

REQUEST AND AUTHORITY FOR CAPITAL
EXPENDITURES / RETIREMENTS

REPORTING CLASSIFICATION

DATE APPROVED

JOB ORDER NO.

D-3

OC 3007 R1

DIVISION OR COMPANY

Organic Chemical Division

LOCATION

J.O. CONTROL POINT

Chicago Plant

097

JOB TITLE

Airborne Lead Dust Abatement

SUMMARY OF AMOUNTS

DESCRIPTION	LOCAL CURRENCY	U.S. DOLLARS
ESTIMATED PROJECT COST		207,137
DISMANTLEMENT EXPENSE		9,000
TRANSFER EQUIPMENT		216,137
GROSS AMOUNT FOR APPROVAL		-
LESS TRANSFER EQUIPMENT		-
LESS SALVAGE OR TRADE-IN ALLOW.		216,137
NET CASH REQUIRED (GOF-3027)		

RETIREMENT DATA

ECONOMIC JUSTIFICATION

REVISION DETAIL (GROSS AMTS.)

	AMOUNT		8-YEAR AVG.	REV. #	DATE	AMOUNT	CUM. AUTHORIZATION
COST	34,850	NET SALES	4,181,000	1		59,000	275,137
DISMANTLEMENT	9,000	NET SAVINGS BEFORE TAXES	587,000	2			
LESS SALVAGE		NET AFTER TAXES	307,000	3			
		% ROI (ON TOTAL INVEST.)	9.4%	4			
		PAYOUT YRS.	.7	5			
TOTAL - CHARGE RESERVE	43,850			6			

DESCRIPTION AND REASONS REQUIRED

SEE ATTACHED

Kevin Haughey
2801

218112 from 4-15-5

SUMMARY OF ESTIMATED COST - Details on GOF-3027		ESTIMATE NO.	STARTING DATE	COMPLETION DATE	
				Dec. 1, 1977	
ITEM NO.	DESCRIPTION	MATERIALS	LABOR	ENGINEERING	TOTAL
	Per Estimate attached	106,462	168,675		275,137
	NET CASH REQUIRED	106,462	168,675		275,137

ACCOUNTING TREATMENT		RECOMMENDATIONS AND APPROVALS (CHECK BOX)			
ITEM NO.	DEPR. RATE	NAME	REC.	APPR.	DATE
Dr. \$191,032 P. P. & E. (195)	7 1/4%	A. Johnson	✓		8/4/77
Dr. \$ 70,780 Expense as incurred		J. E. Smith	✓		8/4/77
Dr. \$ 4,325 Expense as incurred (Sales Tax)		W. J. Smith	✓		8/10/77
Dr. \$ 9,000 Res. for Depr (432)		W. J. Smith	✓		8/10/77
Cr. \$ 34,850 P. P. & E. (232)		W. J. Smith	✓		8/10/77
Dr. \$ 34,850 Res. for Depr. (232)		W. J. Smith	✓		8/10/77
ACCOUNTING TREATMENT / ECONOMICS APPROVED BY DIV. CONTROLLER (CHECK BOXES)					
POST AUDIT PERIOD					
POST AUDIT DUE DATE					
DISTRIBUTION					

DETAIL SHEET

SHEET NO.		JOB ORDER NO.		DATE	
1				August 4, 1977	
COMPANY			LOCATION		
American Cyanamid Company			Chicago, Illinois		
ITEM OR CODE NO.	DESCRIPTION	EQUIPMENT OR MATERIALS	LABOR	ENG. MECH. SVC.	TOTAL
701	Ventilation Hood and Ductwork Bldg. 19	22,042.	44,083.		66,125.
704	Ventilation Hood and Ductwork Bldg. 20	16,675.	8,325.		25,000.
705	Dust Collector Bldg. 20	6,057.	1,500.		7,557
706	Ventilation Hood and Ductwork Bldg. 24	5,237.	10,491.		15,728.
708	Dust Collector Renovation Bldg. 19	15,237.	20,272.		35,509.
710	Vac-u-max pneumatic Litharge Charging Bldg. 20	7,895.	2,500.		10,395.
712	Central Vacuum System Bldg. 20	7,817.	7,542.		15,359.
714	Central Vacuum System Bldg. 24	7,817.	7,542.		15,359.
750	Stack Emission Testing	13,360.	37,420.		50,780.
760	Plant Clean up		20,000.		20,000.
		102,137.	159,675.		261,812.
898	Illinois Sales & Use Tax	4,325.			4,325.
890	Dismantlement		9,000.		9,000.
		106,462	168,675.		275,137.
	<u>Dismantlement</u>		Acq. Date	Acq. Cost	Disposit:
	Ventilation Hood and Ductwork		6/71	32,050.	Scrap
	Elevator and Screw Conveyor		6/71	2,800.	Scrap
				34,850.	

