

Acme Coke  
11236 S. Torrence Ave.  
Chicago IL 60617



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Upgraded Ammonia Removal System  
Dated: 1994

*Recovered from site on Feb 13 2021*

ACME STEEL COMPANY  
CAPITAL EXPENDITURE AUTHORIZATION SUMMARY

CEA NO. CI-4039-000-7
TEMP. NO.
ITEM NO. - CAPITAL PLAN:

PLANT Iron and Coke Operations - Chicago C-2981		TOTAL CAPITAL AMOUNT IN CAPITAL PLAN: PROFIT PLAN: \$2,270,000 REVIEW:
PROJECT TITLE Upgrade Ammonia Removal		
COMPLETION TIME (MONTHS FROM APPROVAL) 10	PROJECT SPONSOR R. Martello	

**CAPITAL FUNDS TO BE APPROVED:**

Land	\$ _____
Buildings	_____
Equipment	<u>2,173,600</u>
Less: Cash value of facilities replaced	\$ _____
	<u>\$ 2,173,600</u>
<b>TOTAL INVESTMENT:</b>	
Capital Funds	\$ <u>2,173,600</u>
Working capital	_____
<b>Total</b>	<u>\$ 2,173,600</u>

**DESCRIPTION AND JUSTIFICATION:**

This project provides for the upgrade of the system used to remove ammonia from the coke oven gas produced at the Chicago Coke Plant. These modifications are required because of the fact that the installation of benzene emission controls (CI-9083) in 1991 resulted in the removal of the Marley cooling tower. Since this tower had provided for some ammonia removal through air-stripping, it will be necessary to install new equipment to compensate for the loss of this facility.

The Type II Preliminary project estimated the cost of the final project at \$1,550,000 (\$1,411,000 capital and \$139,000 expense). As a result of the completion of final engineering, the scope the work has been revised with various installations being upgraded and expanded necessitating the use of more expensive materials and higher labor costs. As such, the total cost has now been finalized at \$2,313,600 (\$2,173,600 capital and \$140,000 expense).

**JUSTIFICATION:**

Discounted Cash Flow Return	_____ %
Payback Period	_____

Justification lies in the need to provide effective ammonia removal in order to prevent accelerated corrosion in the plant's coke oven gas piping systems.

**RELATED EXPENSES:**

Expense:	
Project Start-up	\$ <u>140,000</u>
<b>Total</b>	<u>\$ 140,000</u>

TITLE	APPROVED BY SIGNATURE	DATE
1. Vice President - Operations		
2. President		
3. Treasurer		
4. President and COO/AMI		
5. Chairman and CEO/AMI		
6. Board of Directors		
7.		

EXPENDITURE AUTHORIZATION  
SCHEDULE A

PROJECT NO.

DESCRIPTION OF PROJECT

PROJECT TITLE

Upgrade Ammonia Removal

DEPARTMENT OR COST CENTER

C-2981

PLANT

Iron and Coke Operations - Chicago

This project provides for the upgrade of the system used to remove ammonia from the coke oven gas produced at the Chicago Coke Plant. Completion of these upgrades is required to provide effective ammonia removal to prevent accelerated corrosion in the plant's coke oven gas piping system.

As detailed in Schedule "B", the amount approved originally was \$1,550,000 consisting of capital funds of \$1,411,000 and expense monies of \$139,000. The revised estimated total cost is \$2,313,600 of which \$2,173,600 is capital and \$140,000 is expense. Hence, the final cost will exceed the preliminary estimate by a total of \$727,100 including additional capital funds of \$726,100 and \$1,000 expense.

The following discussions by sub-account detail the major reasons for the overruns:

Sub-Account No. 100: Purchase New Tanks (Capital)

Approved: \$205,000    Additional Authorization Requested: \$25,000    Total: \$230,000

The primary reason for this overrun is price escalation for the new tanks of \$18,200 due to increases in the cost of stainless steel. Additionally, in order to expedite the delivery of the new tanks by six weeks, the second low bidder was awarded the purchase order at a higher cost of \$4,000.

