

## 7.0 TANK FARM AND PRODUCT HANDLING

Tankage for Case 13 feed storage, product rundown and final products are summarized in Tables I and II. Various bulk purchased chemicals required by the process are also listed in Table II. Table III summarizes the dispatching and receiving requirements. The facility location was chosen to allow convenient product shipment via rail, barge, or pipeline.

### 7.1 SYSTEM DESCRIPTION

The tank farm system consists of all required tanks, pumps, pipe manifolds, commodity dispatching and receiving facilities for Units 56 and 57. All tanks are located in segregated "Tank Farm" area. Unit 56 contains both floating and cone roof tankage for feed storage, product rundown, and final products. All unit feed tanks are operating tanks; i.e., a portion of the feed to the unit normally flow through the tank. Thus, material in the tanks is continuously circulated and agitated. Levels in these tanks will normally be kept low to permit maximum utilization of the tanks in case of an emergency. Adequate storage capacity is provided in each tank for annual shutdown of an associated unit. Rundown and final product storage is specified on the basis of maintaining a specified total storage capacity for various blending components and blended products. Any product that does not require blending, such as LPG, has only final storage.

Unit 57 consists of pressurized and atmospheric storage for light hydrocarbon and ammonia products summarized in Table II. Various bulk purchased chemicals, such as Isopropyl Ether (IPE), are also included in this table. Table III summarizes the commodities to be dispatched and the percent split between the mode of dispatching. The modes of dispatching will be either road, rail, or pipeline. Additional information such as product dispatch and chemical receiving schemes, receipt, and dispatch modes, number of loading or unloading sites, and the size of loading/unloading arms is also included.

The dispatch system includes an ammonia refrigeration system which consists of three 50 percent reciprocating compressors each rated at 0.2 megawatts. This package is complete with interstage cooling and ammonia vapor recovery sections, piping manifolds, and complete instrumentation to provide efficient and reliable unit operation. As a safeguard to the pressurized ammonia storage tank and associated equipment in the dispatch area, an ammonia flare and relief system is

7.1 Unit 57 (Continued)

provided. The ammonia flare consists of pressure safety valves (PSV's), control valves, flare header, knockout drum, control panel flame generator, 14" diameter header and steam line for smokeless flaring. Finally, the dispatch and receiving facility provides platforms for simultaneous loading and unloading of two rail cars and two truck tankers per turnaround. This facility includes all pumps, metering devices, pipe manifolding and instrumentation for efficient and reliable shipment, and dispatch of commodities.

7.2 ACCOMPLISHED AND DECISIONS MADE AND FINALIZED

Tankage requirements for feed stock, intermediate rundown, and purchased chemicals follow Sasol general guidelines. Product dispatch for known Case 13 production rates follow good engineering judgements and practices emphasizing the philosophy of pipe-line dispatching. This differs from Sasol which relies heavily on rail dispatching of products. The number of days storage and the total working volume are summarized in Section 7.1, Tables I and II.

7.3 CURRENT STATUS

Preliminary tank lists have been made for Case 13. No layouts or line sizing for the tank farm have been made. Refer to Volume 12, Section 8.9, for a brief discussion of the work done in the tank farm and dispatching area. Pricing for Case 13 is based on factoring the feasibility study.

SECTION 7.0

TRI-STATE SYNFUELS COMPANY  
CASE 13 TANKAGE & PUMP LISTUNIT 56  
(TABLE 1)

1 FLUOR

5/1/82  
CONF NO 635804  
BY RO CHR'S  
SHEET NO 1 OF 2

COMMODITY DESCRIPTION	STORAGE REQUIRED		TANK SELECTION		DIMENSIONS (FEET)		PUMP DESIGN INFORMATION				PUMP DESCRIPTION	REMARKS
	NR OF DAYS	TOTAL WORKING VOLUME (BARRELS)	NR OF TANKS SELECTED	TANK TYPE SELECTED	DIAMETER	HEIGHT	NR OF PUMPS	PERCENT CAPACITY EACH PUMP	CAPACITY (GPM)	TON (PSZ)		
"MTG" UNIT FEED	14	299,880	2	FLOATING ROOF	150	48	2	100%	700	450	FEED PUMP	REVISED CAPACITY
DURENE NGT UNIT FEED	7	4,830	1	FLOATING ROOF	32	32	2	100%	25	60	FEED PUMP	REVISED CAPACITY
ALKYLATION UNIT FEED	7	24,780	1	FLOATING ROOF	66	40	2	100%	120	120	FEED PUMP	REVISED CAPACITY
RECTISOL METHANOL MAKE-UP FEED	7	780	1	CONE ROOF	19	16	2	100%	25	100	FEED PUMP	REVISED CAPACITY
MTG GASOLINE RUNDOWN	7	37,940	2	FLOATING ROOF	56	42	2	100%	265	60	BLENDING PUMP	REVISED CAPACITY
NGT GASOLINE RUNDOWN	7	4,830	2	FLOATING ROOF	23	32	2	100%	40	60	BLENDING PUMP	REVISED CAPACITY
TEXACO GASIFIER FEED	14	20,720	2	CONE ROOF	40	48	2	100%	50	550	FEED PUMP	ADDITIONAL NEW TANK & PUMP
CYCS RUNDOWN	7	8,285	2	FLOATING ROOF	30	32	2	100%	60	60	BLENDING PUMP	REVISED
ALKYLATE RUNDOWN	7	9,555	2	FLOATING ROOF	32	32	2	100%	70	60	BLENDING PUMP	REVISED
YELLOW DYE ADDITIVE	-	200	1	CONE ROOF	11	12	2	100%	3	60	BLENDING PUMP	-
RECTISOL METHANOL RUNDOWN	3.5	900	2	FLOATING ROOF	14	18	2	100%	20	30	TRANSFER PUMP	ADDITIONAL NEW TANK & PUMP

