SUPPLEMENTAL DATA FOR PSD REVIEW

NEW WALES CHEMICAL COMPANY
POLK COUNTY, FLORIDA

SHOLTES & KOOGLER
Environmental Consultants
1213 NW 6TH ST ■ GAINESVILLE, FL 32601 ■ 904-377-5822

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OCTOBER 1979

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TABLE OF CONTENTS

SECTION	
1	Introduction to New Wales
2	Expansion Plans
3	New Source Summary
4	Best Available Control Technology
5	Air Quality Impact
6	Secondary Impacts

SECTION 1

INTRODUCTION TO NEW WALES CHEMICALS

(REVISED MAY, 1979)

NEW WALES CHEMICALS, INC.

NEW WALES, FLORIDA

INTRODUCTION - PLANT TOUR

THE NEW WALES PLANT PRODUCES NO RAW MATERIALS, BUT RELIES HEAVILY ON TRUCK AND RAIL TRANSPORTATION TO BRING IN SULFUR, PHOSPHATE ROCK, FUEL OIL, AMMONIA, LIMESTONE, SODA ASH, SILICA AND REAGENTS.

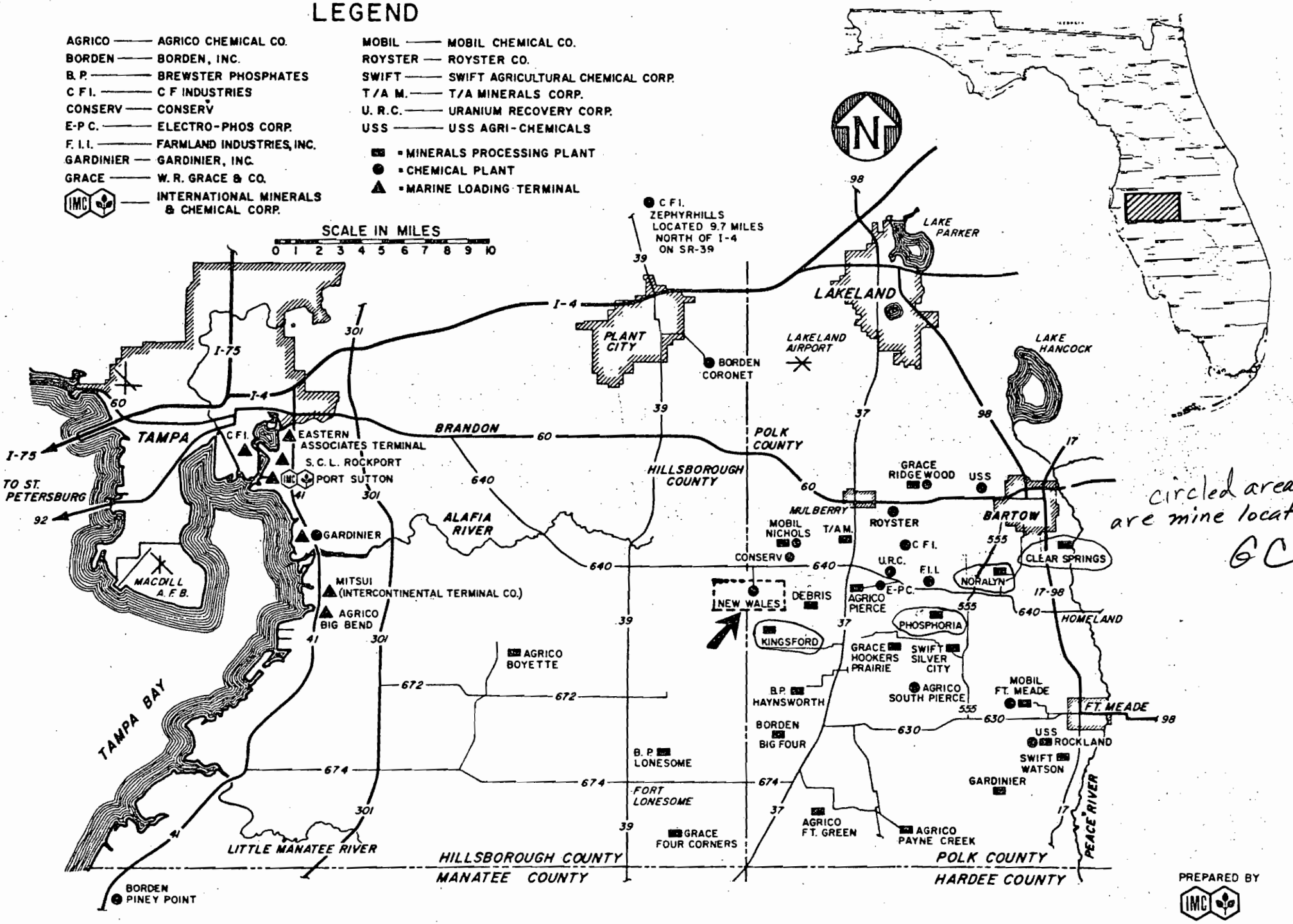
TRAFFIC HANDLES OVER 225 RAILCARS AND 300 TRUCKS ON A TYPICAL DAY.

END PRODUCTS INCLUDE MERCHANT GRADE PHOSPHORIC ACID, MONOAMMONIUM PHOSPHATE (MAP), DIAMMONIUM PHOSPHATE (DAP), GRANULAR TRIPLE SUPER PHOSPHATE (GTSP), AND SULFURIC ACID. ANIMAL FEED INGREDIENTS INCLUDE DEFLUORINATED CALCIUM PHOSPHATES (DYNAFOS, BIOFOS, MULTIFOS) AND DEFLUORINATED AMMONIUM PHOSPHATES (MONOFOS AND DUOFOS). TOTAL PRODUCTION FOR THE 1978 FISCAL YEAR UTILIZED OVER 850,000 TONS OF P_2O_5.

EMPLOYMENT LEVEL AT NEW WALES IS 850 PERSONS, WITH TOTAL PAYROLL COSTS FOR FISCAL 1979 EXPECTED TO APPROACH $11,000,000 NOT INCLUDING CONTRACTOR FORCES.

THE PLANT SITE PROPERTY IS THREE-QUARTERS OF A MILE LONG BY ONE-HALF MILE WIDE, WITH THE FARTHEST POINT OF THE COOLING POND TWO MILES AWAY.

THE ATTACHED MAP IDENTIFIES, BY NUMBER, IMPORTANT FEATURES OF THE COMPLEX.



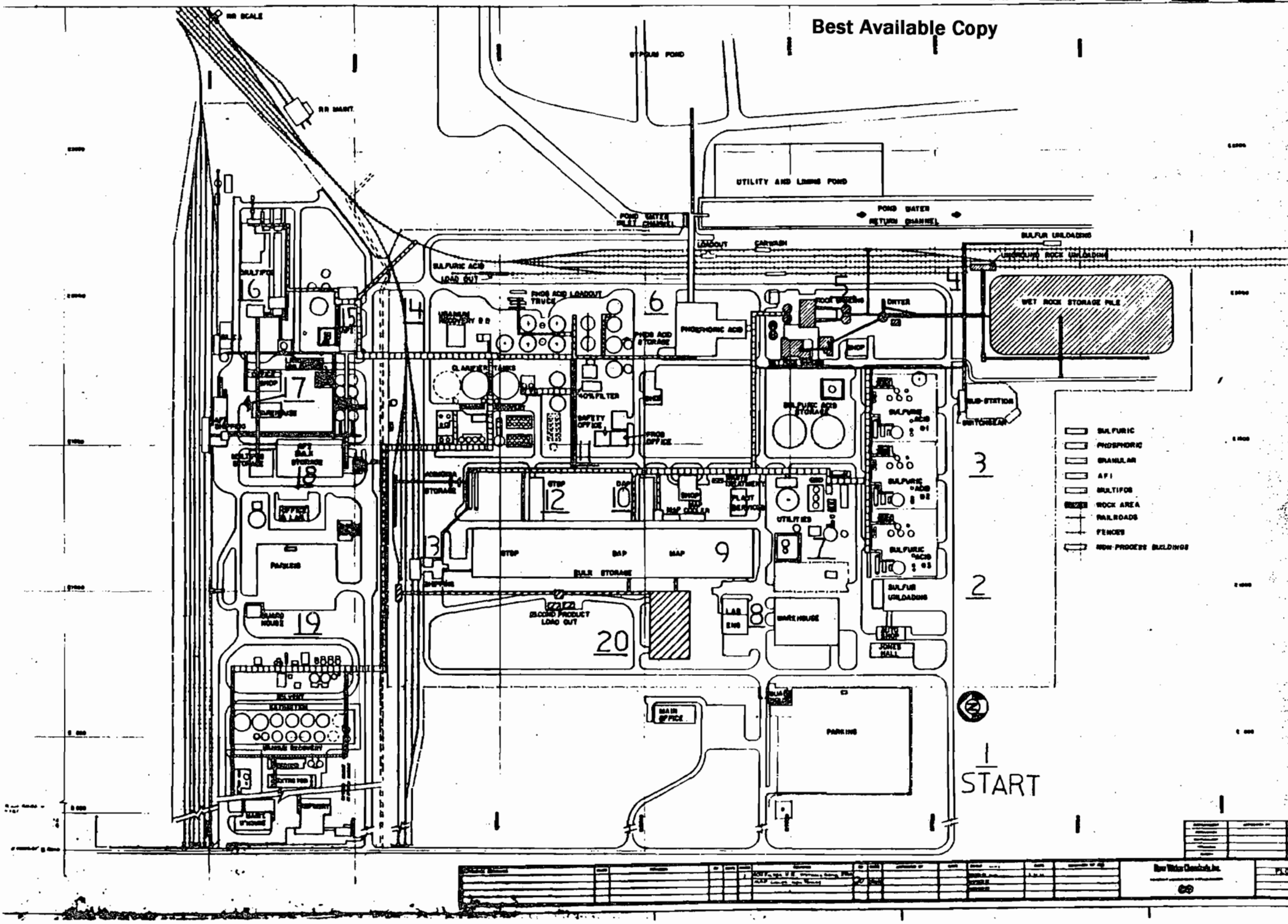
circled areas are mine locations

GC

SITE LOCATION MAP

PREPARED BY IMC BARTOW, FLORIDA 8-76

Best Available Copy



TOUR

NEW WALES CHEMICALS, INC.
NEW WALES, FLORIDA

1. ENTRANCE FACILITY

TO MORE READILY UNDERSTAND THE SIZE AND CAPACITY OF NEW WALES, LETS TAKE A TOUR OF THE COMPLEX STARTING AT THE SOUTH MAIN TRUCK GATE.

2. SULFUR UNLOADING AND STORAGE

THE FIRST STOP INSIDE THE PLANT FOR MOST TRUCKS IS THE MOLTEN SULFUR UNLOADING AND STORAGE FACILITY. UP TO SEVENTY-FIVE TRUCKS PER DAY DROP THEIR LOAD OF SULFUR INTO A CONCRETE, STEAM HEATED PIT, HOLDING UP TO 1400 TONS OF MOLTEN SULFUR AT 270°F. A SECOND FACILITY RECEIVES SULFUR FROM RAILCARS, STORING IT IN A HEATED, INSULATED TANK. THIS SULFUR IS USED AT A RATE OF 2400 TONS PER DAY AT AN EFFICIENCY OF BETTER THAN 99.9% TO PRODUCE SULFURIC ACID.

3. SULFURIC ACID PLANTS

TO THE LEFT ARE THREE MONSANTO ENVIRO-CHEM DOUBLE ABSORPTION SULFURIC ACID PLANTS, EACH RATED AT 2000 TONS PER DAY. THESE PLANTS HAVE ACTUALLY PRODUCED ABOUT 2700 TONS PER DAY AT TIMES.

MOLTEN SULFUR IS BURNED WITH AIR AT 1800°F IN A HORIZONTAL BRICK-LINED FURNACE TO PRODUCE GASEOUS SULFUR DIOXIDE, THIS GAS IS THEN REACTED WITH MORE AIR AT 800-1100°F, IN THE PRESENCE OF A SPECIAL PLATINUM/VANADIUM PENTOXIDE CATALYST, TO PRODUCE GASEOUS SULFUR TRIOXIDE. THIS GAS THEN REACTS WITH WATER IN THE PRESENCE OF SULFURIC ACID TO MAKE MORE SULFURIC ACID.

TO CONSERVE ENERGY, LARGE STEAM GENERATORS AND GAS-TO-GAS HEAT EXCHANGERS ARE EMPLOYED. UNTIL RECENTLY IT WAS ONLY NECESSARY TO ACHIEVE SULFUR EFFICIENCIES OF 97%. HOWEVER, RECENT EFFORTS TO IMPROVE AIR QUALITY HAVE RESULTED IN LEGISLATION REQUIRING STACK GASES TO BE CLEANED TO A LEVEL EQUIVALENT TO 99.7% EFFICIENCY. THIS IS GENERALLY ACCOMPLISHED BY UTILIZING THE DOUBLE ABSORPTION PROCESS, WHEREBY SULFUR TRIOXIDE IS ABSORBED INTO WATER TO PRODUCE SULFURIC ACID IN TWO STEPS. THE FIRST STEP RESULTS IN ABOUT 90-95% SULFUR EFFICIENCY; THE SECOND STEP RESULTS IN 99.9% EFFICIENCY.

SULFURIC ACID IS SENT TO TWO 13,000 TON STORAGE TANKS FOR FURTHER PROCESSING IN THE PLANT.

4. ROCK RECEIVING

WET, UNGROUND PHOSPHATE ROCK IS RECEIVED BY RAILCAR FROM THE VARIOUS IMC MINES IN POLK COUNTY. THESE MINES ARE KINGSFORD, NORALYN, CLEAR SPRINGS, AND PHOSPHORIA. NORMALLY 120 RAILCARS, CONTAINING UP TO

100 TONS OF ROCK EACH ARE UNLOADED PER DAY. AN UNDERGROUND UNLOADING PIT CAN RECEIVE ROCK FROM TWO CARS AT A TIME. A BELT CONVEYOR SYSTEM DIRECTS THIS MATERIAL TO A 200,000 TON STORAGE PILE WHICH PROVIDES ABOUT THREE WEEKS STORAGE CAPACITY FOR THE PLANT. IN ADDITION, ABOUT 200 TRUCKS PER DAY ARE DUMPED AND PUSHED UP ONTO THE PILE. A TRAVELING STACKER BLENDS THIS MATERIAL TO PRODUCE A MORE UNIFORM GRADE OF ROCK REQUIRED TO PRODUCE HIGH QUALITY END PRODUCTS. THIS BLENDING OPERATION IS BECOMING MORE IMPORTANT AS THE PHOSPHATE COMPANIES ARE REQUIRED TO PROCESS LOWER GRADES OF ROCK. THE ROCK WHICH USED TO BE CONSIDERED LOW QUALITY 10 YEARS AGO IS NOW CONSIDERED HIGH QUALITY.

5. ROCK GRINDING AND GROUND ROCK RECEIVING

WET, UNGROUND ROCK FROM THE STORAGE PILE IS CONVEYED TO THE WET ROCK FEED BIN. FROM THERE THE ROCK IS SENT TO BE WASHED BEFORE BEING GROUND. WASHING IS NECESSARY TO REMOVE CLAYS FROM THE ROCK. IF THE CLAYS ARE NOT REMOVED, THEN THE DISCHARGE FROM THE ROD MILLS IS ALMOST IMPOSSIBLE TO PUMP BECAUSE OF A VERY HIGH VISCOSITY. AFTER LEAVING THE WASHER THE ROCK IS THEN GROUND TO FORM A SLURRY OF WATER AND ROCK WHICH IS THEN FURTHER GROUND IN A BALL MILL AND FINALLY STORED IN AGITATED TANKS BEFORE BEING PUMPED TO THE PHOSPHORIC ACID PLANT.

GROUND PHOSPHATE ROCK OF A HIGHER QUALITY IS REQUIRED FOR PRODUCTION OF GTSP. THIS ROCK IS RECEIVED BY RAILCAR IN A DRY, GROUND FORM AT THE FACILITY TO THE RIGHT. ROCK IS PNEUMATICALLY CONVEYED, USING AIR, TO THE GTSP PLANT LOCATED AT THE OTHER END OF THE COMPLEX.

6. PHOSPHORIC ACID PRODUCTION FACILITY

PHOSPHORIC ACID IS PRODUCED BY REACTING GROUND PHOSPHATE ROCK WITH SULFURIC ACID IN LARGE CONCRETE ATTACK TANKS. TWO SEPARATE PHOSPHORIC ACID TRAINS, EACH CAPABLE OF PRODUCING UP TO 1500 TONS/DAY P_2O_5, WERE DESIGNED AND INSTALLED BY DAVY POWERGAS INC., OF LAKELAND, FLORIDA. THE CONCRETE ATTACK TANKS IS COMPOSED OF NINE AGITATED COMPARTMENTS WHICH INTIMATELY MIX THE WET ROCK SLURRY AND SULFURIC ACID TO PRODUCE PHOSPHORIC ACID AND WASTE GYPSUM. THE PHOSPHORIC ACID AND GYPSUM ARE SEPARATED ON TWO 75' DIAMETER PRAYON 30-D FILTERS. THE GYPSUM IS MIXED WITH WATER FROM THE GYPSUM POND, AND THE MIXTURE FLOWS BY GRAVITY BACK TO THE GYPSUM POND FOR SETTLING OUT. IT IS ANTICIPATED THAT THE ULTIMATE GYPSUM PONDS WILL ENCOMPASS MORE THAN 750 ACRES OF LAND. APPROXIMATELY 5,000,000 TONS PER YEAR OF GYPSUM ARE PRODUCED AT THIS PLANT.

THE 30% PHOSPHORIC ACID RECOVERED FROM THE PRAYON FILTERS IS PUMPED TO THE STORAGE TANK FARM AREA TO THE RIGHT. THIS ACID IS THEN CONCENTRATED STAGE-WISE UP TO 54% FOR FURTHER PROCESSING. THE EVAPORATION IS CARRIED OUT IN SIX FORCED CIRCULATION EVAPORATORS LOCATED TO THE LEFT. THESE ARE THE VESSELS THAT RESEMBLE LARGE TEA CUPS. EXCESS STEAM FROM THE SULFURIC ACID PLANT IS REQUIRED TO DRIVE OFF WATER FROM THE 30% ACID.

APPROXIMATELY ONE-FOURTH OF THE PHOSPHORIC ACID PRODUCED IN THIS FACILITY IS FURTHER CLARIFIED FOR DIRECT SALES TO CUSTOMERS. PHOSPHORIC ACID PRODUCED IN THE CONVENTIONAL WET PROCESS PHOSPHORIC ACID PLANT CONTAINS APPROXIMATELY 5% SOLIDS. THESE SOLIDS NEED TO BE REMOVED IN ORDER TO PREVENT SETTLING OUT IN TANK CARS AND TANK TRUCKS. THE MAJORITY OF THE 54% ACID IS PUMPED TO OTHER USERS; THESE ARE THE MAP, DAP, GTSP, AFI AND MULTIFOS.

7. SULFURIC ACID UTILITIES CONTROL CENTER

ON THE RIGHT, CROSSING THE COMPLEX TO THE WEST, WE COME TO THE SULFURIC ACID AND UTILITIES CONTROL BUILDING. THE THREE SULFURIC ACID PLANTS ARE CONTROLLED FROM THIS BUILDING. ALSO, THE UTILITIES GENERATION AND DISTRIBUTION SYSTEM IS CONTROLLED FROM THIS BUILDING. THE NEW WALES CHEMICALS, INC. COMPLEX USES LARGE QUANTITIES OF WELL DRINKING WATER, INSTRUMENT AND PLANT AIR, DEMINERALIZED BOILER FEED WATER, FUEL OIL, DIESEL OIL AND STEAM. THIS CONTROL UNIT MAKES UP THE HEART OF THE COMPLEX.

8. LABORATORY FACILITIES AND MAINTENANCE WAREHOUSE

TO THE LEFT IS THE PLANT OFFICE BUILDING. THIS BUILDING HOUSES THE QUALITY CONTROL AND ENVIRONMENTAL LABORATORY FACILITIES AND OFFICES FOR ENGINEERING AND PRODUCTION SUPERINTENDENTS.

TO THE RIGHT IS THE MAINTENANCE WAREHOUSE WHICH HOUSES ALL SPARE PARTS FOR THE COMPLEX AND MANY OF THE SHOPS FACILITIES. THESE INCLUDE INSTRUMENTATION, ELECTRICAL, CARPENTER AND MACHINE SHOPS.

9. FERTILIZER BULK STORAGE BUILDING

TO THE LEFT IS A 960' LONG FERTILIZER STORAGE BUILDING, WHICH HOUSES UP TO 70,000 TONS OF BULK PRODUCTS. BULK GRANULAR MATERIAL FROM THE DAP, AND GTSP PLANTS IS CONVEYED INTO THIS STORAGE BUILDING AND THEN STACKED IN FOUR SEPARATE PILES. MATERIAL IS RECLAIMED USING LARGE FRONT END LOADERS AND DIRECTED ONTO A 1000' LONG CONVEYOR BELT. THIS BELT HANDLES 250 TONS PER HOUR OF PRODUCT.

10. MAP/DAP MANUFACTURING FACILITY

MAP IS PRODUCED BY REACTING 54% PHOSPHORIC ACID AND AMMONIA AT THE TOP OF A PRILL TOWER. THIS TOWER IS ENCLOSED WITH A FLEXIBLE CURTAIN. MATERIAL FALLING THROUGH THE CURTAIN REACTS AND DRIES BEFORE REACHING THE FLOOR. A LARGE ROTATING RAKE DIRECTS THIS MATERIAL ONTO A BELT AND THEN TO AN ELEVATOR TO STORAGE. APPROXIMATELY 30 TONS PER HOUR OF MAP CAN BE PRODUCED.

GRANULAR DAP IS PRODUCED BY REACTING 54% PHOSPHORIC ACID AND VAPOR AMMONIA IN A REACTION AND GRANULATION CIRCUIT. A WET GRANULAR PRODUCT IS PRODUCED WHICH IS THEN DRIED, SCREENED, COOLED AND SENT TO STORAGE. 84 TONS PER HOUR OF DAP ARE PRODUCED IN THIS FACILITY.

THE MAP AND DAP FACILITIES WERE CONSTRUCTED BY THE D.M. WEATHERLY COMPANY OF ATLANTA, GEORGIA.

11. PRODUCTION AND SAFETY OFFICE BUILDING

TO THE EAST OF DAP/MAP IS THE BUILDING WHICH HOUSES THE PLANT SAFETY DEPARTMENT, PRODUCTION ACCOUNTING, AND PRODUCTION SUPERVISORS.

12. GTSP MANUFACTURING

GTSP IS PRODUCED BY REACTING 40% PHOSPHORIC ACID WITH 75 BPL GROUND ROCK IN A REACTION AND GRANULATION CIRCUIT. A WET GRANULAR PRODUCT, IS PRODUCED WHICH IS THEN DRIED AND SCREENED AND SENT TO STORAGE. AT PRESENT RATES 60 TONS PER HOUR OF GTSP IS PRODUCED.

THE GTSP FACILITY WAS CONSTRUCTED BY THE D.M. WEATHERLY COMPANY.

13. FERTILIZER SHIPPING FACILITY

MAP, DAP, AND GTSP IS CONVEYED FROM THE BULK STORAGE BUILDING TO THE SHIPPING BUILDING AT 250 TONS PER HOUR. PRODUCT IS LOADED OUT BY EITHER RAILCAR OR TRUCK AT RATES APPROACHING 4500 TONS PER DAY. TO REDUCE WASTED TRANSPORTATION COSTS, DUAL PURPOSE TRUCKS ARE USED FOR INCOMING SULFUR AND OUTBOUND FERTILIZER. A SECOND RAILCAR SHIPPING SYSTEM IS UNDER CONSTRUCTION ADJACENT TO THIS FACILITY AND WILL BE CONNECTED TO TRUCK LOADOUT WEST OF THE EXISTING BULK STORAGE BUILDING (POINT 9) AND THE NEW MAP STORAGE BUILDING.

14. URANIUM RECOVERY PILOT PLANT

IMC PILOTED MUCH OF ITS NEW URANIUM RECOVERY PROCESS IN THE AREA TO THE SOUTH. MOST OF THE CONSTRUCTION ACTIVITY VISIBLE IS THE $50,000,000 RECOVERY PLANT WHICH WILL EXTRACT U3O8 AS YELLOWCAKE FROM NEW WALES PHOSPHORIC ACID. ADDITIONAL URANIUM WILL BE EXTRACTED FROM ACID AT SATELLITE PLANTS AND PROCESSED HERE AT NEW WALES.

15. AFI (ANIMAL FEED INGREDIENTS) PLANT

THIS MODERN FACILITY WAS CONSTRUCTED TO MEET THE MARKET DEMAND FOR PHOSPHATE PRODUCTS ANALYZING LOW IN FLUORINE. SINCE THE FLUORINE IS REMOVED DIRECTLY FROM THE FEED PHOSPHORIC ACID, A VALUABLE PURIFIED ACID CALLED LIQUIFOS IS ALSO PRODUCED. PRODUCTION OF UP TO 2000 TPD OF CALCIUM AND AMMONIUM PHOSPHATE ANIMAL FEED GRADE PRODUCTS IS POSSIBLE IN THIS PLANT.

PRODUCT STORAGE IS IN THE LARGE CONCRETE SILOS AND IN A BULK STORAGE BUILDING (POINT 19). LIMESTONE FEED IS ALSO STORED IN THE SILO CLUSTER.

16. MULTIFOS PLANT

THE MULTIFOS PLANT, WITH ITS HUGE KILNS, PRODUCES LOW FLUORINE DICALCIUM PHOSPHATE BY HIGH TEMPERATURE CALCINATION OF 75% BPL PHOSPHATE ROCK, SODA ASH AND PHOSPHORIC ACID AT 360 TONS/DAY, DESIGN RATE. THE PLANT CONSISTS OF A MIXED FEEDS SECTION WITH ITS OWN WAREHOUSE, AND A PRODUCT SIZING AND CLASSIFICATION SECTION AFTER THE KILNS. STORAGE IS IN THE BUILDING TO THE NORTH OF POINT 19, THE AFI BULK STORAGE.

17. AFI SHIPPING, MAINTENANCE AND MAINTENANCE WAREHOUSE

THE AFI AND MULTIFOS SHIPPING AND STORAGE AREAS ARE PURPOSELY ISOLATED FROM THE BALANCE OF THE COMPLEX TO INSURE OUR CUSTOMERS OF MINIMUM CHANCE OF CONTAMINATION BY PRODUCTS CONTAINING NORMAL LEVELS OF FLUORINE. EVEN THE MAINTENANCE WAREHOUSE IS SEPARATE TO AVOID THE CHANCE OF CONTAMINATED EQUIPMENT BEING PLACED IN SERVICE AND TO PROVIDE FOR THE INTEGRITY OF THIS AREA OF THE COMPLEX.

18. AFI BULK STORAGE BUILDING

THIS CONCRETE AND WOOD STRUCTURE EFFICIENTLY REPLACES OLDER, STEEL BUILDINGS LESS SUITABLE FOR FERTILIZER STORAGE. STORAGE CAPACITY IS 11,000 TONS.

19. NORTH GATE

THE CONSTRUCTION ACTIVITY IN THIS AREA IS PART OF THE URANIUM RECOVERY PROJECT.

20. 2ND PRODUCT STORAGE FACILITY

THIS STORAGE BUILDING IS DESIGNED TO STORE ONLY MAP. IN ADDITION TO STORING MAP, THIS FACILITY ALLOWS US TO SHIP MATERIAL FROM THIS STORAGE WHILE WE ARE SHIPPING FROM THE LARGER STORAGE BUILDING WHICH WAS SEEN EARLIER.

PLANT MATERIAL FLOW

NEW WALES CHEMICALS, INC., A WHOLLY OWNED SUBSIDIARY OF INTERNATIONAL MINERALS & CHEMICAL CORPORATION, IS THE WORLD'S LARGEST GRASS ROOTS PRODUCTION FACILITY FOR THE MANUFACTURE OF PHOSPHORIC ACID AND PHOSPHATE FERTILIZER INGREDIENTS. LAST YEAR, THIS COMPLEX PRODUCED OVER 850,000 TONS P_2O_5; THIS YEAR THAT QUANTITY WILL PROBABLY BE SURPASSED. A TYPICAL DAILY MATERIAL BALANCE IS ATTACHED.

THE NORMAL DAILY CONSUMPTION OF DRIED, 68 BPL PHOSPHATE ROCK IS 10,000 TONS. THIS ROCK IS SUPPLIED TO NEW WALES AS WET ROCK AND IS STORED IN THE WET ROCK STORAGE PILE.

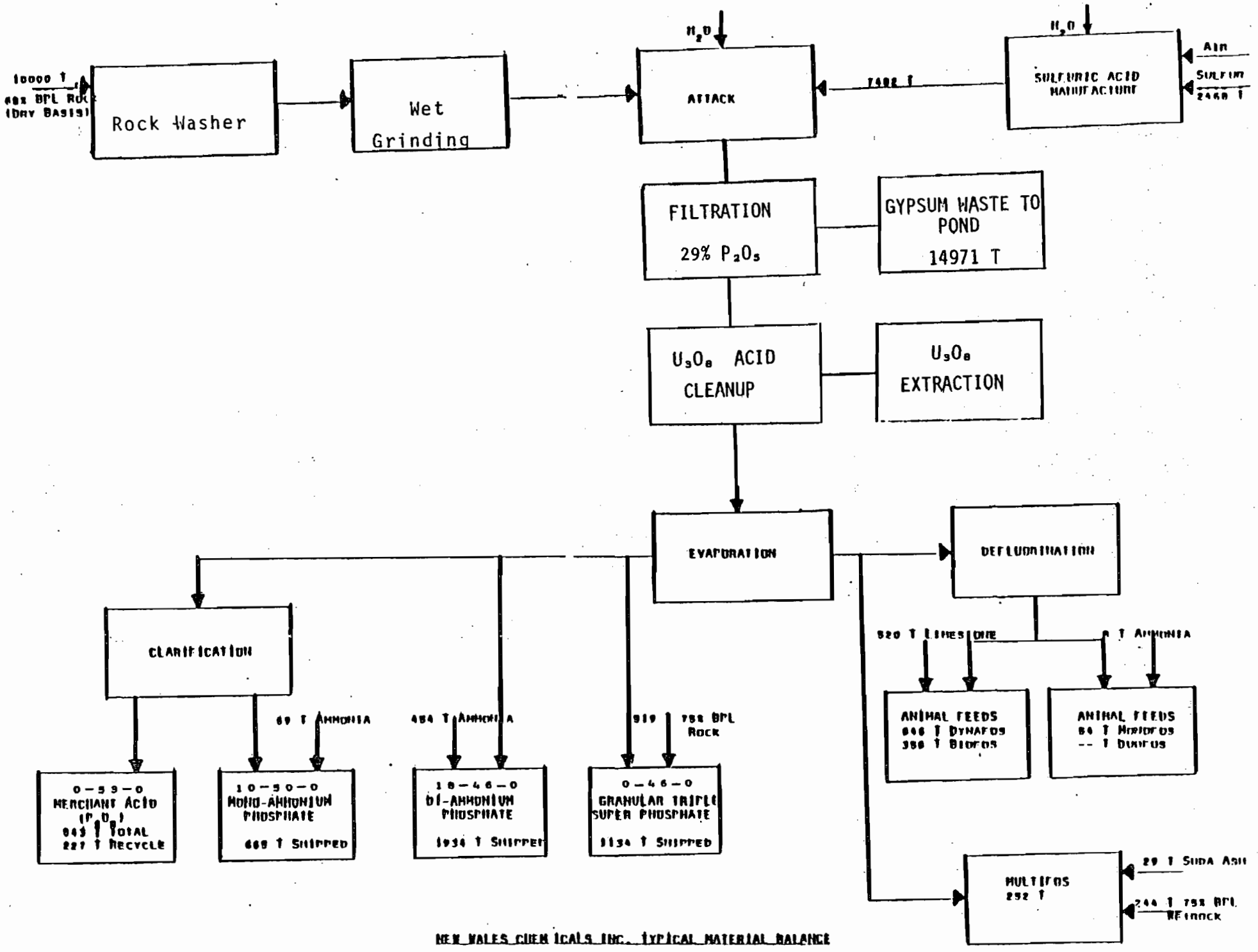
THE ROCK IS RECEIVED AND STORED AT ABOUT 12% MOISTURE. ORIGINALLY IT WAS DRIED AND GROUND FOR USE. A WET ROCK GRINDING FACILITY IS NOW BEING USED WHICH REPLACED THE ROCK DRYER AND DRY ROCK GRINDING MILLS.

OUR PLANTS' SULFURIC ACID DEMAND IS ALMOST 7500 TPD, 100% H_2SO_4 BASIS. THIS ACID IS PRODUCED IN THREE DOUBLE ABSORPTION PLANTS. OUR DAILY SULFUR CONSUMPTION IS ALMOST 2500 TPD.

