CURRENT ACTIVE PROGRAM ITEMS

- C-8 Fate in process will depend on whether TFE dimer is used to reduce TFE explosibility in dispersion/fine powder polymerization.

- Dielectric drying of fine powder is being investigated for its potential benefit in C-8 recovery.
ENGINEERING STUDY RESULTS

- THERMAL DESTRUCTION
  - ECONOMICS
    - $1MM INVESTMENT
    - $1MM ANNUAL OPERATING COST
      (APPROXIMATELY $0.15/LB. OF PRODUCT)

- SCRUBBING AND RECOVERY
  - $3.5MM INVESTMENT
  - $2.5MM ANNUAL OPERATING COST
    (APPROXIMATELY $0.40/LB. OF PRODUCT)
  - $1.5MM DEVELOPMENT COST
  - POTENTIAL BREAK-EVEN IF RECOVERED
    C-8 IS USABLE
ENGINEERING STUDY

DEFINE METHODS OF REMOVING C-R FROM THE FINE POWDER DRYER EXHAUSTS STACKS:

0 TRAILER PARK NEAR PLANT SITE ESTIMATED TO HAVE ANNUAL MEAN C-R CONCENTRATION OF .0056 ppb (0.0056 AEL) (1/100 AEL).

0 ESTIMATE OF PROBABILITY OF EXPOSURE AT THIS LOCATION TO C-R LEVELS ABOVE THE AEL IS .0002.
BLOOD DATA

VIA WATER - UNKNOWN

VIA AIR - .025 PPM (NON-TEFLON®)

VIA PRODUCT - .027 PPM (SPRUANCE PLANT)
C-8 PROGRAM

WATER - TBSA

AIR - DECISION ON ENGINEERING STUDY
OFF PLANT EMISSIONS

WATER - 16,000 LBS. PER YEAR
AIR - 16,000 LBS. PER YEAR
PRODUCT - 5,000 LBS. PER YEAR
C-8 DATA TO-DATE

- IT IS NOT A TERATOGEN
- IT IS NOT A MUTAGEN
- IT IS NOT AN EMBRYOTOXIN
- IT IS NOT A CARCINOGEN
- IT IS MODERATELY TOXIC
- IT HAS A BIOLOGICAL HALF LIFE OF TWO YEARS IN HUMAN BLOOD

5/21/84
RJZ009991
EID603004
C-8 WASHINGTON WORKS POLICY
ESTABLISHED 6/80

- REDUCE EXPOSURE BELOW AEL BY ENGINEERING CONTROLS AND PROTECTIVE EQUIPMENT.

- REDUCE EXPOSURE BY ENGINEERING CONTROLS AND PROTECTIVE EQUIPMENT SO THAT ELEVATED ORGANIC FLUORINE LEVELS IN BLOOD WILL DECREASE AND ACCUMULATION OF ORGANIC FLUORIDES IN NEW WORKERS WILL BE LIMITED.

RESULTS

- EXPOSURES HAVE BEEN REDUCED AND MAINTAINED BELOW AEL LEVELS.

- C-8 LEVELS IN THE BLOOD ARE DECREASING.

JAS/NSW
2717W-3

5/21/84

EID603003
C-8 EXPOSURE LIMITS

AEL IN AIR
- 0.56 MOLES PER BILLION
  OR 56 PPM
  OR 10 MICROGRAMS/m³

BLOOD LEVELS
- NONE ESTABLISHED

PUBLIC EXPOSURE LIMITS
- NONE ESTABLISHED

AEL OF 0.01 mg/m³ BASED ON REVERSIBLE LIVER CHANGES SEEN IN RATS EXPOSED TO 8 mg/m³ FOR 4 HOURS/DAY FOR 5 DAYS/WEEK FOR 2 WEEKS.
C-8 HISTORY

8/51  BEGAN USE OF C-8 IN DISPERSION POLYMERIZATION. FEW PRECAUTIONS IN HANDLING.

6/27/78  ADVISED PERSONNEL THAT 3M FOUND ELEVATED ORGANIC FLUORINE LEVELS IN BLOOD OF WORKERS EXPOSED TO FLUORINATED SURFACTANTS. STARTED INTERNAL REVIEW AND MONITORING.

9/79  PROVISIONAL AEL ESTABLISHED BY HASKEL.

3/20/81  3M ADVISED THAT C-8 CAUSED BIRTH DEFECTS IN THE UNBORN WHEN FED BY STOMACH TUBE TO FEMALE RATS. ALL FEMALE EMPLOYEES WITH POTENTIAL C-8 EXPOSURE WERE PROMPTLY TRANSFERRED TO OTHER PLANT AREAS.

4/10/81  C-8 SPECIFIC BLOOD TEST DEVELOPED AND PUT IN USE.

3/1/82  STUDIES COMPLETE WHICH FIND C-8 NOT TO BE A TERATOGEN AND NO ADVERSE HEALTH EFFECTS.

