AMMONIA PLANT EQUIPMENT LIST

UNIT 000 – Air compressor
J-001 - Air compressor (1)

UNIT 030 – Nitrogen compressor
J-031 - Nitrogen compressor (1)
T-031 - Steam turbine (1)

UNIT 070 – Oxygen compressor
J-071 - Oxygen compressor (1)

UNIT 100 – Air separation
C-101 - Main exchanger (1)
C-102 - Main exchanger (1)
C-103 - Turbine exchanger (1)
C-104 - Main vaporizer (1)
C-105 - Auxiliary vaporizer (1)
C-106 - Subcooler (1)
C-107 - Subcooler (1)
C-108 - Subcooler (1)
C-109 - Oxygen vaporizer (1)
E-104 - Medium pressure column (1)
E-105 - Low pressure column (1)
E-106 - Pure nitrogen column (1)
E-107 - Pure oxygen column (1)
G-101 - Liquid oxygen filter (1)
J-103/J-103R - Liquid oxygen pumps (1+1)
J-104 - Main expansion turbine (1)
J-105 - Additional expansion turbine (1)
C-110 - Regeneration heater (1)
C-111 - Defrosting heater (1)
E-101 - Cooling water tower (1)
E-102 - Chilled water tower (1)
E-103 - Waste nitrogen water tower (1)
G-102 – Epuration vessel (1)
G-103 – Epuration vessel (1)
J-101/J-101R - Cooling water pumps (1+1)
J-102/J-102R - Chilled water pumps (1+1)
L-101 - Vaporization device for liquids (1)
L-102 - Silencer on waste nitrogen (1)
UNIT 150 – Wet catalysis

B-151 - Preheater (1)
B-154 – Combustion furnace (1)
B-155 – Stack (1)
C-151A/B/C/D – Acid coolers (4)
C-152 – Product acid cooler (1)
C-154 – Waste heat boiler (1)
D-151 – Converter (1)
E-151 – Condensation Venturi (1)
F-151 – Product acid tank (1)
F-164 – Product acid tank (1)
F-154 – Steam drum (1)
F-156 – Sour gas separator (1)
F-158 – Water head tank (1)
G-151A/G-151B – Candle filters (2)
G-152 – Air filter (1)
J-151/J-151R – Acid recycling pumps (1+1)
J-153/J-153R – Acid production pumps (1+1)
J-154 – Air blower (1)

UNIT 200 – Shell gasification

C-201 – Gasifier cooling water cooler (1)
C-202 – Raw gas heated desorber (1)
C-203A/C-203B – Carbon water coolers (2)
C-204 – Carbon scrubber circ. water cooler (1)
C-205A/C-205B/C-206 – Return water coolers (3)
C-221A/-C-221B – Waste heat exchangers (2)
C-222A/C-222B – Economizers (2)
C-223A/C-223B – Carbon oil preheaters (2)
D-201A/D-201B – Gasification reactors (2)
E-201 – Carbon scrubber (1)
F-201A/F-201B – Quench pipes (2)
F-202A/F-202B – Carbon separators (2)
F-203 – Gasifier cooling water tank (1)
F-204 – Slop oil vessel (1)
J-201A/J-201B/J-201R – HP feedstock pumps (2+1)
J-202/J-202R – Carbon scrubber circulation pumps (1+1)
J-203/J-203R – Gasifier cooling water pumps (1+1)
J-206 – Slop oil pump (1)
UNIT 250 – Pelletizing

C-252 – Stripper excess water cooler (1)
C-253 – Stripper circulation water cooler (1)
C-254 – Slurry off gas cooler (1)
E-251 – Waste water stripper (1)
F-258 – Slurry tank (1)
F-259 – Return water tank (1)
F-260 – Sink pellets drum (1)
F-261 – Carbon oil collecting pipe (1)
G-256A/G-256B – Sand filters (2)
L-251A/L-251B/L-251R – Pelletizers (2+1)
L-252A/L-252B/L-252R – Pellets sieves (2+1)
L-254A/L-254B – Mixing Throughs (2)
L-255 – Pellets fine sieve (1)
L-262A/L-262B – Homogenizers (2)
J-251/J-251R – Slurry pumps (1+1)
J-253/J-253R – Return water pumps (1+1)
J-254 – Filter backwash pump (1)
J-255 – Waste water pit pump (1)
J-256/J-256A – Filter feed pumps (1+1)
J-257/J-257A – Stripper circulation pumps (1+1)
J-258 – Sink pellets pump (1)
J-259/J-259R – Stripper excess water pumps (1+1)
J-261 – Exhaust air blower (1)
J-262 – Slurry pit pump (1)

UNIT 300 – CO-shift conversion

C-301 – HP boiler feedwater preheater (1)
C-302 – Circulation water heater (1)
C-303A/C-303B – Circulation water heaters (2)
C-304A/B – LP boiler feedwater preheaters (2)
C-305 – Final cooler (1)
C-306 – Start-up heater (1)
C-307 – Circulation water cooler (1)
C-308 – Hot water heated desorber (1)
D-301 – Shift converter I (1)
D-302 – Shift converter II (1)
E-301 – Saturator (1)
E-302 – Cooler (1)
F-301 – Separator (1)
F-302 – Condensate separator (1)
F-303 – Ammonia water vessel (1)
J-301/J-301R – Cooler feed pumps (1+1)
J-302/J-302R – Saturator feed pumps (1+1)
J-303/J-303R – Ammonia water pumps (1+1)
UNIT 350 – N2-wash