THE PHOSPHORIC ACID DEPARTMENT PRODUCES 2700 TPD P_2O_5 AS 29% ACID. THIS ACID IS PRODUCED BY REACTING GROUND, DRIED ROCK WITH SULFURIC ACID. THE REACTION RESULTS IN A SLURRY OF PHOSPHORIC ACID AND GYPSUM ($CaSO_4 \cdot 2H_2O$). THE GYPSUM IS A BY-PRODUCT AND IS SEPARATED FROM THE ACID BY FILTRATION. NEW WALES GENERATES 15,000 TPD OF WASTE GYPSUM.

THE WEAK PHOSPHORIC ACID IS CONCENTRATED BY EVAPORATION TO 54% ACID FOR USE. THE ACID MAY BE CLARIFIED FOR DIRECT SALES OR PROCESSED FURTHER INTO DRY PRODUCTS.

APPROXIMATELY 840 TPD OF P_2O_5 AS 54% ACID IS CLARIFIED BY NOZZLE CENTRIFUGES TO PRODUCE MERCHANT GRADE PHOSPHORIC ACID. A BY-PRODUCT OF THIS CLARIFICATION IS A HIGHLY IMPURE PHOSPHORIC ACID SLUDGE. THIS SLUDGE IS REACTED WITH AMMONIA IN A SPRAY TOWER TO PRODUCE 665 TPD OF NON-GRANULAR MONOAMMONIUM PHOSPHATE (MAP). MAP IS A 10-50-0 ANALYSIS FERTILIZER USED IN BULK BLENDS, SUSPENSION FERTILIZERS AND GRANULATION PLANTS.



NEW WALES CHEMICALS INC. TYPICAL MATERIAL BALANCE

Revised 5/25/79

GRANULAR TRIPLE SUPER PHOSPHATE, AN 0-46-0 FERTILIZER, IS PRODUCED IN A CONVENTIONAL SLURRY GRANULATION PLANT BY REACTING PHOSPHORIC ACID WITH FINELY GROUND (85% -200 MESH) 75 BPL PHOSPHATE ROCK. THE SLURRY PRODUCED BY THIS REACTION IS SPRAYED ON A RECYCLING BED OF MATERIAL TO YIELD A SPHERICAL PRODUCT. NEW WALES PRODUCES 1134 TPD OF GTSP.

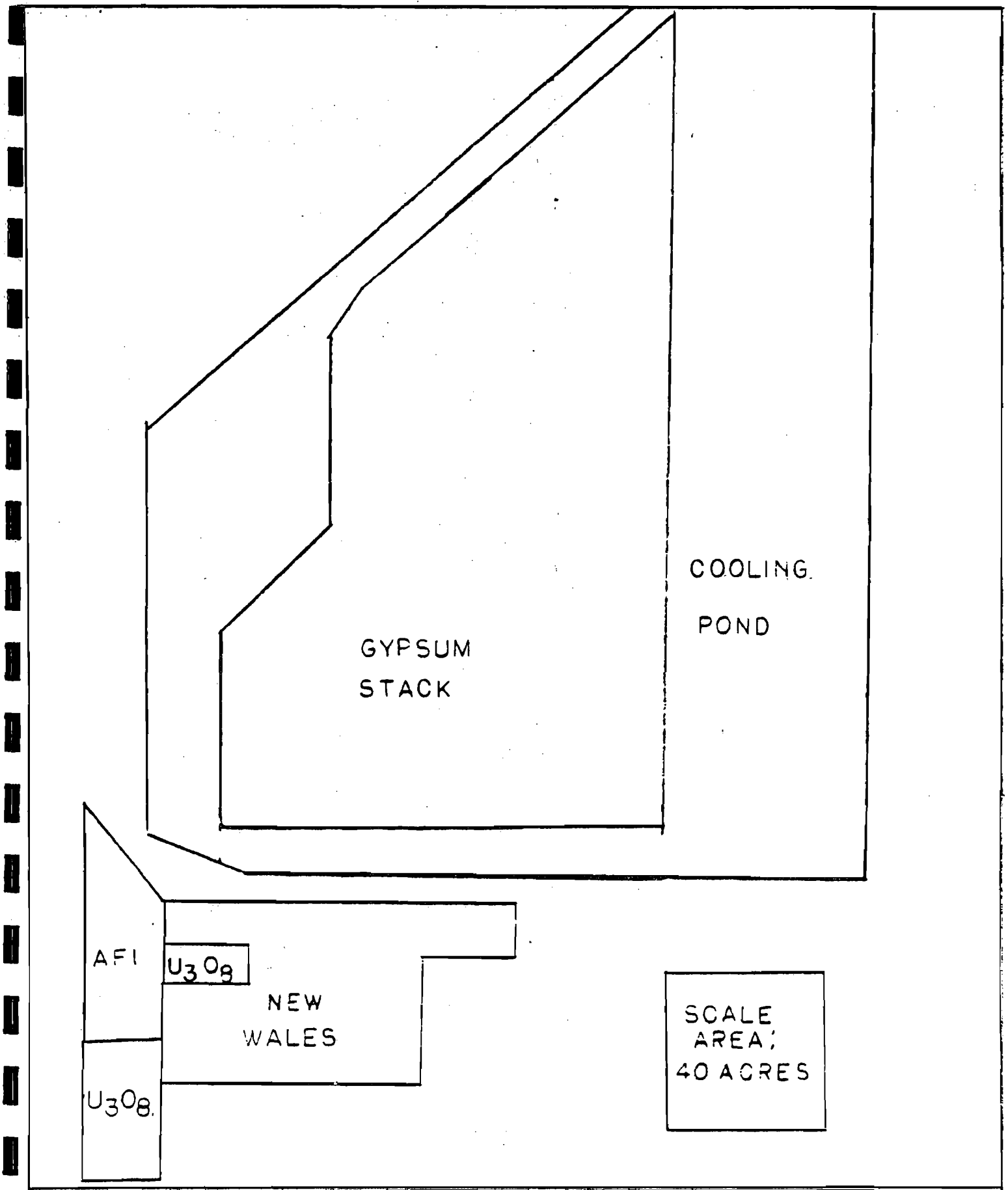
THE HIGHEST VOLUME PRODUCT MANUFACTURED AT NEW WALES IS DIAMMONIUM PHOSPHATE (DAP). DAP IS AN 18-46-0 FERTILIZER PRODUCED BY REACTING PHOSPHORIC ACID WITH AMMONIA. THE AMMONIATED PHOSPHATE SLURRY IS GRANULATED TO A SPHERICAL PRODUCT SIMILAR TO GTSP. NEW WALES PRODUCES 1934 TPD OF DAP.

A LARGE QUANTITY OF PHOSPHORIC ACID IS DEFLUORINATED FOR THE PRODUCTION OF LOW FLUORINE ANIMAL FEED MATERIALS. LIMESTONE IS REACTED WITH PHOSPHORIC ACID TO PRODUCE DYNAFOS AND BIOFOS. AMMONIA IS REACTED WITH PHOSPHORIC ACID TO PRODUCE MONOFOS AND DUOFOS.

OUR NEWEST OPERATION PRODUCES 252 TONS/DAY MULTIFOS, BY THE REACTION OF PHOSPHORIC ACID, SODA ASH, AND 75% BPL WET ROCK. MULTIFOS IS ANOTHER LOW FLUORINE ANIMAL FEED INGREDIENT.

OTHER OPERATIONS AT THIS FACILITY INCLUDE UTILITIES GENERATION AND DISTRIBUTION, RAW MATERIALS HANDLING, AND END PRODUCT SHIPPING.

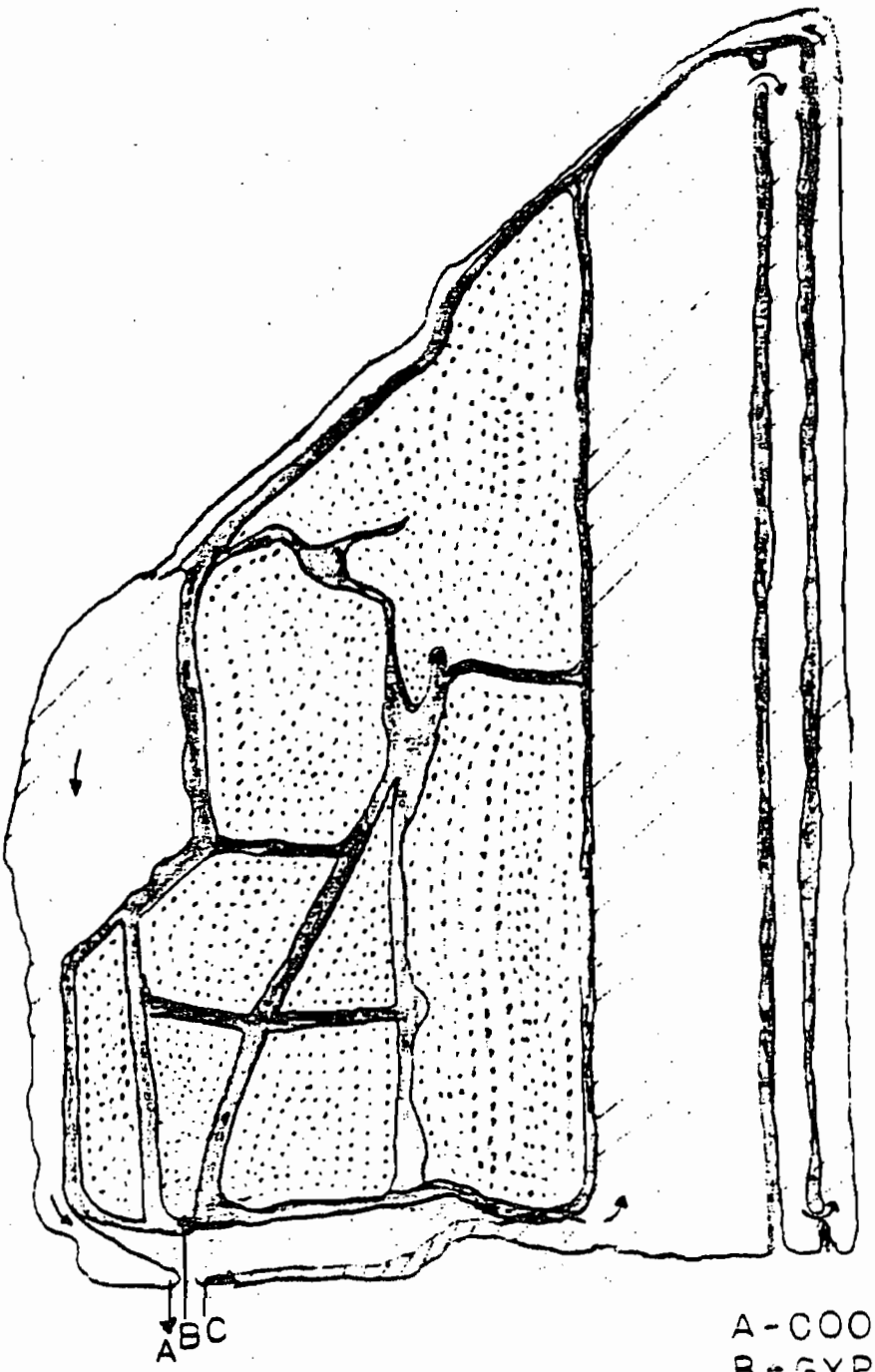
FINALLY, WE ARE CONSTRUCTING A U_3O_8 EXTRACTION PLANT. THIS WILL RECOVER APPROXIMATELY 1 LB. OF URANIUM FROM EACH TON OF P_2O_5 PRODUCED AT NEW WALES.



DRAWN BY: JJ	TITLE: OVERALL PLAN
DATE: 9/6/78	
SCALE: 1 1/4" = 1/4 MI.	
REVISION:	

New Wales Chemicals, Inc.

A Subsidiary of International Minerals & Chemical Corporation



A - COOLING POND EXIT
B - GYPSUM INLET
C - COOLING POND INLET

SOLID DARK AREAS ARE DIKES

GYPSUM STACK 300 ACRES

COOLING POND 300 ACRES

DRAWN BY:	TITLE: PLAN VIEW OF GYPSUM STACK COOLING POND
DATE: 9/6/78	
SCALE: NONE	
REVISION:	

New Wales Chemicals, Inc.

A Subsidiary of International Minerals & Chemical Corporation

IMC

GYPSUM CAKE COMPOSITION - DRY BASIS

ESTIMATE 5.5 TONS GYPSUM/TON P_2O_5 PRODUCED

ELEMENT	TONS/ TON P_2O_5 PRODUCED	*ESTIMATED TONS IN IMC GYP STACK
TOTAL P_2O_5	0.054	109,380
W.S. P_2O_5	0.020	40,510
C. I. P_2O_5	0.007	14,180
CaO	1.90	3,848,410
S	1.03	2,086,240
F	0.059	119,500
SiO_2	0.387	783,860
Fe_2O_3	0.0016	3,240
Al_2O_3	0.0050	10,130
Na_2O	0.023	46,586
K_2O	0.016	32,410
MgO	0.0008	1,620
Pb	47×10^{-6}	95
Mo	$< 160 \times 10^{-6}$	< 324
Cd	$< 7.7 \times 10^{-6}$	< 16
Hg	313×10^{-9}	0.6
Se	$< 7.7 \times 10^{-6}$	< 16

* NEW WALES HAS PRODUCED 2,025,480 TONS OF P_2O_5 THROUGH JUNE 30, 1978.

NEW WALES CHEMICALS, INC.

ENVIRONMENTAL PROTECTION FACILITIES SUMMARY

PLANT	CAPITAL	BASE YEAR	EQUIPMENT TYPES	YEARLY COST
SULFURIC ACID PRODUCTION	6,000,000	1974	DOUBLE ABSORPTION TOWERS, MIST PAD SILENCERS, WATER RECOVERY	2,118,000
PHOSPHATE ROCK PROCESSING	628,000	1974	CYCLONES (4) SCRUBBERS (5) BAGHOUSES (2)	221,654
PHOSPHORIC ACID PRODUCTION	828,000	1974	CROSSFLOW SCRUBBERS (2) BAGHOUSES (2) SCRUBBER (1)	269,725
GRANULATED FERTILIZER PRODUCTION AND SHIPPING (MAP, DAP, GTSP)	3,145,000	1974	SCRUBBERS (8) BAGHOUSES (3) CYCLONES (9)	1,109,851
ANIMAL FEED INGREDIENT PRODUCTION	2,695,600	1976	SCRUBBERS (3) BAGHOUSES (8) CYCLONES (4)	951,301
MULTIFOS DEFLUORINATION PLANT	3,100,000	1977	SCRUBBERS (3) BAGHOUSES (6)	1,094,059
WASTE TREATMENT	1,500,000	1974	PONDS, CANALS, PUMPS	552,147
	$17,896,600			6,316,740

11.3% OF INSTALLED CAPITAL

15% OF NON-RAW MATERIAL COSTS

SECTION 2

EXPANSION PLANS

SECTION 3

NEW SOURCE SUMMARY

NEW SOURCE SUMMARY

The New Wales Chemical Company is a phosphate fertilizer complex located in western Polk County, Florida. At this complex phosphate rock is processed into several different fertilizer products and animal feed ingredients. The complex includes sulfuric acid plants, phosphoric acid plants, granular triple superphosphate production, ammoniated phosphate production, animal feed ingredient production and a uranium recovery unit. Phosphate rock drying, grinding and handling is an integral part of the fertilizer complex.

The original New Wales fertilizer complex was permitted in 1974; prior to PSD regulations.

In 1976 an animal feed ingredient plant was constructed and in 1977 a multiphos plant was constructed. In 1978 a granular products load-out system was permitted and in the same year a uranium recovery unit was permitted.

The present construction plans call for two (2) sulfuric acid plants, a phosphoric acid plant, a diamonium phosphate fertilizer plant, a granular products load-out system and a liming station for water treatment.

All of the sources existing and proposed for the New Wales Chemical Complex are summarized in the following table. The construction date for each source is also listed. For sources permitted after January 6, 1975 potential and actual annual emission rates are listed. The actual emission rate of the various pollutants was obtained from permits on file with the Florida Department of Environmental Regulation, were estimated using EPA emission factors (AP-42) or are based on field measurements. The potential emissions were arrived at by dividing the actual emissions by the fraction of pollutant escaping through the air pollution control system. In the following sections, each pollutant emitted from the modified source is discussed and the method of estimating actual and potential emissions are delineated.

Particulate Matter

In all cases the actual particulate matter emission rate has been established by engineering estimate or emission measurements. These data are included in permits on file with the Florida Department of Environmental Regulation. A potential emission rate of particulate matter for each source was obtained by dividing the actual emission rate by the fraction of material escaping through the air pollution control system.

Sulfur Dioxide

Sulfur dioxide is emitted from the proposed sulfuric acid plants and from various combustion sources. The potential and actual sulfur dioxide emissions from the double absorption sulfuric acid plants were assumed to be the same since both absorption units are considered an integral part of the plant. The emissions were calculated based on new source performance standards.

[illegible]
SIS [illegible] ½ - 7/14
Supplemental Data
[illegible]
179
NDJ
Sect IV
p. 20

Potential sulfur dioxide emissions from combustion sources were calculated on the basis of fuel consumption and sulfur content of the fuel. The actual emissions were assumed to be 15 percent of potential emissions on the basis of tests conducted by New Wales and others.

Fluorides

Actual fluoride emissions from the various sources were established by design criteria or field measurements. The potential fluoride emissions were calculated from the actual emissions on the assumption that fluoride scrubbers average 96 percent efficiency.

Nitrogen Oxides

Nitrogen oxides are emitted from the proposed sulfuric acid plants and various combustion sources. The NO_x emissions from the sulfuric acid plants were calculated based on recent field measurements which show a NO_x concentration in the sulfuric acid stack gases of 2.1×10^{-5} pounds per SCFD.

Potential and actual emissions from the combustion sources were assumed to be identical. They were calculated on the basis of fuel consumption and an emission factor of 20 pounds NO_x per 1,000 gallons of fuel. This emission factor is within the range of those presented in AP-42 and has been confirmed by recent field measurements conducted by SKEC.

Hydrocarbons

Hydrocarbons are emitted from the solvent extraction unit in the uranium recovery plant. The potential and actual hydrocarbon emissions were calculated based on pilot studies conducted by New Wales.

Acid Mist

Sulfuric acid mist will be emitted by the proposed sulfuric acid plants. The actual acid mist emissions were based on new source performance standards. Potential acid mist emissions were calculated based on the assumption that mist eliminators are 90 percent efficient. This estimate is based on recent measurements made by SKEC.

200

1974 original source permit, pre-PSD

NEW WALES CHEMICAL COMPANY, POLK COUNTY, FLORIDA

DER CONS. Permit DATE

SOURCE	DATE CONSTRUCTED	DATE REMOVED FROM SERVICE	NEW SOURCE EMISSION SUMMARY (TONS/YEAR) PART. MATTER POT.	PART. MATTER ACT.	SO_2 POT.	SO_2 ACT.	FLUORIDES POT.	FLUORIDES ACT.	NO_x POT.	NO_x ACT.	HYDROCARBONS POT.	HYDROCARBONS ACT.	ACID MIST POT.	ACID MIST ACT
1. #1 Sulfuric Acid	Pre 1975	-------												
2. #2 Sulfuric Acid	"	-------												
3. #3 Sulfuric Acid	"	-------												
4. Railcar Unloading	"	-------												
5. Dry Rock Silo	"	-------												
6. West Rock Grinding	"	8/79												
7. East Phos. Acid	"	-------												
8. DAP	"	-------												
9. GTSP	"	-------												
10. MAP	"	-------												
11. GTSP Storage	"	-------												
12. Auxiliary Boiler	"	-------												
13. Dry Rock Load-Out	"	-------												
14. East Rock Grinding	"	-------												
15. Dry Rock Silo; Bottom	"	-------												
16. West Phos. Acid	"	-------												
17. Dryer Product Belt Transfer	"	-------												
18. Wet Rock Dryer	"	12/79												
19. Phos. Acid Rock Bin-West	"	-------												
20. GTSP Rock Bin	"	-------												
21. Phos. Acid Rock Bin-East	"	-------												
22. Phos. Acid Clarification	Pre 1975	-------												
23. AFI Limestone Stg.	1976	-------	105	1.0	0	0	0	0	0	0	0	0	0	0
24. AFI Silica	1976	-------	39	0.4	0	0	0	0	0	0	0	0	0	0
25. AFI Plant	1976	-------	4030	80.6	586	88	0	0	30	30	0	0	0	0
26. AFI Stg. Silos	1976	-------	613	6.1	0	0	0	0	0	0	0	0	0	0
27. AFI Limestone Feed Bin	1976	-------	50	0.5	0	0	0	0	0	0	0	0	0	0
28. AFI Truck Shipping	1976	-------	80	0.8	0	0	0	0	0	0	0	0	0	0
29. AFI Rail Shipping	1976	-------	306	3.1	0	0	0	0	0	0	0	0	0	0
30. Multiphos Shipping	7/1977	-------	398	4.0	0	0	0	0	0	0	0	0	0	0
31. Multiphos Plant	"	-------	315	12.6	985	148	79	3.2	55	55	0	0	0	0
32. Multiphos Soda Ash Unload	"	-------	56	0.6	0	0	0	0	0	0	0	0	0	0
33. Multiphos Soda Ash Conv.	"	-------	56	0.6	0	0	0	0	0	0	0	0	0	0
34. Multiphos Coolers	"	-------	2050	20.5	0	0	0	0	0	0	0	0	0	0
35. Multiphos Sizing	"	-------	355	3.6	0	0	0	0	0	0	0	0	0	0
36. Multiphos Classification	"	-------	157	1.6	0	0	0	0	0	0	0	0	0	0
37. Second Product Load-Out	8/1978	-------	595	6.0	0	0	0	0	0	0	0	0	0	0
38. Uranium Recovery Solvent Extract	2/1978	-------	0	0	0	0	14	0.6	0	0	?	?	0	0

IF ONE OF 19 THEN NEED PERMIT

JAN 6 1975

AUG. 1 77

ACT / 1-eff.

calculations show >1387 tpy/yr ea.

total F - ?

NEW WALES CHEMICAL COMPANY, POLK COUNTY, FLORIDA

NEW SOURCE EMISSION SUMMARY (TONS/YEAR)

SOURCE	DATE CONSTRUCTED	DATE REMOVED FROM SERVICE	PART. MATTER POT.	PART. MATTER ACT.	SO_2 POT.	SO_2 ACT.	FLUORIDES POT.	FLUORIDES ACT.	NO_x POT.	NO_x ACT.	HYDROCARBONS POT.	HYDROCARBONS ACT.	ACID MIST POT.	ACID MIST ACT
39. Uranium Recovery Refining Area	"	-------	199	1.5	4	4	0	0	1	1	0	0	0	0
40. Uranium Recovery Acid Clean-Up	"	-------	0	0	0	0	55	2.2	0	0	0	0	0	0
41. Proposed #4 Sulfuric Acid	1980	-------	0	0	1314	1314	0	0	50	50	0	0	328	33
42. Proposed #5 Sulfuric Acid	"	-------	0	0	1314	1314	0	0	50	50	0	0	328	33
43. Proposed Phosphoric Acid #3	"	-------	0	0	0	0	138	5.5	0	0	0	0	0	0
44. Proposed DAP	"	-------	7490	150.0	65	10	394	15.8	3	3	0	0	0	0
45. Proposed Third Product Load-Out	"	-------	595	6.0	0	0	0	0	0	0	0	0	0	0
46. Proposed Liming Station	"	-------	44	0.4	0	0	0	0	0	0	0	0	0	0
TOTAL "NEW SOURCE" EMISSIONS (TPY)			17,533	299.9	4268	2878	>100	27.3 ≥1.5	189	189			656	66

2 3 SOURCES.

- TEST DATA SHOWS ~85% SO_2 ZED.

>50T/Y.
TSP
SO_2
NO_x
H_2SO_4

CO ?

SECTION 4

BEST AVAILABLE CONTROL TECHNOLOGY

BEST AVAILABLE CONTROL TECHNOLOGY

Best available control technology is required to control emissions of regulated pollutants from major modifications of air pollution sources. In the case of phosphate fertilizer complexes BACT is to apply to pollutants with a potential emission rate of greater than 100 tons per year and an actual emission rate of greater than 50 tons per year. For the New Wales Chemical Complex, BACT is to apply for particulate matter, sulfur dioxide, nitrogen oxide and sulfuric acid mist.

Preliminary engineering data are included in the attached Florida Department of Environmental Regulation Construction Permit Applications for the control systems proposed for each proposed source.

In general, bag collectors will be employed on all sources emitting particulate matter. The sulfuric acid plants will be double absorption plants incorporating high efficiency Brinks mist eliminators. These two measures are proposed as BACT for sulfur dioxide and acid mist. The major source of nitrogen oxides in the proposed complex are the sulfuric acid plants. There is no known control technology for reducing NO_x emissions from these sources.

Even though actual emission of fluorides from the proposed modifications are less than 50 tons per year, the control technology proposed for the fluoride sources constitutes BACT. The fluoride emissions are controlled with packed scrubbers.

high efficiency or high velocity?

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

Source Type: [X] Air Pollution [ ] Incinerator

Application Type: [X] Construction [ ] Operation [ ] Modification [ ] Renewal of DER Permit No. _____

Company Name: NEW WALES CHEMICALS, INC. County: POLK

Identify the specific emission point source(s) addressed in this application (i.e.: Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired): CONTACT SULFURIC ACID PLANT WITH DOUBLE ABSORPTION (04)

Source Location: Street: HWY. 640 & COUNTY LINE RD. City: MULBERRY

UTM: East 396.6 North 3078.9

Latitude: ___ ___ ° ___ ___ ' ___ ___ "N. Longitude: ___ ___ ° ___ ___ ' ___ ___ "W.

Appl. Name and Title: THOMAS L. CRAIG, VICE PRESIDENT AND GENERAL MANAGER

Appl. Address: P. O. BOX 1035 MULBERRY, FL. 33860

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative of* NEW WALES CHEMICALS, INC.

I certify that the statements made in this application for a CONSTRUCTION permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provisions of Chapter 403, Florida Statutes, and all the rules and regulations of the Department and revisions thereof. I also understand that a permit, if granted by the Department, will be nontransferable and I will promptly notify the Department upon sale or legal transfer of the permitted establishment.

THOMAS L. CRAIG — Thomas L Craig VICE PRES. & GEN. MGR.

Name of Person Signing (please Type or Print) — Signature of the Owner or Authorized Representative and Title

Date: 4-6-79 Telephone No.: 813-428-2531

*Attach a letter of authorization.

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgement, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the Department. It is also agreed that the undersigned will furnish the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signature: _____

Name: CRAIG A. PFLAUM (Please Type)

Company Name: NEW WALES CHEMICALS, INC.

Florida Registration Number: 18595

(Affix Seal)

Mailing Address: P. O. BOX 1035 MULBERRY, FL. 33860

Telephone No.: 813-428-2531

Date: 4-6-79

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

NEW SOURCE 2000 TPD DESIGN MONSANTO ENVIROCHEM DOUBLE ABSORPTION SULFURIC ACID PLANT. PLANT DESIGN WILL ACHIEVE NEW SOURCE PERFORMANCE STANDARDS FOR SULFURIC ACID PLANTS.

B. Schedule of Project Covered in this Application (Construction Permit Application Only).

Start of Construction: JUNE 30, 1980 Completion of Construction: JUNE 30, 1983

C. Costs of Construction. (Note: show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

ESTIMATED COST OF DOUBLE VS. SINGLE ABSORPTION PLUS INSTALLATION OF BRINKS DEMISTERS, WATER REUSE FACILITIES. CONTINUOUS MONITOR FOR SO_2 AND ACCESS COMPLIANCE MONITORING IS $5,000,000.00

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

NONE

E. Is the emission point considered to be a New* or Existing* source, as defined in Chapter 17-2.02(5) & (6), Florida Administrative Code?

X New ____ Existing

F. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

G. Normal Equipment Operating Time: hrs/day: 24 ; days/wk: 7 ; wks/yr: 50 ; if seasonal, describe: ____

*Note

New Source: any source which came into existence, began operation or construction, or received a permit for the latter on or after January 18, 1972.

Existing Source: any source in existence, operating or under construction (or with a permit to construct) prior to January 18, 1972.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES

(other than incinerators)

A. Raw Materials and Chemicals Used in Your Process:

Description	Utilization Rate lbs./hr.	Relate to Flow Diagram
MOLTEN SULFUR	660 TPD	SULFUR BURNER

B. Process Rate:

1) Total Process Input Rate (lbs./hr.): 660 TPD SULFUR

2) Product Weight (lbs/hr): 2000 TPD H_2SO_4

C. Airborne Contaminants Discharged:

Name of Contaminant	Actual Discharge* lbs./hr.	Actual Discharge* T/yr.	Allowed Discharge Rate Per Ch. 17-2, F.A.C.**	Allowable Discharge*** (lbs./hr.)	Relate to Flow Diagram
SO_2	$\leq$ 4 TPD		4# SO_2/TON H_2SO_4	-	STACK
H_2SO_4 MIST	$\leq$ 0.15	TPD	0.15# MIST/TON	H_2SO_4	STACK

D. Control Devices:

Name and Type (Model and Serial No.)	Contaminant	Efficiency†	Range of Particles Size Collected (in microns)	Basis for Efficiency††
DOUBLE ABSORPTION	SO_2	99.7	NA	DESIGN
TOWERS WITH BRINKS	H_2SO_4 MIST	100%	>3 MICRONS	"
HV MIST ELIMINATORS		85-97%	1-3 MICRONS	"
		50-85%	<1/2 MICRON	"

*Estimate only if this is an application to construct.

**Specify units in accordance with emission standards prescribed within Section 17-2.04, F.A.C. (e.g. Section 17-2.04(6)(e)1.a. specifies that new fossil fuel steam generators are allowed to emit particulate matter at a rate of 0.1 lbs. per million BTU heat input computed as a maximum 2-hour average.)

***Using above example for a source with 260 million BTU per hour heat input: $\frac{0.1 \text{ lbs}}{\text{MMBTU}} \times \frac{260 \text{ MMBTU}}{\text{hr.}} = 26$ lbs./hr.

†See Supplemental Requirements, page 5, number 2.

††Indicate whether the efficiency value is based upon performance testing of the device or design data.

E. Fuels: NA

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Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg./hr.	Max./hr.	

*Units: Natural Gas - MMCF/hr.; Fuel Oils, Coal - lbs./hr.

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lb./gal.

Heat Capacity: _____ BTU/lb. _____ BTU/gal.

Other Fuel Contaminants: _____

F. If applicable, indicate the percent of fuel used for space heating: Annual Average: _____ Maximum: _____

G. Indicate liquid or solid wastes generated and method of disposal:

ALL BLOWDOWN REUSED IN KINGSFORD OPERATION

H. Emission Stack Geometry and Flow Characteristics (provide data for each stack):

Stack Height: 199 ft. Stack Diameter: 8.5 ft.

