

## SECTION 4

### SUMMARY FACILITY DESCRIPTION

A block flow diagram with overall material and energy balances is shown in Figure 4-1. The complex includes a captive coal mine to supply approximately 47,000 tons of ROM coal per stream day plus facilities to prepare 35,570 tons per stream day (TPSD) clean, sized coal as feed to the process units.

Facilities to produce oxygen and all required utilities are provided, as are facilities for the treatment and disposal of solid, liquid, and gaseous effluent streams.

The land area required for the complex is approximately 600 acres. Over a 20-yr project life, approximately 55 square miles would be mined to supply the required feed coal.

#### 4.1 PROCESS UNITS

Key coal conversion units are:

- A three-train hydroliquefaction unit to convert 20,000 TPSD of feed coal to the primary products: SNG, LPG, naphtha, and fuel oil.
- A process gasifier to convert 10,000 TPSD of feed coal to methane, syngas, and minor amounts of byproducts.
- A fuel gas gasifier to produce energy for captive use from 5,670 TPSD of coal, plus dry filter cake.

Additional process units shown recover and refine the products plus treat waste streams to produce environmentally acceptable effluents.

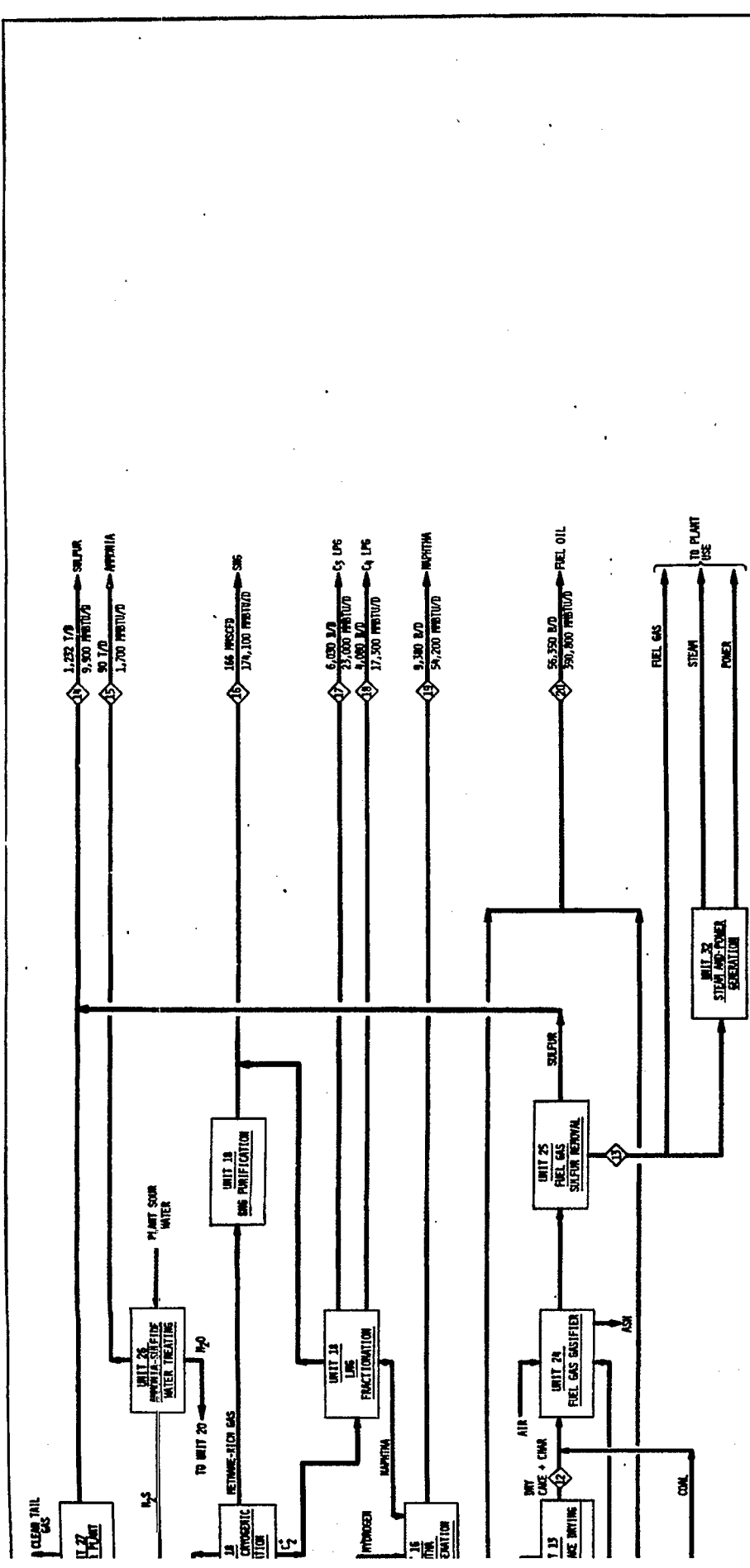
#### 4.2 PLANT CONFIGURATION

Figure 4-2 presents a plot plan and Figure 4-3 is an artist's conceptual drawing of the complex. A photograph of a model of the complex is shown in Figure 4-4.

#### 4.3 PLANT CAPACITY

The design coal feed rate to the process section is approximately 30,000 TPD and the product rate is approximately 75,000 barrels per day (BPD) of liquid products and 165 MM SCFD of SNG.

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TOTAL PRODUCTS  
671,000 MBTU/D  
77.0% EFFICIENCY

| UNIT | SAFUR        | AMMONIA        | H <sub>2</sub> S | C <sub>2</sub> H <sub>4</sub> | C <sub>2</sub> H <sub>6</sub> | C <sub>3</sub> H <sub>8</sub> | C <sub>4</sub> H <sub>10</sub> | FUEL OIL       | FUEL GAS | STEAM | POWER |
|------|--------------|----------------|------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------|----------------|----------|-------|-------|
| 1    | 1,252 T/D    |                |                  |                               |                               |                               |                                |                |          |       |       |
| 2    | 9,500 MBTU/D |                |                  |                               |                               |                               |                                |                |          |       |       |
| 3    | 90 T/D       |                |                  |                               |                               |                               |                                |                |          |       |       |
| 4    | 1,700 MBTU/D |                |                  |                               |                               |                               |                                |                |          |       |       |
| 5    |              | 166 MBSSFD     |                  |                               |                               |                               |                                |                |          |       |       |
| 6    |              | 379,100 MBTU/D |                  |                               |                               |                               |                                |                |          |       |       |
| 7    |              |                | 6,000 B/D        |                               |                               |                               |                                |                |          |       |       |
| 8    |              |                | 23,000 MBTU/D    |                               |                               |                               |                                |                |          |       |       |