C-351 – Nitrogen exchanger (1)
C-352 – Raw gas exchanger (1)
C-353 – Gas subcooler (1)
C-354 – Regeneration heater (1)
C-355 – Blow down heater (1)
E-351 – Washing column (1)
F-351 – Blowdown drum (1)
G-351 – Methanol and CO2 adsorber (1)
G-352 – Methanol and CO2 adsorber (1)
L-351 – Silencer (1)

UNIT 400 – H2S-wash

C-401A-K – Lean/semi lean methanol heat exchangers (10)
C-402/C-402R – Hot regenerator reboilers (1+1)
C-403/C-403R – Methanol water column reboilers (1+1)
C-404 – Hot regenerator condenser (1)
C-406 – Prewash methanol heat exchanger (1)
C-421A – H2S raw gas cooler (1)
C-421B – H2S raw gas cooler (1)
C-422 – Sourgas cooler (1)
C-423 – Sourgas heater (1)
C-425 – Recompressor gas cooler (1)
C-451 – H2S raw gas end cooler (1)
E-401 – H2S absorber (1)
E-402 – Hot regenerator (1)
E-403 – Methanol water column (1)
E-404 – H2S flash (1)
F-401 – Raw gas separator (1)
F-402 – Hot regenerator reflux drum (1)
F-403 – Recompressor gas separator (1)
F-405 – Sourgas separator (1)
F-408 – Raw gas separator (1)
F-409 – Fresh methanol tank (1)
F-410 – Underground slop tank (1)
J-401/J-401R – Lean methanol pumps (1+1)
J-402/J-402R – Hot regenerator reflux pumps (1+1)
J-403/J-403R – Hot regenerator feed pumps (1+1)
J-404/J-404R – Methanol water pumps (1+1)
J-425 – Recompressor (1)
J-454 – Fresh methanol pump (1)
J-455 – Slop pump (1)
UNIT 450 – CO2-wash

C-409A-E – Methanol/methanol heat exchangers (5)
C-452 – Methanol cooler (1)
C-453 – CO2 gas end cooler (1)
C-454 – Flash methanol cooler (1)
C-455 – Methanol cooler (1)
C-456 – Liquid ammonia cooler (1)
C-457 – Liquid ammonia cooler (1)
C-471 – CO2 Rectisol feed cooler (1)
C-477 – Vacuum blower cooler (1)
E-451 – CO2 absorber (1)
E-452 – CO2 flash column (1)
J-451/J-451R – CO2 absorber methanol pumps (1+1)
J-452/J-452R – Cooling pumps (1+1)
J-453/J-453R – Feed pumps H2S wash (1+1)
J-477 – Vacuum blower (1)

UNIT 500 – Syngas compressor

J-501 – Synthesis gas compressor (1)
T-501 – Steam turbine (1)

UNIT 550 – NH3-synthesis

B-551 – Start-up heater (1)
C-560 – Hot NH3 exchanger (1)
C-561 – Waste heat exchanger (1)
C-562 – BFW preheater (1)
C-563 – Air cooler (1)
C-564 – Water cooler (1)
C-565 – Cold exchanger (1)
C-566 – NH3 chiller (1)
C-567 – Reflux cooler (1)
C-568 – NH3 product cooler (1)
C-569 – NH3 product after chiller I (1)
C-570 – NH3 product after chiller II (1)
C-571 – Subcooler I (1)
C-572 – Subcooler II (1)
D-551 – NH3 converter (1)
F-551 – NH3 separator (1)
F-552 – Let down vessel (1)
F-553 – Flash vessel (1)
F-554 – BFW KO drum (1)
J-551 – NH3 bleed pump (1)
J-552 – Water pump (1)
UNIT 600/UNIT 630 – Boiler/Steam superheater

B-601 – Steam boiler (1)
C-601 – BFW – preheater (1)
C-602 – Fuel oil preheater (1)
C-603 – Analysis cooler (1)
C-604 – Air preheater (1)
C-605 – Analysis cooler (1)
F-601 – Boiler steam drum (1)
F-602 – Fuel-oil tank (1)
F-603 – Dosing tank (1)
F-604 – Hydrazine tank (1)
F-605 – Blow-down vessel (1)
G-601/G-601R – Fuel-oil filters (1+1)
J-601A/J-601B/J-601R – Air blowers (3)
J-602/J-602R – Fuel-oil pumps (1+1)
J-603/J-603R – Dosing pumps (1+1)
J-604/J-604R – Hydrazine pumps (1+1)
J-605A/B/C/D – Soot blowers (4)
B-631 – Steam superheater (1)
C-631 – Economizer (1)

UNIT 700 – Refrigeration

F-451 – Evaporator bleed receiver (1)
F-730 – Suction separator (1)
J-426 – Bleed pump (1)
J-478 – Bleed pump (1)
J-725 – Bleed pump (1)
J-730 – NH3 compressor (1)
C-710A/C-710B – NH3 condensers (2)
C-720 – Steam heated desorber (1)
C-721 – Solution heat exchanger (1)
C-722A/C-722B – Absorbers 1st stage (2)
C-723 – Absorber 2nd stage (1)
C-724 – Ammonia evaporator (1)
C-725 – Subcooler (1)
C-726 – Bleed exchanger (1)
C-730/C-730R – NH3 vapour coolers (1+1)
E-701 – Rectifying column (1)
F-710 – Ammonia receiver (1)
F-722 – Solution receiver 1st stage (1)
F-723 – Solution receiver 2nd stage (1)
J-710/J-710R – Reflux pumps (1+1)
J-722/J-722R – Solution pumps 1st stage (1+1)
J-723/J-723R – Solution pumps 2nd stage (1+1)