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INTERNAL CORRESPONDENCE

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CHEMICALS AND PLASTICS

P. O. BOX 471, TEXAS CITY, TEXAS 77560

TO (NAME) Dr. W. R. Manning
COMPANY Building #2000-3311
LOCATION TECHNICAL CENTER

DATE October 22, 1976

COPY TO
Mr. M. E. Eisenhower
Mr. J. F. Erdmann ✓
Mr. R. L. Frantz
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Mr. D. D. Robinson
Mr. G. F. Tacquard
Mr. E. N. Wheeler-SIA

SUBJECT Non-Solvent Suspension EPA
VCM Compliance Projects

Attached in Appendix I is a current list of projects required to comply with the anticipated EPA regulations. You will note that the unit personnel have called this list in an attempt to minimize the amount of money required for this work. The current estimated totals are \$650M for Suspension and \$420M for Non-Solvent. At this point in time these estimates are plus or minus 50%. This means that the Suspension portion is between \$325 and \$975M and that the Non-Solvent portion is between \$210 and \$630M.

Appendix II summarizes a brief description of the scope of each of the 13 parts of the work required for compliance. It should be noted that the unit personnel have chosen to make the following assumptions which have an important part in reducing the estimated project costs from the original total for the two facilities of \$1.7MM (+50%) to the current figure. The major assumptions are summarized below:

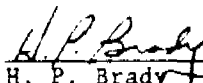
- That Non-Solvent resin can be stripped to less than 400 ppm VCM using existing equipment with limited changes and additions;
- that double sealing of compressors will be done by unit personnel and this project should only provide instrumentation;
- that a shortstop system is not required for Non-Solvent autoclaves;

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- d. that a method is not required for inspecting Suspension autoclave rupture discs without opening the autoclaves;
- e. that emergency remote operated isolation valves and pump shutdowns are not required;
- f. that a portable scavenger system is not required for maintenance preparation of equipment;
- g. that the present pilot plant facilities in Texas City require no changes as the law is currently proposed.

The $\pm 50\%$ estimates provided at this time are the best numbers currently available. Additional information will be required from unit personnel and further engineering will be required before these numbers can be reduced to the conventional $\pm 10\%$ accuracy.

Very truly yours,


H. P. Brady

HPB/kb
Attachments

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APPENDIX IENGINEERING PROJECTS FOR EPA VCM COMPLIANCESUSPENSION

<u>PROJECT</u>	<u>COST M\$</u>
SU-1 Reciprocating compressor seal instrumentation	5
SU-2 Blowdown tank agitator seals	90
SU-3 Rupture disc/safety valve installations	115
SU-4 Boiler vent analysis and modifications	50
SU-5 Tank car unloading revisions	140
SU-6 Data collection system	15
SU-7 Tracifier drain	15
SU-8 MEK stripper calandria	75
SU-9 MEK wash tank vent to vent rec. sys.	100
SU-10 Lab equipment and revisions	<u>45</u>
SUBTOTAL	650

NON-SOLVENT

N/A-1 Reciprocating compressor seal instrumentation	5
N/S-2 Stripping tank agitator seals	20
N/S-3 Rupture disc/safety valve installations	130
N/S-4 Tracifier drain	15
N/S-5 Non-Solvent slurry stripping	<u>250</u>
SUBTOTAL	420

Total Suspension/Non-Solvent \$1,070M $\pm$ 50%

NOTE: New 60 point alarm panel has been prorated to these jobs.
Existing unit spare alarms are inadequate to support the
anticipated requirements.

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APPENDIX IIBRIEF PROJECT SCOPE SUMMARIESSU-1 Reciprocating Compressor Seal Instrumentation

Instrumentation to be provided to protect seals (double packing).
Unit to do all seal design and installation work.

SU-2 Blowdown Tank Agitator Seals

Double seals to be installed on six blowdown tank agitators.
Instrumentation to be provided to maximize dependability and warn of impending problems.

SU-3 Rupture Disc/Safety Valve Installations

Rupture discs to be installed under all VCM safety valves.
Some safety valve replacement required due to restrictions for using rupture discs under certain brands of safety valves.
Some vessel nozzle enlargement or addition of additional relief capacity may have to be provided for any borderline capacities.
(Relief capacity requirements will have to be determined for a total of 56 safety valves-Non-Solvent included.) Spare rupture discs and assemblies will be purchased. S-90 type discs (reverse buckling without knife blades) will be used. Potential pressure buildup between disc and safety valve will be handled by a free vent to the atmosphere through a restriction orifice. This vent will be monitored manually as part of the unit leak detection program.

SU-4 Boiler Vent Analysis and Modifications

Piping to be modified to allow the vent to go to only one boiler at the powerhouse. Automated analyzer will continuously monitor the boiler vent stream.

SU-5 Tank Car Unloading Revisions

Double gas seals to be installed on two Sundyne compressors.
Seals to have protective instrumentation and vent to a low pressure VCM vent header. (May require a new header to Bldg. 119 if existing tank car vent header not suitable.) Double mechanical seals and support facilities required for two pumps at unloading rack. Pumps are not to be connected to existing suspension seal liquid system due to their remoteness.

SU-6 Data Collection System

Money is to be provided for a small data handling system for processing EPA data. If possible the planned system for the Solvent Unit and the Non-Solvent/Suspension facility will be combined for operating efficiency.

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Appendix II - continuedSU-7 Tracifier Drain

A small pressure system will be provided for collecting and handling the VCM compressor tracifier oil drains.

SU-8 MEK Stripper Calandria

An installed spare calandria will be provided to help assure that the active time of this system will be as close to 100% as possible. Isolation valving will be provided to allow an "on the fly" change of calandrias. An anticipated shutdown of the system of two to three days would probably be required for making this installation.

SU-9 MEK Wash Tank Vent to Vent Recovery System

A small compressor (to boost the pressure to 75 psig) would be provided with piping and control system to feed this vent to the MEK vent recovery system or the boiler. Stream composition and flow rate data are required to better define the needs.

SU-10 Lab Equipment and Revisions

A new analyzer will be purchased to handle the batch stripper samples required each shift. In addition a new lab bench and hood will be provided for sample preparation and handling. No special disposal of the lab hood exhaust is anticipated at this time.

N/S-1 Reciprocating Compressor Seal Instrumentation

Same provisions as for SU-1.

N/S-2 Stripping Tank Agitator Seals

Double seals to be provided for two agitators. Instrumentation to be provided to maximize dependability and warn of impending problems.

N/S-3 Rupture Disc/Safety Valve Installations

Same provisions as for SU-3.

N/S-4 Tracifier Drain

Same provisions as for SU-7.

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Appendix II - continuedN/S-5 Non-Solvent Slurry Stripping

The basic assumption has been made that by using a combination of the currently operated stripping tank in series with the spare stripping tank and the flash tank that sufficient contact and residence time can be provided to get VCM on the stripped slurry consistently well below 400 PPM. Some baffle trays may have to be provided for the second stripping tank as well as pumps and some instrumentation. Piping and instrument revisions may also be required on the primary stripping tank and the flash tank. This project is highly nebulous since no test data whatsoever is available. If the stripping proves to be much more difficult than anticipated, this cost could jump to \$500M.