| 9    |              |                | 8,080 B/D        |                               |                               |                               |                                |                |          |       |       |
| 10   |              |                | 17,300 MBTU/D    |                               |                               |                               |                                |                |          |       |       |
| 11   |              |                |                  |                               |                               |                               |                                |                |          |       |       |
| 12   |              |                | 8,300 B/D        |                               |                               |                               |                                |                |          |       |       |
| 13   |              |                | 59,200 MBTU/D    |                               |                               |                               |                                |                |          |       |       |
| 14   |              |                |                  |                               |                               |                               |                                | 56,350 B/D     |          |       |       |
| 15   |              |                |                  |                               |                               |                               |                                | 390,800 MBTU/D |          |       |       |
| 16   |              |                |                  |                               |                               |                               |                                |                |          |       |       |
| 17   |              |                |                  |                               |                               |                               |                                |                |          |       |       |
| 18   |              |                |                  |                               |                               |                               |                                |                |          |       |       |
| 19   |              |                |                  |                               |                               |                               |                                |                |          |       |       |
| 20   |              |                |                  |                               |                               |                               |                                |                |          |       |       |
| 21   |              |                |                  |                               |                               |                               |                                |                |          |       |       |
| 22   |              |                |                  |                               |                               |                               |                                |                |          |       |       |
| 23   |              |                |                  |                               |                               |                               |                                |                |          |       |       |
| 24   |              |                |                  |                               |                               |                               |                                |                |          |       |       |
| 25   |              |                |                  |                               |                               |                               |                                |                |          |       |       |
| 26   |              |                |                  |                               |                               |                               |                                |                |          |       |       |