Sub-Account No. 300: Purchase Equipment (Capital)

Approved: \$229,000    Additional Authorization Requested: \$35,800    Total: \$264,800

Additional authorization is required for the purchase of equipment that was omitted from the original estimate. These items include motor starters (\$18,000), a loading bridge and arm (\$7,700), a control panel (\$6,100), and a blower (\$2,200).

Sub-Account No. 400: Install Foundations and Structures (Capital)

Approved: \$134,800    Additional Authorization Requested: \$216,200    Total: \$351,000

The original cost was based on preliminary Acme Engineering estimates that were formulated before any detailed design work was accomplished. As such, all estimates were based on simple schematic flow charts that summarized the philosophy of the processes without actually defining precise physical locations, distances and elevations. The original estimate for concrete work assumed the installation of 171 cubic yards of concrete. As a result of final engineering, it has been determined that these foundations were inadequate. The revised foundations require 257 cubic yards of concrete requiring additional funds of \$97,700. Additionally, as a means of protecting concrete slabs in the tank areas from attack by corrosive acids and ammonium sulphate solutions, a decision was made to protect the concrete surfacing with a reinforced epoxy overlay at a cost of \$67,500. Furthermore, the final cost to install two pumphouse buildings will exceed the original estimate by \$31,300 while the cost of structural steelwork will require additional funds totalling \$16,500.

EXPENDITURE AUTHORIZATION  
SCHEDULE A

PROJECT NO.

DESCRIPTION OF PROJECT

PROJECT TITLE

Upgrade Ammonia Removal

DEPARTMENT OR COST CENTER

C-2981

PLANT

Iron and Coke Operations - Chicago

Sub-Account No. 500: Mechanical Installation (Capital)

Approved: \$239,000    Additional Authorization Requested: \$366,400    Total: \$605,400

The original cost estimate for mechanical installation included a provision for material of \$89,000. The cost of materials has now been finalized at \$265,400 resulting in an overrun of \$176,400. The primary reason for this increase is that the original estimate assumed the use of electric resistance welded pipe whereas the final costs are based on the installation of more expensive seamless pipe along with seamless fittings and "Alloy 20" check valves. The use of these upgraded materials was deemed necessary because observations of recent installations of welded pipe and fittings indicated that they would be unable to provide an acceptable service life due to inability of the welds to withstand deterioration from corrosive fluids. An additional contributing factor for the overrun in material costs is escalation resulting from price increases for stainless steel.

The original estimate for mechanical installation included a labor cost provision of \$130,000. The revised estimate of \$254,700 resulted in an overrun of \$124,700. The primary reason for the additional costs is that during final engineering, it was determined that a significant amount of new piping is being installed within the Sulphate Building. Since this facility has been determined to be a hazardous area where welding is not permitted, the labor cost was understated. The revised scope requires the contractor to obtain detailed field measurements of facilities within the Sulphate Building and to subsequently complete welding work onsite outside of the building or within a local shop resulting in extreme inefficiencies.

An additional factor contributing to the labor cost overrun is that extra costs are required to complete specialized welding procedures required for stainless steel. Also, as mentioned earlier, the entire cost estimate was based on preliminary flow diagrams lacking necessary specification and details.

The cost of the final scope of work has also increased by a total of \$69,300 due to installation of new equipment that was deemed necessary as final engineering progressed. Major additions include \$44,500 for steam and condensate piping to prevent certain pipelines from freezing, \$12,600 for the venting of tanks within the Sulphate Building for safety reasons, and \$12,200 for city water connections associated with the installation of five eyewash and safety shower stations.

Sub-Account No. 700: Electrical Installation (Capital)

Approved: \$180,000    Additional Authorization Requested: \$108,900    Total: \$288,400

The amount originally requested was based on a 1991 Acme Engineering estimate that was formulated by comparing the preliminary scope of work with the actual electrical costs incurred for the completion of the Benzene NESHAP Capital Project (CI-3005). Once again, the preliminary scope was formulated before any engineering design work had been accomplished. The comparison involved an estimate of the number and size of motors and controls as compared to a listing of actual costs incurred for electrical installations for the Benzene NESHAP project. From this comparison, an order-of-magnitude factor was used to estimate the electrical costs required for the ammonia removal project. The amount being requested in this Final CEA is now based on a competitive quotation.

