FILM STUDY GROUP

REPORT

T.O.M. REEL NO. 89

Prepared by

THE ATLANTIC REFINING COMPANY

The Atlantic Ref. Co.
F.S.G.

SCANNING OF REEL #89
(Orig. Ident. Reel 2F)
U.S. Government Technical Oil Mission

~~Lt. A.C. Tabbner~~

The material consists almost wholly of engineering drawings. The individual frames on this reel are not numbered, and the location of any particular item will be made most readily by identification with the Bag and Target numbers. In some instances, digits are appended to target numbers, and we have referred to these as "items". For example drawing No. 922-8 originating with Gelsenberg Benzin shows the ammonium sulfate plant, and appears at frame marked: Bag 2747, Target 30/4.08-32, in which the number "32" coincides with our designation of item 32. The following abbreviations will be used in identifying drawings: IG refers to Interessen Gesellschaft; GB is equivalent to Gelsenberg Benzin; HB is Hydrierwerk Scholven. The sequence of bag and target divisions shown in the index will be adhered to.

BAG 2747 - TARGET 30/4.08 - GELSENBERG BENZIN AG

Item 29, GB Dwg. 1192-2. Schematic flow diagram of synthesis system 7019, showing operating temperature and pressure, material flow rates and molecular weight in the several parts of the system and location of principal operating instruments.

" 31, GB Dwg. 691-8. Naphtha plant (caustic wash unit) loc. 42.*

" 32, GB Dwg. 922-8. Ammonium sulphate plant, loc. 98.

" 33, GB Dwg. 726-4. Flow diagram vacuum plant, loc. 27? and 36?

" 34, GB Dwg. 721-8. Recycle gas and wash oil flow, loc. 27.

" 35, GB Dwg. 640-4. Generalised flow diagram of recycle gas washing (Ko phase) loc. 24, 25, 125, 126.

" 36, GB Dwg. 797-4. Recycle gas washing (Bi phase) loc. 22, 23, 122, 123.

" 37, Graphical summary of rich gas conditions Nov. 1941 - Aug. 1943.

" ? Graphical record operating data Mar., Apr. and May, year not stated.

" 39, GB unnumbered drawing. Slurry and recycle pump connections.

" 40, GB unnumbered drawing. Generalized arrangement of reaction chamber with gas preheater.

* The drawings frequently designate the building or part of the plant in which is located the equipment or process described in the drawing. This location (German-Bau) may appear on comprehensive plot plans for the plant area.

Item 41, Unnumbered drawing. Effectiveness of preheater with coal chambers 701-706 inclusive.

" 42, Unnumbered drawing showing loan gas connections between the liquid and gas phase equipment.

"43-44, Unnumbered drawings showing the history in use of catalyst 5058.

" 45, GB unnumbered drawing. Slurry plant, low pressure side, loc. 29.

" 46, GB unnumbered drawing. Slurry connections to loc. 29.

" 47, Unnumbered drawing showing temperature profile and summary of operating data for ovens 703 and 706.

"48-49, Unnumbered drawing giving data on chambers 43-46.

" 50, Unnumbered drawing. Temperature profile of chamber 702, and summary of operating data.

" 51, GB Dwg. 15h-8, Preheater, oven 702.

" 52, GB Dwg. 15a-8, Preheater, oven 701.

" 53, Unnumbered drawing. Graphical presentation of data.

" 54, Unnumbered sheets. Temperature profile and operating data on ovens 701 - 706.

" 57, Unnumbered, undated schematic flow diagram showing process quantities in the synthesis of V.T. 707.

"58-63, Operating data from the period 1942, 1943.

" 64, Unnumbered schematic flow sheet with inserted quantities of materials processed when making 1,000 tons per day V.T. 707.

" 65, GB Dwg. 1192-2. Equipment arrangement for catalyst 7019 system, loc. 23.

" 66, GB Dwg. 751-8, chamber 7019, loc. 23.

" 67, GB Dwg. 357d-8, coal grinding station, loc. 17.

" 68, GB Dwg. 69e-4. Retorting plant, loc. 30.

" 69, GB Dwg. 696-8. Arrangement for naphtha stripping plant, No Hy-gas, loc. 42.

" 70, GB Dwg. 687-4, title as above (Bi Hy-gas) loc. 42.

Item 71, Unidentified print, presumably part of the general layout of the GB plant.

" 72-81, Graphical presentation of operating data 1942-1943.

" 82, Hochtief foundation drawings, loc. 21-26, 121-126.

" 83, Dwg. 222, partial ground plan of plant.

" 84, IG Dwg. M1909-1. Reactor (or regenerator) details.

" 85, IG Dwg. 1510, probably oven details.

" 86, IG Dwg. M1717-1, probably oven details.

IG Dwgs. 4750a-2, 4741-2 and 4043-2 appearing as items 87, 88 and 89.

" 90, IG Dwg. L-3440-1. Flue and ducts, loc. 23, 24.

" 91, IG Dwg. L-10300-2, title as above.

" 92, IG Dwg. M1910-1. Pressure vessel details.

" 93, IG Dwg. 1503-1, title as above.