N14468.01

Additional Funds Request

Approval is requested for a \$59,000 supplement to the \$216,000 approved for OC-3007, for reducing airborne lead dust concentration at the Chicago Plant.

There are three major causes of the overrun.

Item 750 Stack Emission Testing (EPA)

Original estimate	-	\$24,000
Updated estimate	-	\$50,780
Increase	-	\$26,780

Neither the outside contractor engaged to sample the stack emissions nor the Chicago Plant personnel foresaw the complexity of the testing, roof and stack modifications required by EPA to compile acceptable data.

Item 712 & 714 Central Vacuum System (OSHA)
Bldgs. 20 & 24 - Cowles - Sulfate Areas

Original estimate	-	\$19,484
Updated estimate	-	\$30,718
Increase	-	\$11,234

The purchase price escalated \$1013 but the installation costs exceeded the estimate by \$10,221. Although estimates of installation costs were obtained from vendors and the costs of similar installations at other Cyanamid locations, these proved to be too low when compared with the actual installation costs.

Item 708 Dust Collector Renovation (OSHA)
Bldg. 19, Litharge Building

Original estimate	-	\$15,220
Updated estimate	-	\$35,509
Increase	-	\$20,289

The four building 19 dust collectors have been in service 35 to 44 years. As the renovation progressed, it became necessary to upgrade the dust collectors to the original condition.

ECONOMIC JUSTIFICATION

	<u>Six Year Avg.</u>
Net Savings Before Taxes (OC 3007)	\$591,000
Less: Add P.P. & E R1 \$32,000 @ 7 1/4%	<u>4,000</u>
<i>59</i>	\$587,000
Net Savings After Taxes (OC 3007)	\$299,000
Less: 50% Addition P. P. & E.	<u>3,000</u>
Plus: 11C " "	<u>4,000</u>
	\$298,000
	<u>301,000</u>
ROI ⁴ 9.5%	
Payout .7 years	

REQUEST AND AUTHORITY FOR CAPITAL EXPENDITURES / RETIREMENTS

DIVISION OR COMPANY

Organic Chemical Division

LOCATION

Chicago Plant

J.O. CONTROL POINT

097

JOB TITLE

Airborne
Lead Dust Abatement

REPORTING CLASSIFICATION

D-3

DATE APPROVED

8/12/76

JOB ORDER NO.

OC-3007

SUMMARY OF AMOUNTS

DESCRIPTION	LOCAL CURRENCY	U.S. DOLLARS
ESTIMATED PROJECT COST		207,137.
DISMANTLEMENT EXPENSE		9,000.
TRANSFER EQUIPMENT		
GROSS AMOUNT FOR APPROVAL		216,137.
LESS TRANSFER EQUIPMENT		
LESS SALVAGE OR TRADE-IN ALLOW.		
NET CASH REQUIRED (GOF-3027)		216,137.

RETIREMENT DATA

ECONOMIC JUSTIFICATION

REVISION DETAIL (GROSS AMTS.)