EXPENDITURE AUTHORIZATION  
SCHEDULE A

PROJECT NO.

DESCRIPTION OF PROJECT

PROJECT TITLE

Upgrade Ammonia Removal

DEPARTMENT OR COST CENTER

C-2981

PLANT

Iron and Coke Operations - Chicago

Sub-Account No. 950: Contract Engineering (Capital)

Approved: \$114,000    Additional Authorization Requested: \$33,000    Total: \$147,000

The original estimate was an average of competitive quotes based on the preliminary scope of work plus an allowance of 5% for scope increases. Additional authorization of \$15,500 is now required for greater than anticipated scope additions plus \$17,500 for additional services performed including soil testing (\$8,500), procurement of permits (\$6,000), and completion of a land survey (\$3,000).

Although the ammonia removal system will not be physically complete for ten months, the system will be operational four months after the approval of this supplement.

Justification of this expenditure lies in the need to install an ammonia removal system in order to prevent accelerated corrosion in the plant's coke oven gas piping system.

**EXPENDITURE AUTHORIZATION  
SCHEDULE F**

**CALCULATION OF EXPENDITURE REQUIRED  
AND EXPENDITURE PAYOUT PERIOD**

PROJECT NO. \_\_\_\_\_

PROJECT TITLE Upgrade Ammonia Removal			PLANT Iron and Coke Operations - Chicago			
SUB-ACCOUNT NUMBER	CHECK DIGIT NUMBER *	DESCRIPTION	EXPENDITURE AMOUNT		ACCOUNT DISTRIBUTION	
			CAPITAL	EXPENSE		

	AMOUNT PREVIOUSLY APPROVED		ADDITIONAL AUTHORIZATION REQUESTED		TOTAL TO BE EXPENDED	
	CAPITAL	EXPENSE	CAPITAL	EXPENSE	CAPITAL	EXPENSE
055 Site Preparation	\$ --	\$ 21,000	\$ --	\$ 1,000	\$ --	\$ 22,000
065 Disposal	--	90,000	--	--	--	90,000
100 Tanks	205,000	--	25,000	--	230,000	--
300 Equipment	229,000	--	35,800	--	264,800	--
400 Install Foundations & Structures	134,800	--	216,200	--	351,000(1)	--
500 Mechanical Installation	239,000	--	366,400	--	605,400(2)	--
700 Electrical Installation	180,000	--	108,900	--	288,900(3)	--
800 Spares	23,000	--	--	--	23,000	--
850 Taxes	36,600	--	--	--	36,600	--
870 Freight	10,000	--	--	--	10,000	--
920 Acme Engineering	25,200	--	--	--	25,200	--
940 Field Engineering	67,200	--	--	--	67,200	--
950 Contract Engineering	114,000	--	33,000	--	147,000	--
960 Employee Training & Start-up Allowance	--	20,000	--	--	--	20,000
970 Contingency - Capital	147,200	--	(22,700)	--	124,500	--
980 Contingency - Expense	--	8,000	--	--	--	8,000
	<u>\$1,411,000</u>	<u>\$139,000</u>	<u>\$762,600</u>	<u>\$ 1,000</u>	<u>\$2,173,600*</u>	<u>\$140,000**</u>

- (1) Based on quotations from Fred Berglund & Sons, Inc. dated November 14, 1994, for \$213,645; American Lining Systems, Inc. dated December 7, 1994, for \$67,900; Phoenix Welding Company, Inc. dated November 21, 1994, for \$66,500; and Overdoors of Illinois, Inc. dated October 5, 1994, for \$3,118 for a total of \$351,165.
- (2) Based on a quotation from Borg Mechanical Contractors, Inc. dated November 2, 1994, for \$605,406.
- (3) Based on a quotation from Meany Electrical Engineering Co. dated December 2, 1994, for \$288,918.