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4 FLOOR

5/1/82  
 CONT NO 833509  
 BY RO CNE'D  
 SHEET NO 2 OF 2

SECTION 7.0

TRI-STATE SYNFUELS COMPANY  
 CASE 13 TANKAGE & PUMP LIST

UNIT 56  
 (TABLE I)

COMMODITY DESCRIPTION	STORAGE REQUIRED		TANK SELECTION		DIMENSIONS (FEET)		PUMP DESIGN INFORMATION				PUMP DESCRIPTION	REMARKS
	NO OF DAYS	TOTAL WORKING VOLUME (BARRELS)	NO OF TANKS SELECTED	TANK TYPE SELECTED	DIAMETER	HEIGHT	NO OF PUMPS	PERCENT CAPACITY EACH PUMP	CAPACITY (GPM)	TDH (PSI)		
TAR/OIL RUNDOWN	3.5	3,850	2	FLOATING ROOF	24	24	2	100%	40	30	TRANSFER PUMP	ADDITIONAL NEW TANK & PUMP
PHENOL / CRESOL PITCH / PITCH RUNDOWN	3.5	435	2	FLOATING ROOF	12	12	2	100%	20	30	TRANSFER PUMP	ADDITIONAL NEW TANK & PUMP
GASOLINE PRODUCT STORAGE	7	6,145	2	FLOATING ROOF	68	48	2	100%	720	1000	PIPELINE INJECTION PUMP	REVISED

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SECTION 7.0

TRI-STATE SYNFUELS COMPANY  
CASE 13 TANKAGE & PUMP LISTUNIT 57  
(TABLE II)

4 FLUOR

5/1/82  
CONT. NO. 635504  
BY R. O. CHM  
SHEET NO. 1 OF 1

COMMODITY DESCRIPTION	STORAGE REQUIRED		TANK SELECTION		DIMENSIONS (FEET)		PUMP DESIGN INFORMATION				PUMP DESCRIPTION	REMARKS
	NO OF DAYS	TOTAL WORKING VOLUME (GALLONS)	NO OF TANKS SELECTED	TANK TYPE SELECTED	DIAMETER	HEIGHT	NO OF PUMPS	PERCENT CAPACITY EACH PUMP	CAPACITY (GPM)	TDH (PSI)		
LPG STORAGE	7	4445	1	SPHERE	24	-	2	100	300	300	DISPATCH PUMP	REVISED
ISOBUTANE STORAGE	7	4347	1	SPHERE	23	-	2	100	300	300		REVISED
PROPYLENE STORAGE	7	500	1	SPHERE	12	-	2	100	60	120	MAKE-UP PUMP	REVISED
ANHYDROUS LIQUID AMMONIA	14	14930	1	DOME ROOF	48	48	2	100	300	350	DISPATCH	REVISED
I.A.E. STORAGE	-	4920	1	DOME ROOF	7.5	24	2	100	50	150	FEED PUMP	
I.A.E. STORAGE	-	180	1	BULLET	8	20	2	100	120	50	TRANSFER PUMP	
50% CAUSTIC SOLUTION STORAGE	30	740	1	CONE ROOF	18	16	2	100	50	50	TRANSFER PUMP	
98% SULFURIC ACID STORAGE	30	1210	1	CONE ROOF	24.5	16	2	100	50	30	FEED PUMP	
25% CAUSTIC SOLUTION METHANOL STORAGE	30	1480	1	CONE ROOF	26	16	2	100	50	150	FEED PUMP	

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SECTION 7.0

TRI-STAR SYNFUELS COMPANY  
DISPATCH AND RECEIVING DESIGN BASIS SUMMARYUNIT 57  
(TABLE III)

1 FLUOR

57/12  
CONT NO. B35504  
BY ED CND  
SHEET NO. 1 OF 1

COMMODITY TO BE DISPATCHED	DISPATCH SPLIT, PERCENT OF YEARLY PRODUCTION PER DISPATCH MODE			VOLUME DISPATCHED PER SHIPPING DAY PER MODE OF DISPATCH, BARRELS			NUMBER OF 6500-GAL TRUCKS OR 10000-GAL. RAILCARS DISPATCHED PER SHIPPING DAY		NUMBER OF SITES PER COMMODITY PER DISPATCH MODE		SIZE OF MECH. ARM (INCHES)	
	ROAD	RAIL	PIPE	ROAD	RAIL	PIPE	ROAD	RAIL	ROAD	RAIL	ROAD	RAIL
GASOLINE	-	-	100	-	-	13,000	-	-	-	-	-	-
ISOBUTANE	50	50	-	440	440	-	5	3	1	1	4"	4"
LPG	50	50	-	440	440	-	5	3	1	1	4"	4"
AMMONIA	-	100	-	-	1588	-	-	7	-	1	-	4"
SMG	-	-	100	-	-	42 (MMSCFD)	-	-	-	-	-	-
SULFUR	-	100	-	-	27,890 (FP)	-	-	12-TOP OPENING BOX CARS	-	3	-	-

COMMODITY TO BE RECEIVED	MODE OF RECEIPTS, PERCENT OF ANNUAL CONSUMPTION		NUMBER OF RECEIVING SITES	SIZE OF MECHANICAL ARM, INCHES
	%	MODE		
98% SULFURIC ACID	100	RAIL	1	3"
50% CAUSTIC SODA	100	RAIL	1	3"
PROPYLENE	100	RAIL	1	3"
I.P.E.	100	RAIL	1	3"