	AMOUNT		5-YEAR AVG.	REV. #	DATE	AMOUNT	CUM. AUTHORIZATION
COST	34,850.	NET SALES	4,181,000	1			
DISMANTLEMENT	9,000.	NET SAVINGS BEFORE TAXES	591,000	2			
LESS SALVAGE		NET AFTER TAXES	299,000	3			
		% ROI (ON TOTAL INVEST.)	9.6%	4			
		PAYOUT YRS.	0.7	5			
TOTAL - CHARGE RESERVE	43,850.			6			

DESCRIPTION AND REASONS REQUIRED

See Attached

AUG 23 1976

SUMMARY OF ESTIMATED COST - Details on GOF-3027		ESTIMATE NO.	STARTING DATE	COMPLETION DATE	
ITEM NO.	DESCRIPTION	MATERIALS	LABOR	ENGINEERING	TOTAL
	Per estimate attached	90,842.	125,295.		216,137.
	NET CASH REQUIRED	90,842.	125,295.		216,137.

ACCOUNTING TREATMENT			RECOMMENDATIONS AND APPROVALS (CHECK BOX)			
ITEM NO.		DEPR. RATE	NAME	REC.	APPR.	DATE
	Dr. \$158,812. P. P. & E. (195)	7 1/4%	PROJECT SPONSOR			
	Dr. \$44,000. Expense as incurred		H.C. Dalbey / BDA	✓		7/23/76
	Dr. \$4,325. Expense as incurred (Sales Tax)		J. J. [unclear]	✓		7/26/76
	Dr. \$9,000. Res. for Depr. (432)		H. J. [unclear]	✓		7/29/76
	Cr. \$34,850. P. P. & E. (232)					
	Dr. \$34,850. Res. for Depr. (232)					
AC-2000 TREATMENT - ECONOMIC JUSTIFICATION DIV. CONTROLLER (CHECK BOXES)						
7/27/76 ☒ BDA ☒ [unclear] ☒ [unclear]			J. J. [unclear]			7-11-76
DATE			GENERAL MANAGER			
POST AUDIT PERIOD			B. J. [unclear]			8/12/76
POST AUDIT DUE DATE			VICE-PRESIDENT			
DISTRIBUTION						

AUG 4 1976

N14468.04

BB P&C Dept. - July 28, 1976
OFFICE DATE

TO: Mr. B. H. Loper

LOCATION: Bound Brook

COPY TO:

FROM: Mr. H. H. Hofmaier

SUBJECT: CHICAGO PLANT - INDUSTRIAL
HYGIENE - LEAD DUST ABATEMENT

REFERENCE:

Approval is requested for \$216,000 to abate airborne lead dust in the Chicago Plant.

Air sampling in the three manufacturing buildings over the past five years affirms that airborne lead levels range from five to ten times the OSHA limit of 0.2 mg lead/m³ air (8-hour time-weighted average), with peaks 50 times that level.

OSHA conducted an in-depth inspection of the Chicago plant December, 1975. A resultant citation demands abatement of high lead-in-air concentrations-with full compliance by March 1, 1977.

REVISED TO
OCT. 15, 1977

All operating personnel at the Chicago plant wear dust respirators for the entire work day. With present plant conditions, continuous use of respirator protection is mandatory in order to control operator blood lead levels below prescribed levels. Since the 1971 acquisition of this plant by Cyanamid, the blood lead levels have been improved substantially through strong measures in personal hygiene practices and improved equipment maintenance. These efforts continue with constant vigilance. Respirator use, however, is not acceptable as a primary means of employee protection. OSHA requires that engineering controls be implemented wherever feasible.

Inadequate exhaust ventilation, dust collection and materials handling equipment are the main sources of the high airborne lead dust concentrations in the Chicago plant.

N14468.05

Mr. B. H. Loper

-2-

July 28, 1976

In the 1974-76 period, the lead dust problem has been studied by engineers from OCD, ECD and by the Arthur G. McKee Engineers and Constructors. In recent months, two industrial hygienists from Cyanamid's Occupational-Environmental Services Section conducted an in-depth survey and prepared specification drawings for upgrading the ventilation, ductwork and dust collection systems. The subject request for \$216M funds will permit implementation of the necessary corrective programs.

It is proposed to construct new ventilation hoods and ductwork in all three manufacturing buildings, reactivate two dust collectors, overhaul two dust collectors, add one dust collector, and install a pneumatic litharge charging system and a central vacuum cleaning system.