Figure 4.1  
ENERGY RESEARCH & DEVELOPMENT ADMINISTRATION (ERDA-PE)  
OIL GAS PLANT  
BLOCK FLOW DIAGRAM

THE SULLY IN PROCESS COMPANY  
PARANAH, CALIFORNIA

ISSUED FOR REPORT  
7005/2/67

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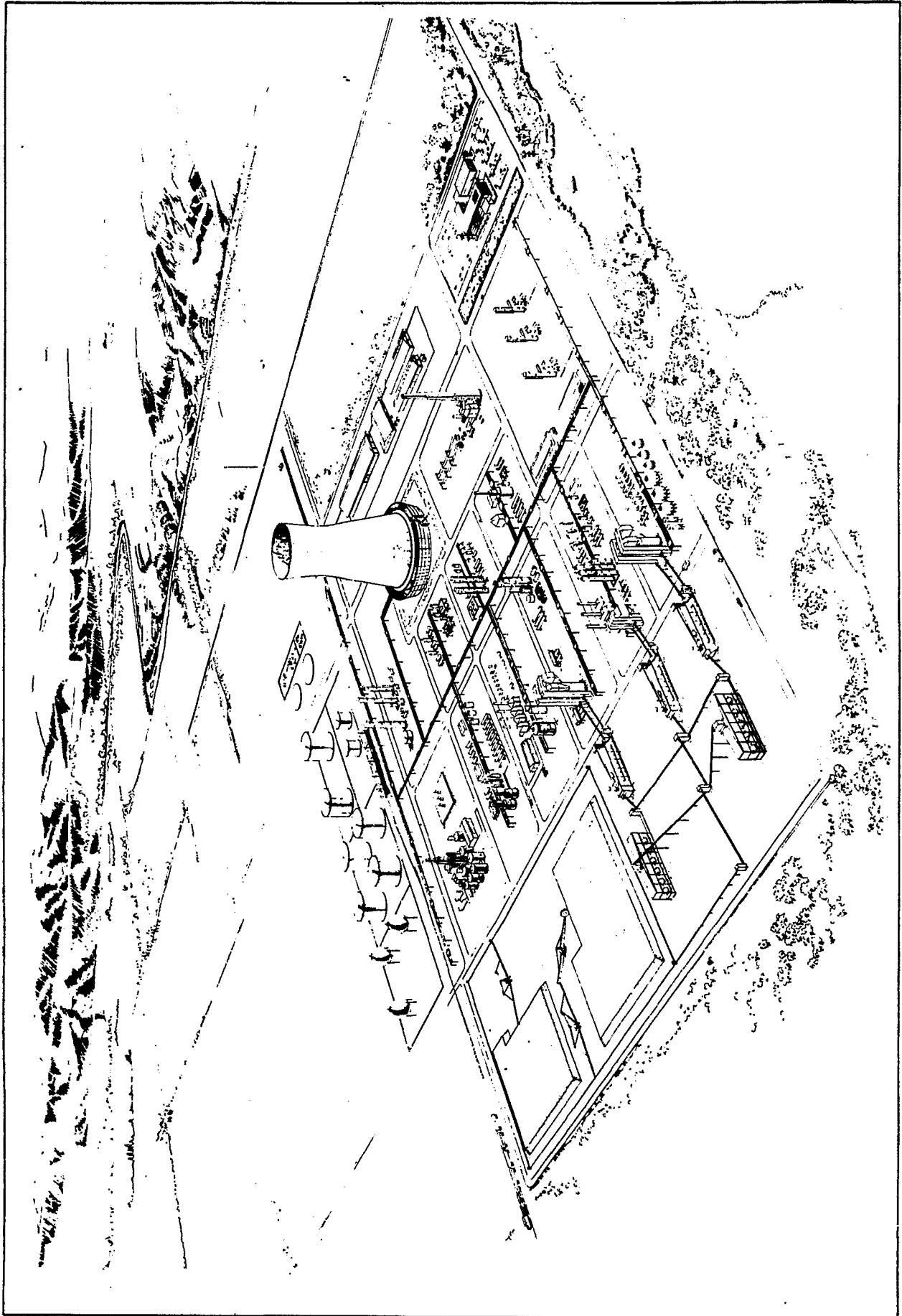


