used because the coke dump was almost always empty. A coke sifting apparatus was attached to this crane.
- (15) Coke Separation Plant - a concrete structure, measuring 40 x 50 x 15 meters, with a 25-meter-high coke tower in the center. It was built on columns to enable railroad traffic to pass underneath. Here coke was sorted according to size and loaded into railroad cars from movable platforms.
- (16) Two Storage Tanks - five meters high, with a diameter of five meters. They were used for tar and ammonia water.
- (17) Two Coke Oven Batteries - with a total length of 250 meters. Each battery had 60 ovens, and each oven measured 13 x .45 x 4 meters. The ovens were the regenerating type with graduating burning according to the Still method. One centrally located coal tower distributed coal to all 120 ovens. Each coke oven battery had a coke-pushing machine.
- (18) Coke Discharging Platform - six-meter wide, open-air, flat metal platform where the coke was evaporated and cooled off by water, without using the quenching tower, and was also stored after the quenching tower process before being shipped to the coke separation plant.
- (19) Coal Tower - measuring 25 x 30 x 35 meters. From this tower, coal was distributed to the coke batteries. It was poured into containers, measuring 13 x 4 x .45 meters, where it was stamped and then transported to the coke battery chambers.
- (20) Quenching Tower - a rectangular 15-meter-high concrete tower with a 15 x 5 meter foundation. The fully loaded quenching car entered the tower for quenching and then unloaded the coke onto the coke platform. Every 20 to 25 minutes steam could be seen rising from the quenching tower.

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- (21) Utility Gas Container - a water-sealed cylindrical tank holding 5000 cubic meters of utility gas.
- (22) Two Coke Oven Chimneys - each had a diameter of six meters and was 68 meters high.
- (23) Tracks - used by the coal-stamping and coke-discharging machine. This type of machine was used in Poland and in the Saar region only because the coal in these areas required additional processing to produce coke.
- (24) Administration Building - a two-story brick building measuring 50 x 25 meters. It housed the administrative offices, the designing department, and the switchboard.
- (25) Double Rail Line - running from Kedzierzyn through Zdzeszowice to Opole. Several railroad spurs connected the coke plant with this main railroad line.
- (26) Gravel Road - eight meters wide, and in good condition.
- (27) Building - measuring 30 x 20 x 4 meters, with a 15-meter-high wing at one end. It housed washrooms, shower rooms, toilets, and check rooms.
- (28) Production Building - a brick building, measuring 18 x 18 x 5 meters, with a 30-meter-high wing at one end. It was used for the dephenolization of ammonia water in which phenol was extracted from water by the Pott-Hilgenstock Method.
- (29) Ammonia Sulphate Plant - a brick building measuring 65 x 18 x 10 meters with a 15-meter-high wing used for ammonia storage. In this plant, ammonia was extracted from ammonia water by means of a steam process, and passed through saturators filled with sulphuric acid.
- (30) Shop - measuring 50 x 18 meters and built on concrete columns. It contained a one-story center section and two open-air wings, one on each side. About eight gas exhaustors were located in this shop. The pumps were made by Weise & Soehne, and the eight exhaustors by Brown-Boveri. All were located in the center section of the shop. Each gas exhaustor was driven by a turbine, and had a capacity of 15,000 cubic meters of gas per hour. On the average, three exhaustors were in operation at the same time. Gas for the coke batteries was cooled from 160 degrees Centigrade to 20 degrees Centigrade in condensers in the eastern wing of the shop. The condensed by-products, tar and ammonia water, were collected in large metal containers. This shop also had six 35-meter-high open-air benzol washers for gas debenzolizing, located in the western wing.

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- (31) Two Conveyer Belts in Hallway - leading from the coal crushing station, point (42) to the top of the coal tower, point (19). The hallway was four meters high and four meters wide. Two one-meter-wide rubber belts moved up and down to transport the crushed wet coal. A sidewalk through this hallway was used for the control of, and repair work on, the belts. The hallway was covered by asbestos, and had windows on both sides for illumination.
- (32) Open-Air Installation - with tube heaters to heat the oil coming from the benzol washers, point (30). The heated oil was then pumped to the benzol recovery plant, point (33), and cooled off.
- (33) Benzol Recovery Plant - a brick building measuring 50 x 15 x 15 meters. It contained the heat exchangers for benzol and wash oil, a distillation column for all benzol and a purification apparatus for crude benzol only. Several large metal containers for benzol, each with a capacity of 75 cubic meters, were placed in the southern side of this plant. An installation for crystallization of naphthalene from wash oil was located inside and partially outside the plant.
- (34) Elevated Water Tank - located on top of a 20-meter-high iron construction, and contained a reserve water supply.
- (35) Laboratory Building - a one-story brick building, measuring 50 x 15 meters, and with a flat roof. Inside the building were six 100-cubic meter containers, standing on four concrete columns, and reaching a height of 10 meters above the floor. The containers were filled with tar, ammonia water, and sulphuric acid. The entire building consisted of laboratories separated by glass walls. One room had an air compressor and a tank. A total of 30 workers was employed in both this laboratory and the other at point (51).
- (36) Shop - a reinforced concrete and brick building, measuring 10 x 15 x 20 meters. It received the waste water coming from the ammonia sulphate production. This waste water contained traces of phenol, sulphur compounds, lime, etc., and had to be cleaned before it was drained into the Oder River.
- (37) Locomotive Repair Shop - for two railroad engines.
- (38) Pitch Cooling Basin - an open-air basin into which liquid pitch with a temperature of 90 degrees Centigrade was poured and solidified by cooling. The cooled pitch was then loaded into railroad cars and shipped to the briquet plants located in the Szomierki area in the Rymer, Radzionkow, and Wujek mines.