Cyanamid's OES and Central Medical Department (see attached support memo) have reviewed the plans and they concur. The proposed engineering improvements will substantially reduce the airborne lead levels. We cannot be certain, however, that the engineering upgrading will reach OSHA's stringent limits for dust exposure. We are confident that the combination of these feasible engineering controls, improved administrative controls and the plant's continuing personal hygiene, personal protection and medical surveillance programs will provide a healthier environment for our employees and will be acceptable to OSHA.

The lead stabilizer product line is a Quadrant IV business. Over the next ten years (1977-86), the annual sales of lead stabilizers and Willow Island's use of litharge will average \$4,333M, the profit on sales \$1,154M at 26.6% of sales; the NAT \$338M at 7.8% of sales.

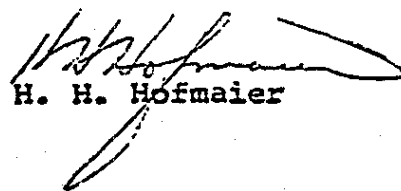
Considered as an industrial hygiene, non-revenue project, the internal rate of return is 26.7%.

Contingent future commitments in the Chicago plant are possible expenditures for replacement of two dust collectors (\$50M) for outside environmental control, installation of a sewer-line filter (\$25M) to meet regulatory standards for lead in effluent and installation of a new blender (\$75M) for added capacity about 1981. These were included in calculating the IRR.

\$31,005
4/4/77

Approval of this job order is recommended to solve a serious industrial hygiene problem.

hr
Att.


H. H. Hofmaier

COMMERCIAL FACTORS:

Cyanamid acquired the MacGregor Lead Company in 1971 in order to expand and broaden our plastics additives use base.

Our CYASTAB® line of lead stabilizers are comprised of carbonate, sulfate, phthalate and phosphite types. Only Cyanamid produces a full line of products. NL Industries, the market share leader, produces all types except carbonates. Hammond Lead, in third position, does not produce the phosphite type. Varying PVC formulations and desired finished product properties dictate the type used. The major relevant market for PVC lead stabilizers is wire and cable insulation which currently consumes about 90% of the physical volume, up from about 83% in 1973. These finished products find wide application in the construction, communications, transportation, and appliance industries. The estimate of the total market for such stabilizers in 1976 is 18 million pounds, growing to about 25 million pounds by 1985.

The excellent insulation resistance and other favorable electrical properties of lead stabilizers will mitigate against product obsolescence. There is not a currently viable cost/performance nonlead-based competitive product. No imports are experienced and none are anticipated. Cyanamid's current market share of approximately 44% is up from about 21% in 1971 when we entered the business and NL Industries led with about 75% of the market.

Table I portrays our market penetration progress expected long-term:

N14468.06

TABLE I

	<u>1973</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1981</u>	<u>1986</u>
Total Market, MM lb.	32.4	13.7 ¹	18.2	18.8	21.3	24.9
Cyanamid Sales, MM lb.	9.6	4.8	8.0	7.6	9.6	11.7
<u>Market Share, %</u>						
Cyanamid	30	35	44 ²	40 ³	46	47
NL Industries	58	49	44 ²	46 ³	40	38
Hammond Lead	8	11	8 ²	10 ³	14	15
Eagle Picher	3	4	3	3	4	--
Witco	0.5	0.5	0.5	0.5	4	--
Ferro	0.5	0.5	0.5	0.5	4	--

1. Abolition of lead carbonate from paint, reformulation to tin stabilizers in PVC pipe compounds, and the poor economic climate in 1975 explain the dramatic drop in total market usage.

2. Cyanamid's substantial 1976 market share improvement is due to NLI supply problems resulting from compliance with manufacturing safety requirements. NLI supplies part of Hammond Lead's requirement.

3. The dip in Cyanamid's 1977 market share assumes that NLI will resume normal production levels; if not, our 44% market share in 1976 could grow at a 3%/year rate through 1980.

4. The increased cost of manufacturing related environmental controls are expected to result in Eagle Picher's, Witco's, and Ferro's withdrawal from the market.

Cyanamid's products are cost/performance competitive, and it is believed that this proposed capital expenditure will not alter that position.