Gas Flow Rate: 120,000 ACFM Gas Exit Temperature: 160 °F

Water Vapor Content: 0 %

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq. & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs./Hr. Incinerated							

Description of Waste: _____

Total Weight Incinerated (lbs./hr.): _____ Design Capacity (lbs./hr.): _____

Approximate Number of Hours of Operation per Day: _____ , days/week: _____

Manufacturer: _____

Date Constructed: _____ Model No.: _____

	Volume $(ft.)^3$	Heat Release (BTU/hr.)	Fuel		Temp. (°F)
			Type	BTU/hr.	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter: _____ Stack Temp.: _____ °F

Gas Flow Rate: _____ ACFM _____ DSCFM*

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of Pollution Control Device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (Specify): _____

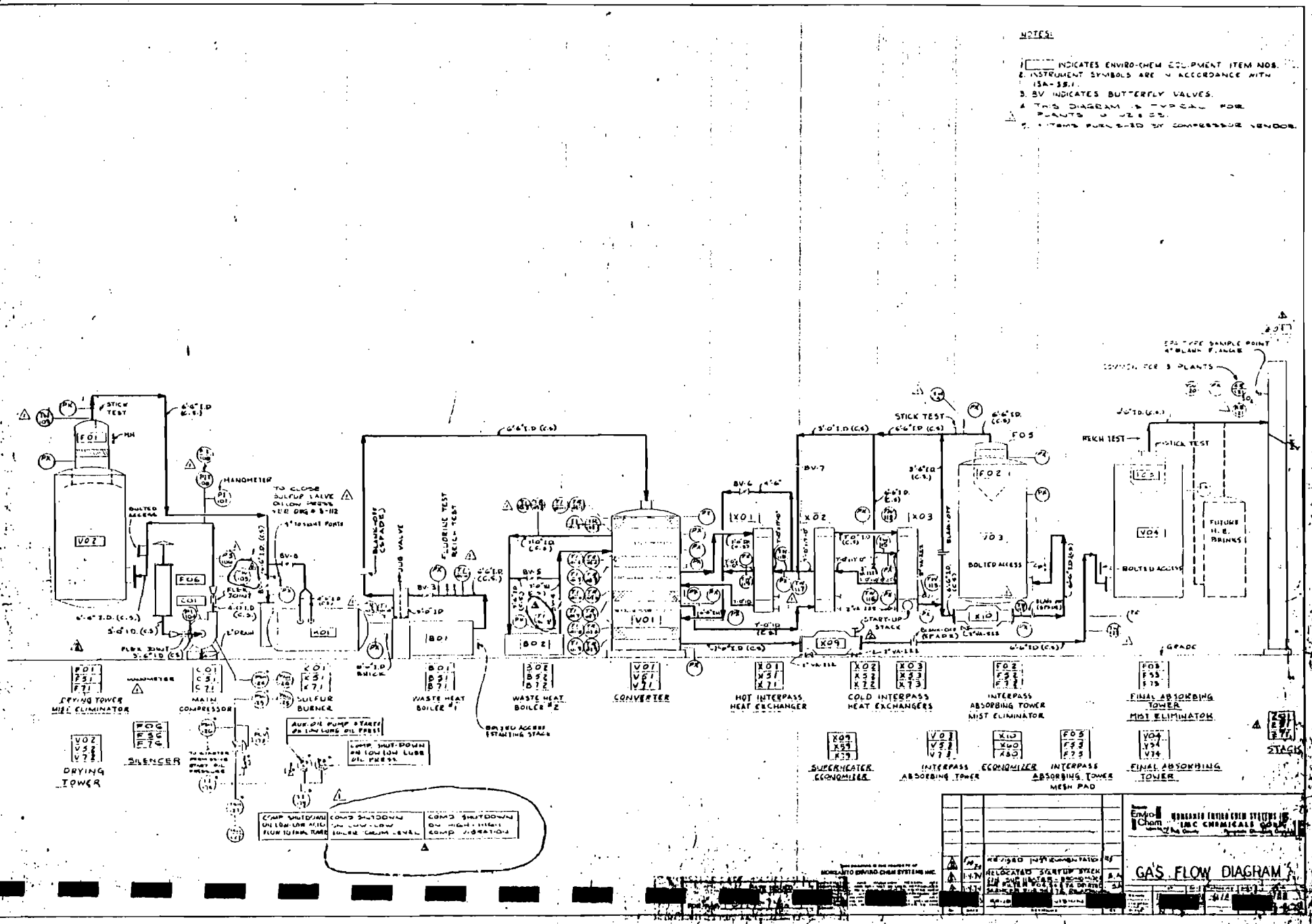
Brief Description of Operating Characteristics of Control Device: _____

Ultimate Disposal of Any Effluent Other Than That Emitted From the Stack (scrubber water, ash, etc.): _____

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please Provide the Following Supplements Required For All Pollution Sources:

1. Total process input rate and product weight - show derivation.
2. Efficiency estimation of control device(s) - show derivation. Include pertinent test and/or design data.
3. An 8½" x 11" flow diagram, which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
4. An 8½" x 11" plot plan of facility showing the exact location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.
5. An 8½" x 11" plot plan showing the exact location of the establishment, and points of airborne emissions in relation to the surrounding area, residences and other permanent structures and roadways. (Example: Copy of USGS topographic map.)
6. Description and sketch of storm water control measures taken both during and after construction.
7. An application fee of $20.00, unless exempted by Chapter 17-4.05(3), FAC, made payable to the Department of Environmental Regulation.
8. With construction permit application, include design details for control device(s). Example: for baghouse, include cloth to air ratio; for scrubber, include cross-sectional sketch; etc.
9. Certification by the P.E. with the operation permit application that the source was constructed as shown in the construction permit application.



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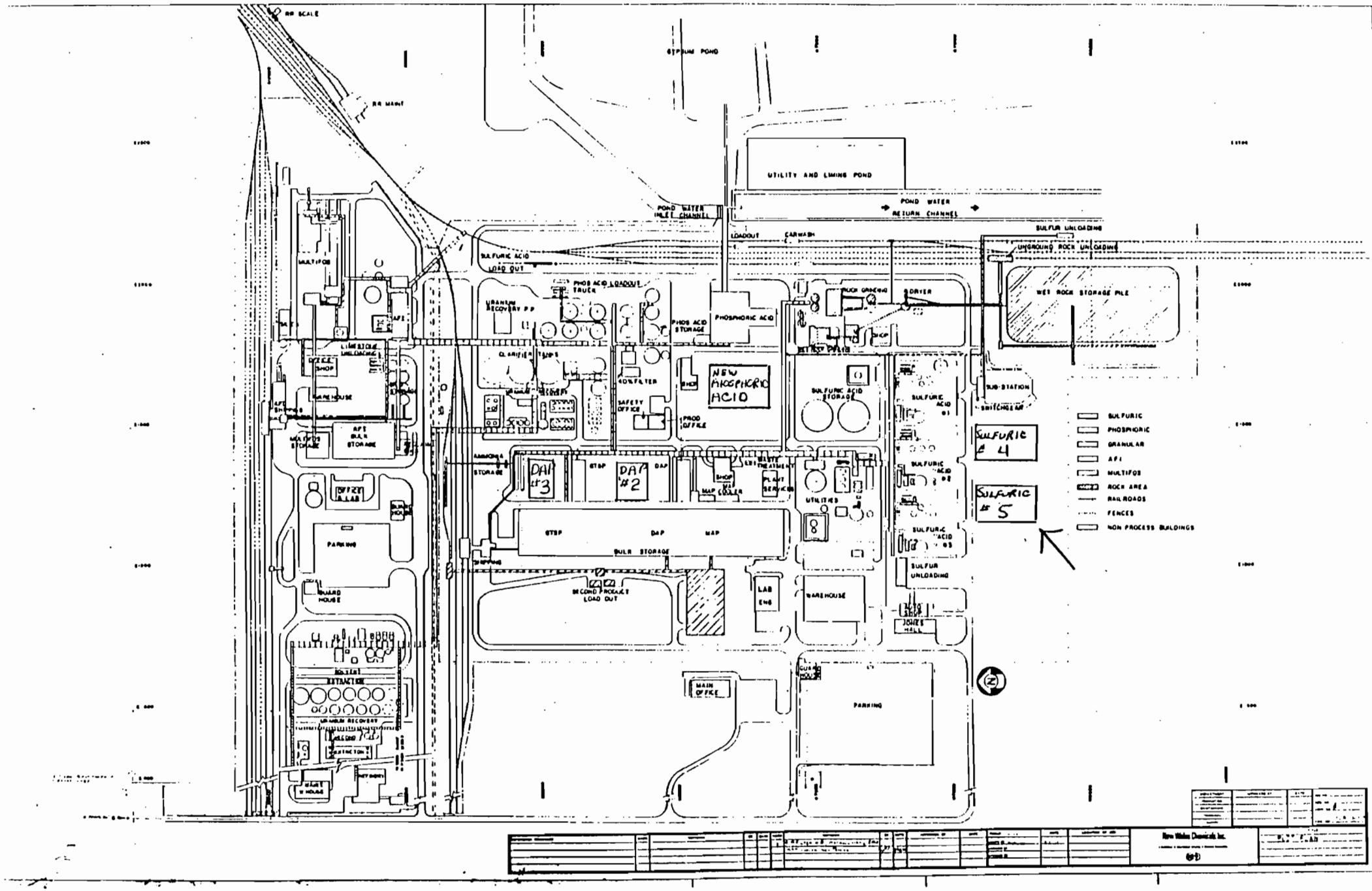


HARRY L. CARROLL
Vice President
Florida

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

November 22, 1978

Mr. T. L. Craig
Vice President & General Manager
New Wales Chemicals, Inc.
Post Office Box 1035
Mulberry, Florida 33860

Dear Tom:

This letter is your authorization to sign on behalf of New Wales Chemicals, Inc. the various applications for permits, specifically the applications for operating permits from the Florida Department of Environmental Regulation.

Very truly yours,

Harry L. Carroll

t

Post Office Box 3807 • Lakeland, Florida 33802 • (813) 646-5081

STATE OF FLORIDA

DEPARTMENT OF STATE • DIVISION OF CORPORATIONS

I certify from the records of this office that IMC CHEMICALS CORP., changed its name to; NEW WALES CHEMICALS, INC., is a corporation organized under the Laws of the State of Delaware, authorized to transact business within the State of Florida, qualified on the 1st day of June, 1977, under the new name.

I further certify that said corporation has paid all fees due this office through December 31, 1977 and its status is active.

GIVEN under my hand and the Great Seal of the State of Florida, at Tallahassee, the Capital, this the 1st day of June 1977.

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

August 24, 1979

RECEIVED BY
NEW WALES CHEMICALS, INC.
T. L. CRAIG

AUG 30 1979

Noted.....File.....

Referred To.....

Mr. Thomas L. Craig,
Vice President & General
Manager
New Wales Chemicals, Inc.
P. O. Box 1035
Mulberry, Florida 33860

Subject: Best Available Control Technology (BACT) for New Wales Chemicals, Inc. Sulfuric Acid Plants No. 4 & No. 5, to be located in Polk County

Dear Mr. Craig:

The Department of Environmental Regulation has reviewed the BACT Application submitted by you, and determined Best Available Control Technology (BACT) for the above referenced soruce as follows:

SO_2:	Emission not to exceed 4.0 #/ton of 100% H_2SO_4/attainable with a double absorption system.
Sulfuric Acid Mist:	Emissions not to exceed 0.15 #/ton of 100% H_2SO_4/attainable with a high efficiency demister.
Opacity:	Not greater than 10 percent. NSPS
Test Method:	As prescribed in EPA NSPS, 40 CFR, Part 60, Subpart H.

The complete BACT determination document is attached.

Sincerely,

Victoria Martinez for WC

Victoria Martinez,
BACT Coordinator

VM/es

Attachment

State of Florida

DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee

To: _____ Loctn.: _____

To: _____ Loctn.: _____

To: _____ Loctn.: _____

From: _____ Date: _____

TO: Jacob D. Varn
Secretary

FROM: J. P. Subramani, Chief
Bureau of Air Quality Management

DATE: August 20, 1979

SUBJECT: BACT Determination - New Wales Chemicals, Inc. Sulfuric Acid Plants No. 4 and No. 5, to be located in Polk County

Facility: Two identical double absorption sulfuric acid plants with a combined process input rate of 1320 tons/day of sulfur.

BACT Determination Requested by the Applicant:

Pollutant	
SO_2:	4 lbs/ton 100% H_2SO_4 acid produced
Sulfuric Acid Mist:	0.15 lbs/ton 100% H_2SO_4 acid produced

Date of Receipt of a Complete BACT Application:

June 5, 1979

Date of Publication in the Florida Administrative Weekly:

August 6, 1979

Date of Publication in a Newspaper of General Circulation:

August 8, 1979, The Ledger, Lakeland, Florida

Study Group Members:

A BACT determination on a sulfuric acid plant was completed April 16, 1979. There has been no significant technological improvement since that date. Thus the same BACT applies and a study group is not needed.

EPA's New Source Performance Standards (NSPS) for Sulfuric Acid Plants:

Pollutant	Rate of Concentration
SO_2:	4 #/ton of 100 H_2SO_4
Sulfuric Acid Mist:	0.15 #/ton of 100% H_2SO_4

BACT Determination by the Florida Department of Environmental Regulation:

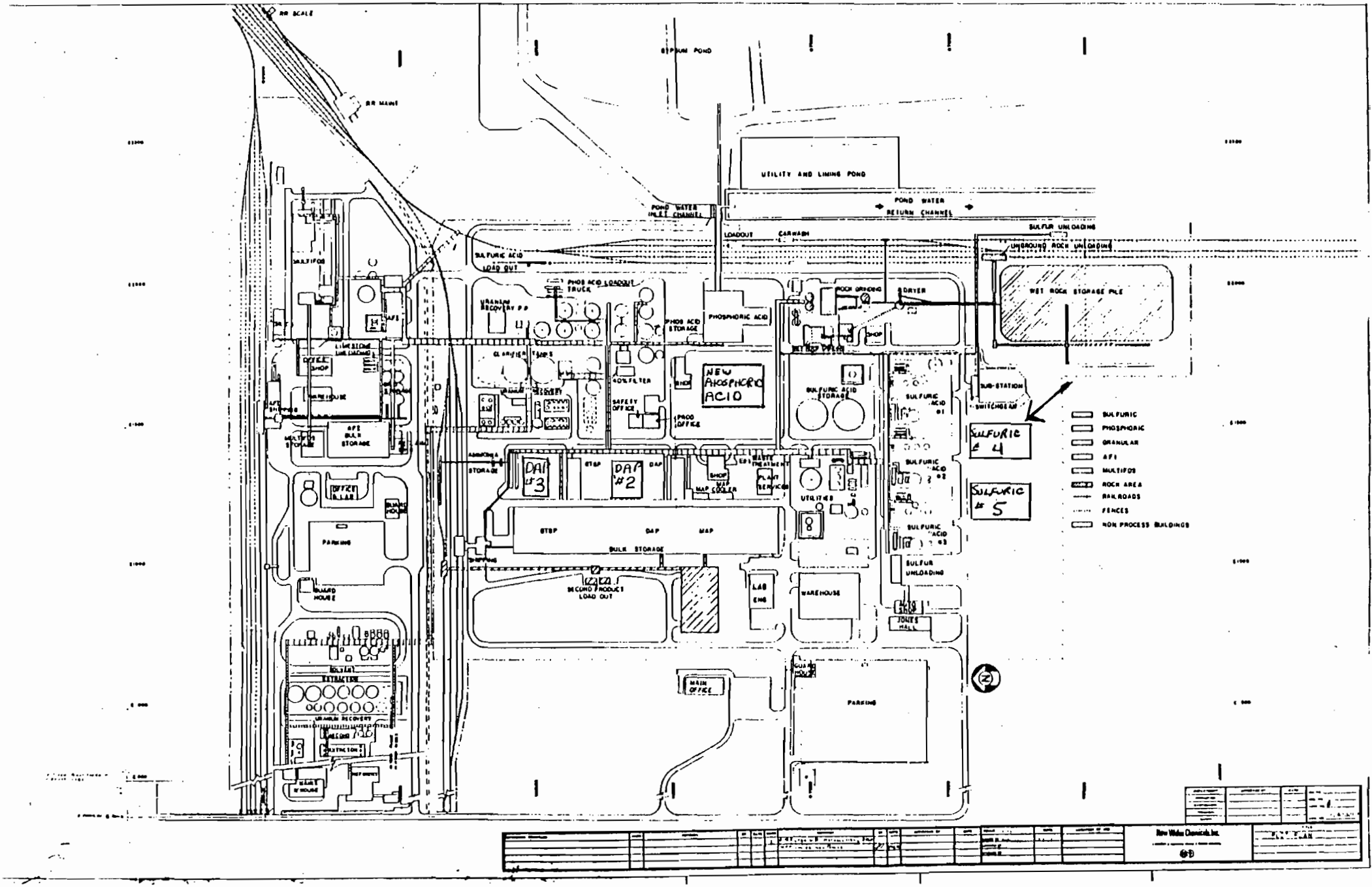
SO_2:	Emission not to exceed 4.0 #/ton of 100% H_2SO_4/attainable with a double absorption system.
Sulfuric Acid Mist:	Emissions not to exceed 0.15 #/ton of 100% H_2SO_4/attainable with a high efficiency demister.
Opacity:	Not greater than 10 percent.
Test Method:	As precribed in EPA NSPS, 40 CFR, Part 60, Subpart H.

Justification of DER Determination:

There has been no significant technological improvements since December 1978 when EPA reviewed its NSPS for this type of source. Although lower emissions than NSPS are attainable the selection of NSPS as BACT allows for the normal decrease in efficiency with the passage of time.

Details of the Analysis May be Obtained by Contacting:

Victoria Martinez, BACT Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, Florida 32301



Recommendation from: Bureau of Air Quality Management

by: J P Subramani
J. P. Subramani

Date: AUGUST 20, 1979

Approved by: Jacob D. Varn
Jacob D. Varn

Date: 21 ST AUGUST 1979

JDV/es

Attachment

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STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

Source Type: [X] Air Pollution [ ] Incinerator

Application Type: [X] Construction [ ] Operation [ ] Modification [ ] Renewal of DER Permit No. _____

Company Name: NEW WALES CHEMICALS, INC. County: POLK

Identify the specific emission point source(s) addressed in this application (i.e.: Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired): CONTACT SULFURIC ACID PLANT WITH DOUBLE ABSORPTION (05)

Source Location: Street: HWY. 640 & COUNTY LINE RD. City: MULBERRY

UTM: East 396.6 North 3078.9

Latitude: ___ ___ ° ___ ___ ' ___ ___ "N. Longitude: ___ ___ ° ___ ___ ' ___ ___ "W.

Appl. Name and Title: THOMAS L. CRAIG, VICE PRESIDENT AND GENERAL MANAGER

Appl. Address: P. O. BOX 1035 MULBERRY, FL. 33860

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative of* NEW WALES CHEMICALS, INC.

I certify that the statements made in this application for a CONSTRUCTION permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provisions of Chapter 403, Florida Statutes, and all the rules and regulations of the Department and revisions thereof. I also understand that a permit, if granted by the Department, will be nontransferable and I will promptly notify the Department upon sale or legal transfer of the permitted establishment.

THOMAS L. CRAIG — Name of Person Signing (Please Type or Print)

Thomas L Craig VICE PRES. & GEN. MGR. — Signature of the Owner or Authorized Representative and Title

Date: 4-6-79 Telephone No.: 813-428-2531

*Attach a letter of authorization.

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgement, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the Department. It is also agreed that the undersigned will furnish the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signature: _____

Name: CRAIG A. PFLAUM (Please Type)

Company Name: NEW WALES CHEMICALS, INC.

Florida Registration Number: 18595

(Affix Seal)

Mailing Address: P. O. BOX 1035 MULBERRY, FL. 33860

Telephone No.: 813-428-2531

Date: 4-6-79

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

NEW SOURCE 2000 TPD DESIGN MONSANTO ENVIROCHEM DOUBLE ABSORPTION SULFURIC ACID PLANT. PLANT DESIGN WILL ACHIEVE NEW SOURCE PERFORMANCE STANDARDS FOR SULFURIC ACID PLANTS.

B. Schedule of Project Covered in this Application (Construction Permit Application Only).

Start of Construction: JUNE 30, 1980 Completion of Construction: JUNE 30, 1983

C. Costs of Construction. (Note: show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

ESTIMATED COST OF DOUBLE VS. SINGLE ABSORPTION PLUS INSTALLATION OF BRINKS DEMISTERS, WATER REUSE FACILITIES. CONTINUOUS MONITOR FOR SO_2 AND ACCESS COMPLIANCE MONITORING IS $5,000,000.00

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

NONE

E. Is the emission point considered to be a New* or Existing* source, as defined in Chapter 17-2.02(5) & (6), Florida Administrative Code?

_X_ New _____ Existing

F. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? _____ Yes _X_ No

G. Normal Equipment Operating Time: hrs/day: 24 ; days/wk: 7 ; wks/yr: 50 ; if seasonal, describe: _____

*Note

New Source: any source which came into existence, began operation or construction, or received a permit for the latter on or after January 18, 1972.

Existing Source: any source in existence, operating or under construction (or with a permit to construct) prior to January 18, 1972.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES

(other than incinerators)

A. Raw Materials and Chemicals Used in Your Process:

Description	Utilization Rate lbs./hr.	Relate to Flow Diagram
MOLTEN SULFUR	660 TPD	SULFUR BURNER

B. Process Rate:

1) Total Process Input Rate (lbs./hr.): 660 TPD SULFUR

2) Product Weight (lbs./hr): 2000 TPD H_2SO_4

C. Airborne Contaminants Discharged:

Name of Contaminant	Actual Discharge* lbs./hr.	Actual Discharge* T/yr.	Allowed Discharge Rate Per Ch. 17-2, F.A.C.**	Allowable Discharge*** (lbs./hr.)	Relate to Flow Diagram
SO_2	$\leq$ 4 TPD		4# SO_2/TON H_2SO_4	-	STACK
H_2SO_4 MIST	$\leq$ 0.15	TPD	0.15# MIST/TON	H_2SO_4	STACK

D. Control Devices:

Name and Type (Model and Serial No.)	Contaminant	Efficiency†	Range of Particles Size Collected (in microns)	Basis for Efficiency††
DOUBLE ABSORPTION	SO_2	99.7	NA	DESIGN
TOWERS WITH BRINKS	H_2SO_4 MIST	100%	>3 MICRONS	"
HV MIST ELIMINATORS		85-97%	1-3 MICRONS	"
		50-85%	<1/2 MICRON	"

*Estimate only if this is an application to construct.

**Specify units in accordance with emission standards prescribed within Section 17-2.04, F.A.C. (e.g. Section 17-2.04(6)(e)1.a. specifies that new fossil fuel steam generators are allowed to emit particulate matter at a rate of 0.1 lbs. per million BTU heat input computed as a maximum 2-hour average.)

***Using above example for a source with 260 million BTU per hour heat input: $\frac{0.1 \text{ lbs}}{\text{MMBTU}} \times \frac{260 \text{ MMBTU}}{\text{hr.}} = 26 \text{ lbs./hr.}$

†See Supplemental Requirements, page 5, number 2.

††Indicate whether the efficiency value is based upon performance testing of the device or design data.

E. Fuels: NA

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg./hr.	Max./hr.	

*Units: Natural Gas - MMCF/hr.; Fuel Oils, Coal - lbs./hr.

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lb./gal.

Heat Capacity: _____ BTU/lb. _____ BTU/gal.

Other Fuel Contaminants: _____

F. If applicable, indicate the percent of fuel used for space heating: Annual Average: _____ Maximum: _____

G. Indicate liquid or solid wastes generated and method of disposal:

ALL BLOWDOWN REUSED IN KINGSFORD OPERATION

H. Emission Stack Geometry and Flow Characteristics (provide data for each stack):

Stack Height: 199 ft. Stack Diameter: 8.5 ft.

Gas Flow Rate: 120,000 ACFM Gas Exit Temperature: 160 °F

Water Vapor Content: 0 %

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

Type of Waste	Type 0 (Plasma)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq. & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs./Hr. Incinerated							

Description of Waste: _____

Total Weight Incinerated (lbs./hr.): _____ Design Capacity (lbs./hr.): _____

Approximate Number of Hours of Operation per Day: _____, days/week: _____

Manufacturer: _____

Date Constructed: _____ Model No.: _____

	Volume $(ft.)^3$	Heat Release (BTU/hr.)	Fuel		Temp. (°F)
			Type	BTU/hr.	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter: _____ Stack Temp.: _____ °F

Gas Flow Rate: _____ ACFM _____ DSCFM*

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of Pollution Control Device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (Specify): _____

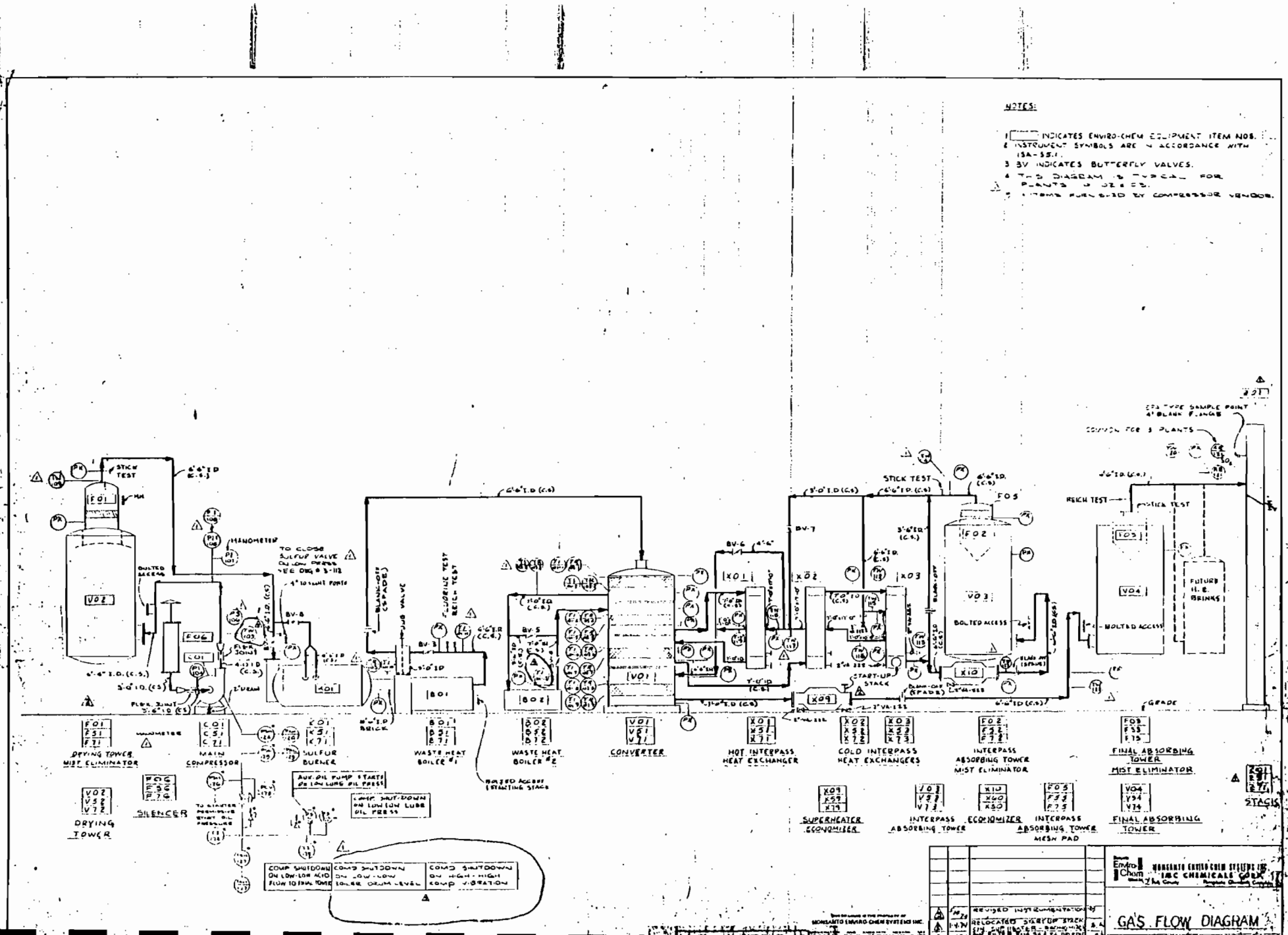
Brief Description of Operating Characteristics of Control Device: _____

Ultimate Disposal of Any Effluent Other Than That Emitted From the Stack (scrubber water, ash, etc.): _____

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please Provide the Following Supplements Required For All Pollution Sources:

1. Total process input rate and product weight - show derivation.
2. Efficiency estimation of control device(s) - show derivation. Include pertinent test and/or design data.
3. An 8½" x 11" flow diagram, which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
4. An 8½" x 11" plot plan of facility showing the exact location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.
5. An 8½" x 11" plot plan showing the exact location of the establishment, and points of airborne emissions in relation to the surrounding area, residences and other permanent structures and roadways. (Example: Copy of USGS topographic map.)
6. Description and sketch of storm water control measures taken both during and after construction.
7. An application fee of $20.00, unless exempted by Chapter 17-4.05(3), FAC, made payable to the Department of Environmental Regulation.
8. With construction permit application, include design details for control device(s). Example: for baghouse, include cloth to air ratio; for scrubber, include cross-sectional sketch; etc.
9. Certification by the P.E. with the operation permit application that the source was constructed as shown in the construction permit application.



HARRY L. CARROLL
Vice President
Florida

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

November 22, 1978

Mr. T. L. Craig
Vice President & General Manager
New Wales Chemicals, Inc.
Post Office Box 1035
Mulberry, Florida 33860

Dear Tom:

This letter is your authorization to sign on behalf of New Wales Chemicals, Inc. the various applications for permits, specifically the applications for operating permits from the Florida Department of Environmental Regulation.

Very truly yours,

Harry L. Carroll

t

Post Office Box 3807 • Lakeland, Florida 33802 • (813) 646-5061

STATE OF FLORIDA

DEPARTMENT OF STATE • DIVISION OF CORPORATIONS

I certify from the records of this office that IMC CHEMICALS CORP., changed its name to; NEW WALES CHEMICALS, INC., is a corporation organized under the Laws of the State of Delaware, authorized to transact business within the State of Florida, qualified on the 1st day of June, 1977, under the new name.

I further certify that said corporation has paid all fees due this office through December 31, 1977 and its status is active.

GIVEN under my hand and the Great Seal of the State of Florida, at Tallahassee, the Capital, this the 1st day of June 1977.

BEST AVAILABLE COPY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

Source Type: [X] Air Pollution [ ] Incinerator

Application Type: [X] Construction [ ] Operation [ ] Modification [ ] Renewal of DER Permit No. _____

Company Name: NEW WALES CHEMICALS, INC. County: POLK

Identify the specific emission point source(s) addressed in this application (i.e.: Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired): PHOSPHORIC ACID PLANT WITH CROSSFLOW SCRUBBER (#3)

Source Location: Street: HWY. 640 & COUNTY LINE RD. City: MULBERRY

UTM: East _____ North _____

Latitude: ___ ___ ° ___ ___ ' ___ ___ "N. Longitude: ___ ___ ° ___ ___ ' ___ ___ "W.

Appl. Name and Title: THOMAS L. CRAIG, VICE PRESIDENT & GENERAL MANAGER

Appl. Address: P. O. BOX 1035 MULBERRY, FL. 33860

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative of* NEW WALES CHEMICALS, INC.

I certify that the statements made in this application for a CONSTRUCTION permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provisions of Chapter 403, Florida Statutes, and all the rules and regulations of the Department and revisions thereof. I also understand that a permit, if granted by the Department, will be nontransferable and I will promptly notify the Department upon sale or legal transfer of the permitted establishment.

THOMAS L. CRAIG — Name of Person Signing (please Type or Print)

Thomas L Craig VICE PRES. & GEN. MGR. — Signature of the Owner or Authorized Representative and Title

Date: 4-6-79 Telephone No.: 813-428-2531

*Attach a letter of authorization.

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgement, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the Department. It is also agreed that the undersigned will furnish the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signature: Craig A Pflaum

Name: CRAIG A. PFLAUM (Please Type)

Company Name: NEW WALES CHEMICALS, INC

Florida Registration Number: 18595

(Affix Seal)

Mailing Address: P. O. BOX 1035
MULBERRY, FL. 33860

Telephone No.: 813-428-2531

Date: 4-6-79

SECTION II: GENERAL PROJECT INFORMATION

BEST AVAILABLE COPY

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

NEW WALES CHEMICALS, INC. PROPOSES TO CONSTRUCT A 1500 TPD WET PROCESS PHOSPHORIC ACID PLANT. UNIT WILL BE DESIGNED AND BUILT BY DAVY POWERGAS, INC. OF LAKELAND, FL.

WITH THE UNIT WILL BE A FLUORINE FUME SCRUBBER TO BE ALSO DESIGNED AND INSTALLED BY DAVY POWERGAS, INC.

B. Schedule of Project Covered in this Application (Construction Permit Application Only).

Start of Construction: JUNE 30, 1980 Completion of Construction: JUNE 30, 1983

C. Costs of Construction. (Note: show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

ESTIMATED COST $750,000.00

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

NA

E. Is the emission point considered to be a New* or Existing* source, as defined in Chapter 17-2.02(5) & (6), Florida Administrative Code?

X New ____ Existing

F. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

G. Normal Equipment Operating Time: hrs/day: 24 ; days/wk: 6,6 ; wks/yr: 50 ; if seasonal, describe: ____

*Note

New Source: any source which came into existence, began operation or construction, or received a permit for the latter on or after January 18, 1972.

Existing Source: any source in existence, operating or under construction (or with a permit to construct) prior to January 18, 1972.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES

(other than incinerators)

BEST AVAILABLE COPY

A. Raw Materials and Chemicals Used in Your Process:

Description	Utilization Rate lbs./hr.	Relate to Flow Diagram
SULFURIC ACID	4110 TPD	ATTACK TANK
PHOSPHATE ROCK	5520 TPD	ATTACK TANK

B. Process Rate:

1) Total Process Input Rate (lbs./hr.): 9630 TPD

2) Product Weight (lbs./hr): 1500 TPD P2O5

C. Airborne Contaminants Discharged:

Name of Contaminant	Actual Discharge* lbs./hr.	Actual Discharge* T/yr.	Allowed Discharge Rate Per Ch. 17-2, F.A.C.**	Allowable Discharge*** (lbs./hr.)	Relate to Flow Diagram
FLUORIDES	$\leq$ 1.4	$\leq$ 5.6	0.02 LBS F/TON P2O5	$\leq$ 1.4	STACK

D. Control Devices:

Name and Type (Model and Serial No.)	Contaminant	Efficiency†	Range of Particles Size Collected (in microns)	Basis for Efficiency††
DAVY POWERGAS, INC.	F	TO MEET REQUIREMENTS OF FL. AIR CODE		
DESIGNED CROSSFLOW				
SCRUBBER				

*Estimate only if this is an application to construct.