\* Capital Sub-Account Distribution: C-0025-0900  
 \*\* Expense Sub-Account Distribution: C-0025-0900

ACME STEEL COMPANY  
CAPITAL EXPENDITURE AUTHORIZATION SUMMARY

C.E.A. NO. CI-4039-000-1  
TEMP. NO. \_\_\_\_\_  
ITEM NO. - CAPITAL PLAN: \_\_\_\_\_

TYPE II PRELIMINARY \*

PLANT: Iron and Coke Operations - Chicago C-2981  
PROJECT TITLE: Upgrade Ammonia Removal  
COMPLETION TIME (MONTHS FROM APPROVAL): 6 PROJECT SPONSOR: A. Schwaighart  
TOTAL CAPITAL AMOUNT IN CAPITAL PLAN: PROFIT PLAN: #4 \$1,200,000  
REVIEW: \_\_\_\_\_

**CAPITAL FUNDS TO BE APPROVED:**

Land	\$ _____
Buildings	_____
Equipment	<u>1,411,000</u>
Less: Cash value of facilities replaced	\$ _____
	<u>\$ 1,411,000</u>
<b>TOTAL INVESTMENT:</b>	
Capital Funds	\$ <u>1,411,000</u>
Working capital	_____
<b>Total</b>	<u>\$ 1,411,000</u>

**DESCRIPTION AND JUSTIFICATION:**  
This project provides for the upgrade of the system used to remove ammonia from the coke oven gas produced at the Chicago Coke Plant. These modifications are required because of the fact that the installation of benzene emission controls (CI-9083) in 1991 resulted in the removal of the Marley cooling tower. Since this tower had provided for some ammonia removal through air-stripping, it will be necessary to install new equipment to compensate for the loss of this facility.

**JUSTIFICATION:**

Discounted Cash Flow Return	_____ %
Payback Period	_____

The proposed system will consist of a multiple-batch processing arrangement. With the proposed system, three interchangeable new tanks will be utilized to perform the functions of circulating solution to the ammonia absorber, neutralizing the ammonia solution, and storing fresh acid solution. Subsequently, the solution will be pumped to two new sulphate storage tanks.

**RELATED EXPENSES:**

Expense:	
Project Start-up	\$ <u>139,000</u>
<b>Total</b>	<u>\$ 139,000</u>

Justification lies in the need to provide effective ammonia removal in order to prevent accelerated corrosion in the plant's coke oven gas piping systems.

\*THIS IS A PRELIMINARY ESTIMATE OF THE COST OF THIS PROJECT. APPROVAL IS BEING REQUESTED AT THIS TIME TO SPEND \$609,800 FOR THE PURCHASE OF LONG LEAD ITEMS AND FOR FINAL ENGINEERING. A FINAL CEA REQUESTING APPROVAL TO SPEND THE ENTIRE AMOUNT (TOTAL PRELIMINARY ESTIMATE \$1,411,000) BASED ON A FINAL ESTIMATE OF THE TOTAL COST WILL BE SUBMITTED AT A LATER DATE.

	APPROVED BY		
	TITLE	SIGNATURE	DATE
1.	President and COO	<i>S.D. Bennett</i>	3-27-94
2.	Treasurer	<i>D. Williams</i>	3/28/94
3.	Chairman and CEO Acme Steel Company	<i>M. M. Mendenhall</i>	3/28/94
4.	Board of Directors Acme Metals Incorporated	<i>For the Board of Directors: B. J. Gluck</i>	3/28/94
5.	Board of Directors	<i>For the Board of Directors: J. J. Gluck</i>	4/28/94
6.			
7.			

EXPENDITURE AUTHORIZATION  
SCHEDULE A

PROJECT NO.

DESCRIPTION OF PROJECT

PROJECT TITLE

Upgrade Ammonia Removal

DEPARTMENT OR COST CENTER

C-2981: Cyanide & Ammonia Control

PLANT

Iron and Coke Operations - Chicago

This project provides for the upgrade of the system used to remove ammonia from the coke oven gas produced at the Chicago Coke Plant. These modifications are required because of the fact that the recent installation of benzene emission controls (CI-9083) resulted in the removal of the Marley cooling tower. Since this tower had provided for some ammonia removal through air-stripping, it will be necessary to install new equipment to compensate for the loss of this facility in order to prevent accelerated corrosion of the plant's coke oven gas piping.