It is known that our competitors also will be forced to expend capital in order to meet acceptable OSHA industrial hygiene standards.

The limited number of competitors is not expected to increase in this specialized market. Pricing is expected to remain stable and profit margins protected to reflect increased costs.

Stabilizer sales and profits for the period from 1972-1976 are as follows:

TABLE II

(000)	Actual				Budget 1976	5 Mos. 1976	Estimate 1976
	1972	1973	1974	1975			
Sales Quantity	10,211	9,618	7,860	4,854	6,750	3,477	7,977
Net Sales \$	\$2,281	\$2,382	\$2,800	\$1,936	\$2,591	\$1,325	\$3,192
Gross Profit	719	762	752	471	678	427	1,006
Expenses (%)	15.2	9.9	11.5	12.9	14.9	11.5	11.6
Expenses	347	235	322	249	387	152	370
NAT	186	263	215	111	145	137	318
NAT %	8.2	11.0	7.7	5.7	5.6	10.3	10.0

ECONOMIC JUSTIFICATION:

This proposed expenditure is nonrevenue. To determine if this project exceeds the corporate guideline of a 12% internal rate of return, all other anticipated capital expenditures against the product line have been projected for the next ten years. These projects total \$200M. The internal rate of return for the period 1976-85 is 26.7%.

PRESENT MANUFACTURING SITUATION:

Operations performed in the production operations which create the lead-in-air hazards are:

- a. Dust at the ball mill feed and discharge.
- b. Dust from screw conveyors transporting product from the ball mill to the kiln, and feed to secondary kiln.
- c. Discharge from secondary kiln.
- d. Litharge bagging, drumming, and tote bin filling.
- e. Charging litharge to the sulfate, phthalate and phosphite reactors.
- f. Dumping of lead stabilizers from dryer pans to mill hopper.
- g. P & S belt dryer - dry end discharge.

The OES survey in the second quarter 1976 affirmed that duct velocities are well below the recommended minimum dust transport velocities of 4,000 FPM. The total air requirements in the three manufacturing buildings exceed the total capacity of the 12 operating dust collectors. Existing hoods are poorly designed. The duct systems are routed with unbalanced, ineffective loading to the various dust collectors. The two major dust collectors in the litharge building require overhaul. Cleanup of floors, walls and equipment in the Cowles and Sulfate buildings are performed with ineffective portable vacuum cleaners. The overhead areas in all three manufacturing buildings are contaminated with lead dust which has accumulated over the years.

BLOOD LEAD LEVELS:

Through administrative controls and strong personal hygiene and respiratory protection programs, the employee's blood lead levels have declined steadily since 1971. The majority now has below 0.06 mg lead/100 g blood. The Cyanamid guideline has been 0.08; the proposed new OSHA and Cyanamid limit is 0.06. A few employees are above 0.07 with an occasional excursion above 0.08. One employee (now back at work) may be classified as lost time if his recent anemia illness is attributed to high lead absorption.

DETAILS OF PROPOSAL:

Litharge Building:

1. Reactivate two abandoned Pangborn dust collectors.
2. Overhaul two Norblo dust collectors.
3. Add rotary air lock valves on dust collectors.
4. Install new hoods and ductwork.
5. Relocate kiln drop-out box outdoors.

Cowles Building:

1. Install new hoods and ductwork.
2. Install tray dumper for discharging lead stabilizers from dryer trays to mill hopper.
3. Enclose discharge of Micro-Pulsaire (blending system) with adequate access to collection drum.

Sulfate Building:

1. Install Vac-U-Max pneumatic system for charging litharge to the reactor.
2. Install new 2000 CFM dust collector.
3. Install new ductwork and hoods.

COWLES/SULFATE AREAS

Install a central vacuum cleaning system for more effective daily dust removal from floor, walls and equipment.

Upon completion of all engineering controls, an outside contractor will be engaged to remove from all overhead areas in the three manufacturing buildings the lead dust accumulation of many years.