**Specify units in accordance with emission standards prescribed within Section 17-2.04, F.A.C. (e.g. Section 17-2.04(6)(a)1.a. specifies that new fossil fuel steam generators are allowed to emit particulate matter at a rate of 0.1 lbs. per million BTU heat input computed as a maximum 2-hour average.)

***Using above example for a source with 260 million BTU per hour heat input: $\frac{0.1 \text{ lbs}}{\text{MMBTU}} \times \frac{260 \text{ MMBTU}}{\text{hr.}} = 26 \text{ lbs./hr.}$

†See Supplemental Requirements, page 5, number 2.

††Indicate whether the efficiency value is based upon performance testing of the device or design data.

E. Fuels: NA

BEST AVAILABLE COPY

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg./hr.	Max./hr.	

*Units: Natural Gas - MMCF/hr.; Fuel Oils, Coal - lbs./hr.

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lb./gal.

Heat Capacity: _____ BTU/lb. _____ BTU/gal.

Other Fuel Contaminants: _____

F. If applicable, indicate the percent of fuel used for space heating: Annual Average _____ Maximum _____

NA

G. Indicate liquid or solid wastes generated and method of disposal:

ALL LIQUID AND SOLID WASTE TO GYPSUM POND

H. Emission Stack Geometry and Flow Characteristics (provide data for each stack):

Stack Height: 105 ft. Stack Diameter: 4.5 ft.

Gas Flow Rate: 35000 ACFM Gas Exit Temperature: 90 °F

Water Vapor Content: 2.0 - 4.0 %

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

Type of Waste	Type 0 (Plasma)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq. & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs./Hr. Incinerated							

Description of Waste: _____

Total Weight Incinerated (lbs./hr.): _____ Design Capacity (lbs./hr.): _____

Approximate Number of Hours of Operation per Day: _____, days/week: _____

Manufacturer: _____

Date Constructed: _____ Model No.: _____

	Volume $(ft.)^3$	Heat Release (BTU/hr.)	Fuel		Temp. (°F)
			Type	BTU/hr.	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter: _____ Stack Temp.: _____ °F

Gas Flow Rate: _____ ACFM _____ DSCFM*

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of Pollution Control Device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (Specify): _____

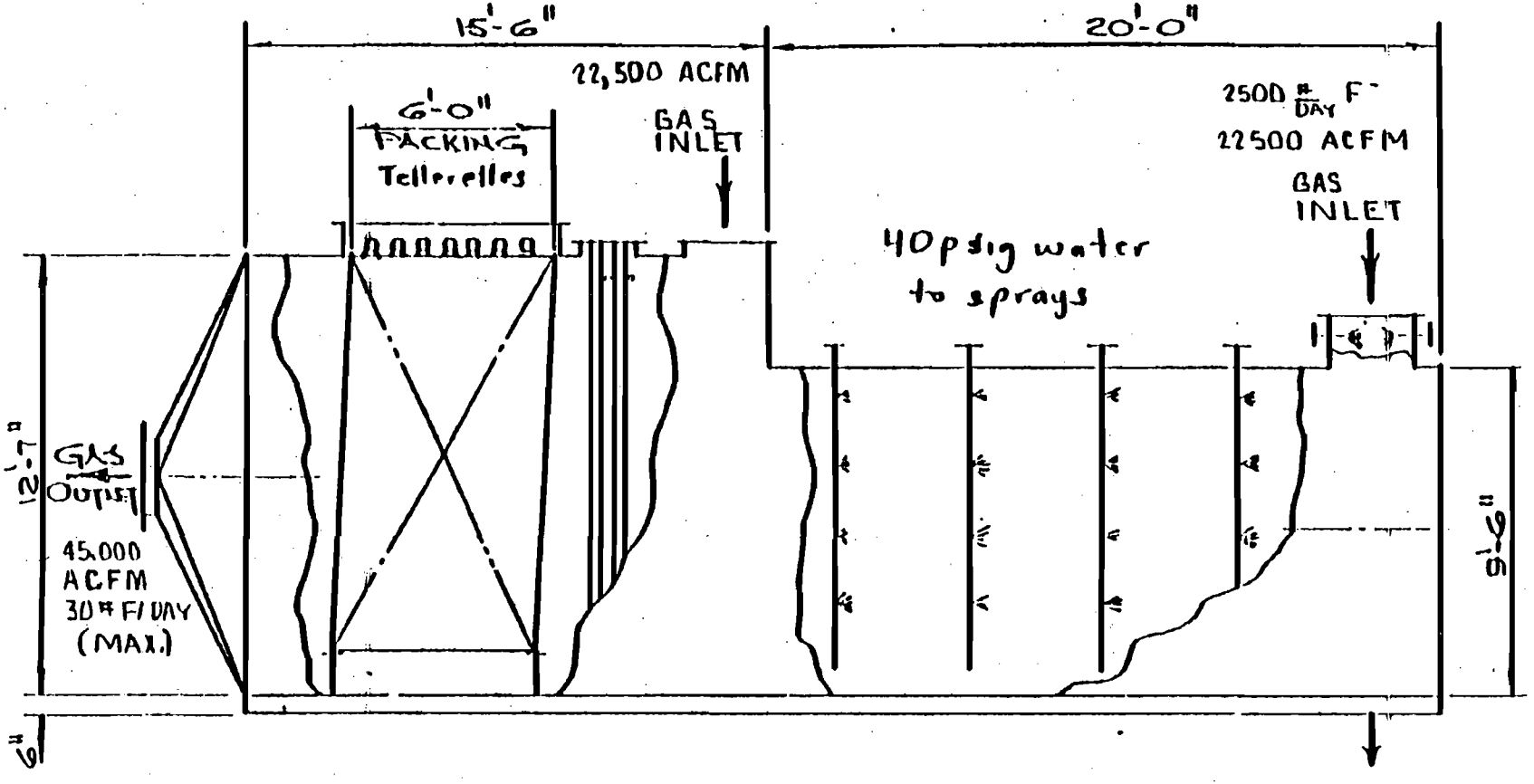
Brief Description of Operating Characteristics of Control Device: _____

Ultimate Disposal of Any Effluent Other Than That Emitted From the Stack (scrubber water, ash, etc.): _____

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please Provide the Following Supplements Required For All Pollution Sources:

1. Total process input rate and product weight - show derivation.
2. Efficiency estimation of control device(s) - show derivation. Include pertinent test and/or design data.
3. An 8½" x 11" flow diagram, which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are contained.
4. An 8½" x 11" plot plan of facility showing the exact location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.
5. An 8½" x 11" plot plan showing the exact location of the establishment, and points of airborne emissions in relation to the surrounding area, residences and other permanent structures and roadways. (Example: Copy of USGS topographic map.)
6. Description and sketch of storm water control measures taken both during and after construction.
7. An application fee of $20.00, unless exempted by Chapter 17-4.05(3), F.A.C., made payable to the Department of Environmental Regulation.
8. With construction permit application, include design details for control device(s). Example: for baghouse, include cloth to air ratio; for scrubber, include cross-sectional sketch; etc.
9. Certification by the P.E. with the operation permit application that the source was constructed as shown in the construction permit application.



ELEVATION
CROSS FLOW FUME SCRUBBER

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

PROJECT

SKETCH NO.

DATE

BY

DESCRIPTION

NO.

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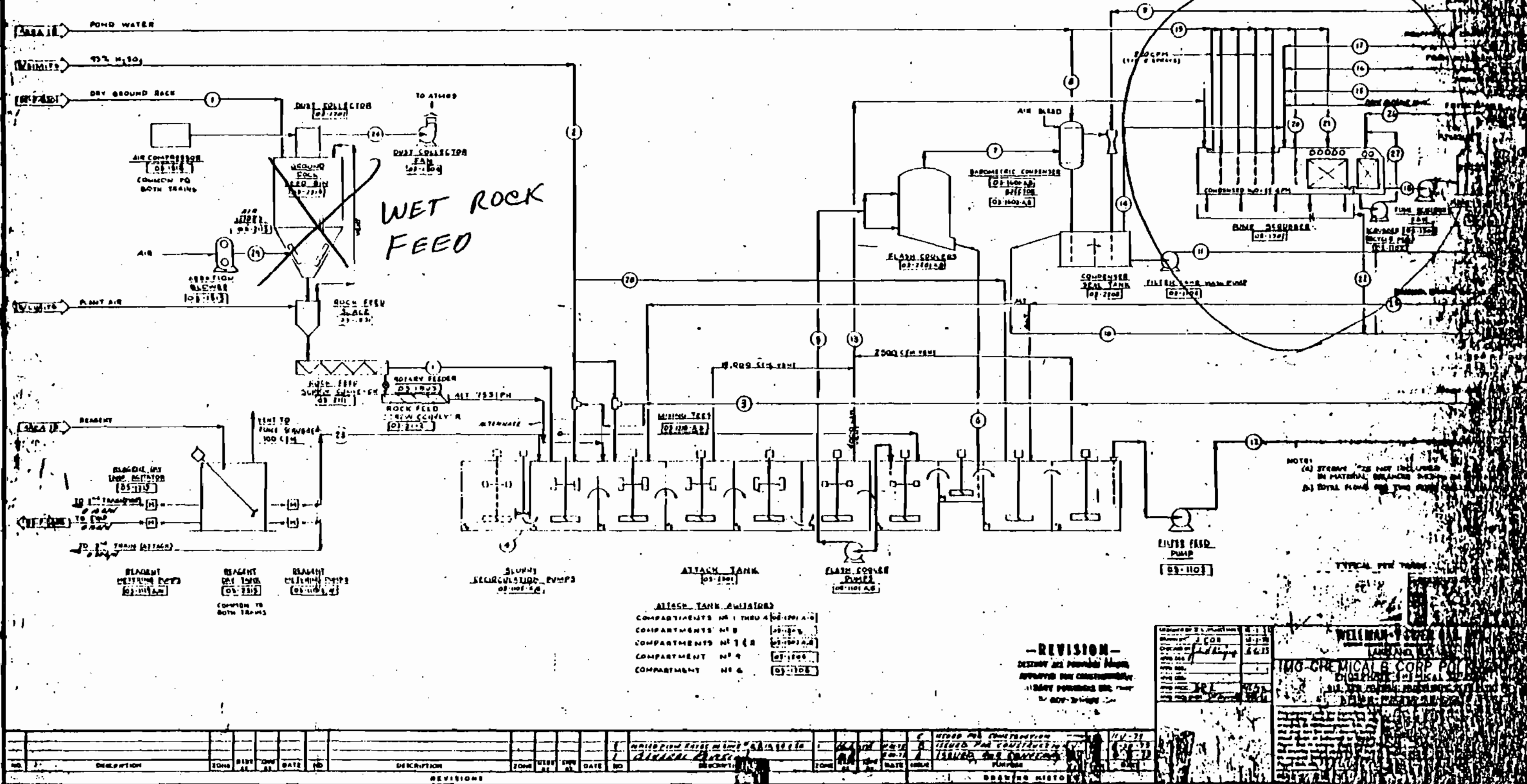
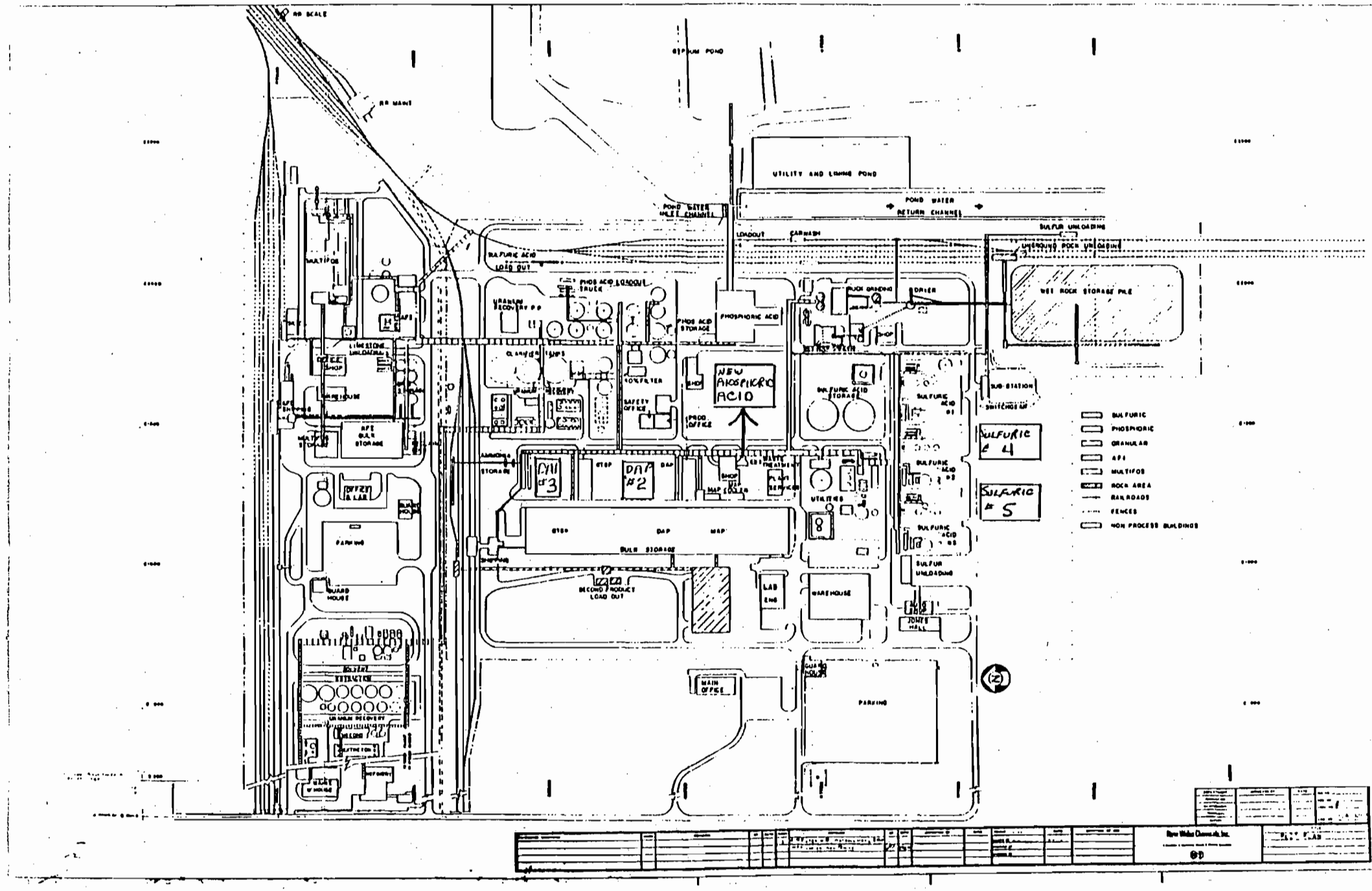
STREAM No.	1	2	3	4	5	6	7	8	9
STREAM	DRY ROCK	98% H_2SO_4	17% P_2O_5 RECYCLE ACID	RECIRCULATING SLURRY	SLURRY TO FLASH COOLERS	SLURRY FROM FLASH COOLERS	VAPORS FROM FLASH COOLERS	POND WATER TO B.C.S	H.P. STEAM TO EJECTORS
FLOW STPD AVG	3416	2680	8348	519,789	255,960	256,060	900	26,800	1680
FLOW STPH (LBS/HR) AVG	142.3	111.8	347.8	15,822	10,655	10,675	(75,000)	1116	(13,600)
FLOW GPM or (ACFM) AVG		246.7	1182	40,000	27,000	26,810	(150,000)	4,460	
DESIGN FLOW GPM or (ACFM)	190 TPH	300	1400	40,000	27,000	27,000	15,000 [illegible]	6,000	2400 [illegible]
SP. GR. or (DENSITY LBS/FT³)	(89)	1.81	1.173	1.18	1.58	1.58	(0.0038)	1.0	(0.365)
TEMP °F (MAX)	130 (160)	100	140	160 (176)	160 (176)	153.5 (167)	153.5 (167)	(90)	366
PRESS. PSIA or ("H_2O)	ATM	40	48		30		6" Hg ABS	55	165
VISCOSITY C.P.		15	1.6	240	240	240	0.01	1.0	0.02
PERCENT SOLIDS				~30	~38	~38			
FLUORINE FLOW LBS/DAY									
$CaSO_4 \cdot 2H_2O$ + IMPURITIES STPD									
P_2O_5 FLOW STPD	968								

SEE NOTE (a)

STREAM No.	10	11	12	13	14	15	16	17	18
STREAM	CONDENSER SEAL TANK O'FLOW	FILTER WATER	FILTER FEED	ATTACK TANK VAPORS	CONDENSER SEAL TANK VAPORS	FILTRATE SEAL TANK VAPORS	FILTER HOOD VAPORS	EVAP. CONDENSER SEAL TANK VAPORS	FUME SCRUBBER OUTLET GAS
FLOW STPD AVG	21680	7,619	13,310						
FLOW STPH (LBS/HR) AVG	903.7	317.5	510						
FLOW GPM or (ACFM) AVG	3610	1,369	1371	(78,500)	(1,000)	(4,000)	(13,500)	(3,000)	(45,080)
DESIGN FLOW GPM or (ACFM)	6,000	1,500	1,700	(78,500)	(1,000)	(4,000)	(13,500)	(3,000)	(45,000)
SP. GR. or (DENSITY LBS/FT³)		1.0	1.58	(0.061)	(0.068)	(0.067)	(0.061)	(0.065)	(0.066)
TEMP °F (MAX)	135	140	153.5 (167)	140	130	140	140	130	100
PRESS. PSIA or ("H_2O)	ATM	60	80	(-1)	(-1)	(-1)	(-1)	(-1)	(-12)
VISCOSITY C.P.	1.0	1.0	240	0.02	0.03	0.01	0.02	0.02	0.01
PERCENT SOLIDS			~38						
FLUORINE FLOW LBS/DAY									
$CaSO_4 \cdot 2H_2O$ + IMPURITIES STPD									
P_2O_5 FLOW STPD									

STREAM No.	19	20	21	22	23	24	25	26	27	28
STREAM	POND WATER TO FUME SCRUBBER	POND WATER TO BAFFLES	POND WATER TO SCRUBBER PACKING	FUME SCRUBBER WATER DISCHARGE	DEFOAMER REAGENT	DUST COLLECTOR VENT GAS	[illegible] SLURRY TO ATTACK TANK	[illegible] WATER TO FUME SCRUBBER PACKING	FUME SCRUBBER RECYCLE	[illegible]
FLOW STPD AVG					AS REQ'D		60	6	1100	[illegible]
FLOW STPH (LBS/HR) AVG								(500)	50	[illegible]
FLOW GPM or (ACFM) AVG	1100	10	380	1838		5,000	9	10	100	[illegible]
DESIGN FLOW GPM or (ACFM)	1600	10	380	1838	0-30 GPH	(6,000)	50	(80)	100	[illegible]
SP. GR. or (DENSITY LBS/FT³)	1.0	1.0	1.0	1.0	0.98	(0.071)	1.46	1.0	1.0	[illegible]
TEMP °F (MAX)	90	90	90	100	100	120	155	80	100	100
PRESS. PSIA or ("H_2O)	55	55	30	ATM	55	(-8)	45	40	40	[illegible]
VISCOSITY C.P.	1	1	1	1		0.02	200	1.0	1.0	[illegible]
PERCENT SOLIDS							28			
FLUORINE FLOW LBS/DAY										
$CaSO_4 \cdot 2H_2O$ + IMPURITIES STPD							10			
P_2O_5 FLOW STPD										





HARRY L. CARROLL
Vice President
Florida

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

November 22, 1978

Mr. T. L. Craig
Vice President & General Manager
New Wales Chemicals, Inc.
Post Office Box 1035
Mulberry, Florida 33860

Dear Tom:

This letter is your authorization to sign on behalf of New Wales Chemicals, Inc. the various applications for permits, specifically the applications for operating permits from the Florida Department of Environmental Regulation.

Very truly yours,

Harry L. Carroll

t

Post Office Box 3807 • Lakeland, Florida 33802 • (813) 646-5061

STATE OF FLORIDA

DEPARTMENT OF STATE • DIVISION OF CORPORATIONS

I certify from the records of this office that DMC CHEMICALS CORP., changed its name to: NEW WALES CHEMICALS, INC., is a corporation organized under the Laws of the State of Delaware, authorized to transact business within the State of Florida, qualified on the 1st day of June, 1977, under the new name.

I further certify that said corporation has paid all fees due this office through December 31, 1977 and its status is active.

GIVEN under my hand and the Great Seal of the State of Florida, at Tallahassee, the Capitol, this the 1st day of June 1977.

Secretary of State

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Air Pollution [X] New[1] [ ] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [ ] Modification

COMPANY NAME: New Wales Chemicals, Inc. COUNTY: Polk

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) DAP Plant With Venturi And Tailgas Scrubbers

SOURCE LOCATION: Street Highway 640-Hillsborough & Polk County Line City Mulberry

UTM: East 396.7 North 3079.4

Latitude ____ ° ____ ' ____ "N Longitude ____ ° ____ ' ____ "W

APPLICANT NAME AND TITLE: Thomas L. Craig, Vice-President & General Manager

APPLICANT ADDRESS: P. O. Box 1035, Mulberry, Florida 33860

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of New Wales Chemicals, Inc.

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: Thomas L. Craig

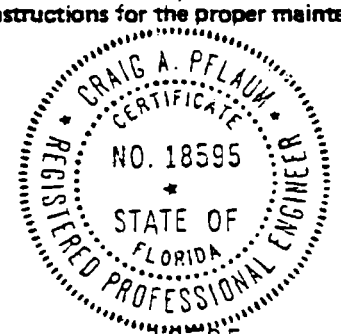
Thomas L. Craig, Vice-Pres. & Gen. Mgr.
Name and Title (Please Type)

Date: 8-31-79 Telephone No. 813-428-2531

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

(Affix Seal)



Signed: Craig A Pflaum PE

Craig A. Pflaum
Name (Please Type)

New Wales Chemicals, Inc.
Company Name (Please Type)

P. O. Box 1035, Mulberry, Fl. 33860
Mailing Address (Please Type)

Florida Registration No. 18595 Date: 8-31-79 Telephone No. 813-428-2531

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

A 140 TPH DAP plant is planned with coaxial venturi scrubbers followed by vertical packed bed scrubbers for fluoride removal. Emissions from this plant will meet NSPS.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction July, 1980 Completion of Construction July, 1983

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Estimated purchase and installation cost $6,000,000. for scrubbing systems.

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ___ Yes _X_ No

F. Normal equipment operating time: hrs/day 24 ; days/wk 6.6 ; wks/yr 50 ; If power plant, hrs/yr ___ ; if seasonal, describe: ___

G. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No
   a. If yes, has "offset" been applied?
   b. If yes, has "Lowest Achievable Emission Rate" been applied?
   c. If yes, list non-attainment pollutants.
2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. Yes
3. Does the State "Prevention of Significant Deterioration" (PSD) requirements apply to this source? If yes, see Sections VI and VII. Yes
4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? Yes
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Phosphoric acid	F	2.0	70 TPH (P2O5)	Reactors/Venturi Scrubbers
Ammonia	-	-	30 TPH	Reactors/Granulators

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): 140 TPH

2. Product Weight (lbs/hr): 140 TPH

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Fluoride	4.0/ ≤ 16.5		0.06 lbs F/ton P2O5	≤ 4.0	unknown		stacks
Particulate	38.0/ ≤ 150.0		process wt.	≤ 38.0	unknown		stacks/ bag coll.
Ammonia	10.0/ ≤ 40.0		not regulated	- - - - -	- - - - -		stacks
SO2	Intermittent		- - - - - - - - - - - - - - - - - - - -				stacks

D. Control Devices: (See Section V, Item 4)

	Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5])
4/ea.	Venturi Scrubbers	F	to comply		
		Part.	with std.		
4/ea.	Tailgas Scrubbers	F			
		Part.			
1/ea.	Bag Collector	Part.			

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. — 0.1 pounds per million BTU heat input)

[3] Calculated from operating rate and applicable standard

[4] Emission, if source operated without control (See Section V, Item 3)

[5] If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
#6 Fuel Oil	Intermittent	- - - - - - -	- - - - - - - - - - -

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, lbs/hr

Fuel Analysis:

Percent Sulfur: 2.5 Percent Ash: 0.02

Density: 8.0 lbs/gal Typical Percent Nitrogen: 0.15

Heat Capacity: 18,000. BTU/lb 144,000. BTU/gal

Other Fuel Contaminants (which may cause air pollution):

F. If applicable, indicate the percent of fuel used for space heating. Annual Average _____ Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

All solid waste will be recycled to process.

All liquid waste will be routed to cooling pond.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: Stack heights 120' blower discharge 80' ft. Stack Diameter: 6' ea. ft.

Gas Flow Rate: 250,000 DSCFM TOT. ACFM Gas Exit Temperature: 100° °F.

Water Vapor Content: 2-5 % Velocity: 65 FPS

SECTION IV: INCINERATOR INFORMATION

Not applicable

Type of Waste	Type 0 (Plastics)	Type 1 (Rubbish)	Type 11 (Refuse)	Type 111 (Garbage)	Type 1V (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
lbs/hr Incinerated							

Description of Waste

Total Weight Incinerated (lbs/hr) Design Capacity (lbs/hr)

Approximate Number of Hours of Operation per Day days/week

Manufacturer

Date Constructed Model No.

DER FORM 17-1.122(16) Page 4 of 10

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner [ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation.
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.,) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, etc.).
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3, and 5 should be consistent: actual emissions = potential (1-efficiency).
6. An 8½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
7. An 8½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [ ] No

Contaminant	Rate or Concentration
Fluorides	0.060 lbs/ton of P205 feed

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration
Fluorides	≤ 0.060 lbs/ton P205 feed

D. Describe the existing control and treatment technology (if any).

1. Control Device/System: Teller design coaxial venturis with a horizontal packed bed scrubber.
2. Operating Principles: Condensation, absorption, and inertial impact.
3. Efficiency:* to meet standards
4. Capital Cost: 3,000,000.00
5. Useful Life: life of plant
6. Operating Cost: 10-15% of raw material cost
7. Energy: 8.5 x 10^6 KWH/yr
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration
Fluoride	≤ 0.06 lbs/ton P205 input
Particulate	process wt. limits
Ammonia	

*Explain method of determining D 3 above.

10. Stack Parameters

a. Height: 100 ft. b. Diameter: 6 ft.

c. Flow Rate: 100,000 ACFM d. Temperature: 100-110 °F

e. Velocity: 60 FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1. Teller design low pressure drop coaxial venturi scrubbing with

a. Control Device: crossflow wet packed bed tailgas scrubbing.

b. Operating Principles: Condensation, absorption and inertial impact.

c. Efficiency*: to meet standards d. Capital Cost: dependent on plant size

e. Useful Life: life of plant f. Operating Cost: operation and maintenance

g. Energy*: dependent on plant size h. Maintenance Cost: cost est. to be 10-15% of raw material cost

i. Availability of construction materials and process chemicals:

Good

j. Applicability to manufacturing processes: Add on system to control emissions.

k. Ability to construct with control device, install in available space, and operate within proposed levels:

Proven technology

2.

a. Control Device: Coaxial venturi with vertical packed bed scrubber.

b. Operating Principles: Condensation, absorption and inertial impact.

c. Efficiency*: to meet standards d. Capital Cost: dependent on plant size

e. Useful Life: life of plant f. Operating Cost: & maintenance - 10-15%

g. Energy**: dependent on plant size h. Maintenance Costs: of raw material cost

i. Availability of construction materials and process chemicals:

Good

j. Applicability to manufacturing processes: Add on system to control emissions.

k. Ability to construct with control device, install in available space, and operate within proposed levels:

Proven technology

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Life: f. Operating Cost:

g. Energy: h. Maintenance Cost:

*Explain method of determining efficiency above.

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space and operate within proposed levels:

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device: Coaxial venturi with vertical packed bed tailgas scrubber.
2. Efficiency*: to meet standards
3. Capital Cost: $6,000,000.00
4. Life: life of plant
5. Operating Cost: Estimated combined cost to be 10-15% of raw material cost
6. Energy: 16 x 10^6 KWH/yr.
7. Maintenance Cost:
8. Manufacturer: Davy McKee Lakeland, Inc.
9. Other locations where employed on similar processes:

a. Similar scrubbing system designed by D. M. Weatherly.

(1) Company: USS Agri-Chemicals

(2) Mailing Address: Box 150

(3) City: Bartow (4) State: Florida 33830

(5) Environmental Manager: Jim Carroll

(6) Telephone No.: 813-533-0471

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration
Fluoride	= 0.06 lbs/ton P205 process input
Particulate	process wt. limits
SO2	unknown
Ammonia	unknown

(8) Process Rate*: 72 TPH

b.

(1) Company:

(2) Mailing Address:

(3) City: (4) State:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

New Wales has had extensive conversations with DAP plant operators and their environmental personnel in this area. Because of our contacts we have concluded that the vertical packed tailgas scrubber, which is currently in use at USS Agri-Chemicals, is the most efficient fluoride removal device currently available.

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

PSD data to be submitted separately.

A. Company Monitored Data

1. _____ no sites _____ TSP _____ ( ) SO^2* _____ Wind spd/dir

Period of monitoring ___/___/___ (month day year) to ___/___/___ (month day year)

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? ____ Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? ____ Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ___/___/___ (month day year) to ___/___/___ (month day year)

2. Surface data obtained from (location) _____

3. Upper air (mixing height) data obtained from (location) _____

4. Stability wind rose (STAR) data obtained from (location) _____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	_____ grams/sec
SO^2	_____ grams/sec

E. Emission Data Used in Modeling

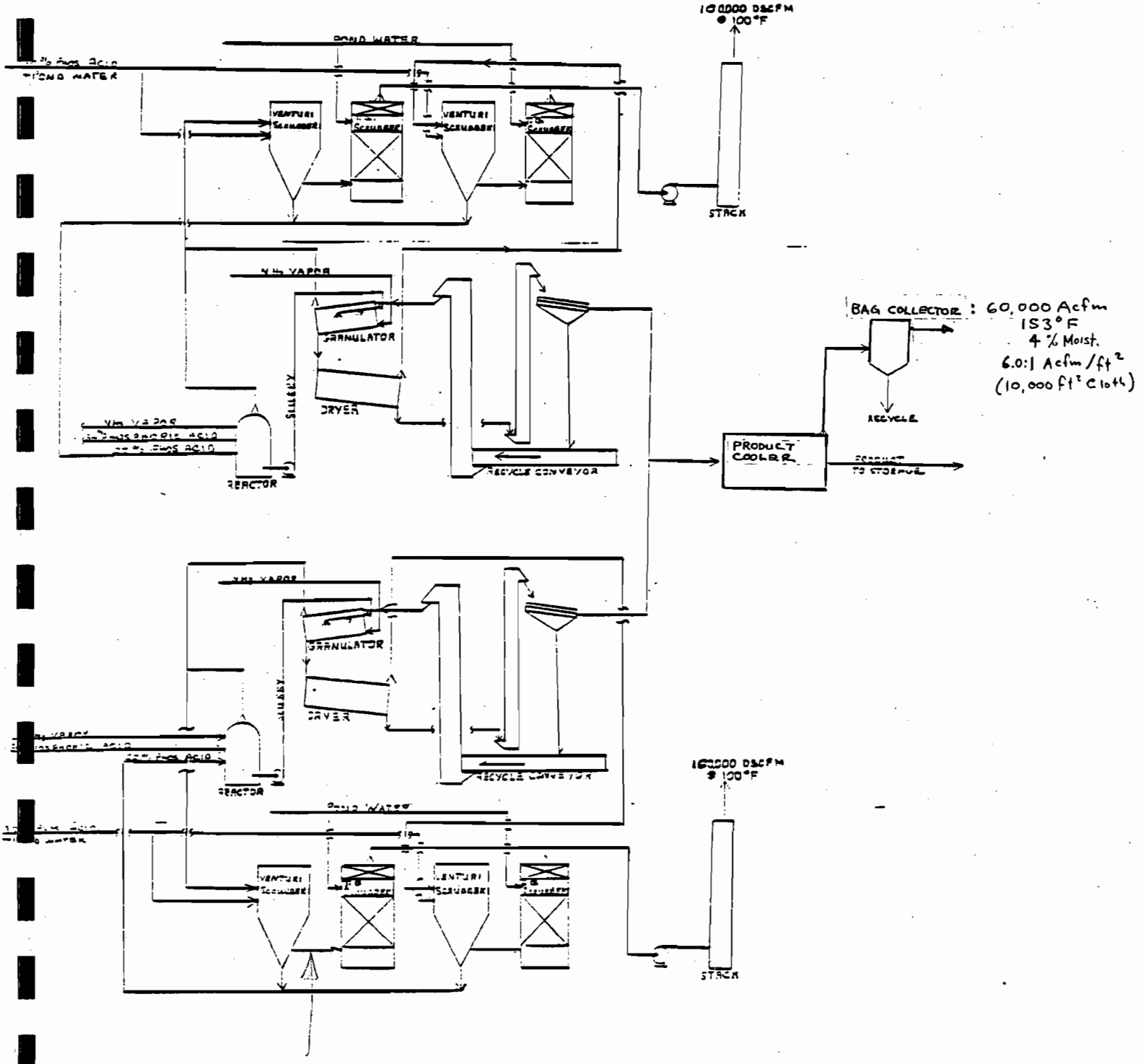
Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

*Specify bubbler (B) or continuous (C).