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- (39) Tar Distillation Plant - completely equipped, but closed down in 1950 because too many tar distillation plants were in operation in Poland. The tar from this coke plant was shipped to Blachownia for distillation purposes. It comprised five batch stills, each with a capacity of 35 cubic meters, a 30-meter-high distillation column, and coolers for the oil produced. Tanks for various oil types were located outside the building.
- (40) Open-Air Water Basin - measuring 25 x 25 meters and three meters deep. It was separated by a concrete wall into two sections, one of which contained water for the cooling tower, point (41), and the other water from the wells.
- (41) Cooling Tower - a 20-meter-high wooden structure for the cooling of water from the benzol recovery plant.
- (42) Coal Crushing and Blending Station - a concrete building, measuring 60 x 30 meters, with an eastern wing 35 meters high and a western wing 20 meters high. It had a 10-meter-deep coal bunker, from which the coal was lifted in containers to elevated bunkers to be pushed into the three crushing machines. The crushing machines were of the hammer-mill type (Hammermuehle), each with a capacity of 50 tons per hour. Ninety percent of the coal was crushed to a size under two millimeters. The ground coal from the various coal mines was stored in several bunkers. The mixing ratio was determined and controlled by rotating distributors at the bottom of the bunkers. The coal fell on conveyer belts, which carried it to a large container. Final crushing and mixing took place in the disintegrators, each with a capacity of 30 tons per hour. Ninety-five percent of this final coal mixture consisted of grains smaller than two millimeters. This mixture was moistened during transit from the screw conveyers to the main conveyer, point (31). The wetted coal contained from 10 to 11 percent moisture.
- (43) Crystallization Station - for naphthalene and anthracene. Although fully equipped, it had not been in use since 1949. There were no signs of its activities being renewed.
- (44) Building - formerly used for the recovery of phenol and cresols from carbolic oil. This building was dismantled by the Soviets in 1945 - 1946 and was never restored.
- (45) Open-Air Tanks - with a total capacity of 5000 tons of oil. They were connected by pumps with the tar distillation plant and coke batteries.
- (46) Fire Station - a brick building, measuring 8 x 25 x 5 meters, with a 25-meter-high observation tower.

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- (47) **Snack Bar** - a two-story brick building, measuring 8 x 25 meters.
- (48) **Building** - formerly used as a gas-producing plant, almost completely dismantled, and not in use.
- (49) **Repair Shop** - a brick building, measuring 25 x 50 x 5 meters, with a 15-meter-high wing on one side. It was the main repair shop for the plant.
- (50) **Warehouse** - a one-story brick building, measuring 20 x 40 meters.
- (51) **Laboratory** - a two-story building, measuring 20 x 50 meters. It was used for analytical research connected with the coke plant.
- (52) **Railroad Engine Terminal.**
- (53) **Railroad Engine Turning Bridge.**

**Air Raid Shelters**

12. In addition to the three air raid shelters, point (8), this plant had more than 100 one-man concrete shelters located mainly inside the buildings in the immediate vicinity of the working areas which had to be serviced during air raids. Other shelters were located outside the important buildings.

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Till 1947, the air raid shelters in the plant, the protecting walls around the oil tanks, and the sand walls inside the buildings were progressively removed. However, in late 1947, a government decree put an immediate end to all this dismantling activity. No new air raid shelters were known to have been constructed.