At present, the removal of ammonia from the coke oven gas is primarily accomplished as a batch process at the ammonium sulphate plant which is located before the final cooler in the by-product train. The process entails the spraying of the gas with a solution of sulphuric acid and water at the ammonia absorber to remove the entrained ammonia. The acid and water solution is subsequently recycled until it is saturated with ammonium sulphate. When the proper concentration is reached, the entire batch of sulphate solution, which totals approximately 10,000 gallons, is neutralized to meet specifications and sold as an aqueous product referred to as "SUL-900". The total batch processing time is approximately 26 hours of which six hours is the time required to neutralize the product. During the neutralization process, the flow of acid to the batch is shut off. Accordingly, as the quantity of free acid within the circulation system is diminished, the amount of ammonia that remains in the gas stream increases. With the previously existing final cooler system, the potential existed to strip some of this remaining ammonia from the gas at the final cooler system's Marley cooling tower. *secondary*

As part of the benzene emission control system that was recently installed to comply with Federal NESHAP standards, the existing open Marley cooling tower was replaced with an enclosed wet surface air cooler. This cooler uses non-contact mill water and forced air to cool the tar/water media. This enclosed facility does not, however, provide for any ammonia removal.

This project provides for the installation of equipment to enhance the plant's ammonia removal potential by converting the existing batch processing configuration to a multiple batch processing arrangement. With the proposed system, three interchangeable new tanks will be utilized to perform the functions of circulating solution to the ammonia absorber, neutralizing the ammonia solution, and storing fresh acid solution. The system will consist of three 12,000 gallon tanks with necessary piping, process pumps and instrumentation. The neutralization process will be accomplished with an aqua ammonia solution. The proposed process design will allow the concentration of free acid in the absorber circulation system to be continuously maintained at a level of 4%. This increase should return the ammonia removal efficiency to the original design standard of 6 to 10 grains ammonia per 100 standard cubic foot of coke oven gas and significantly reduce corrosion rates. The acid flow rate will be regulated automatically by an automatic titration unit.

From the proposed neutralization system, the solution will be pumped to two new ammonium sulphate storage tanks. The tanks will be equipped with load in/load out nozzles, electric heaters capable of maintaining a solution temperature of 70 degrees Fahrenheit, and internal air agitation. The tanks will be constructed of fiberglass reinforced plastic to protect them from the corrosive effects of the ammonium sulphate. In total, the two tanks will be capable of storing 40,000 gallons of ammonium sulphate.



EXPENDITURE AUTHORIZATION  
SCHEDULE A

PROJECT NO.

DESCRIPTION OF PROJECT

PROJECT TITLE

Upgrade Ammonia Removal

DEPARTMENT OR COST CENTER

C-2981: Cyanide & Ammonia Control

PLANT

Iron and Coke Operations - Chicago

This Type II Preliminary project provides for final engineering and for the purchase of long-delivery equipment. Specific items that will be purchased include three circulation tanks, two ammonium sulfate storage tanks, one aqua ammonia storage tank, pumps, and electronic controls and instrumentation.

Justification of this expenditure lies in the need to install an ammonia removal system in order to prevent accelerated corrosion in the plant's coke oven gas piping system.

**EXPENDITURE AUTHORIZATION  
SCHEDULE F**

**CALCULATION OF EXPENDITURE REQUIRED  
AND EXPENDITURE PAYOUT PERIOD**

PROJECT NO. \_\_\_\_\_

PROJECT TITLE Upgrade Ammonia Removal			PLANT Iron and Coke Operations - Chicago		
SUB-ACCOUNT NUMBER	CHECK DIGIT NUMBER *	DESCRIPTION	EXPENDITURE AMOUNT		ACCOUNT DISTRIBUTION
			CAPITAL	EXPENSE	