In April 1976, lead was added to the EPA list of air pollutants for which air quality criteria must be established. When promulgated, the Chicago plant will be required to submit stack data on lead emissions. The plant is operating under licenses issued by Chicago and Illinois for atmospheric emissions. Emission data, however, has never been developed by actual sampling. Part of this job order is to have an outside firm run isokinetic samplings on all of our 12 discharge stacks to measure the effectiveness of particulate matter removal by the dust collectors.

It is estimated that the total project can be completed within one year after approval of the capital request. We have petitioned OSHA for modification of abatement date and will seek an extension to the third quarter 1977 for full compliance.

All construction will be done by outside firms. We will hire an engineer for the Chicago plant to serve as liaison and to implement the project.

There may be short periods of down-time in the litharge unit which may necessitate the purchase of bagged litharge for use in stabilizers and by Willow Island for pigments.

CONTINGENT FUTURE COMMITMENTS:

There may be need for three additional capital expenditures in the 1977-81 period:

1. Replacement of the two old Norblo dust collectors may be required if the stack testing shows a high particulate and lead discharge from the two outside stacks--estimated \$50M.
2. The plant is under citation by both the City of Chicago Department of Environmental Control and the Metropolitan Sanitary District of Greater Chicago for lead concentration in the plant water effluent above the limit of 0.5 ppm. Through the implementation of tight administrative controls and equipment modifications, the lead concentrations presently are running only slightly above the

specification. However, should the discharge concentration of lead increase, then a filtration unit costing about \$25M may be required.

3. Based on forecast sales growth, an additional blender may be required in the Cowles building (\$75M) about 1981.

RISK

The proposal is considered to have negligible technical risk for substantially reducing airborne lead dust concentrations. The proposed dust collection hoods and ducts will be designed to Cyanamid standards and will give the proper capture velocity and air flow to contain the lead dust. There is no guarantee, however, that the proposed engineering changes will reduce the lead dust to the existing OSHA standard of 0.2 mg/m³ or to the pending more stringent level of 0.1 mg/m³. We will achieve feasible engineering limits and will continue to depend on administrative controls and personal protection to maintain acceptable blood lead levels--below 0.06 mg/100 g. Our competitors in the litharge and lead stabilizer field have similar or worse plant conditions. They, too, plan to install engineering controls and also rely on personal protection and administrative controls to achieve acceptable blood levels.

ALTERNATIVES

1. Buy instead of make litharge

Termination of litharge manufacture would cut an estimated \$100,000 from the proposed expenditure. However, an expenditure of roughly \$100,000 would be required to receive purchased bulk litharge.

Based on 1976 sales activity in the lead stabilizer and lead pigments lines, the buy versus make cash penalty would exceed \$250,000/year before tax. Thus, with the standoff on capital and with the buy penalty, this alternative has been rejected.

2. Sell the Chicago plant and relocate manufacture to Willow Island

Relocation of the manufacturing facilities would eliminate the necessity to spend the \$216,000 to reduce lead dust emissions, but on examination, is not economically desirable.

-8-

A new battery limits facility would cost roughly four million dollars; two million for lead stabilizers and two million for litharge. Based on the experience of Hammond Lead at its new plant, there is still no guarantee that a new plant would comply with the lead dust limit.

Our Chicago plant neighbor, Armstrong Containers, Inc. has offered \$300M for our facilities, excluding equipment for which they have no interest.

3. Discontinue litharge manufacture for lead chromate pigments in Willow Island

The economic analysis calls for discontinuing litharge manufacture after 1979. There is a minor effect on the economics which are based on the differential between delivered manufactured cost of \$0.266/lb and outside purchase price of \$0.273/lb for 3.8 million pounds per year.

The NAT will drop by \$13,000/yr when litharge manufacture for Willow Island ends.

DETAIL SHEET

OC-3007

8/12/76

SHEET NO.

JOB ORDER NO.