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.



DAP PLANT WITH DUAL REACTOR/GRANULATORS- COMMON COOLER

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

Form 0-136 Rev. 10-5
PRINTED IN U.S.A.

PROJECT DAP PLANT

FOR

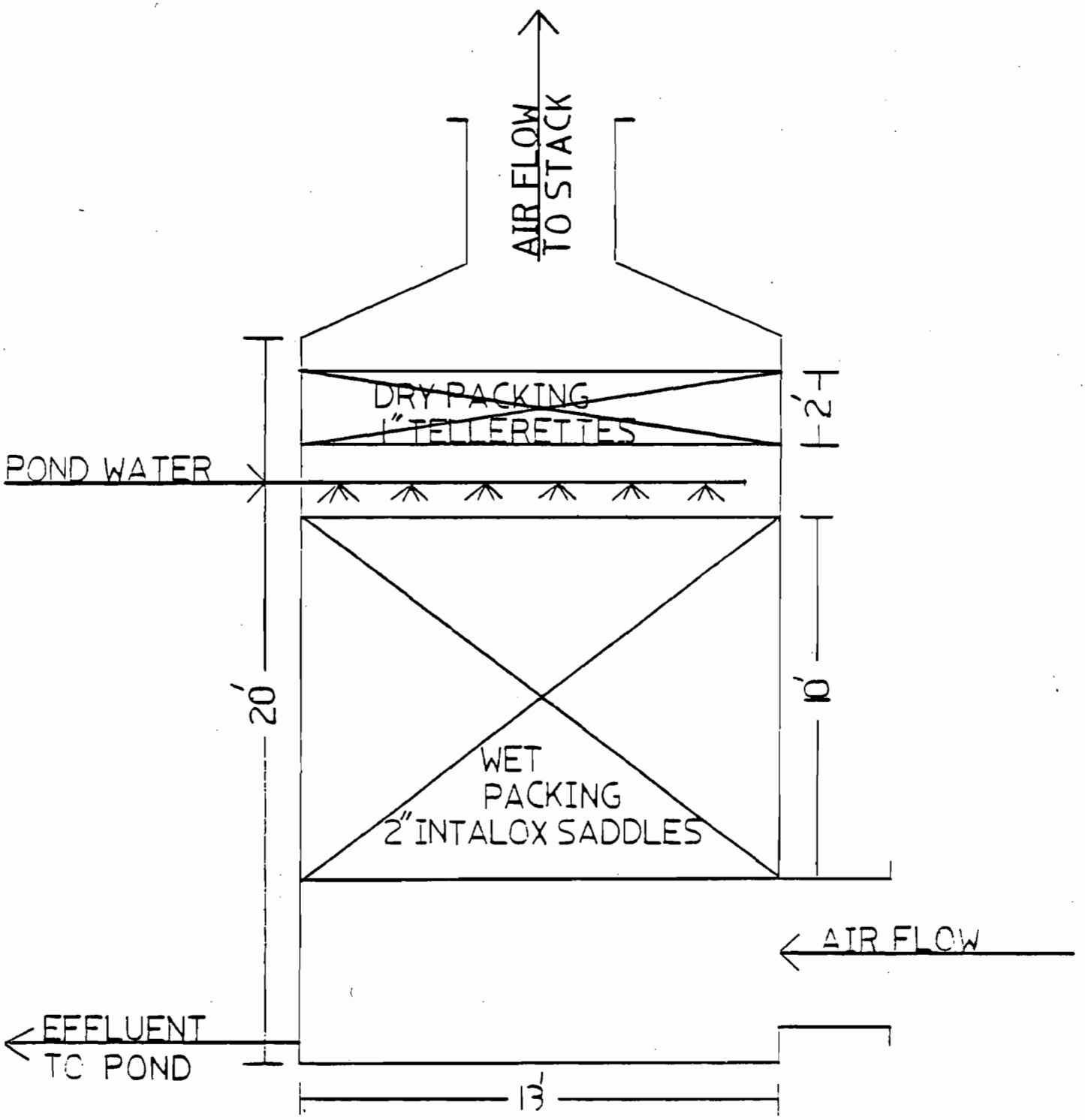
AT

DESCRIPTION

SKETCH NO. 1

DATE 8/29/79

BY ALC



TAILGAS
SCRUBBER

HARRY L. CARROLL
Vice President
Florida

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

November 22, 1978

Mr. T. L. Craig
Vice President & General Manager
New Wales Chemicals, Inc.
Post Office Box 1035
Mulberry, Florida 33860

Dear Tom:

This letter is your authorization to sign on behalf of New Wales Chemicals, Inc. the various applications for permits, specifically the applications for operating permits from the Florida Department of Environmental Regulation.

Very truly yours,

Harry L. Carroll

t

Post Office Box 3607 • Lakeland, Florida 33802 • (813) 646-5081

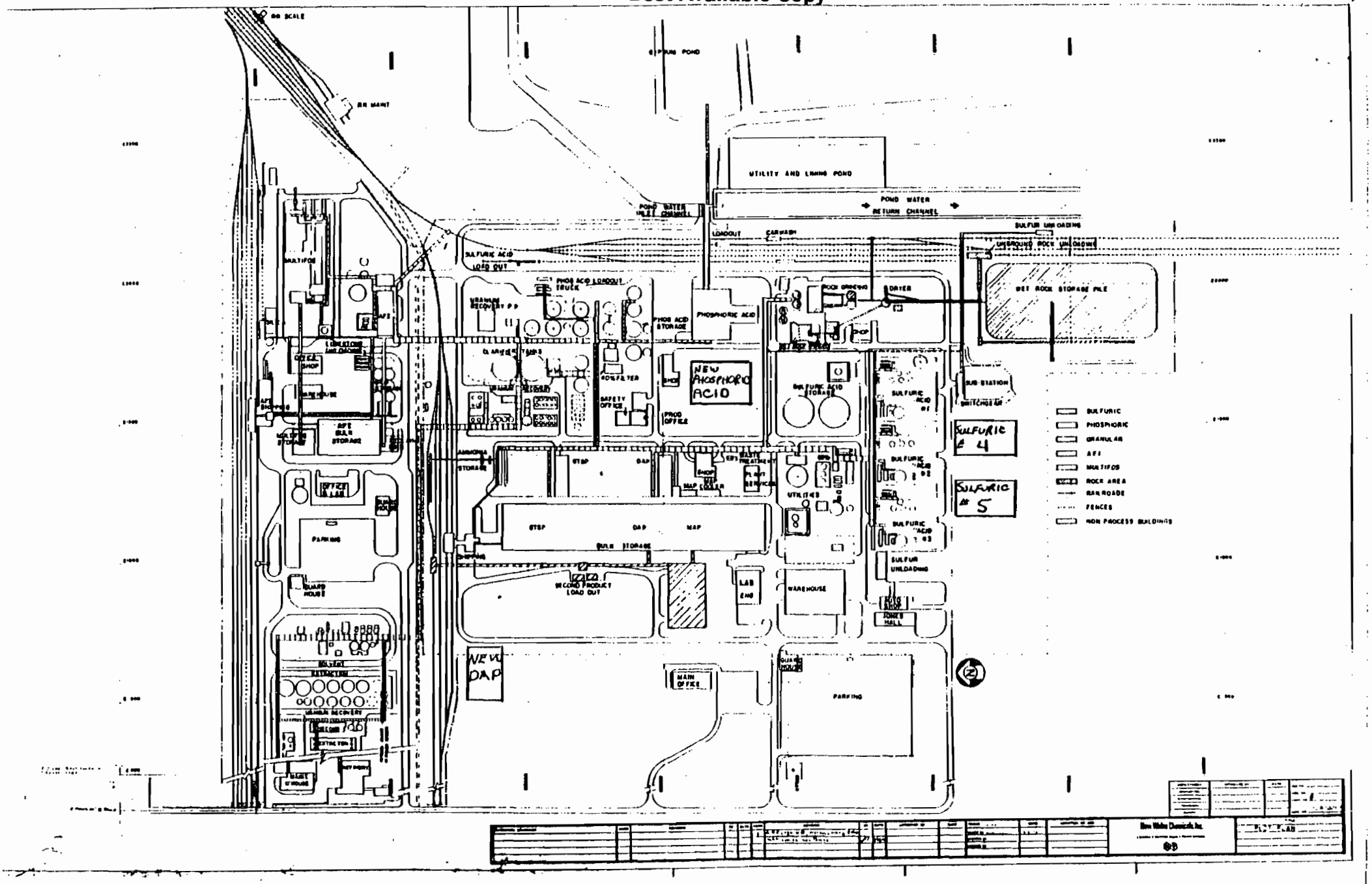
STATE OF FLORIDA

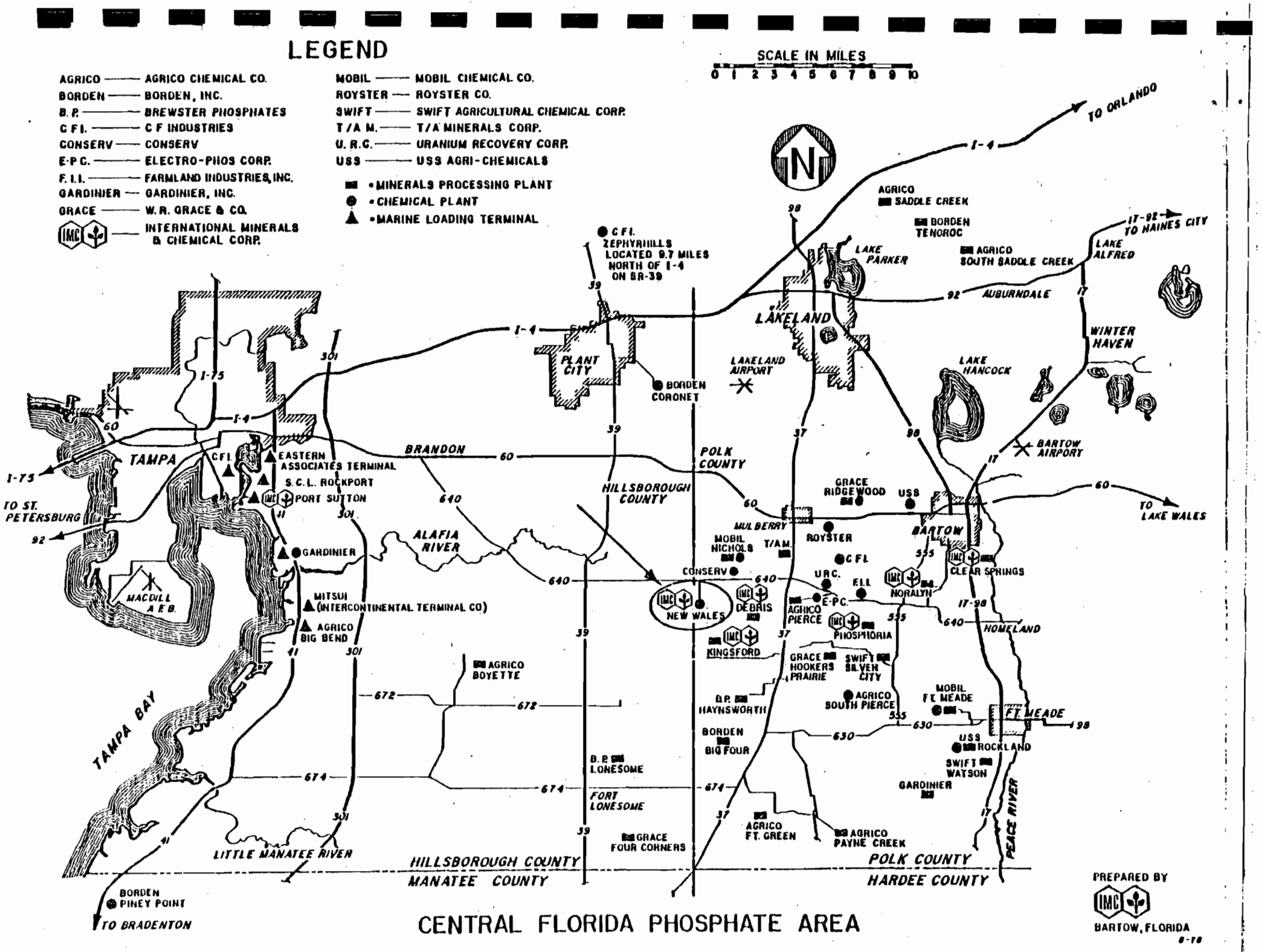
DEPARTMENT OF STATE • DIVISION OF CORPORATIONS

I certify from the records of this office that DEC CHEMICALS CORP., changed its name to; NEW WALES CHEMICALS, INC., is a corporation organized under the Laws of the State of Delaware, authorized to transact business within the State of Florida, qualified on the 1st day of June, 1977, under the new name.

I further certify that said corporation has paid all fees due this office through December 31, 1977 and its status is active.

GIVEN under my hand and the Great Seal of the State of Florida, at Tallahassee, the Capitol, this the 1st day of June 1977.





CENTRAL FLORIDA PHOSPHATE AREA

3rd Product Load-out

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

Source Type: [X] Air Pollution [ ] Incinerator

Application Type: [X] Construction [ ] Operation [ ] Modification [ ] Renewal of DER Permit No. _____

Company Name: New Wales Chemicals, Inc. County: Polk

Identify the specific emission point source(s) addressed in this application (i.e.: Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired): GTSP Truck/Rail Loadout With Bag Collectors

Source Location: Street: P. O. Box 1035 City: Mulberry

UTM: East 396.7 North 3079.4

Latitude: ___ ___ ° ___ ___ ' ___ ___ "N. Longitude: ___ ___ ° ___ ___ ' ___ ___ "W.

Appl. Name and Title: _____

Appl. Address: _____

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative of* New Wales Chemicals, Inc.

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provisions of Chapter 403, Florida Statutes, and all the rules and regulations of the Department and revisions thereof. I also understand that a permit, if granted by the Department, will be nontransferable and I will promptly notify the Department upon sale or legal transfer of the permitted establishment.

Thomas L. Craig — Thomas L Craig Vice-President & Gen. Mgr.

Name of Person Signing (please Type or Print) — Signature of the Owner or Authorized Representative and Title

Date: August 8, 1979 Telephone No.: 813-428-2531

*Attach a letter of authorization.

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgement, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the Department. It is also agreed that the undersigned will furnish the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signature: Craig A Pflaum

Name: Craig A. Pflaum (Please Type)

Company Name: New Wales Chemicals, Inc.

Florida Registration Number: 18595

(Affix Seal)

Mailing Address: P. O. Box 1035
Mulberry, Fl. 33860

Telephone No.: 813-428-2531

Date: 8-8-79

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

Construction of a GTSP truck/rail loadout system with bag collectors.

B. Schedule of Project Covered in this Application (Construction Permit Application Only).

Start of Construction: _____ Completion of Construction: _____

C. Costs of Construction. (Note: show breakdown of estimated costs only for individual components/units of the project serving pollution control purpose. Information on actual costs shall be furnished with the application for operation permit.)

Estimated total cost of purchase and installation of two (2) bag collectors is $100,000.00

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

None

E. Is the emission point considered to be a New* or Existing* source, as defined in Chapter 17-2.02(5) & (6), Florida Administrative Code?
X New _____ Existing

F. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? _____ Yes X No

G. Normal Equipment Operating Time: hrs/day: 24 ; days/wk: 7 ; wks/yr: 52 ; if seasonal, describe: _____

*Note

New Source: any source which came into existence, began operation or construction, or received a permit for the latter on or after January 18, 1972.

Existing Source: any source in existence, operating or under construction (or with a permit to construct) prior to January 18, 1972.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES

(other than incinerators)

A. Raw Materials and Chemicals Used in Your Process:

Description	Utilization Rate lbs./hr.	Relate to Flow Diagram
GTSP	150	loadout

B. Process Rate:

1) Total Process Input Rate (lbs./hr.): 150 TPH

2) Product Weight (lbs/hr): 150 TPH

C. Airborne Contaminants Discharged:

Name of Contaminant	Actual Discharge*		Allowed Discharge Rate Per Ch. 17-2, F.A.C.**	Allowable Discharge*** (lbs./hr.)	Relate to Flow Diagram
	lbs./hr.	T/yr.			
particulate	1.63	7.10	process wt.	38.6	blower discharge

D. Control Devices:

Name and Type (Model and Serial No.)	Contaminant	Efficiency†	Range of Particles Size Collected (in microns)	Basis for Efficiency††
mikro-pulsaire	particulate	99.9	< 1 micron	design
#2215-8-TR-20				
mikro-pulsaire	"	99.9	< 1 micron	design
#180S-8-TR-20				

*Estimate only if this is an application to construct.

**Specify units in accordance with emission standards prescribed within Section 17-2.04, F.A.C. (e.g. Section 17-2.04(6)(e)1.a. specifies that new fossil fuel steam generators are allowed to emit particulate matter at a rate of 0.1 lbs. per million BTU heat input computed as a maximum 2-hour average.)

***Using above example for a source with 260 million BTU per hour heat input: $\frac{0.1 \text{ lbs}}{\text{MMBTU}} \times \frac{260 \text{ MMBTU}}{\text{hr.}} = 26 \text{ lbs./hr.}$

†See Supplemental Requirements, page 5, number 2.

††Indicate whether the efficiency value is based upon performance testing of the device or design data.

E. Fuels: NA

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg./hr.	Max./hr.	

*Units: Natural Gas - MMCF/hr.; Fuel Oils, Coal - lbs./hr.

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lb./gal.

Heat Capacity: _____ BTU/lb. _____ BTU/gal.

Other Fuel Contaminants: _____

F. If applicable, indicate the percent of fuel used for space heating: NA Annual Average: _____ Maximum: _____

G. Indicate liquid or solid wastes generated and method of disposal:

Solid waste to storage

H. Emission Stack Geometry and Flow Characteristics (provide data for each stack):

Stack Height: 100 ft. Stack Diameter: 1.5/1.5 ft.

Gas Flow Rate: 10500/8500 ACFM Gas Exit Temperature: ambient °F

Water Vapor Content: ambient %

SECTION IV: INCINERATOR INFORMATION

NA

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq. & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs./Hr. Incinerated							

Description of Waste: _____

Total Weight Incinerated (lbs./hr.): _____ Design Capacity (lbs./hr.): _____

Approximate Number of Hours of Operation per Day: _____ , days/week: _____

Manufacturer: _____

Date Constructed: _____ Model No.: _____

	Volume $(ft.)^3$	Heat Release (BTU/hr.)	Fuel		Temp. (°F)
			Type	BTU/hr.	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter: _____ Stack Temp.: _____ °F

Gas Flow Rate: _____ ACFM _____ DSCFM*

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of Pollution Control Device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (Specify): _____

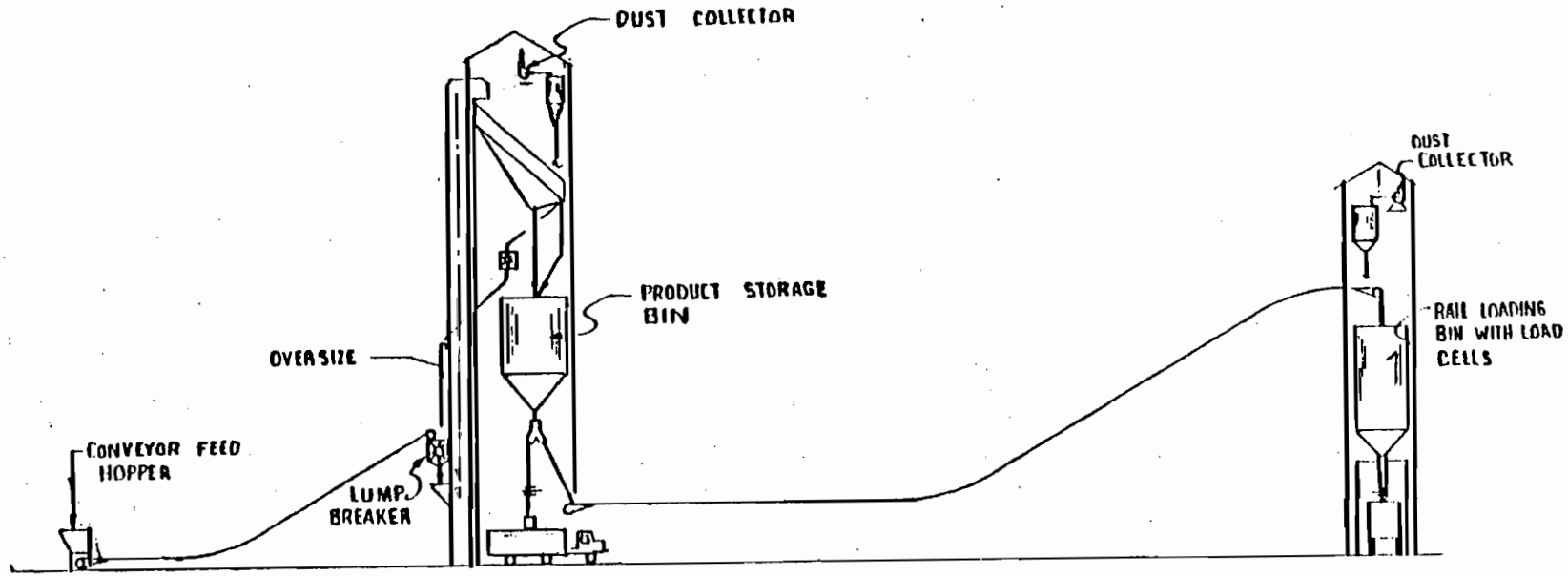
Brief Description of Operating Characteristics of Control Device: _____

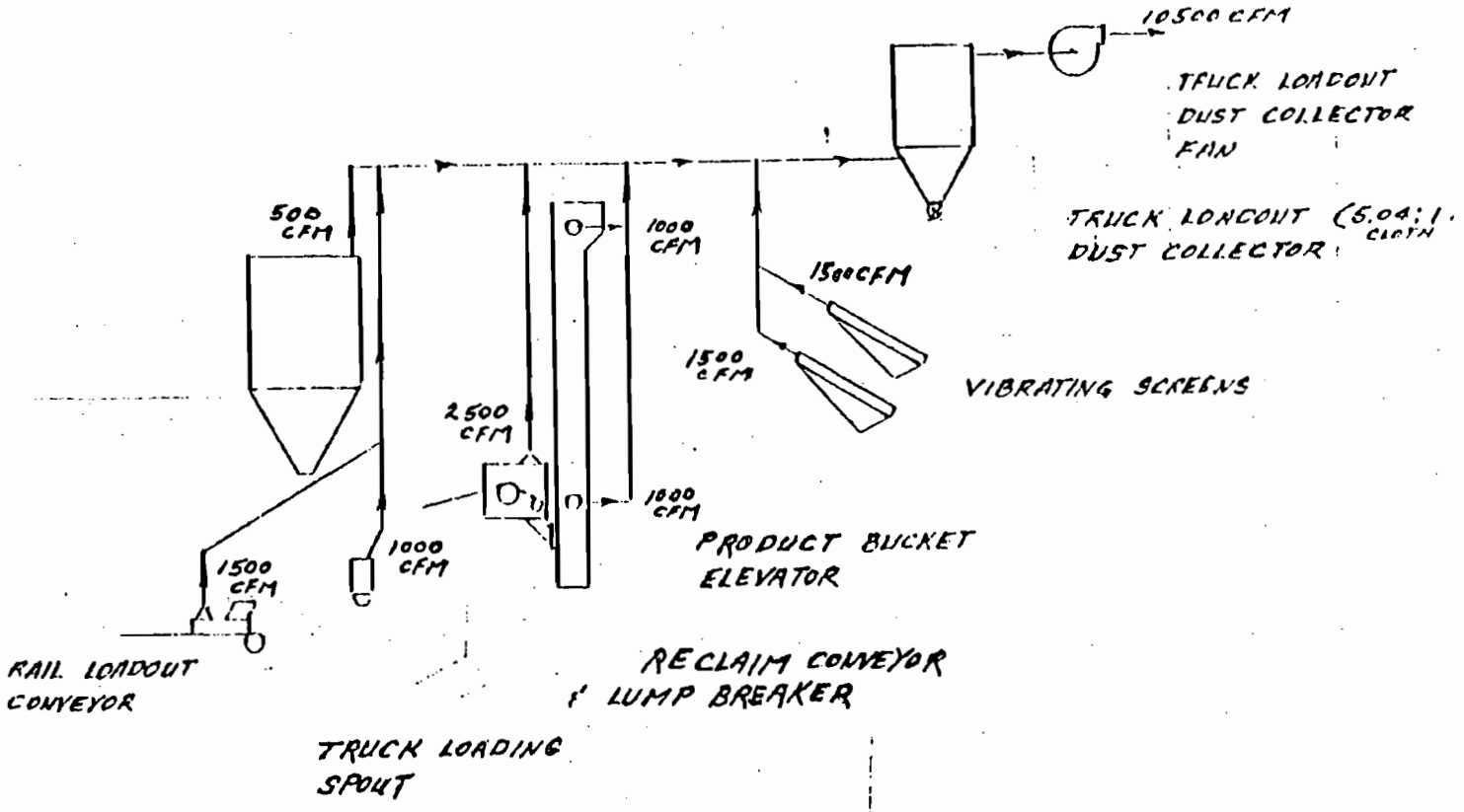
Ultimate Disposal of Any Effluent Other Than That Emitted From the Stack (scrubber water, ash, etc.): _____

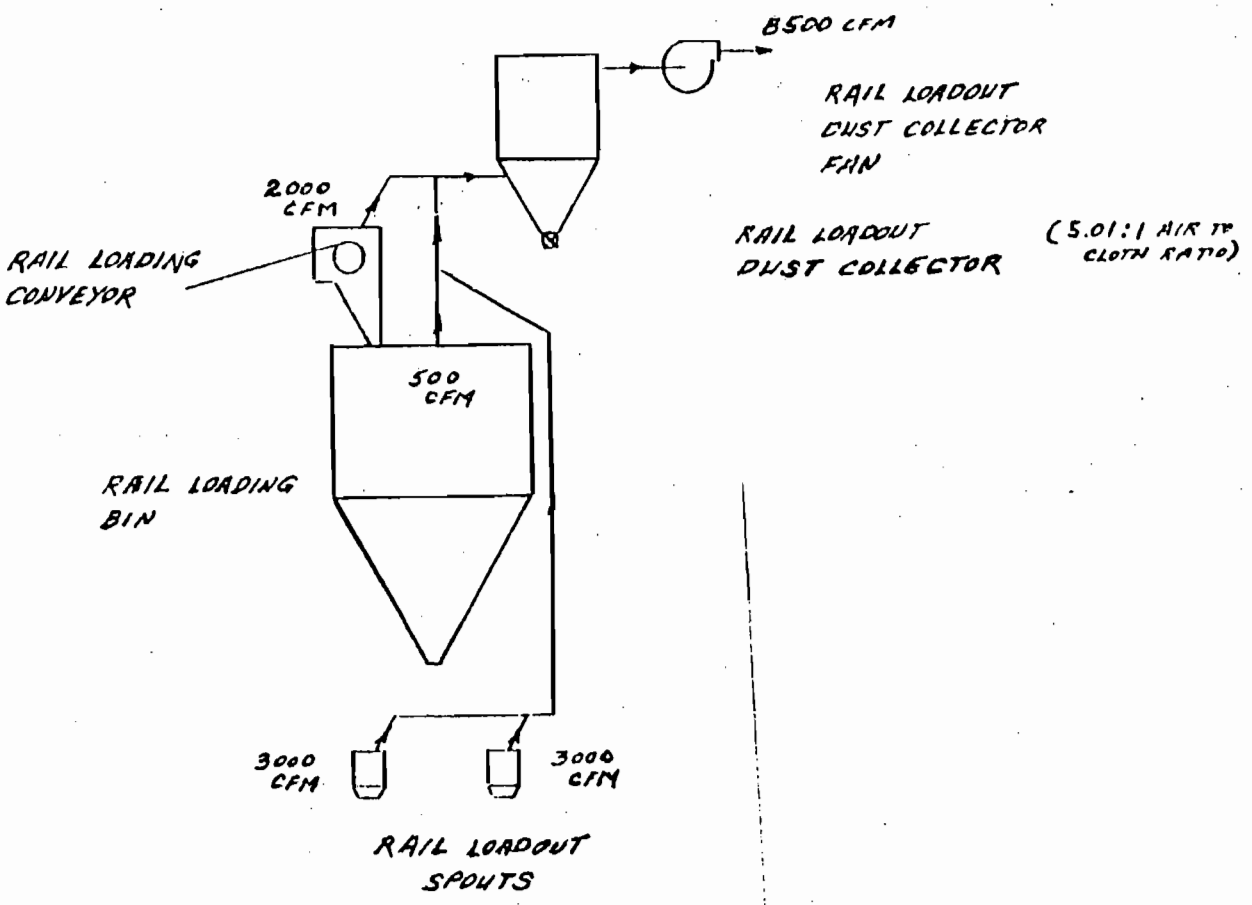
SECTION V: SUPPLEMENTAL REQUIREMENTS

Please Provide the Following Supplements Required For All Pollution Sources:

1. Total process input rate and product weight - show derivation.
2. *Efficiency estimation of control device(s) - show derivation. Include pertinent test and/or design data.*
3. An 8½" x 11" flow diagram, which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
4. *An 8½" x 11" plot plan of facility showing the exact location of manufacturing processes and outlets for airborne emissions.* Relate all flows to the flow diagram.
5. An 8½" x 11" plot plan showing the exact location of the establishment, and points of airborne emissions in relation to the surrounding area, residences and other permanent structures and roadways. (Example: Copy of USGS topographic map.)
6. *Description and sketch of storm water control measures taken both during and after construction.*
7. An application fee of $20.00, unless exempted by Chapter 17-4.05(3), FAC, made payable to the Department of Environmental Regulation.
8. With construction permit application, include design details for control device(s). Example: for baghouse, include cloth to air ratio: for scrubber, include cross-sectional sketch; etc.
9. Certification by the P.E. with the operation permit application that the source was constructed as shown in the construction permit application.


DUST COLLECTOR
DUST COLLECTOR
PRODUCT STORAGE BIN
OVERSIZE
RAIL LOADING BIN WITH LOAD CELLS
CONVEYOR FEED HOPPER
LUMP BREAKER


10500 CFM
TRUCK LOADOUT DUST COLLECTOR FAN
TRUCK LOADOUT (5.04:1 CLOTH) DUST COLLECTOR
500 CFM
1000 CFM
1500 CFM
1500 CFM
VIBRATING SCREENS
2500 CFM
1000 CFM
PRODUCT BUCKET ELEVATOR
1500 CFM
1000 CFM
RAIL LOADOUT CONVEYOR
RECLAIM CONVEYOR & LUMP BREAKER
TRUCK LOADING SPOUT


8500 CFM
RAIL LOADOUT
DUST COLLECTOR
FAN
2000
CFM
RAIL LOADOUT
DUST COLLECTOR
(5.01:1 AIR TO
CLOTH RATIO)
RAIL LOADING
CONVEYOR
500
CFM
RAIL LOADING
BIN
3000
CFM
3000
CFM
RAIL LOADOUT
SPOUTS

HARRY L. CARROLL
Vice President
Florida

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

November 22, 1978

Mr. T. L. Craig
Vice President & General Manager
New Wales Chemicals, Inc.
Post Office Box 1035
Mulberry, Florida 33860

Dear Tom:

This letter is your authorization to sign on behalf of New Wales Chemicals, Inc. the various applications for permits, specifically the applications for operating permits from the Florida Department of Environmental Regulation.