	TYPE II AMOUNT TO BE AUTHORIZED		TOTAL PROJECT	
	CAPITAL	EXPENSE	CAPITAL	EXPENSE
055 Site Preparation	\$ --	\$9,000	\$ --	\$ 21,000
065 Disposal	--	--	--	90,000
100 Purchase New Tanks	205,000(1)	--	205,000	--
300 Purchase Equipment	229,000(2)	--	229,000	--
400 Install Foundations & Structures	--	--	134,800	--
500 Mechanical Installation	--	--	239,000	--
700 Electrical Installation	--	--	180,000	--
800 Spares	--	--	23,000	--
850 Taxes	36,600	--	36,600	--
870 Freight	--	--	10,000	--
920 Acme Engineering	25,200	--	25,200	--
940 Acme Field Supervision	--	--	67,200	--
950 Contract Engineering	114,000(3)	--	114,000	--
960 Employee Training & Start-up Allowance	--	--	--	20,000
970 Contingency - Capital	--	--	147,200	--
980 Contingency - Expense	--	--	--	8,000
<b>TOTAL</b>	<u>\$609,800</u>	<u>\$9,000</u>	<u>\$1,411,000</u>	<u>\$139,000</u>
<b>GRAND TOTAL</b>	<u>\$618,800</u>		<u>\$1,550,000</u>	

(1) Based on a quotation from Kennedy Tank and Manufacturing Co., Inc. dated October 19, 1993, for \$150,359 (Andcor, Inc. provided a verbal quote of \$156,760. Imperial Steel Tank Company quoted \$167,750 on October 12, 1993. Creco, Inc. quoted \$183,028 on October 14, 1993. Chicago Boiler quoted \$198,130 on October 20, 1993. Standard Boiler & Tank Company quoted \$199,460 on October 15, 1993) plus a quotation from Creco, Inc. dated October 15, 1993, for \$54,502 (Plastic Piping Systems, Inc. quoted \$61,294 on October 14, 1993. Andcor, Inc. quoted \$63,096 on October 27, 1993. Viatic Hastings Engineered Systems quoted \$68,924 on October 19, 1993. Xerxes Corporation quoted \$94,615 on October 18, 1993) for a total of \$204,861.

**EXPENDITURE AUTHORIZATION  
SCHEDULE F**

**CALCULATION OF EXPENDITURE REQUIRED  
AND EXPENDITURE PAYOUT PERIOD**

PROJECT NO.

<b>PROJECT TITLE</b>		<b>PLANT</b>	
Upgrade Ammonia Removal		Iron and Coke Operations - Chicago	
<b>SUB-ACCOUNT NUMBER</b>	<b>CHECK DIGIT NUMBER *</b>	<b>DESCRIPTION</b>	<b>ACCOUNT DISTRIBUTION</b>
			<b>EXPENDITURE AMOUNT</b>
			<b>CAPITAL      EXPENSE</b>

(2) Per Acme engineering based on numerous quotations and engineering allowances.

(3) Based on a quotation from Meca Engineering Corp dated September 7, 1993, for \$113,940. (R. T. Patterson Co, Inc. quoted \$116,800 on August 30, 1993. Orbital Engineering, Inc. quoted \$152,000 on August 31, 1993. Eicheley Engineers, Inc. quoted \$151,600 on September 7, 1993. ATSI, Inc. quoted \$258,100 on September 1, 1993.)

**NOTE:** All other estimates based on Acme Engineering project development.

**EXPENDITURE PAYOUT PERIOD**

COKE PLANT  
DECEMBER 8, 1994

TO: JOE DIMAURO  
FROM: JACK GARZELLA

SUBJECT: PUSHING EMISSIONS

WITH THE INSTALLATION AND COMMISSIONING OF THE ENHANCED AMMONIA REMOVAL PROCESS, THE CORROSION RATES SHOULD BE SIGNIFICANTLY REDUCED.

THE DISTRIBUTION SYSTEM, REVERSING COCKS, PIPING, HEADERS, ORIFICES, PINS, AND NIPPLES WILL NOT PLUG WITH DEPOSITS AS FREQUENTLY. THE RATE OF FOULING WILL BE REDUCED. HENCE, THE PUSHING EMISSION SHOULD IMPROVE.

cc: D. O'Hertw  
E.J. STAFF

INTEROFFICE  
CORRESPONDENCE

Copies to:

Date: November 28, 1994

S. D. Bennett  
R. J. Martello

To: J. A. DiMauro  
From: J. Garzella, M. T. McCarthy, A. C. Schwaighart  
Subject: AMMONIA REMOVAL UPGRADE

CC'

Reference:

The following is a status report for the Ammonia Removal Upgrade, Project CI-4039.