DATE

1

July 22, Page 12 of 16

COMPANY		LOCATION			
American Cyanamid Company		Chicago, Illinois			
ITEM OR CODE NO.	DESCRIPTION	EQUIPMENT OR MATERIALS	LABOR	ENG. MECH. SVC.	TOTAL
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708	Dust Collector Renovation Bldg. 19	8,820.	6,400.		15,220.
710	Vac-u-max pneumatic Litharge Charging Bldg. 20	7,895.	2,500.		10,395.
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750	Stack Emission Testing	8,004.	15,996.		24,000.
760	Plant Clean up		20,000.		20,000.
		86,517.	116,295.		202,812.
898	Illinois Sales & Use Tax	4,325.			4,325.
890	Dismantlement		9,000.		9,000.
		90,842.	125,295.		216,137.
	<u>Dismantlement</u>		<u>Acq. Date</u>	<u>Acq. Cost</u>	<u>Dispositi</u>
	Ventilation Hood and Ductwork		6/71	32,050.	Scrap
	Elevator and Screw Conveyor		6/71	2,800.	Scrap
				34,850.	

N14468.07

Proposed work to be done by the following firms:

Stack Emission Testing

Poly Technic Inc.
Consulting Engineers and Chemist
Lincolnwood, Illinois

Sheet Metal

Engineered Air Systems, Inc.
Chicago, Illinois

Vac-u-max

Vac-u-max Pneumatic Conveyor Systems
Belleville, N. J.

Vacuum System

Hoffman Air & Filtration
Div. Clark Industries, Inc.
New York, N. Y.

Dust Collector Modifications

Finnerty & Company
Arlington, Heights, Illinois

Plant Clean up

Production Chemical Co.
Franklin Park, Illinois

N14468.08

Wayne July 26, 1976

OFFICE

DATE

TO: F. B. Dorf

LOCATION: Bound Brook

COPY TO: B. H. Loper - BB

FROM: R. M. Clyne, M.D.

SUBJECT: CHICAGO PLANT: LEAD DUST ABATEMENT

REFERENCE:

The Central Medical Department supports this prospectus.

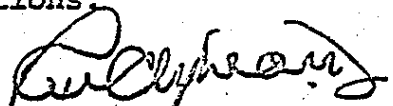
On February 17, 1976, the Chicago Plant received an OSHA citation (non-serious violation) for exposing employees to airborne levels of lead in excess of the current standard of 0.2 mg/m^3 . Corrective action was ordered by July 30, 1976, for one area and March 1, 1977, for another. The work described in this prospectus is our response to this order. Furthermore, we believe that these measures are necessary to assure the safety of our employees.

We have requested an extension of four months of the 1976 deadline and nine months of the 1977 deadline. This prospectus would be the justification for granting the latter extension.

We believe that the additional engineering controls will not reduce airborne lead levels consistently below the 0.2 mg/m^3 level. However, combined with personal protective measures, they should result in the reduction of blood lead levels below $60 \text{ } \mu\text{g}/100 \text{ ml}$ for all employees. Blood lead levels are more accurate indices of a harmful exposure than airborne concentrations. In the event that the plant should receive another OSHA inspection after completion of the work, we believe that there is better than a 50-percent chance that it would be allowed to continue in operation, even if airborne lead levels were found in excess of 0.2 mg/m^3 .

On October 3, 1975, OSHA published a proposal to reduce the permissible limit of lead in air to 0.1 mg/m^3 , and to set a limit of blood lead at $60 \text{ } \mu\text{g}/100 \text{ ml}$ as opposed to the $80 \text{ } \mu\text{g}/100 \text{ ml}$ that has heretofore prevailed in medical judgement.

Our employees currently are protected by the wearing of respirators. At our last survey of blood leads, about 75 percent were below $60 \text{ } \mu\text{g}/100 \text{ ml}$ and the remainder were below $80 \text{ } \mu\text{g}/\text{ml}$. Maintenance of all values below $80 \text{ } \mu\text{g}/100 \text{ ml}$ cannot be assured under present conditions.