" 94, IG Dwg. 3784a-1. Reactor.

" 95, IG Dwg. 4886-2. Vessel details.

" 96, IG Dwg. L-3667-2. Flue and insulation details.

" 97, IG Dwg. 4047-2. Pressure vessel details.

" 98, IG Dwg. 4748-2. Coolers.

" 99, GB Dwg. 1192-2. Process flow diagram showing principal equipment and operating conditions, loc. 23/123.

" 100, GB Dwg. 1073. Process flow diagram synthesis systems 5058, 6434, 7019, loc. 18, 19.

" 101-105, GB unnumbered drawings, showing generalized process flow.

" 106-108, IG sheets, giving, in tabular form, comparative dimensions and drawing identifications for equipment at a number of plants, including Wesseling, Pölitz and Welheim.

BAG 2746 - TARGET 30/4.08

IG Dwg. N-3452-4. Closure details

GB Dwg. 1195-2. Feed pump, arrangement and connections.

Balcke Dwg. 45745. Details of valves for 750 atmospheres.

GB Dwg. 634-8. Arrangement of Bi chamber #1.

GB Dwg. 1121-1. Piping details in loc. 18, 19.

MOB Dwg. 2137-8. Sulphite-sulphate general process flow diagram.

MOB Dwg. 2148-8. Process diagram, recovery of ammonia and H_2S.

IG Dwg. HV2299-2. Details of angle valves.

IG Dwg. M4775-2. " " " " .

IG Dwg. 2300-2. " " " " .

IG Dwg. M3733-4. Pressure vessel closure details.

IG Dwg. 2156-8. Thermowell socket connections.

GB Dwg. 653-8. Arrangement of hairpin turns in gas preheater.

GLS Dwg. 47780. Five stage nitrogen compressor.

GB Dwg. 1066-1, 6434, 7019. Process flow diagram. using catalytic plants 5058,

GB Dwg. 1066-1. Showing product separation scheme for coal and gas phase employing catalysts 5058, 6434 and 7019.

The above items include operating details from which it should be possible to piece together the intended process conditions for this plant.

Bergedorfer Dwg. 2706. Slurry Centrifuge.

BAG 2243 - TARGET 30/4.09 - HYDRIERWERK SCHOLVEN AG

HS Dwg. 239-16. Schematic representation of coal hydrogenation.

HS Dwg. 1060-16. Enumerates principal dimensions of the several pieces of equipment.

HS Dwg. 161-16. Thermocouple element in reactor.

HS Dwg. 218-16. Inserts to lessen erosion in return bend.

HS Dwg. 163-16. Principal dimensions for equipment.

HS Dwg. 187-16. Schematic flow diagram of reactor system.

HS Dwg. 264-16. Process flow diagram.

HS Dwg. 286-8. Preheater DHD chamber 14, loc. 652.

HS Dwg. 118-8. Process flow control of the conversion steps, loc. 146, 147.

HS Dwg. 272-8. Process flow showing heat quantities involved.

HS Dwg. 174-8. Flange temperatures with and without insulation in chamber #6, loc. 193.

HS Dwg. 215-2-8. Process control, loc. 149.

HS Dwg. 207-8. Flow diagram of the carbonization plant.

HS Dwg. 277-4. Gas and heat quantities in 30 ton per hour plant.

HS Dwg. A457-1. Flow diagram, water gas generation.

BAG 2746 - TARGET 30/4.08

GB Dwg. 1195-2. Flow sheet and pumping connection for feed pumps, loc. 18.

GB Dwg. 1156-2. Gas preheater for chamber #5, loc. 26.

GB Dwg. 3084-4. High pressure socket.

GB Dwg. 1844-4. Generalised arrangements of connections from feed pumps to ovens.

GB Dwg. 1022-2. Valving for differential manometers on coal chambers, loc. 24.

HOB Dwg. 2252-1. High pressure connection details.

IG Dwg. MV2187-4. Details of connection. Check valves.

GB Dwg. 3513-4. Details of regulating valve.

GB Dwg. 679-8. Recycle gas washer and separator, flow diagram.

GB Dwg. 3570-4. Diaphragm valves.

IG Dwg. 2366-4. Angle valves; NW5.

GB Dwg. 1360-4. Recycle gas flow diagram.

GB Dwg. 1326-4. Separator vessel.

GB Dwg. 1860-2. Oil regulator.

GB Dwg. 1284-2. Flow diagram for air compressor, Linde plant.

IG Dwg. 10340-2. Details of hairpin heaters.

IG Dwg. 2585-1. Pressure vessel detail.

BAG 2243 - TARGET 30/4.09

HS Dwg. 118-16. Simplified flow.

IG Dwg. 10816. Pressure differential measurement.

HS Dwg. 112-16. Mercury connection for pressure differential measurement.

IG Dwg. 107-16. Arrangement of a pressure measurement device.

HS Dwg. 102-16. Reactor thermocouple location on chamber #6.

HS Dwg. 210-16. Location of thermocouple elements on reactor wall.

IG Dwg. 101-16. Level measurements in high pressure separator.

HS Dwg. 403-16. Hairpin heaters in chamber #2.