1. Final Engineering

Contract Engineering by R. T. Patterson:

Mechanical: 100% complete  
Instrumentation: 100% complete  
Civil/Structural: Design Drawings complete except for minor details  
Electrical: Design Drawings complete except for minor details

2. Procurement

Requisitions for all equipment to be furnished by Acme have been processed except the control panel. This requisition will be processed by November 29. Placement of all purchase orders should be completed by December 2.

3. Installation

Mechanical: Bid packages sent out November 2. Quotations due November 21.

Structural: Bid packages sent out November 2. Quotations were received and purchase orders placed for site preparation, excavation and foundations. Quotations for remaining work due November 21.

Electrical/  
Instrumentation: Specification was completed and sent out for bid. Quotations will be due by November 28.

Schedule: Schedule slippage from a January to mid-March completion resulted from longer than projected durations to complete final engineering and specification preparation. Efforts to improve the schedule will include acceleration of order placement for some items of work (e.g., site prep., excavations and foundations) and expedition of construction activities.

JG/MTM/ACS:c1s

CI-4039 AMMONIA REMOVAL UPGRADE - CONSTRUCTION SCHEDULE (TENTATIVE)

ACTIVITY	1/31	1/14	1/28	12/12	12/30	1/8	1/22	2/5	2/19	3/5	4/2
1) CIVIL											
a) QUOTATIONS											
b) EVALUATE & P.O.											
c) MOBILIZE											
d) SITE PREP (DEM)											
e) EXCAVATE											
f) FORM & POUR FDNLS.											
g) CONSTR. PUMP HSE.											
h) ERECT STEEL											
i) GROUT EQUIP											
j) CONT. RM. MODIF											
2) MECHANICAL											
a) QUOTATIONS											
b) EVALUATE & P.O.											
c) PURCHASE & MOBILIZE											
d) SITE PREP.											
e) INSTALL TANKS											
f) INSTALL PUMPS											
g) INSTALL PIPING & CONTROLS											
h) INSULATE PIPE											
i) START-UP SVCS.											
3) ELECTRICAL											
a) QUOTATIONS											
b) EVALUATE & P.O.											
c) EMBEDDED CONDUIT											
d) INSTALL WIRING & CONTROLS											
e) INSTALL LIGHTS											
4) START-UP & DEBUG											

P.O. ISSUED 11/16/94

STORAGE AREA

PROCESS AREA

LOAD OUT PUMP HSE

ACID PUMP HSE

REMOVE 12" PROPANE

REMOVE SULFATE TANK

ACID PUMPS

SULFATE LOADOUT

SULFATE LOADOUT

12/2

12/1

INTEROFFICE  
CORRESPONDENCE

January 23, 1995

CC: STAFF  
1-30-95

TO: J. A. DiMauro

cc: G. S. Lucenti

FROM: J. Garzella  
R. J. Martello  
M. T. McCarthy

SUBJECT: Upgrade Ammonia Removal - CI-4039

Attached are the status report and bar chart schedules for this project. The project completion schedule is based on approval of the Final CEA by late January. Completion of the installation is planned for mid-July, however, start-up of the upgraded system is planned for early May.

J. Garzella *JG*

R. J. Martello *RJM*

M. T. McCarthy *MTM*

JG/RJM/MTM/jm

JANUARY 23, 1995

UPGRADE AMMONIA REMOVAL

PROJECT STATUS

1.00 ENGINEERING

- 1.01 A Final CEA project was written on 1/10/95 for the current estimated cost to complete the project.
- 1.02 Installation design engineering is 98% complete.
- 1.03 Work associated with obtaining a city of Chicago building permit is in progress.
- 1.04 The IEPA construction permit application was prepared and submitted.

2.00 PROCUREMENT

- 2.01 Tanks
  - o Fabrication is 70% complete.
  - o Deliveries are scheduled for 2/13/95 through 2/24/95.
- 2.02 Pumps and Mixers
  - o 100% Delivered
- 2.03 Instruments
  - o 90% Delivered
- 2.04 Control Panels
  - o Fabrication is 25% complete.
  - o Delivery is scheduled for 2/15/95.
- 2.05 Control Valves
  - o 100% Delivered
- 2.06 Motor Starters
  - o Purchase Order issued 1/17/95.
- 2.07 Miscellaneous Equipment
  - o 25% Delivered



2.08 Spares

- o No work to date.