R. M. Clyne, M.D.

CBS:lh

N14468.09

PROJECTED DIFFERENTIAL CASH FLOWS
CHICAGO PLANT
 (CYASTAB Heat Stabilizers, LITHARGE for Willow Island thru 1979)
 (\$000)

ESTIMATED YEAR OF START-UP 1977

	Current Year 1976	Next Year 1977	2nd Year 1978	3rd Year After 1979	4th Year After 1980	5th Year After 1981	6th Year After 1982	7th Year After 1983	8th Year After 1984	9th Year After 1985	10th Year After 1986	11th Year After 1987	12th Year After 19	Years 13-n (Average) n =
Net Before Tax Earnings		481	551	614	597	631	674	720	767	818	863			
Add: Costing Depreciation		97	96	95	96	102	102	102	103	103	103			
Subtract: Tax Depreciation		121	108	83	60	55	54	44	36	31	25			
EBT Earnings - Tax Basis		457	539	626	633	678	722	778	834	890	941			
Subtract: Income Tax-Tax Basis		228	270	313	317	339	361	389	417	445	471			
Add: Invest. Tax Credit		17	-	-	-	6	-	-	-	-	-			
Net After Tax Earnings-Tax Basis		246	269	313	316	345	361	389	417	445	470			
Add: Tax Depreciation		121	108	83	60	55	54	44	36	31	25			
Operating Cash Flow-Tax Basis		367	377	396	376	400	415	433	453	476	495			
Fixed Capital Expenditures		237	5	5	5	80	5	5	5	5	5			
Net Change in:		(5)	23	30	33	20	21	21	22	24	25			
-Accounts Receivable		-	17	28	(159)	20	19	20	20	22	24			
-Inventories		-	(11)	(19)	106	(13)	(13)	(13)	(13)	(15)	(16)			
-Accounts Payable		232	34	44	(15)	107	32	33	34	36	38			
Cash Outflow														
Add/Subtract: Other Cash Flow	(1161)											1,355		
Net Cash Flow	(1161)	135	343	352	391	293	383	400	419	440	457	1,355		

OC-3007 8/17/76 Page 15 of 16

Net Before Tax Earnings
 Add: Costing Depreciation
 Subtract: Tax Depreciation
 EBT Earnings - Tax Basis
 Subtract: Income Tax-Tax Basis
 Add: Invest. Tax Credit
 Net After Tax Earnings-Tax Basis
 Add: Tax Depreciation
 Operating Cash Flow-Tax Basis
 Fixed Capital Expenditures
 Net Change in:
 -Accounts Receivable
 -Inventories
 -Accounts Payable
 Cash Outflow
 Add/Subtract: Other Cash Flow
 Net Cash Flow

Capital Recovery (Year 1976) INTERNAL RATE OF RETURN = 26.7%
 Fixed Capital 659
 Working Capital 853
 Other: 502

Capital Recovery (Year n)

Fixed Capital: 502
 Working Capital: 853
 Other: -

CHICAGO PLANT (CYASTAB HEAT STABILIZERS, LITHARGE FOR WILLOW ISLAND THRU 1979)

ESTIMATED OPERATING RESULTS (\$000)

Without New Investment
With New Investment
Differential

BUSINESS/PROJECT:	ESTIMATED STARTING DATE OF OPERATIONS	7/77	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	AVERAGE PER YEARS
CUMULATIVE PRE-PLANT & START-UP COSTS															
PRODUCTION DATA:															
% of Capacity															
Quantity (Specify Unit)															
Unit Cost (\$/Unit)															
DEPRECIATION OF PRODUCTION:															
Machine Sales (CYASTABS)															
Unit Price (\$/Unit)															
Machine Use (LITHARGE@W.I.)															
Unit Price (\$/Unit)															
SALES AND/OR CAPTIVE USE:															
COST OF PRODUCTION (Excl. Deprec.)															
DEPRECIATION - New Facilities															
- Existing Facilities															
TOTAL COST OF PRODUCTION															
GROSS PROFIT															
EXPENSES															
Commercial															
Administrative															
Research & Development															
Working Capital Chg															
(Merchant Sales Only) - %															
Total Expenses															
NET INCOME (Before Tax)															
INCOME TAX (50 %)															
NET INCOME (After Tax)															
% OF SALES															
INVESTMENT															
New PPE															
Working Capital - Acc'ts Receivable															
- Inventories															
- Total															
Existing PPE - Production															
- Total															
Goodwill															
- Total															
Total Investment															
RETURN ON INVESTMENT (ROI)															

5-yr Average ROI: 9.6%