Very truly yours,

Harry L. Carroll

t

Post Office Box 3807 • Lakeland, Florida 33802 • (813) 648-5081

STATE OF FLORIDA

DEPARTMENT OF STATE • DIVISION OF CORPORATIONS

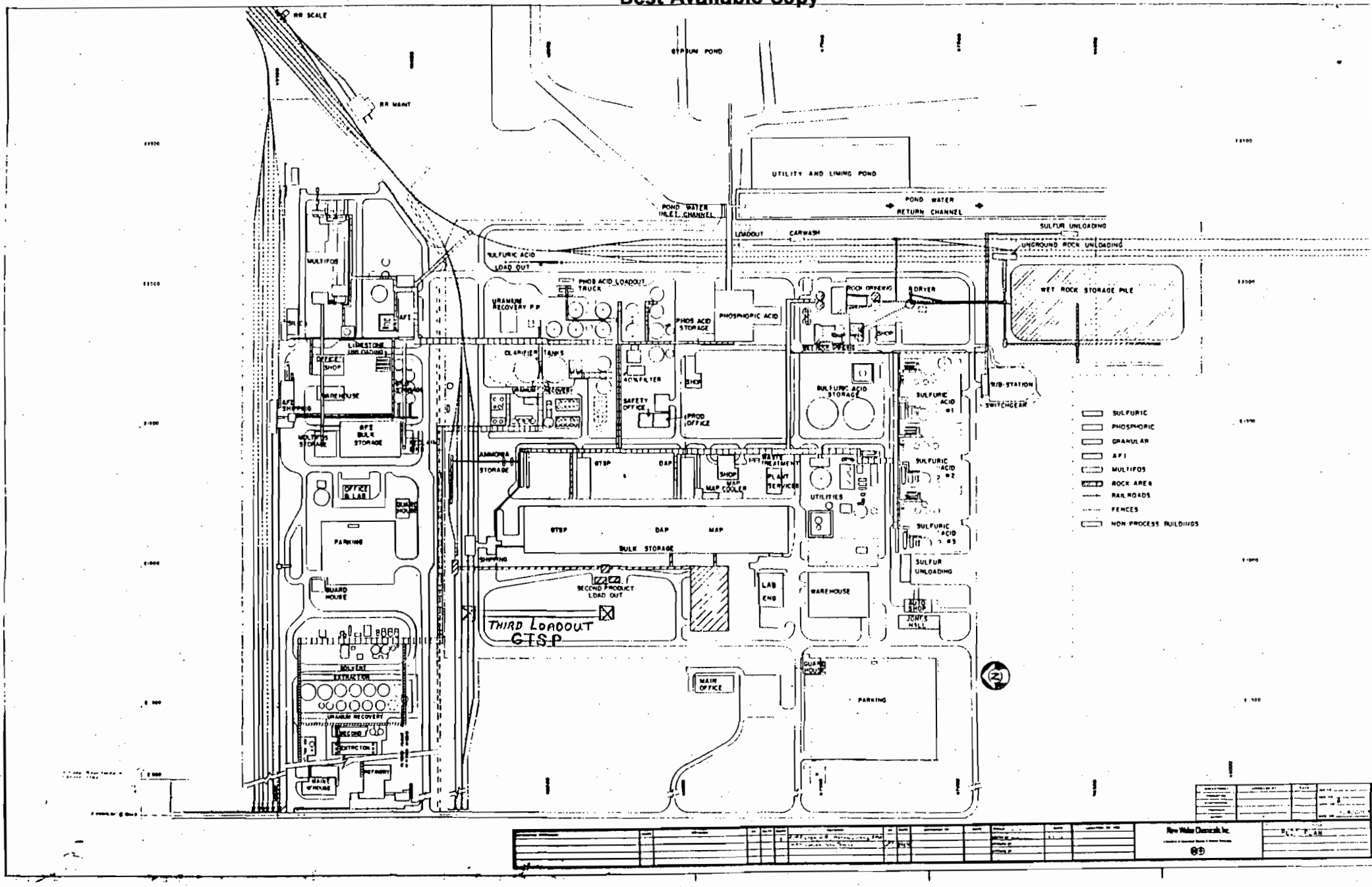
I certify from the records of this office that IMC CHEMICALS CORP., changed its name to; NEW WALES CHEMICALS, INC., is a corporation organized under the Laws of the State of Delaware, authorized to transact business within the State of Florida, qualified on the 1st day of June, 1977, under the new name.

I further certify that said corporation has paid all fees due this office through December 31, 1977 and its status is active.

GIVEN under my hand and the Great Seal of the State of Florida, at Tallahassee, the Capitol, this the 1st day of June 1977.

SECRETARY OF STATE

Best Available Copy



STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

Source Type: [X] Air Pollution [ ] Incinerator

Application Type: [X] Construction [ ] Operation [ ] Modification [ ] Renewal of DER Permit No. _____

Company Name: New Wales Chemicals, Inc. County: Polk

Identify the specific emission point source(s) addressed in this application (i.e.: Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired): Limestone storage with bag collectors at water treatment station.

Source Location: Street: P. O. Box 1035 City: Mulberry, Fl. 33860

UTM: East 396.7 North 3079.4

Latitude: ___ ___ ° ___ ___ ' ___ ___ "N. Longitude: ___ ___ ° ___ ___ ' ___ ___ "W.

Appl. Name and Title: Thomas L. Craig, Vice-President and General Manager

Appl. Address: P. O. Box 1035, Mulberry, Fl. 33860

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative of* New Wales Chemicals, Inc.

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provisions of Chapter 403, Florida Statutes, and all the rules and regulations of the Department and revisions thereof. I also understand that a permit, if granted by the Department, will be nontransferable and I will promptly notify the Department upon sale or legal transfer of the permitted establishment.

Thomas L. Craig — Name of Person Signing (please Type or Print)

Thomas L. Craig Vice-President & Gen. Mgr. — Signature of the Owner or Authorized Representative and Title

Date: August 8, 1979 Telephone No.: 813-428-2531

*Attach a letter of authorization.

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgement, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the Department. It is also agreed that the undersigned will furnish the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signature: Craig A. Pflaum

Name: Craig A. Pflaum (Please Type)

Company Name: New Wales Chemicals, Inc.

Florida Registration Number: 18595

(Affix Seal)

Mailing Address: P. O. Box 1035
Mulberry, Fl.
33860

Telephone No.: 813-428-2531

Date: 8-8-79

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

New Wales proposes to construct a double liming station to treat contaminated water for reuse internally. The treatment will consist of 1st treating the contaminated water with limestone to elevate the pH of the water sufficiently to precipitate the F. The limestone will be trucked to New Wales and hydraulically transferred to a storage bin. A bag collector will be employed to prevent fugitive dust. After treatment to remove F, lime is then used to further elevate the pH for P205 removal. The lime will also be trucked to New Wales and hydraulically transferred to a storage bin with a bag collector.

B. Schedule of Project Covered in this Application (Construction Permit Application Only).

Start of Construction: 9/1/79 Completion of Construction: 12/1/80

C. Costs of Construction. (Note: show breakdown of estimated costs only for individual components/units of the project serving pollution control purpose. Information on actual costs shall be furnished with the application for operation permit.)

Bag collector cost plus installation ea. $10,000.00

Total cost for two (2) units $20,000.00 est.

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

None

E. Is the emission point considered to be a New* or Existing* source, as defined in Chapter 17-2.02(5) & (6), Florida Administrative Code?

X New ____ Existing

F. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

G. Normal Equipment Operating Time: hrs/day: 24 ; days/wk: 7.0 ; wks/yr: 26 ; if seasonal, describe: ____

The potential for water treatment is only expected to occur during the rainy season.

*Note

New Source: any source which came into existence, began operation or construction, or received a permit for the latter on or after January 18, 1972.

Existing Source: any source in existence, operating or under construction (or with a permit to construct) prior to January 18, 1972.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES

(other than incinerators)

A. Raw Materials and Chemicals Used in Your Process:

Description	Utilization Rate lbs./hr.	Relate to Flow Diagram
Limestone	12 TPH	Limestone Storage
Lime	2.5 TPH	Lime Storage
Contaminated Water	2000 GPM	

B. Process Rate:

1) Total Process Input Rate (lbs./hr.): water/limestone/lime 514.5 TPH

2) Product Weight (lbs/hr): treated water 375 TPH

C. Airborne Contaminants Discharged:

Name of Contaminant	Actual Discharge* lbs./hr.	Actual Discharge* T/yr.	Allowed Discharge Rate Per Ch. 17-2, F.A.C.**	Allowable Discharge*** (lbs./hr.)	Relate to Flow Diagram
Limestone	≦ 0.15	≦ 0.5	$E=3.59^{P062}$	16.8	"bag collector"
Lime	≦ 0.03	≦ 0.1	$E=3.59^{P062}$	6.3	" "

D. Control Devices:

Name and Type (Model and Serial No.)	Contaminant	Efficiency†	Range of Particles Size Collected (in microns)	Basis for Efficiency††
Mikro-pulsaire	particulate	99.9	< 1 micron	Design
bag collector				
Mikro-pulsaire	particulate	99.9	< 1 micron	Design
bag collector				

*Estimate only if this is an application to construct.

**Specify units in accordance with emission standards prescribed within Section 17-2.04, F.A.C. (e.g. Section 17-2.04(6)(e)1.a. specifies that new fossil fuel steam generators are allowed to emit particulate matter at a rate of 0.1 lbs. per million BTU heat input computed as a maximum 2-hour average.)

***Using above example for a source with 260 million BTU per hour heat input: $\frac{0.1 \text{ lbs}}{\text{MMBTU}} \times \frac{260 \text{ MMBTU}}{\text{hr.}} = 26 \text{ lbs./hr.}$

†See Supplemental Requirements, page 5, number 2.

††Indicate whether the efficiency value is based upon performance testing of the device or design data.

E. Fuels: NA

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg./hr.	Max./hr.	

*Units: Natural Gas - MMCF/hr.; Fuel Oils, Coal - lbs./hr.

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lb./gal.

Heat Capacity: _____ BTU/lb. _____ BTU/gal.

Other Fuel Contaminants: _____

F. If applicable, indicate the percent of fuel used for space heating: NA Annual Average: _____ Maximum: _____

G. Indicate liquid or solid wastes generated and method of disposal:

Solid waste returned to storage bins.

H. Emission Stack Geometry and Flow Characteristics (provide data for each stack):

Stack Height: est. 75 ft. elevation ft. Stack Diameter: 1 ft.

Gas Flow Rate: 1600 ea. ACFM Gas Exit Temperature: ambient °F

Water Vapor Content: ambient %

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq. & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs./Hr. Incinerated							

Description of Waste: _____

Total Weight Incinerated (lbs./hr.): _____ Design Capacity (lbs./hr.): _____

Approximate Number of Hours of Operation per Day: _____ , days/week: _____

Manufacturer: _____

Date Constructed: _____ Model No.: _____

	Volume $(ft.)^3$	Heat Release (BTU/hr.)	Fuel		Temp. (°F)
			Type	BTU/hr.	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter: _____ Stack Temp.: _____ °F

Gas Flow Rate: _____ ACFM _____ DSCFM*

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of Pollution Control Device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (Specify): _____

Brief Description of Operating Characteristics of Control Device: _____

Ultimate Disposal of Any Effluent Other Than That Emitted From the Stack (scrubber water, ash, etc.): _____

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please Provide the Following Supplements Required For All Pollution Sources:

1. Total process input rate and product weight - show derivation.
2. Efficiency estimation of control device(s) - show derivation. Include pertinent test and/or design data.
3. An 8½" x 11" flow diagram, which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
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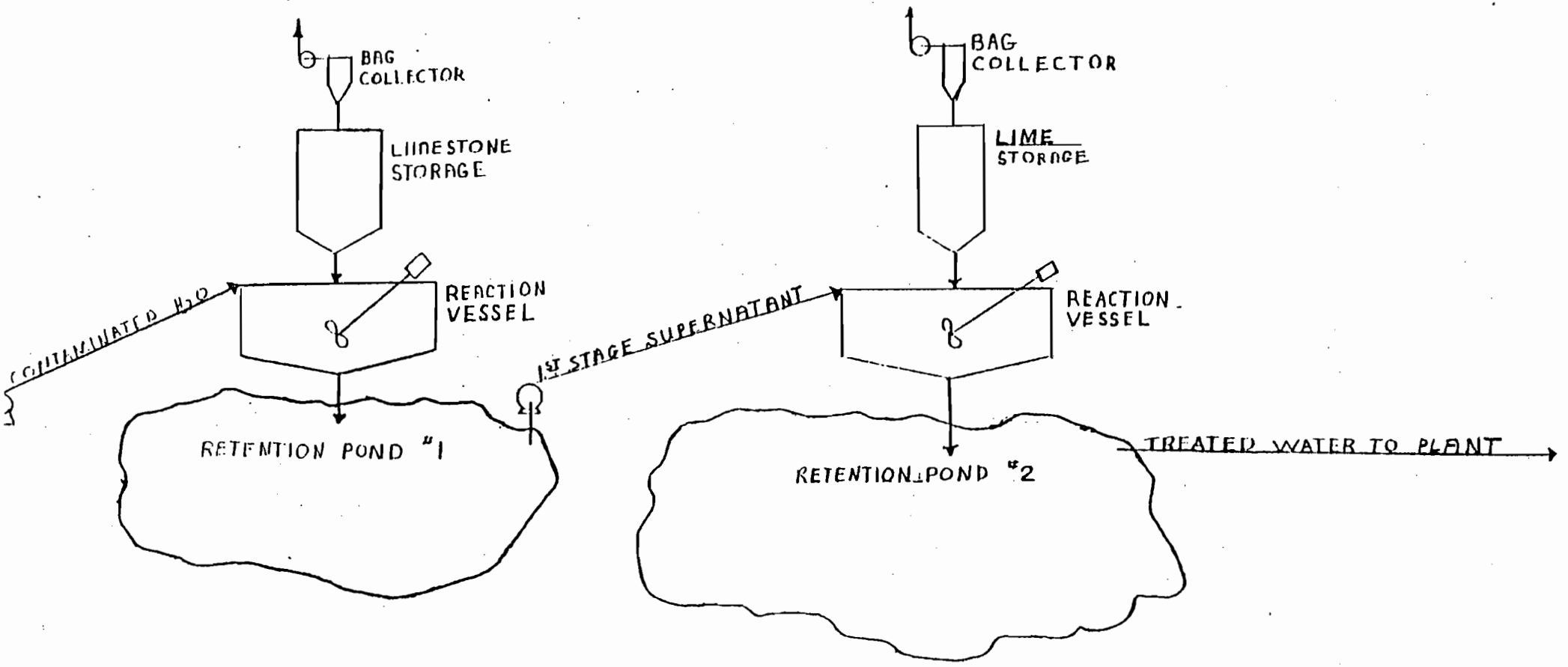
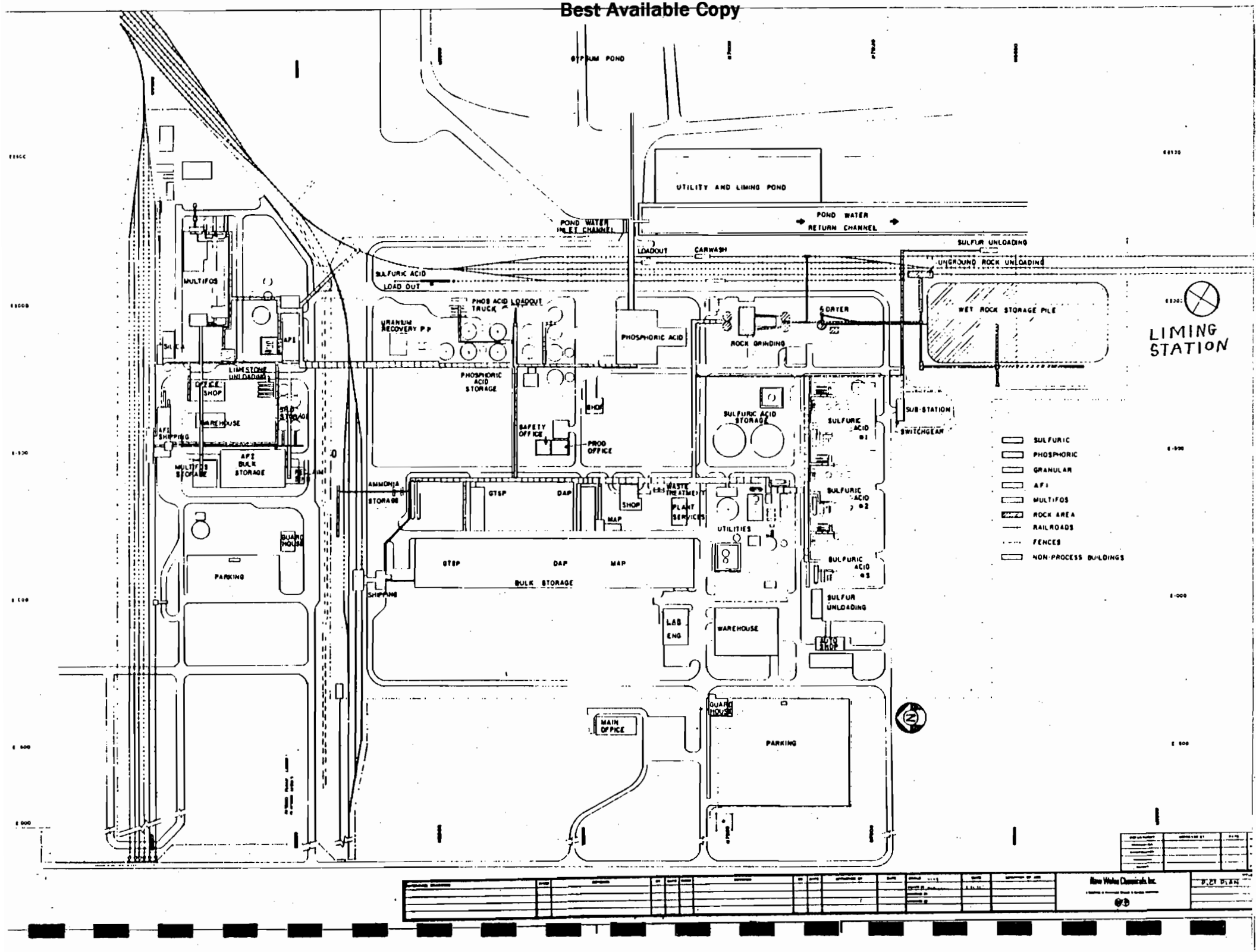
8. With construction permit application, include design details for control device(s). Example: for baghouse, include cloth to air ratio; for scrubber, include cross-sectional sketch; etc.
9. Certification by the P.E. with the operation permit application that the source was constructed as shown in the construction permit application.



CONTAMINATED WATER TREATMENT CIRCUIT



HARRY L. CARROLL
Vice President
Florida

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

November 22, 1978

Mr. T. L. Craig
Vice President & General Manager
New Wales Chemicals, Inc.
Post Office Box 1035
Mulberry, Florida 33860

Dear Tom:

This letter is your authorization to sign on behalf of New Wales Chemicals, Inc. the various applications for permits, specifically the applications for operating permits from the Florida Department of Environmental Regulation.

Very truly yours,

Harry L. Carroll

t

Post Office Box 3607 • Lakeland, Florida 33802 • (813) 646-5061

STATE OF FLORIDA

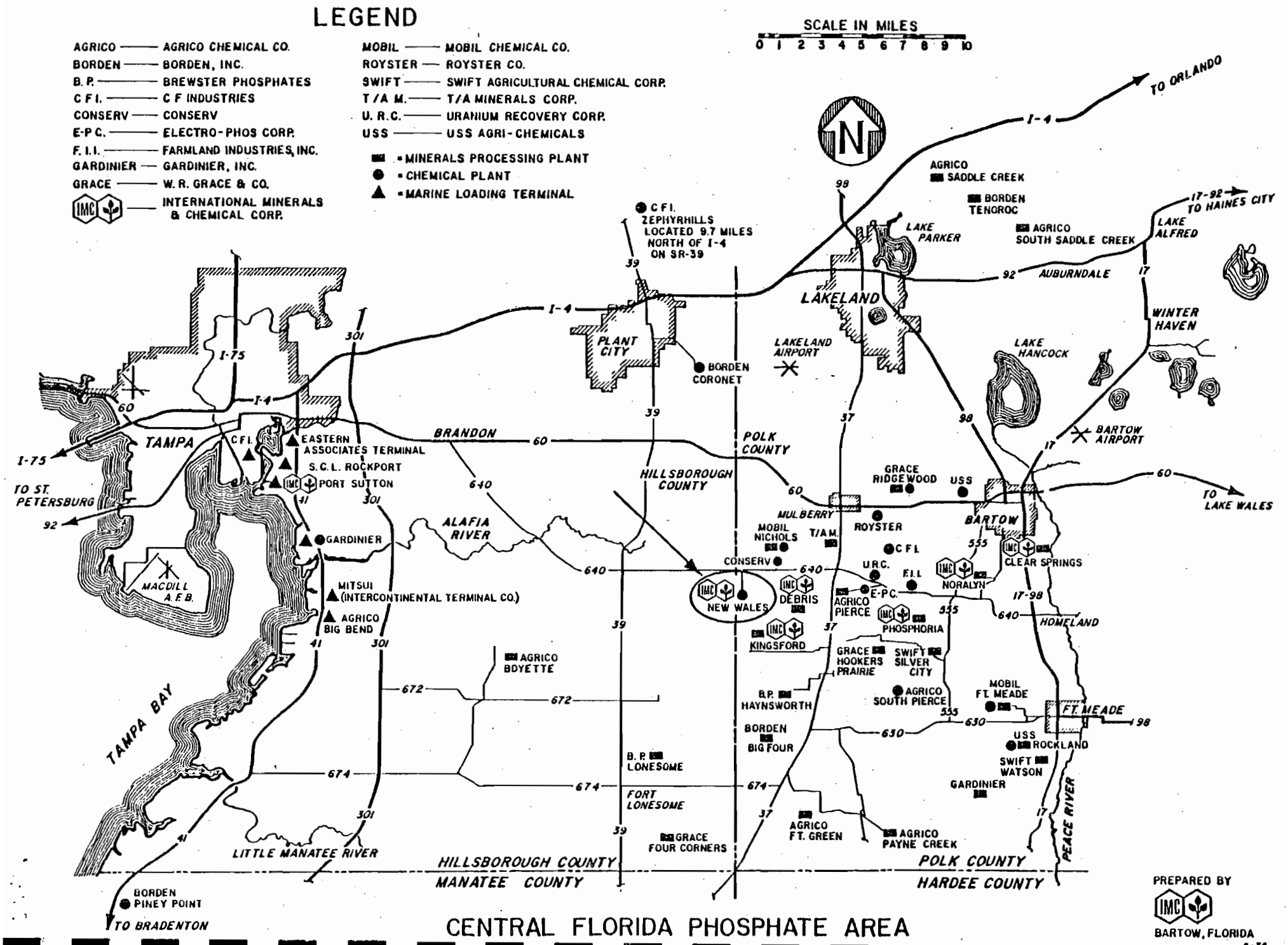
DEPARTMENT OF STATE • DIVISION OF CORPORATIONS

I certify from the records of this office that IMC CHEMICALS CORP., changed its name to; NEW WALES CHEMICALS, INC., is a corporation organized under the Laws of the State of Delaware, authorized to transact business within the State of Florida, qualified on the 1st day of June, 1977, under the new name.

I further certify that said corporation has paid all fees due this office through December 31, 1977 and its status is active.

GIVEN under my hand and the Great Seal of the State of Florida, at Tallahassee, the Capitol, this the 1st day of June 1977.

Secretary of State



CENTRAL FLORIDA PHOSPHATE AREA

SECTION 5

AIR QUALITY IMPACT

AIR QUALITY IMPACT ANALYSIS

Air quality modelling has been conducted to evaluate the impact of sulfur dioxide and particulate matter emissions from the modified New Wales facility. The modelling has established the baseline level for these pollutants and the impact of new or modified sources (all sources constructed since January 6, 1975). The impact of new or modified sources within 50 km of the New Wales complex have also been included in the air quality analysis.

The air quality modelling for both long-term and short-term impacts was conducted in accordance with guidelines established by EPA (Guideline For Air Quality Models, March 1978).

With sulfur dioxide the annual, the 24-hour and the 3-hour time periods were investigated. With particulate matter the annual period and the 24-hour period were evaluated.

The annual period was evaluated for both pollutants by using the Air Quality Display Model (AQDM). As previously stated all sources within 50 km of the New Wales Chemical Complex were included in the evaluation. Meteorological data from Tampa for the period 1970-1974 were used.

For the 24- and 3-hour periods, the CRSTER and PTMTPW models were used. The CRSTER was used to establish the meteorological conditions resulting in the highest second-high concentrations at various directions from the fertilizer complex. The meteorological data base used was for the 1970-1974 period from Tampa, Florida. Once the meteorological conditions were established, these data plus emission data from various sources were input into the PTMTPW model and the point of maximum impact was determined. Receptor spacing of 0.1 km were used in determining the point of maximum impact.

The results of the modelling are summarized in the following Table and Figures. In reviewing the Figures summarizing the short-term impacts it will be noted that in some cases the baseline concentration plus the new source impact do not add to the total calculated pollutant concentration. This is because the various concentrations were not calculated for the same exact receptors; but for different receptors in a small area. The reported values are the extremes of the calculated values.

SUMMARY OF AIR QUALITY ANALYSIS(1)
NEW WALES CHEMICAL COMPANY
POLK COUNTY, FLORIDA

Pollutant/ Time	Air Quality Standards: Fla. Std. (ug/m^3)	Baseline (ug/m^3)	Analysis: With New & Existing Sources (ug/m^3)	PSD Class II Increment (ug/m^3)	PSD Calculated Increment (ug/m^3)	PSD Fraction Increment Consumed	TSP Non-Attainment Calculated Impact (ug/m^3)
TSP							
Annual(2)	60	43	50	19	5	26.3%	< 1
24-Hour(3)	150	103	115	37	22	59.5%	< 1
SO_2							
Annual	60	12	15	20	5	25.0%	
24-Hour	260	128	163	91	40	44.0%	
3-Hour	1300	292	407	512	120	23.4%	

(1) Only the maximum impacts or pollutants levels are summarized in this Table. See Figures following for more detailed information.

(2) Calculated concentrations include 35 ug/m^3 background.

(3) Calculated concentrations include 65 ug/m^3 background.

(A)

NEW SOURCE IMPACT

ALL SOURCES SINCE 1/5/75 INCLUDING PROPOSED N.W SOURCES

(B)

BASELINE

PRE 1/5/75 SOURCES.

EXISTING & PROPOSED

MAXIMUM ~~MODEL~~ IMPACT OF SOURCES (A) & (B) MODELED TOGETHER.