3.00 CONSTRUCTION/INSTALLATION

3.01 Foundations and Buildings

- o Purchase Order issued 11/18/94.
- o Storage tank farm and pump house foundations are 85% complete and are (5) days behind schedule due to severe cold weather during w/o 1/2/95.
- o Process area foundations work was started 1/19/95.
- o Masonry work is scheduled to start w/o 1/23/95.

3.02 Structural Steelwork

- o Purchase Order issued 12/16/94.
- o Shop detail drawings are 75% complete.
- o Fabrication is 25% complete.

3.03 Piping/Mechanical

- o Purchase Order issued 12/27/94.
- o Contractor material procurement is 90% complete.
- o Pipe spools fabrication started 1/3/95 and is 30% complete.

3.04 Electrical/Power & Control

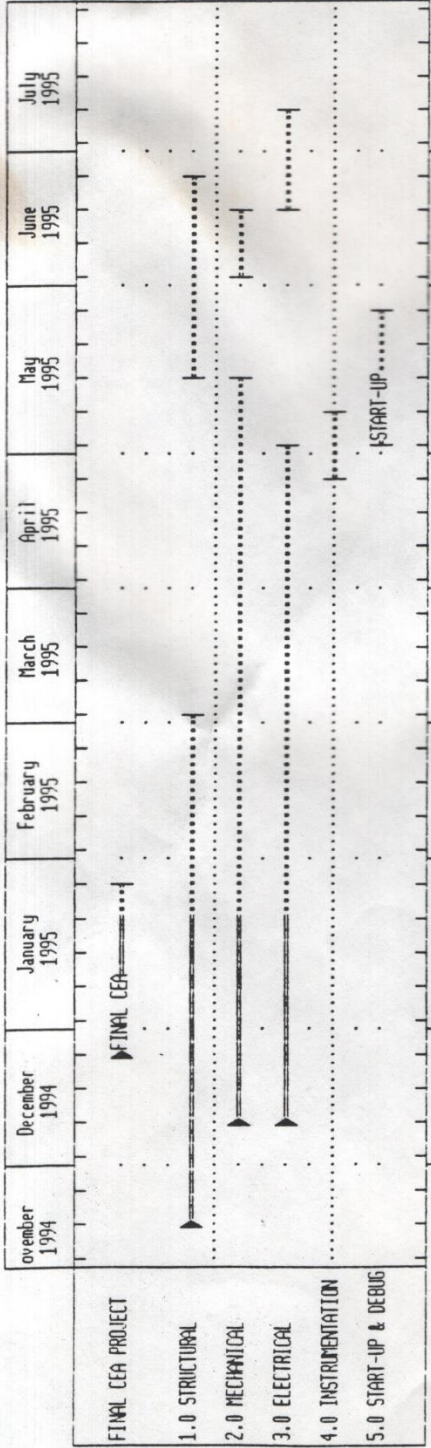
- o Purchase Order issued 12/27/94.
- o Embedded grounding in the storage tank farm was completed 1/4/95.
- o Contractor material procurement is 90% complete.
- o Installation of conduit is scheduled to start 2/13/95.

4.00 TRAINING

4.01 Training Services

- o A proposal to furnish training manuals and training sessions was received on 1/19/95 and is being reviewed.

01/23/95  
 CI4039 UPGRADE APPORTIA RENDIAL  
 INSTALLATION SCHEDULE  
 SUMMARY



FINAL CEA  
 12-26-94 to 01-30-95 (35 days)

START-UP  
 05-01-95 to 05-29-95 (28 days)

THIS SCHEDULE IS BASED ON  
 APPROVAL OF THE FINAL CEA  
 PROJECT BY LATE JANUARY.

COMPLETION OF THE INSTALLATION IS  
 PLANNED FOR MID-JULY HOWEVER,  
 START-UP OF THE UPGRADED SYSTEM  
 IS PLANNED FOR EARLY MAY.