HS Dwg. 464-16. Meter connection for separator.

IG Dwg. 110-8. Separating plant, loc. 221.

HS Dwg. 292-8. Preheater DHD chamber #13, loc. 652.

IG Dwg. 132-8. Process control diagram for distillation unit B1.

HS Dwg. 303-8. Depropanization unit AT244, loc. 347.

HS Dwg. 746-8. Details of low level alarm.

HS Dwg. 285-8. Redistillation unit for AT 244, loc. 847.

HS Dwg. 350-8. Process control of naphtha chamber #2.

HS Dwg. 284-8. Stabilization plant, loc. 848.

HS Dwg. 263-8. Gasoline recovery and pentane plant, loc. 255/56.

HS Dwg. 182-8. Viscosimeter.

HS Dwg. 158-8. Blending plant for T52 installation.

HS Dwg. 228-8. Construction details, particularly thermocouple locations for DHD furnace, loc. 652.

HS Dwg. 349-8. Process control diagram for naphtha chamber #1.

HS Dwg. 221-3. Hard water plant, loc. 475/479.

HS Dwg. 301-8. Butane separation, loc. 843.

HS Dwg., number illegible. Process control diagram and gas compression system for CO_2 and CO purification, locations 151, 152, 153, 156.

HS Dwg. 196-8. Process control diagram for recycle gas washing and vacuum plant, loc. 192.

HS Dwg. 232-8. Middle oil dephenolisation, loc. 268.

HS Dwg. 282-8. Predistillation AT244, loc. 846.

HS Dwg. 107-8. Process control diagram naphtha chamber #11.

IG Dwg. 102-8. Connections for a high pressure separator (probably for gas density and flow measurements).

HS Dwg. 132-2. Hy-gas flow diagram, step 3.

HS Dwg. 104-2. Details of flow indicator.

HS Dwg. 633-2. Plot plan AT distillation plant.

HS Dwg. 400-1. Flow diagram for coal chamber and separator relief system.

HS Dwg. 405-1. Flow diagram for recycle gas washing.

HS Dwg. 506-1. Extensions to centrifuge plant, loc. 221.

HS Dwg. 106-1. Product plot diagram showing many of the locations mentioned above in their sequence of the total processing.

HS Dwg. 600-1. Combined plot plan, scale 1:2000 showing location of the equipment in the Scholven plant.

HS Dwg. 429-1. Location of principal water lines.

HS Dwg. 435-4. Plot plan AT244 plant.

Unidentified drawing. Plot plan scale 1:1000, presumably of the Scholven plant. There is doubt as to whether this material is complete.

BAG 2247 - TARGET 30/4.09

Dwg. 396, item 3. Plot plan scale 1:1000 of the Scholven hydrogenation works, dated 1936. This plot plan shows many of the installations previously discussed.

HS Dwg. 64-1. Flow diagram of coal grinding, tankage and pump house, loc. 240-256.

HS Dwg. 307-2, item 4. Process flow diagram showing connections and valving for coal chambers, item 10.

HS Dwg. 251-2. Research plant 7019, item 11.

HS Dwg. 148-2, item 13. Flow diagram T16 plant, Dehydro process 90-160° fraction from 5058/6434 L-naphtha.

IG Dwg. 3190-2, item 14. General arrangement of reaction chambers and preheaters showing valving and instrument connections.

HS Dwg. 102-2, item 16. Process lines and valving for chamber #5.

HS Dwg. 118-8, item 18. Schematic process flow and slurry connection.

HS Dwg. 183-2, item 23. Plot plan.

HS Dwg. 538-2, item 26. Process flow diagram for T52 plant with capacity of 22,000 tons per year located at Scholven.

IG Dwg. 2944-2, item 30. Schematic flow diagram showing installation location.

IG Dwg. 11615-2. General process flow diagram for dehydrogenation of naphtha from Steinkohle.

IG Dwg. 5027-2, item 32. General arrangement of reactors and preheater.

HS Dwg. 686-2. Schematic flow diagram for AT distillation, item 34.

HS Dwg. 2014-2, item 36. Caustic copper plant, loc. 143.

HS Dwg. 2011-2, item 37. CO purification, lines and valving, loc. 142.

HS Dwg. 2001-2, item 39. Schematic flow diagram for plant to produce 250,000 tons per year motor fuel.

HS Dwg. 2002-2, item 40. Product and quantity flow diagram showing the relation of locations in the integrated plant process.

HS Dwg. 9-2, item 41. Generalized flow diagram showing tankage and distillation equipment.

HS Dwg. 12-2, item 48. Schematic flow diagram for centrifuge system, loc. 290-291.

HS Dwg. 27-2, item 50. Pressure line connections to storage depot II, loc. 330-338.

HS Dwg. 26-2, item 51. Suction lines for tank storage depot II, loc. 330-338.

HS Dwg. 29-2. Schematic flow diagram for residue cracking, loc. 52.

BAG 3448 -- TARGET 30/11.10

Unidentified drawing 16323. Tubular assembly for catalyst oven.

GHH Dwg. 17455. Details of heat exchange equipment.

(This ends scanning of Reel #89)