Figure 4-3 - Artist's Concept



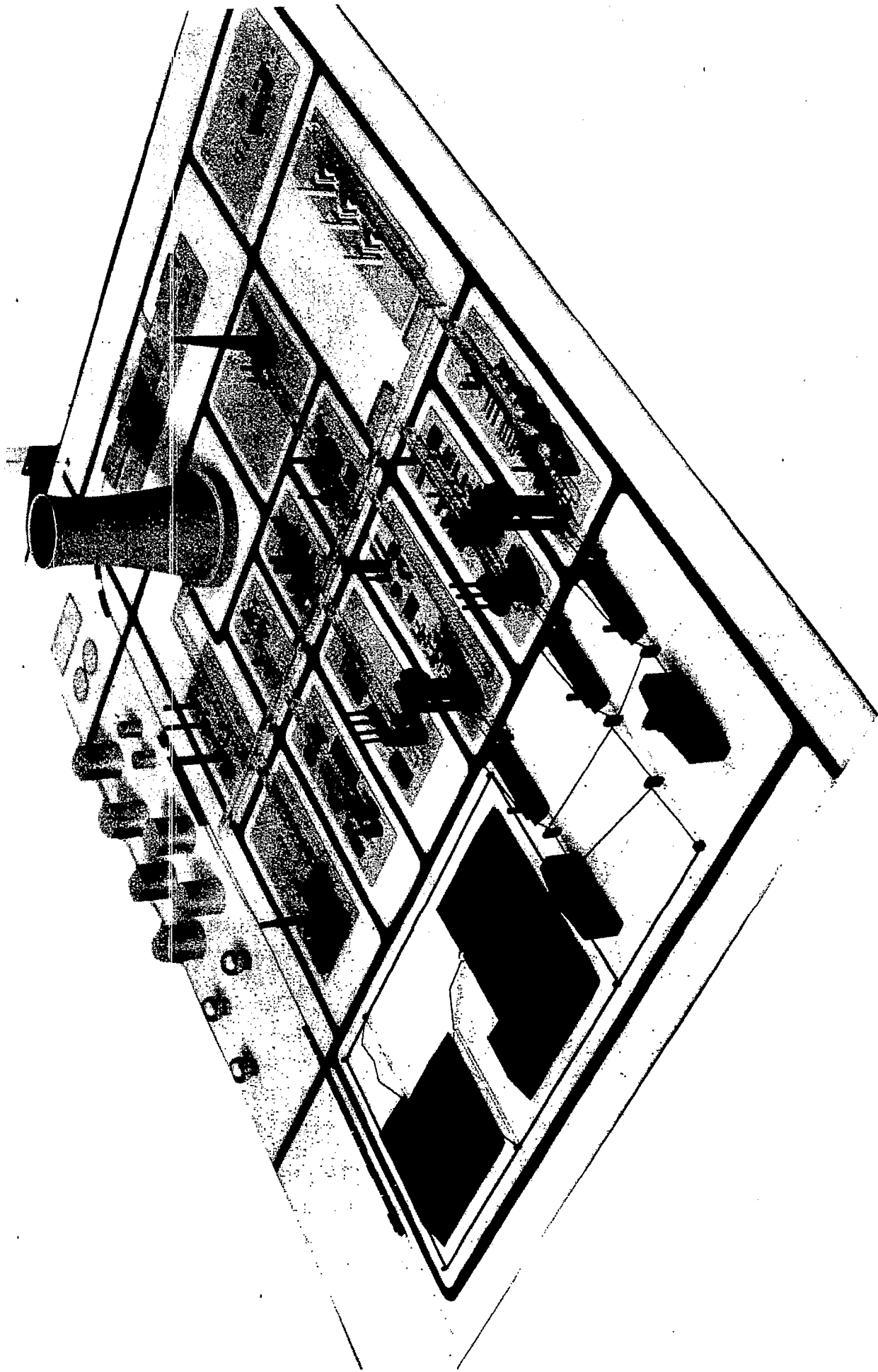


Figure 4-4 - Model of Conceptual Oil/Gas Plant Design

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