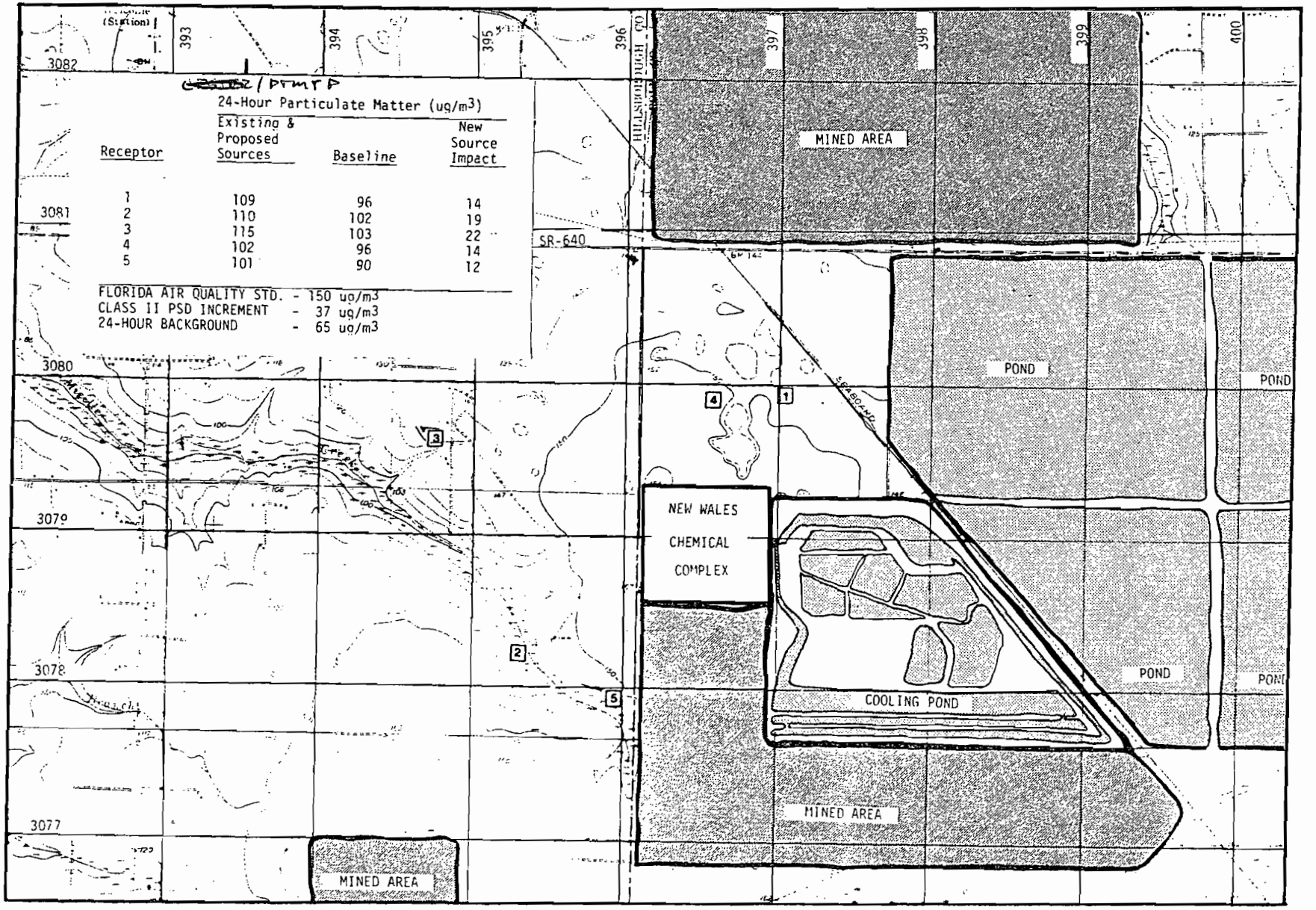


FIGURE 5-1
SUMMARY OF 24-HOUR PARTICULATE MATTER LEVELS
NEW WALES CHEMICAL COMPANY, POLK COUNTY, FLORIDA

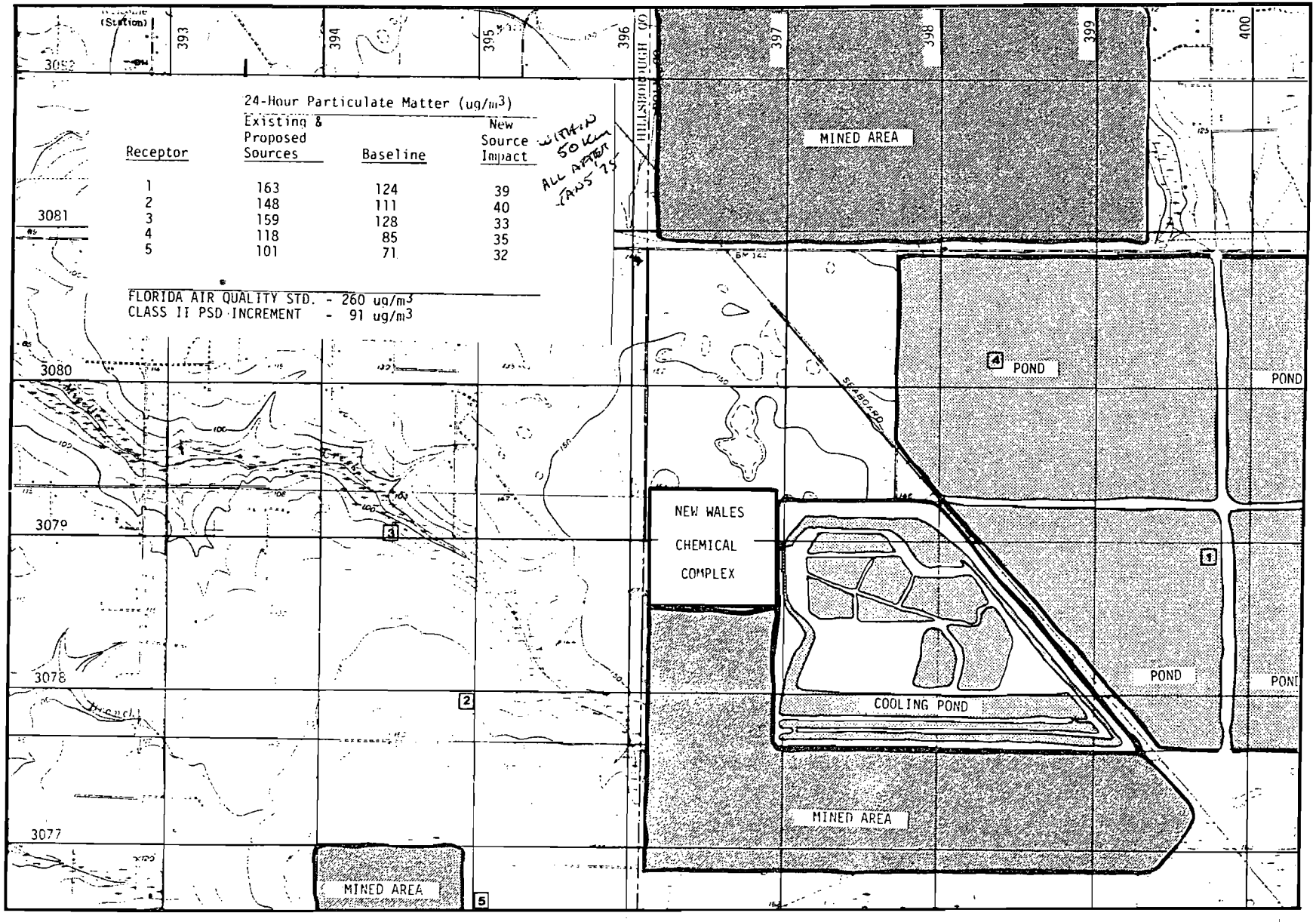


FIGURE 5-2
SUMMARY OF 24-HOUR SO_2 LEVELS
NEW WALES CHEMICAL COMPANY, POLK COUNTY, FLORIDA

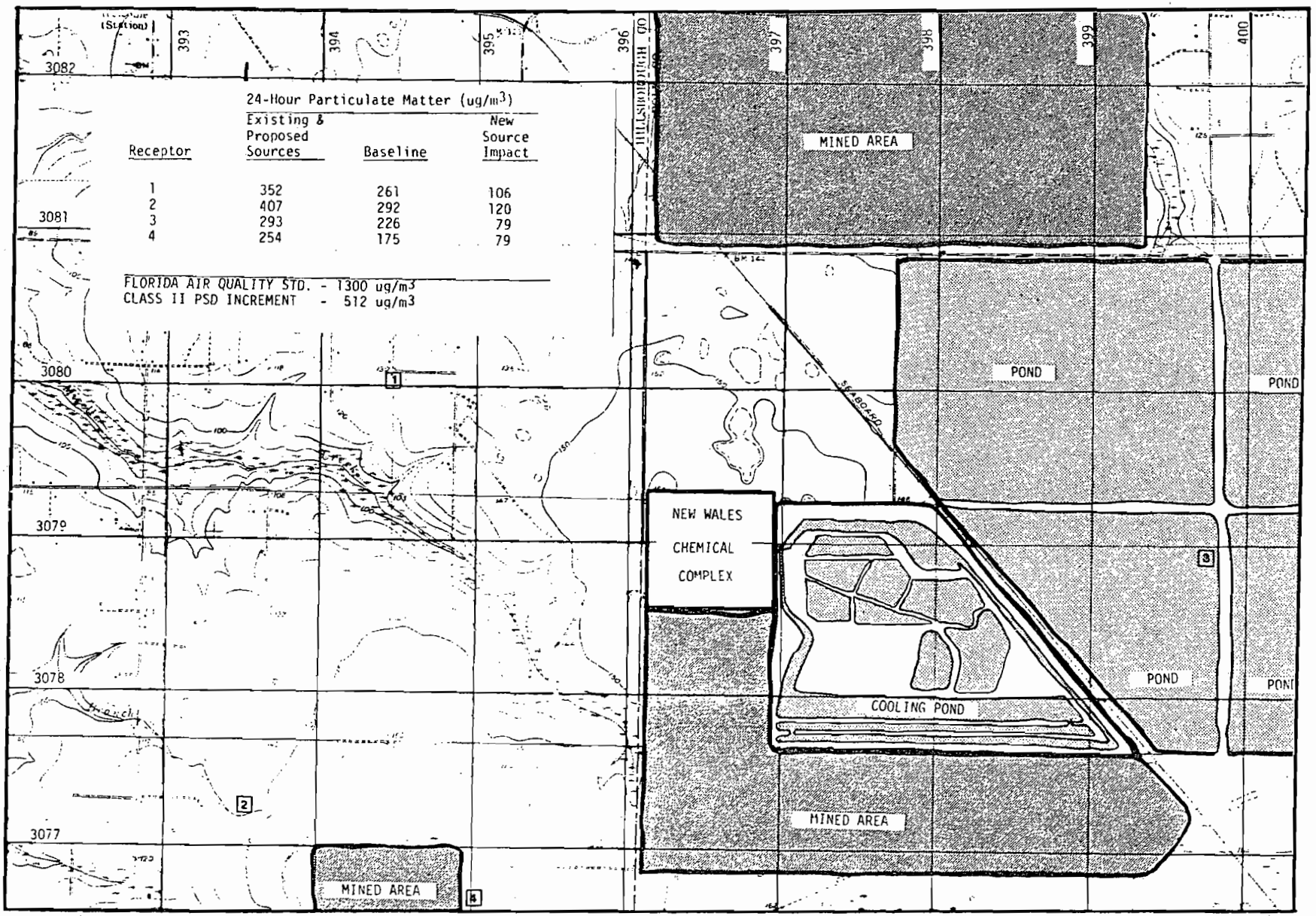


FIGURE 5-3
SUMMARY OF 3-HOUR SO_2 LEVELS
NEW WALES CHEMICAL COMPANY, POLK COUNTY, FLORIDA

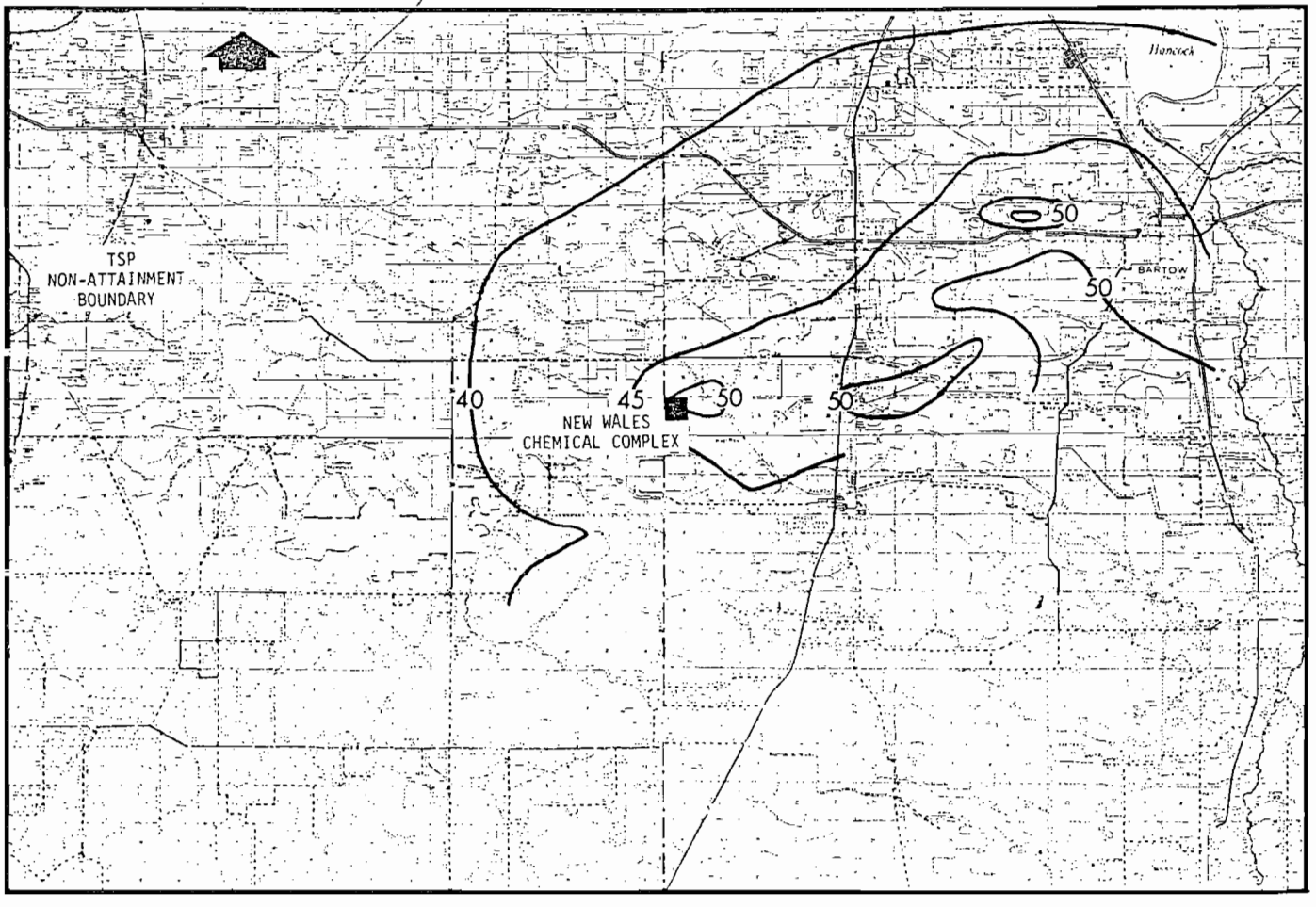


FIGURE 5-4
ANNUAL AVERAGE TSP LEVELS (ug/m^3) WITH EXISTING AND PROPOSED SOURCES;
INCLUDING 35 ug/m^3 BACKGROUND
NEW WALES CHEMICAL COMPANY, POLK COUNTY, FLORIDA

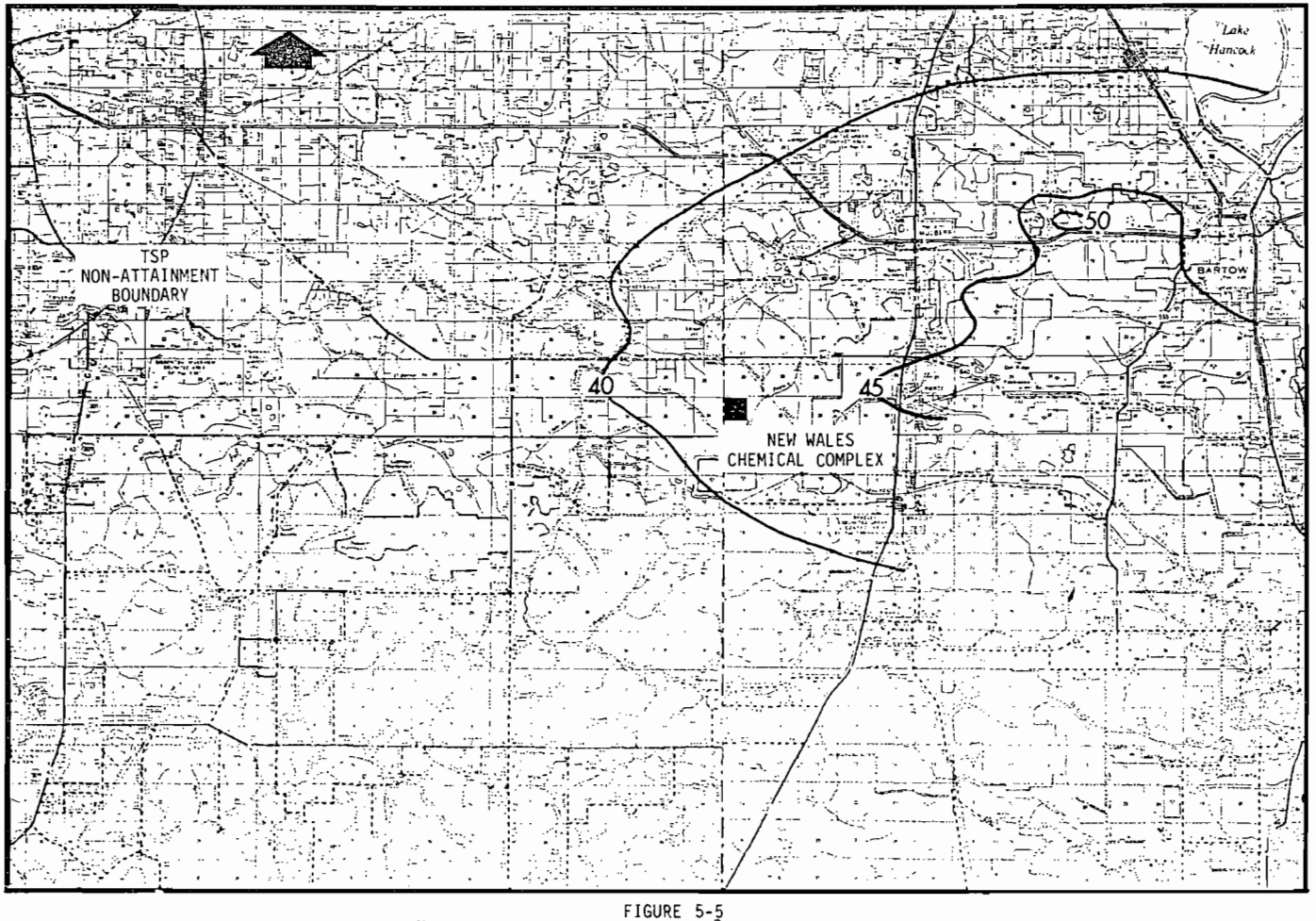


FIGURE 5-5
ANNUAL AVERAGE TSP LEVELS (ug/m^3) FOR BASELINE PERIOD;
INCLUDING 35 ug/m^3 BACKGROUND
NEW WALES CHEMICAL COMPANY, POLK COUNTY, FLORIDA

Best Available Copy

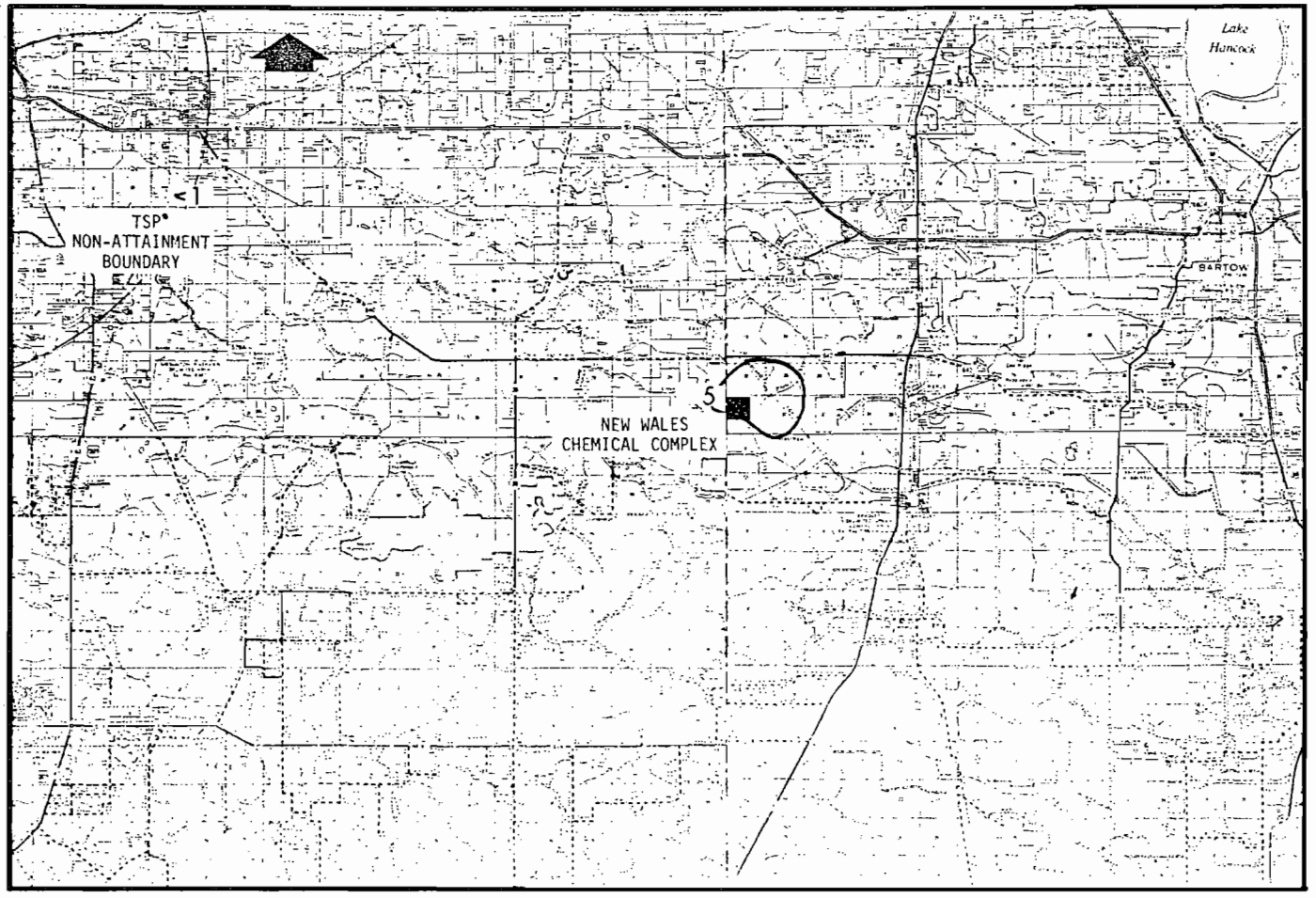


FIGURE 5-6
ANNUAL AVERAGE NEW SOURCE TSP IMPACT (ug/m^3)
NEW WALES CHEMICAL COMPANY, POLK COUNTY, FLORIDA

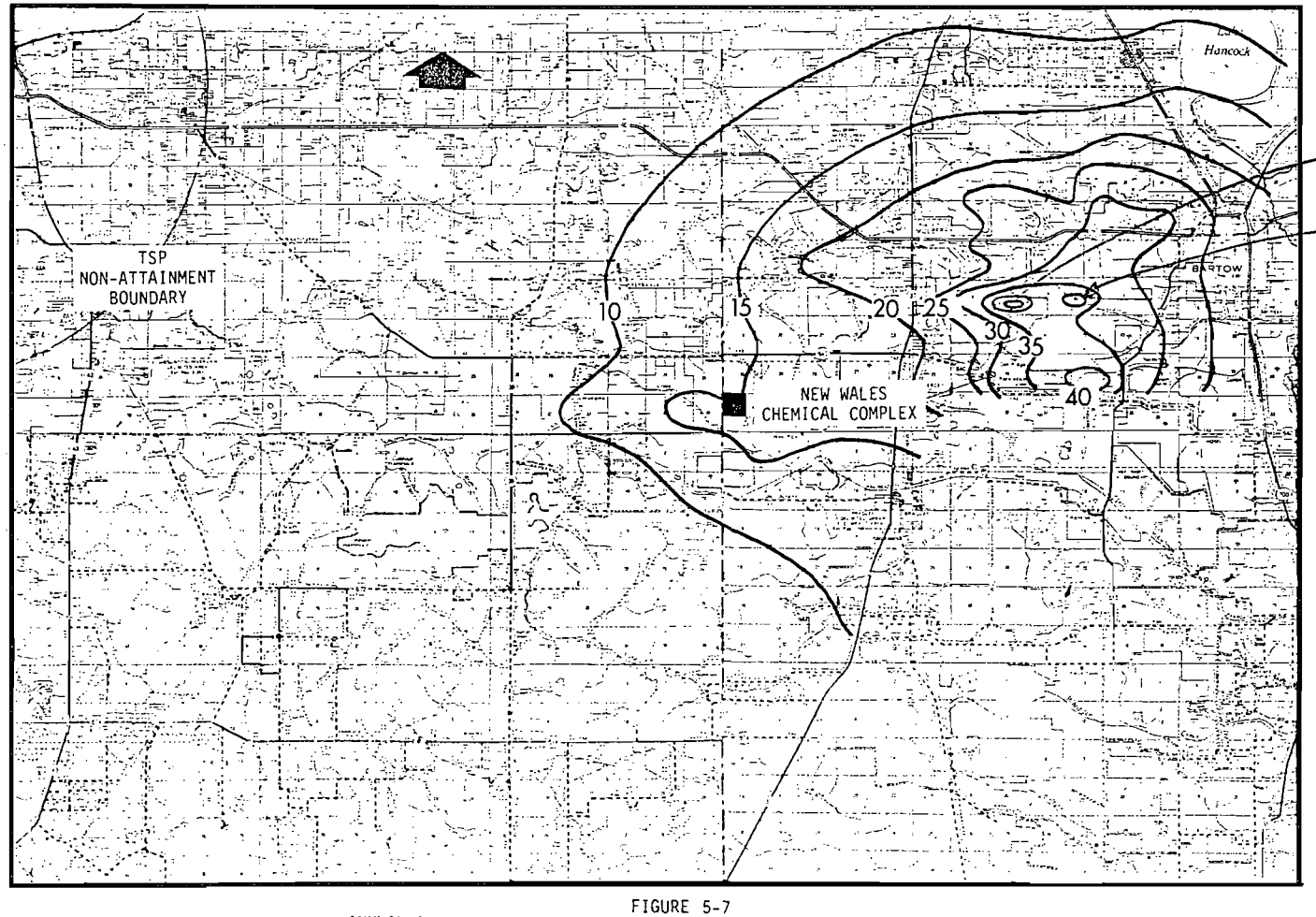


FIGURE 5-7
ANNUAL AVERAGE SO_2 LEVELS (ug/m3) WITH EXISTING AND PROPOSED SOURCES
NEW WALES CHEMICAL COMPANY, POLK COUNTY, FLORIDA

Best Available Copy

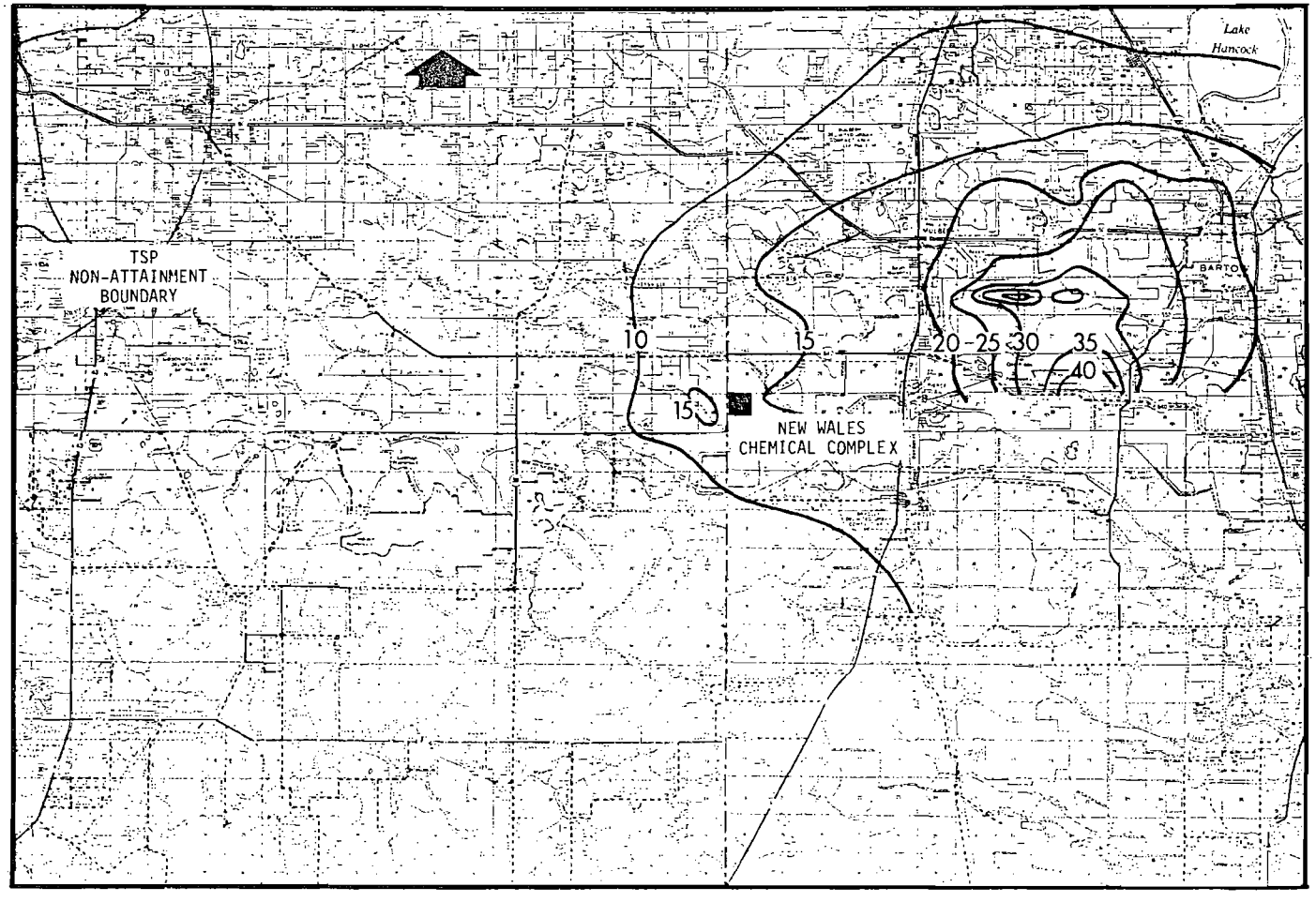


FIGURE 5-8
ANNUAL AVERAGE SO_2 LEVELS ($\mu g/m^3$) FOR BASELINE PERIOD
NEW WALES CHEMICAL COMPANY, POLK COUNTY, FLORIDA

Best Available Copy

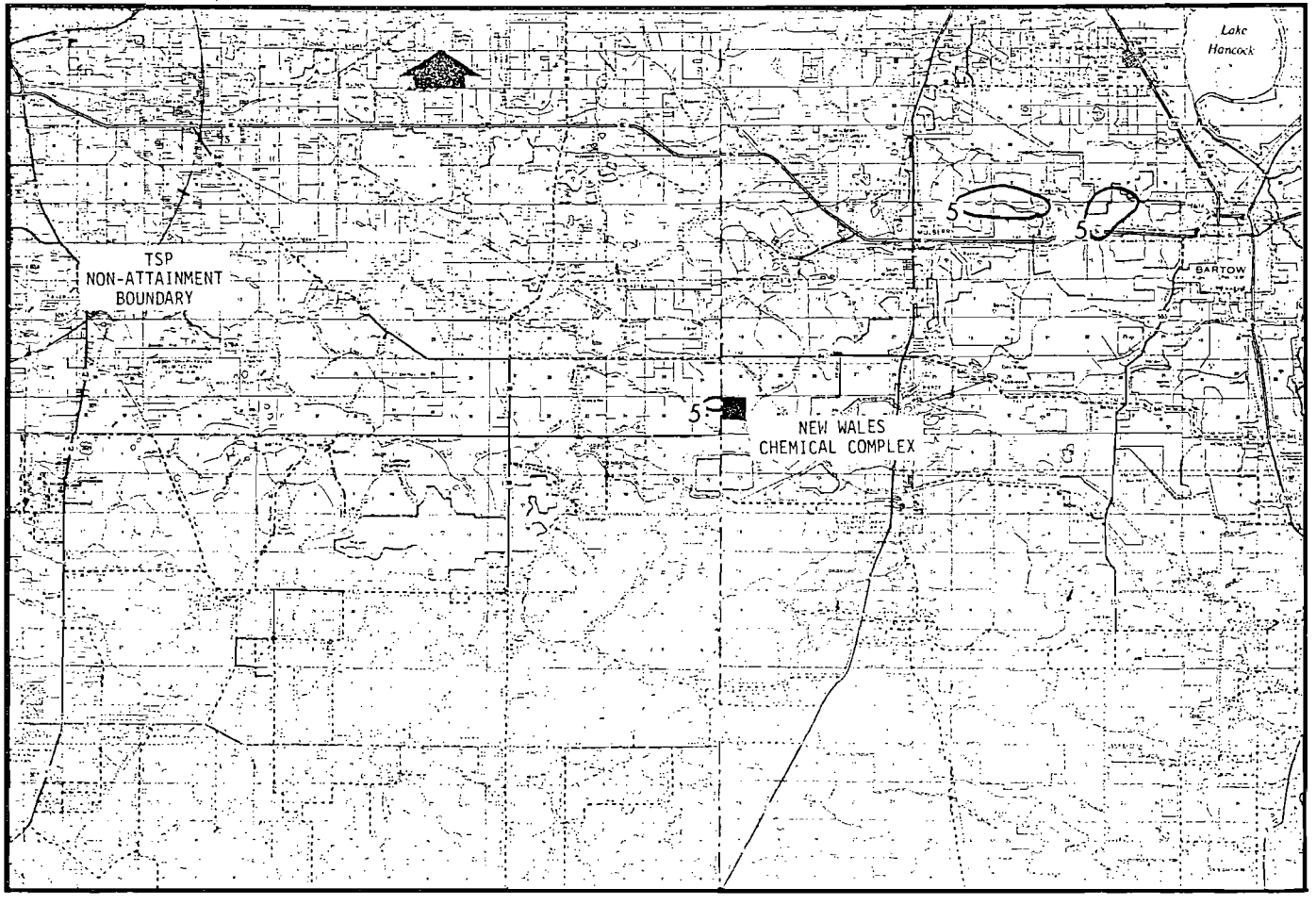


FIGURE 5-9
ANNUAL AVERAGE NEW SOURCE SO_2 IMPACT (uq/m^3)
NEW WALES CHEMICAL COMPANY, POLK COUNTY, FLORIDA

SECTION 6

SECONDARY IMPACTS

SECONDARY IMPACTS

A qualitative evaluation of the proposed expansion on soils, vegetation, visibility and commercial growth in the area has been prepared.

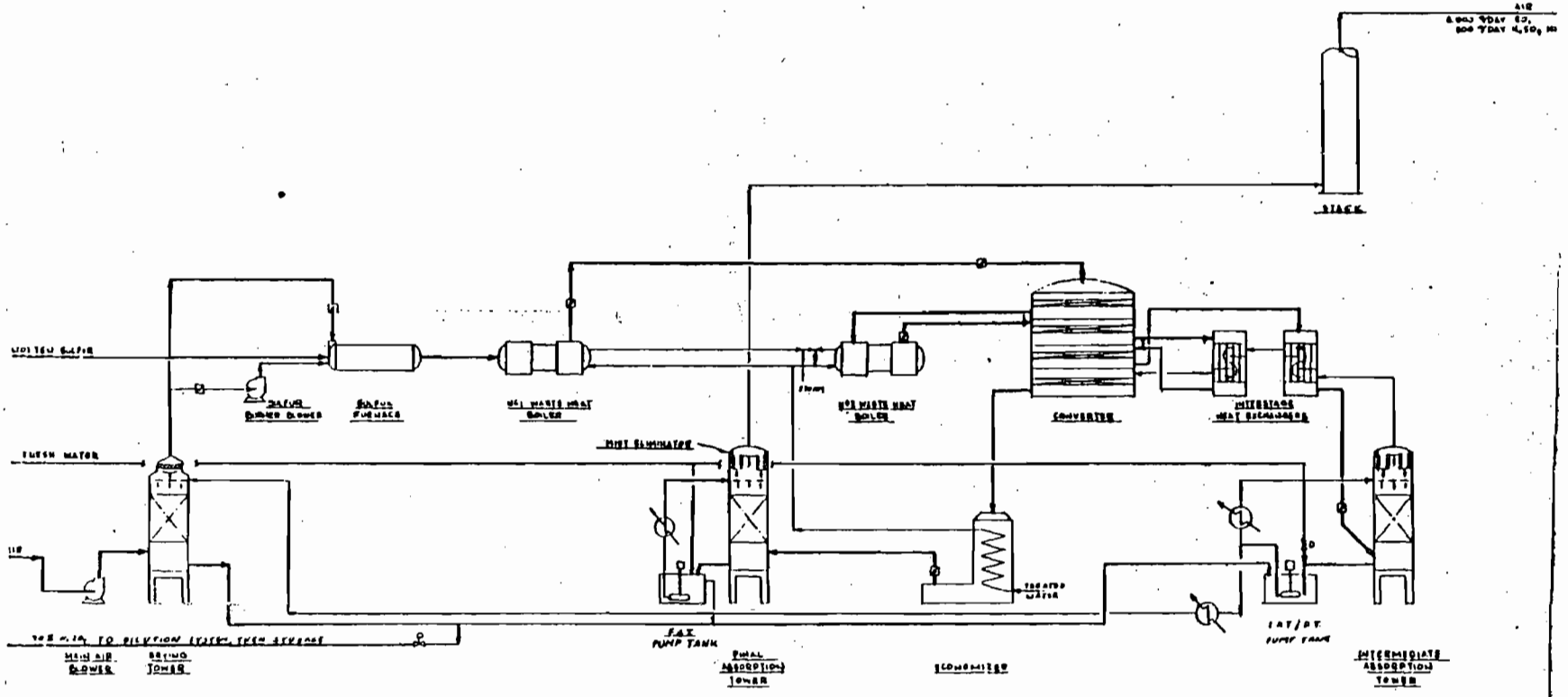
Air quality modelling has demonstrated that particulate matter and sulfur dioxide levels after the proposed expansion will be well below the national secondary air quality standards. Since these standards were promulgated to protect welfare related values, it is projected that the proposed expansion will not adversely impact soils, vegetation and visibility in the surrounding area.