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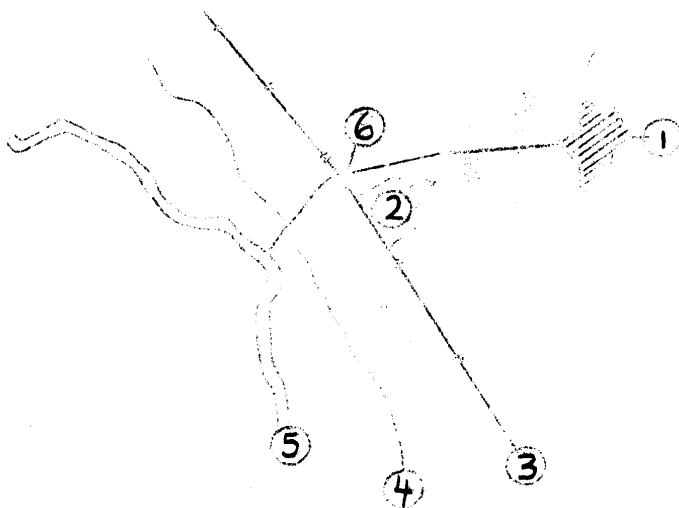
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+ 50°30'  
18°08'



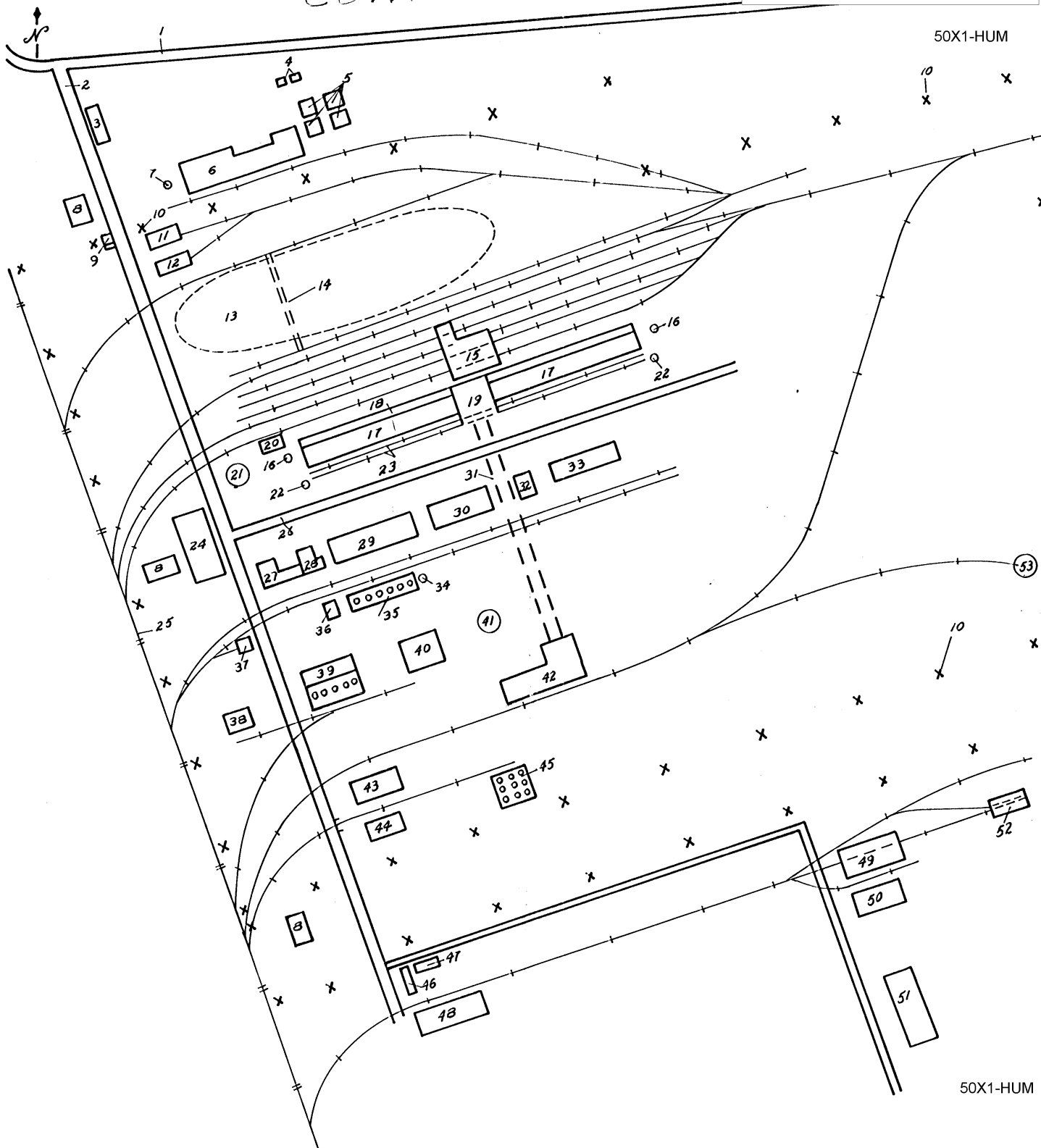
Oppeln, Germany, Scale: 1:100,000  
Target Center (N 50-25, E 18-08)  
Figure 1

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SKETCH of a CHEMICAL COKE PLANT  
 IN ZDZIGSZOWICE (N 50-25, E 18-08)  
 TARGET CENTER (N-50-25, E 18-08)  
 INCLOSURE I

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