Since nitrogen oxide emissions from the modified facility are only seven percent of the sulfur dioxide emissions and since the annual average sulfur dioxide impact of the proposed modification is only five micrograms per cubic meter, the ambient nitrogen oxides concentration from emissions from the proposed sources will be so low that no secondary impact is anticipated.

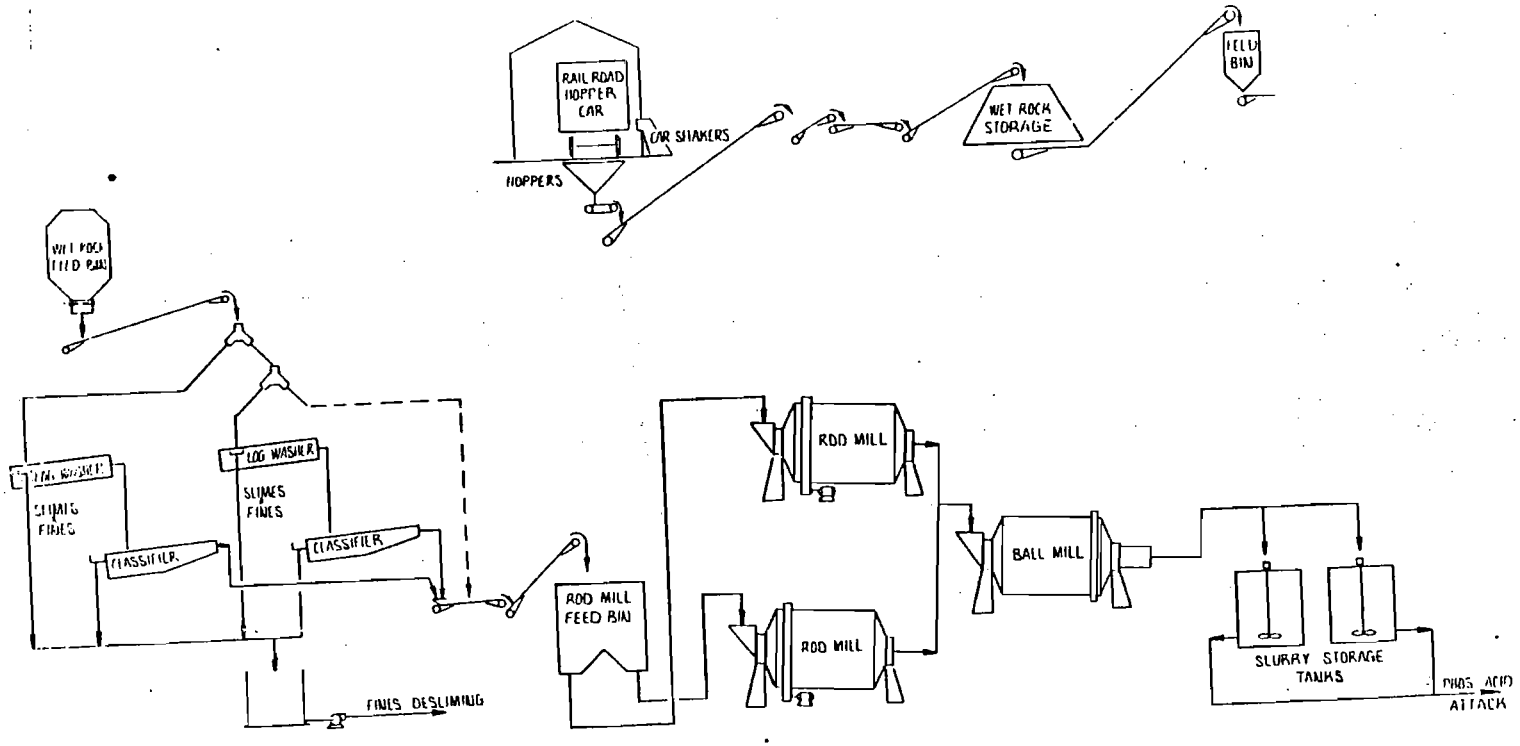
The fluoride emissions from the proposed modification are not expected to create any adverse secondary impacts. An Environmental Impact Statement recently submitted for a phosphate fertilizer complex in north Florida (Environmental Impact Statement, Occidental Chemical Company Swift Creek Chemical Complex, Hamilton County, Florida, US EPA Region IV, Atlanta, Georgia, July 1978) includes a section on the environmental impact of fluoride emissions. In this document it states that no significant adverse impact to cattle, agricultural crops or timber was established.

Regarding the impact of commercial growth in the vicinity, the entire southwest section of Polk County is given to phosphate rock mining and processing. The modification proposed by New Wales will represent only a small fraction of the total industry capacity in the county and will; therefore, not have a significant impact on industrial or commercial growth in the area.

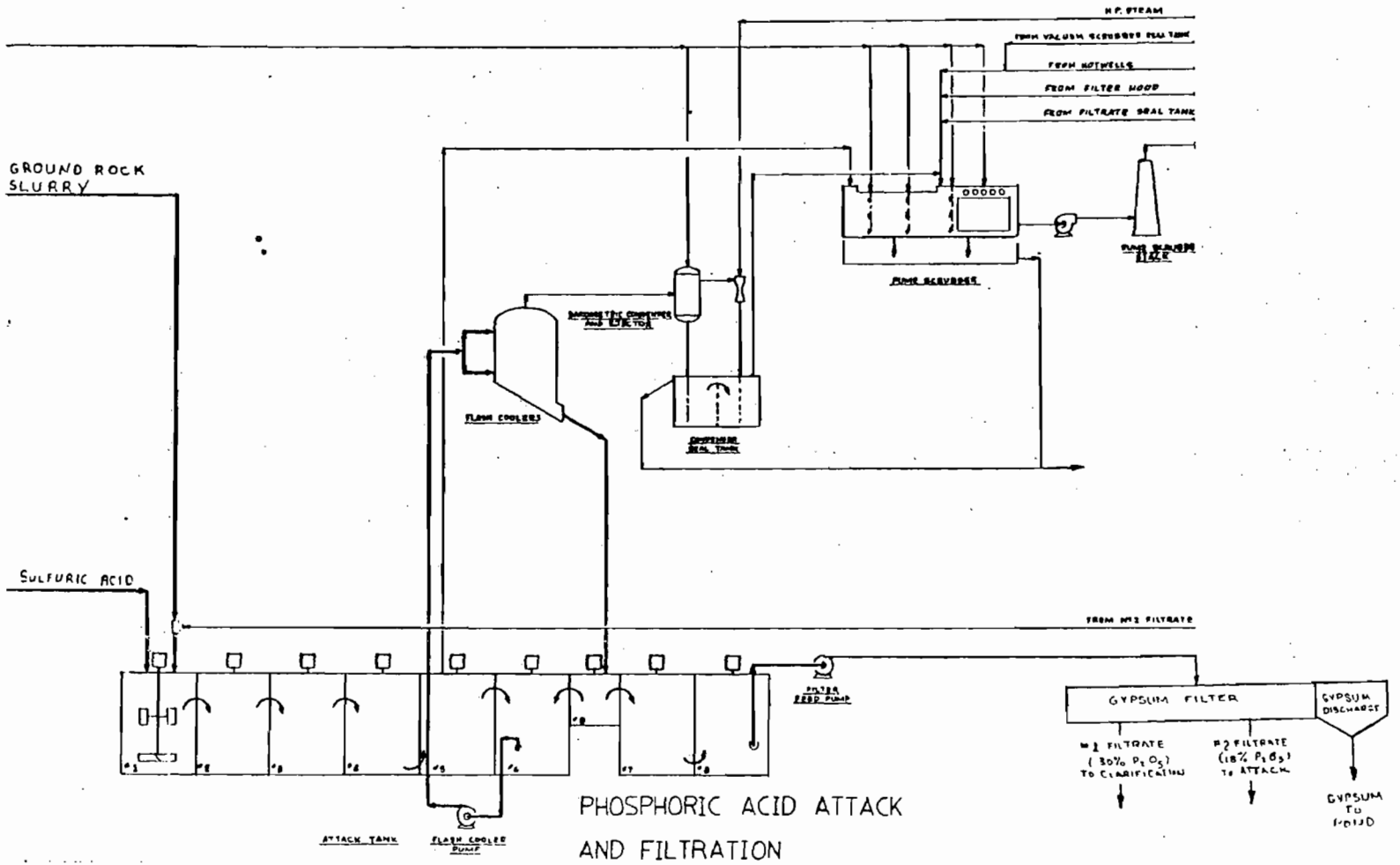
growth impacts



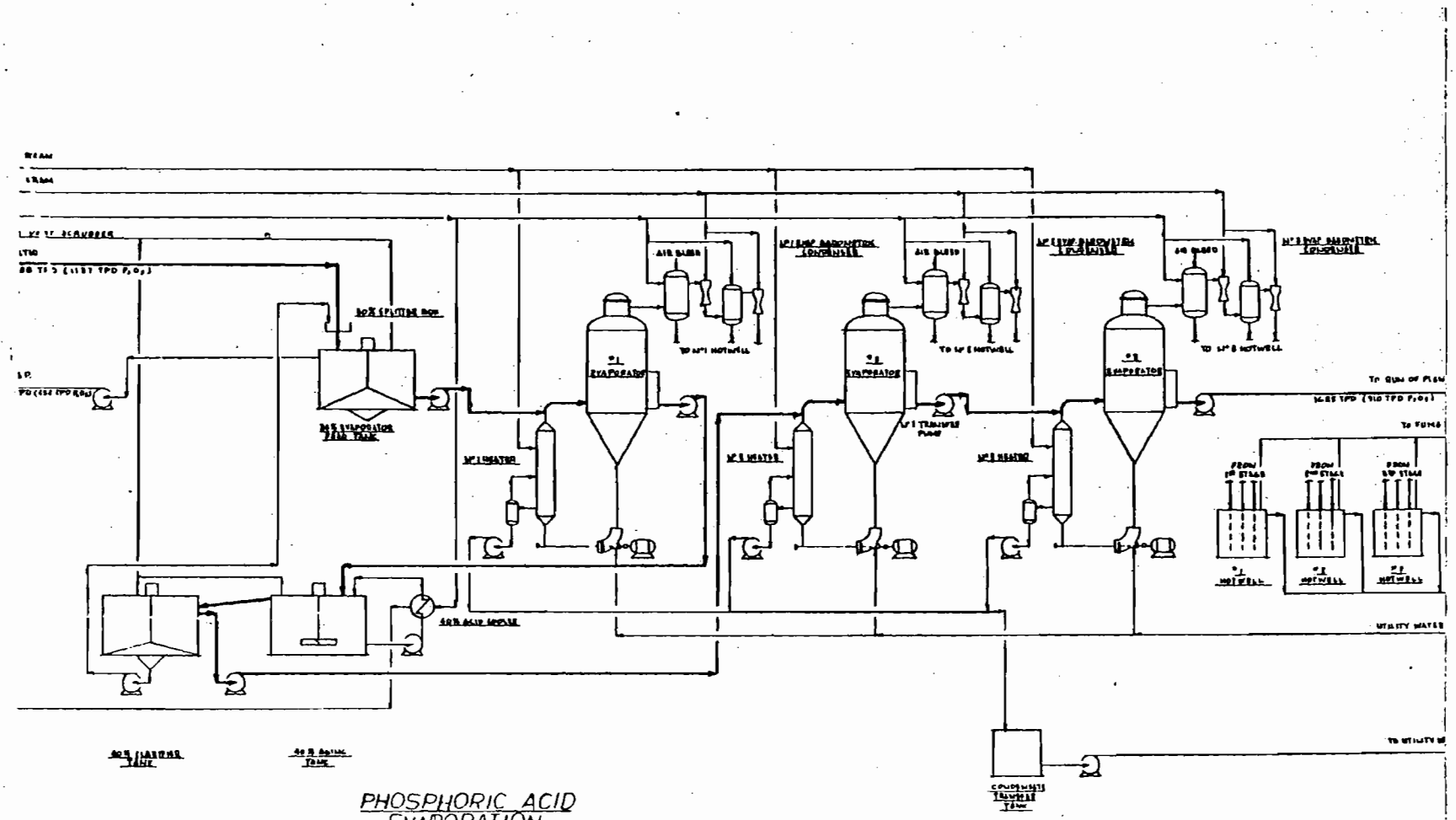
SULFURIC ACID PRODUCTION



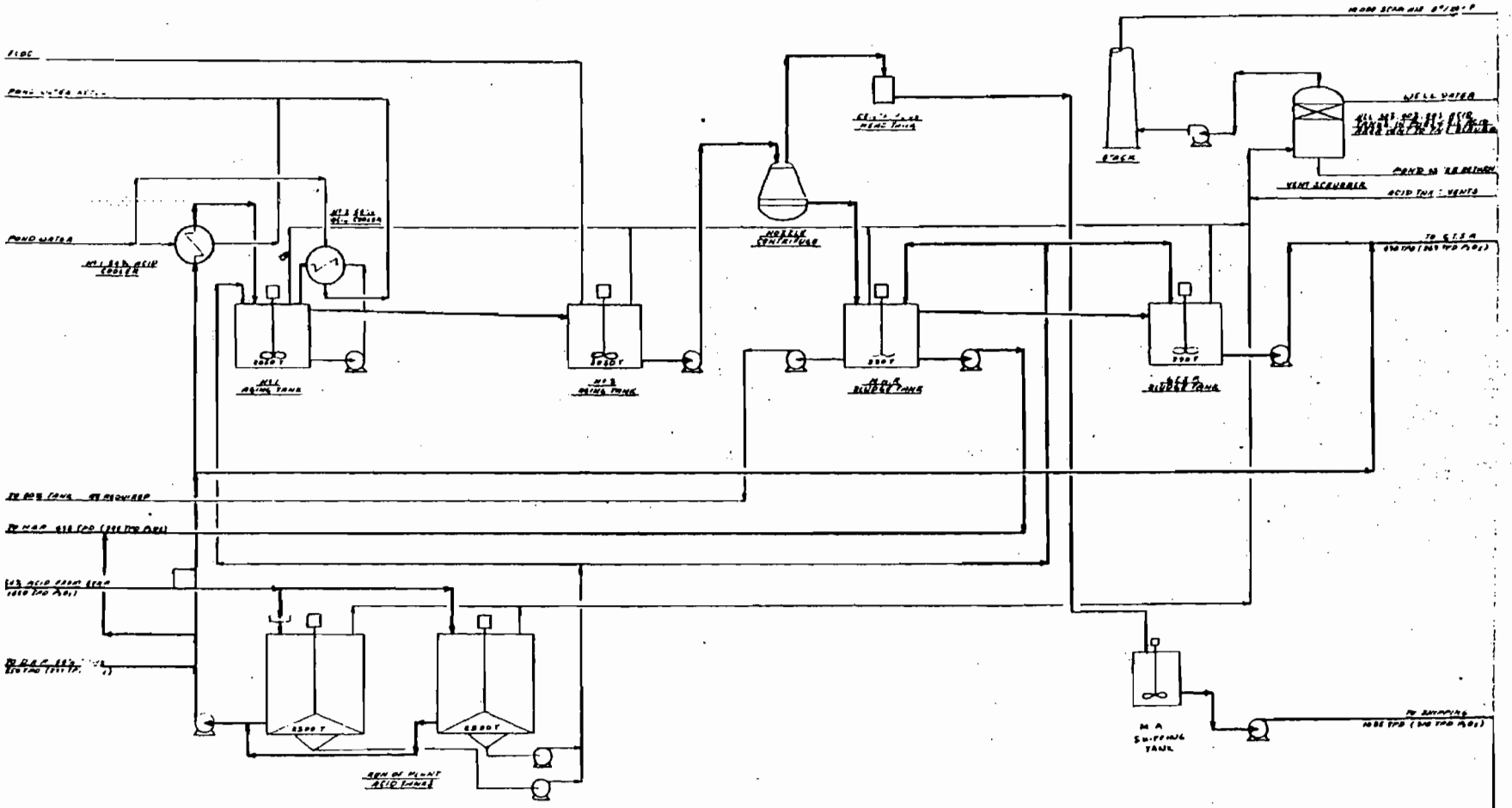
WET ROCK UNLOADING AND GRINDING



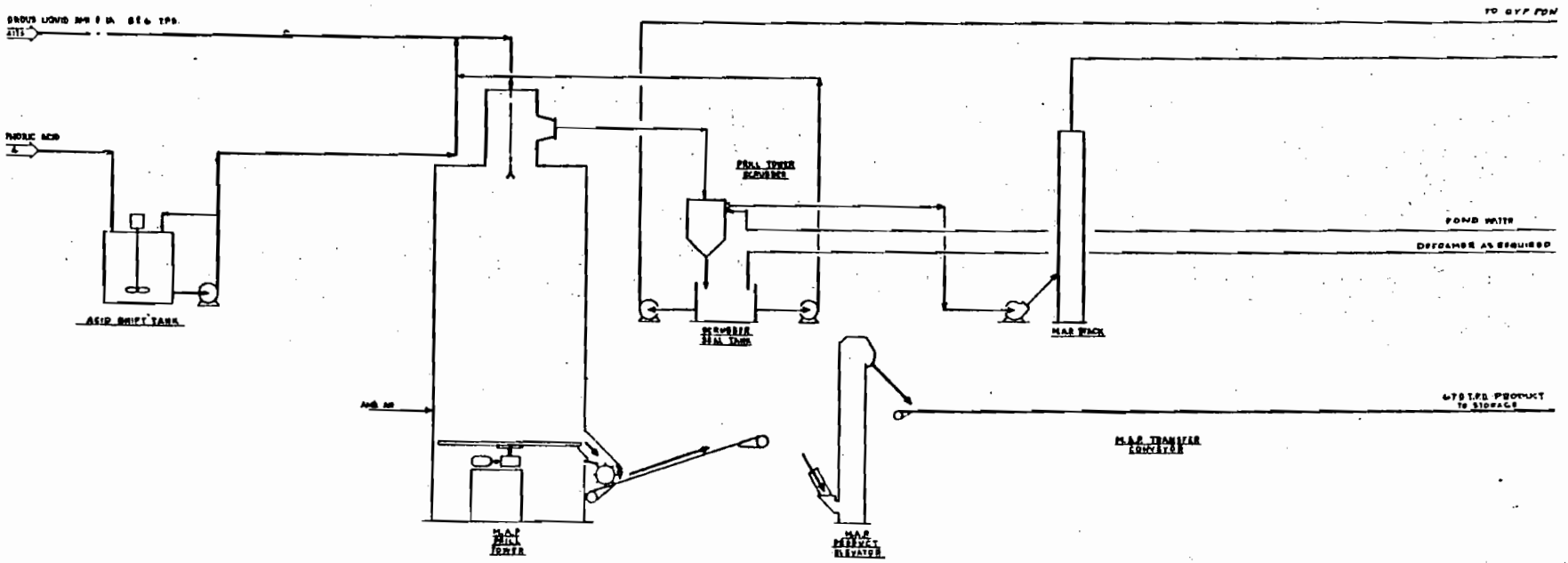
PHOSPHORIC ACID ATTACK AND FILTRATION



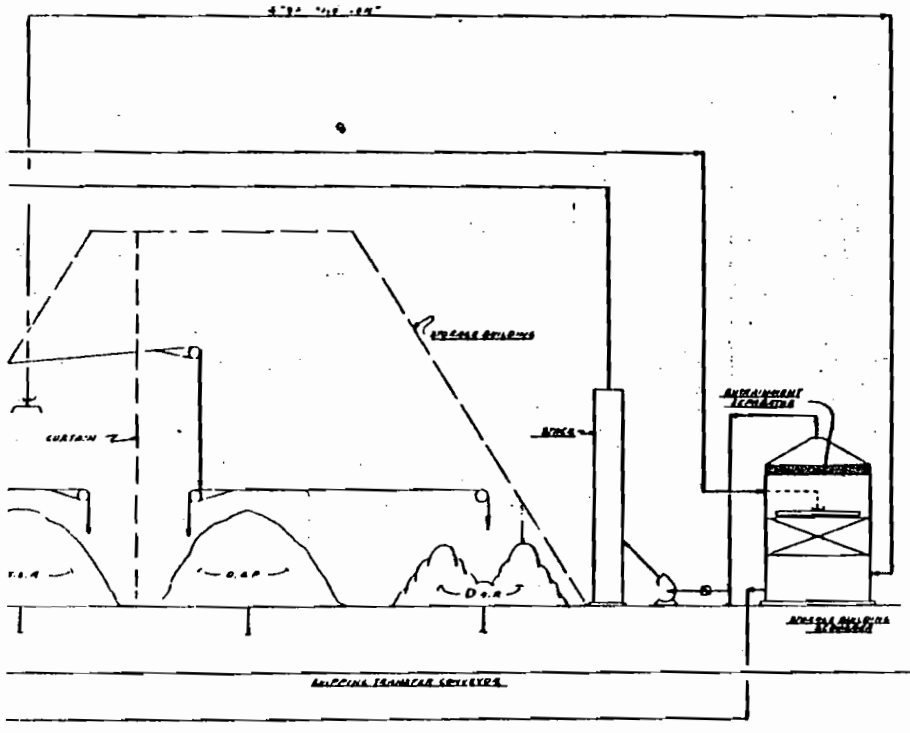
PHOSPHORIC ACID
EVAPORATION



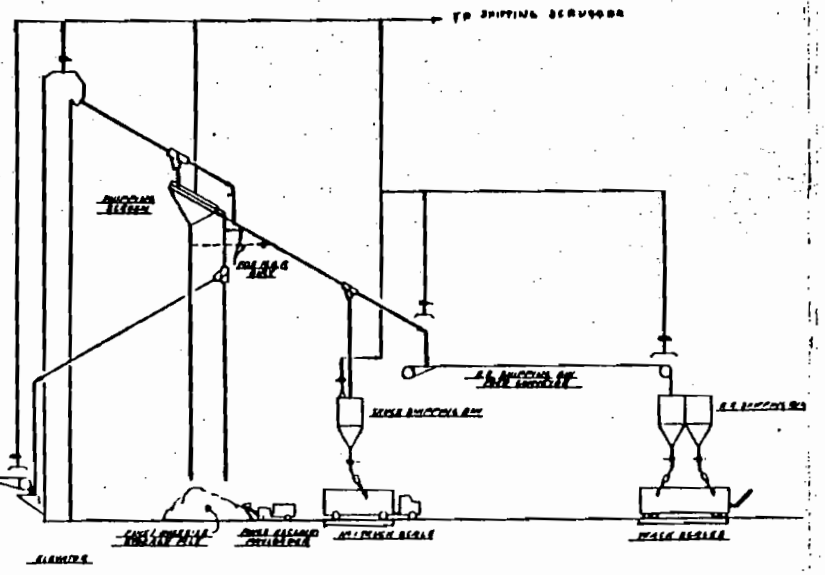
PHOSPHORIC ACID
CLARIFICATION & STORAGE



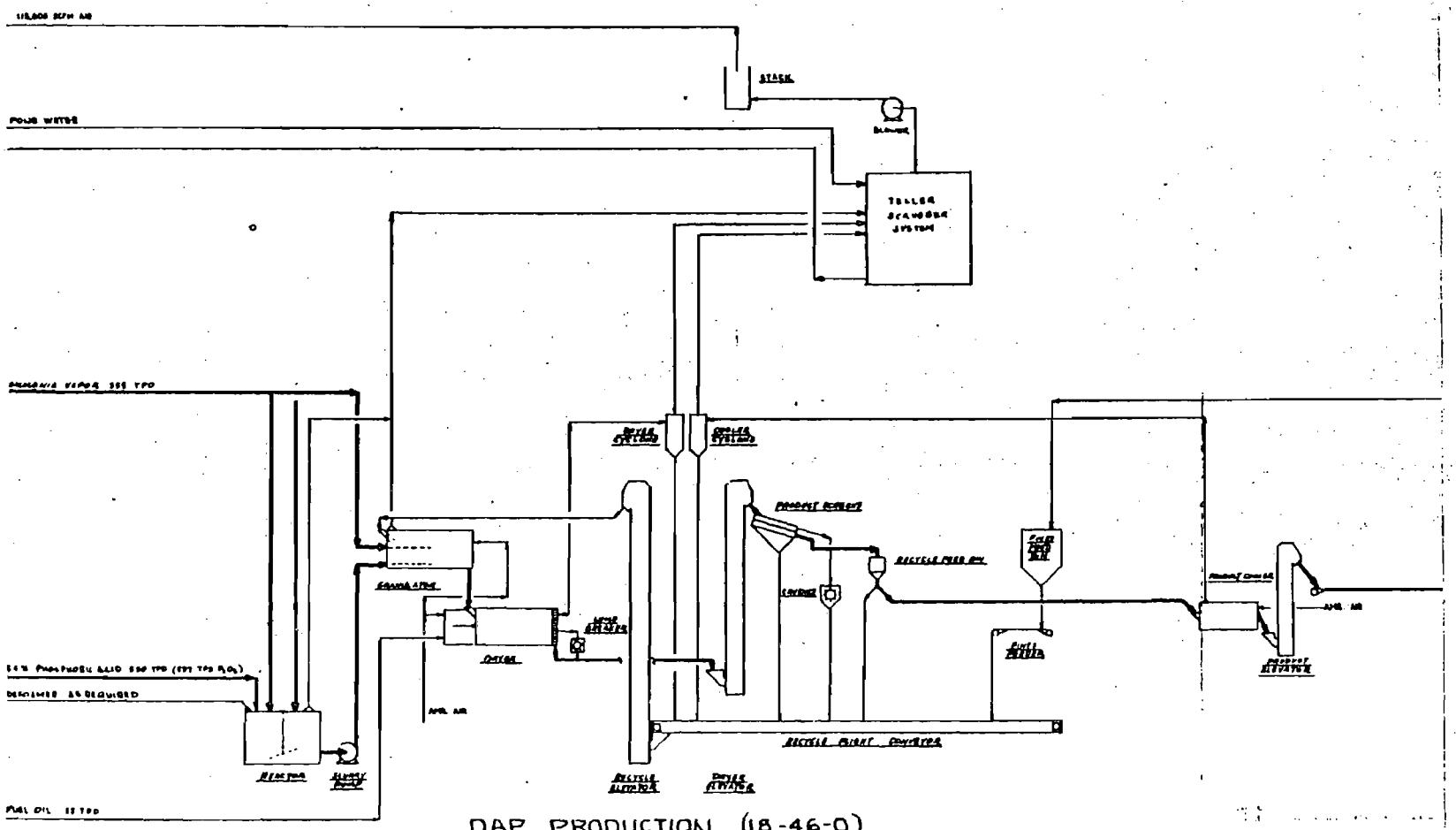
MAP PRODUCTION (10-50-0)



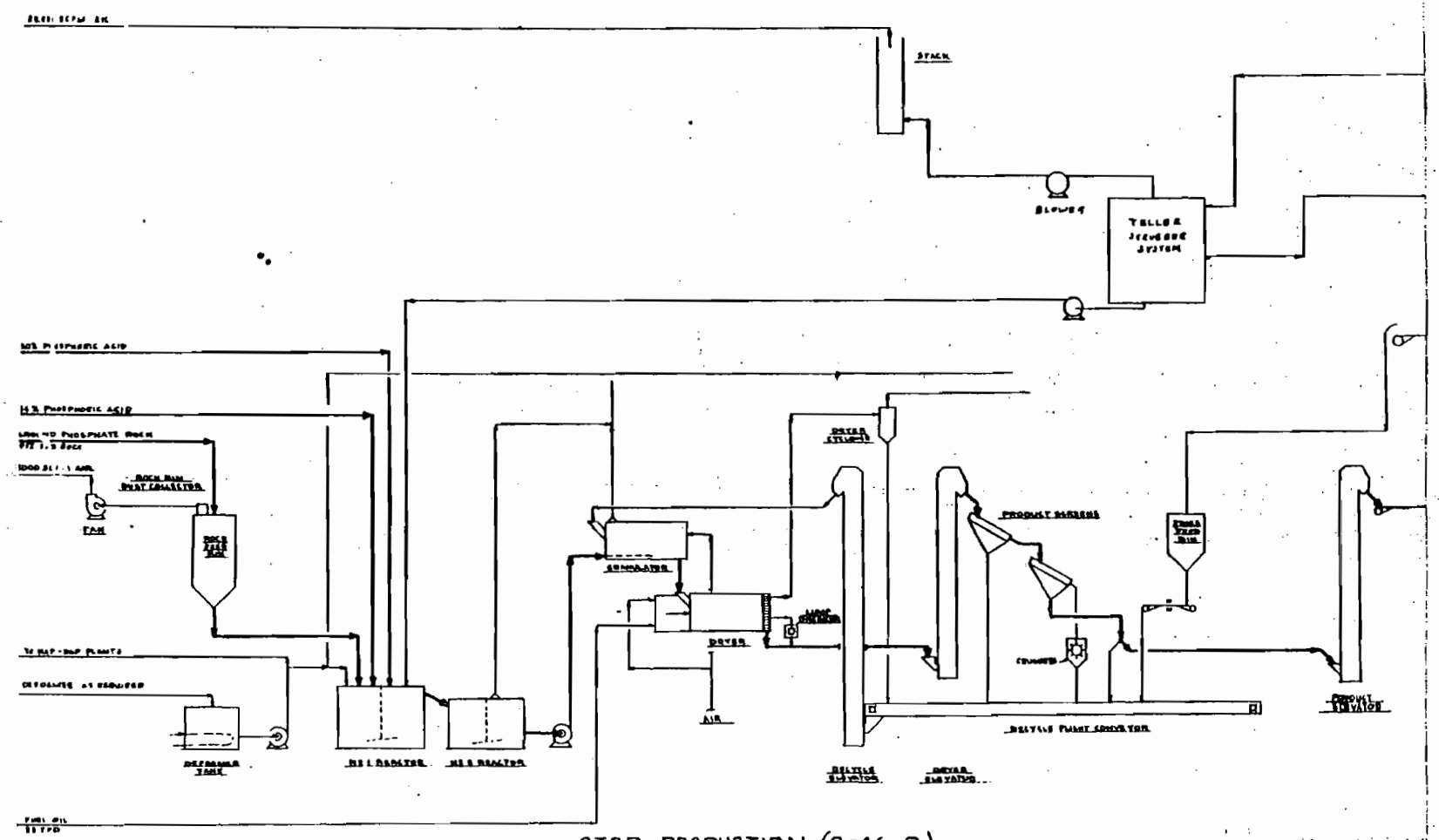
DAP & GTSP
STORAGE & SCRUBBING AREA



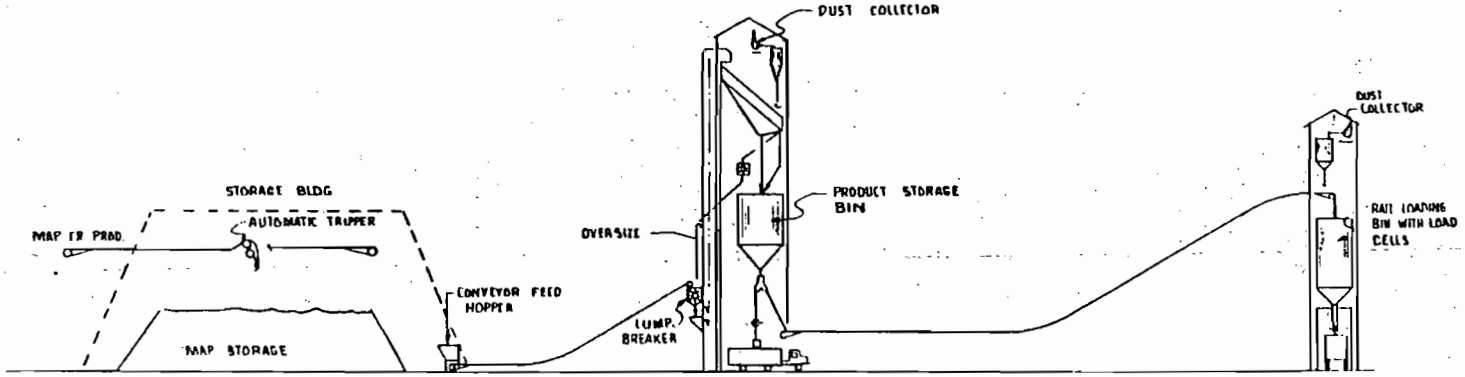
SHIPPING AREA



DAP PRODUCTION (18-46-0)



GTSP PRODUCTION (0-46-0)



2ED. PRODUCT STORAGE AND LOADOUT