5/17/82  FINAL AEL ESTABLISHED.
PERSONAL & CONFIDENTIAL

TO: T. M. KEMP
    T. L. SCHRENK
FROM: J. A. SCHMID

C-8 MEETING SUMMARY
5/22/84 - WILMINGTON

THE REVIEW WAS HELD WITH BEISPERKA, BENNETT, RIDDICK, GLEASON, HESENBARTH, SERENBEKTZ, RAINES, KENNEDY, VON SCHREITZ, AND INGALS IN ATTENDANCE. COPIES OF THE CHARTS USED ARE ATTACHED.

THERE WAS A CONSENSUS THAT C-8, BASED ON ALL THE INFORMATION AVAILABLE FROM WITHIN THE COMPANY AND FROM JM, DOES NOT POSE A HEALTH HAZARD AT LOW LEVEL CHRONIC EXPOSURE.

THERE WAS AGREEMENT THAT A DEPARTMENTAL POSITION NEEDED TO BE DEVELOPED CONCERNING THE CONTINUATION OF WORK DIRECTED AT ELIMINATION OF C-8 EXPOSURES OFF PLANT AS WELL AS TO OUR CUSTOMERS AND THE COMMUNITIES IN WHICH THEY OPERATE.

THERE WAS CONSENSUS REACHED THAT THE ISSUE WHICH WILL DECIDE FUTURE ACTION IS ONE OF CORPORATE IMAGE, AND CORPORATE LIABILITY. LIABILITY WAS FURTHER DEFINED AS THE INCREMENTAL LIABILITY FROM THIS POINT ON IF WE DO NOTHING AS WE ARE ALREADY LIABLE FOR THE PAST 32 YEARS OF OPERATION. CORPORATE IMAGE DISCUSSION CenterED AROUND THE PERCEIVED DILIGENCE VERSUS OUR POLICIES IF WE ELECTED TO STOP WORK.

CURRENTLY, NONE OF THE OPTIONS DEVELOPED ARE, FROM A FINE POWDER BUSINESS STANDPOINT, ECONOMICALLY ATTRACTIVE AND WOULD ESSENTIALLY PUT THE LONG TERM VIABILITY OF THIS BUSINESS SEGMENT ON THE LINE. FROM A BROADER CORPORATE VIEWPOINT THE COSTS ARE SMALL.

THE BASIS FOR A DECISION AT THIS POINT IS SUBJECTIVE AND IS MADE MORE DIFFICULT BY OUR CURRENT UNDERSTANDING OF TECHNOLOGY AND COST, AND THE IMPACT ON THE FINE POWDER BUSINESS. IT'S NOT AN EASY AND OBVIOUS DECISION AS FOR EXAMPLE TDSA WAS.
LOOKING AHEAD, LEGAL AND MEDICAL WILL MOST LIKELY TAKE A
POSITION OF TOTAL ELIMINATION. THEY HAVE NO INCENTIVE TO TAKE ANY
OTHER POSITION. THE PRODUCT GROUP WILL TAKE A POSITION THAT THE
BUSINESS CANNOT AFFORD IT. THE END RESULT, IN MY OPINION, WILL BE
THAT WE ELIMINATE ALL C-B EMISSIONS AT OUR MANUFACTURING SITES IN
A WAY YET TO BE DEVELOPED WHICH DOES NOT ECONOMICALLY PENALIZE THE
BUSINESS, AND ADDRESSES THE C-B EMISSION AND EXPOSURES OF OUR
DISPERSION CUSTOMERS.

SOME INFORMATION WHICH WE JUST DEVELOPED 6/21/84 IS THAT
DETECTABLE LEVELS OF C-B ARE IN BOTH THE LUBECK, W.V. AND THE
LITTLE HOCKING, OHIO WATER SYSTEMS. WE SHOULD HAVE QUANTITATIVE
NUMBERS IN THE NEXT TWO WEEKS. ALSO WITH THE DEVELOPMENT OF OUR
CURRENT FINE POWDER EXPANSION PLAN, WHICH TAKES CAPACITY UP TO
8.2 MMAP, THROUGH A COMBINATION OF EQUIPMENT AND RECIPE CHANGES.
C-B AIR EMISSIONS WILL RISE FROM FROM THE CURRENT 12,000 LBS./YR.
TO 25,200 LBS./YR. THE INCREASE FOR THE COMBINED DIVISIONS WILL
INCREASE FROM A CURRENT 16,000 TO 25,200 LBS./YR. OR A NET 9,200
LBS. DUE TO A 4,000 LB. OFFSET WITH THE IMPLEMENTATION OF THE TBSA
PROGRAM. THIS WILL INCREASE FURTHER WITH THE INSTALLATION OF THE
THIRD DRYER (12MAP FINE POWDER) TO ABOUT 37,000 LBS./YR.

C-B WILL NOW BECOME A MAJOR ISSUE ON ALL FURTHER PROJECT
WORK IN THE FINE POWDER AREA. STARTING WITH THE WILMINGTON SCOPE
REVIEW 6/29/84. IN PREPARATION FOR THAT REVIEW I HAVE REQUESTED
THE ESD GROUND LEVEL CONCENTRATION STUDY BE REDONE USING THE NEW
PRODUCTION VOLUMES AND RECIPE (45% SOLIDS). ALSO WE HAVE
INCLUDED IN THE DRAFT SCOPE OF WORK A NEW SMALL EXHAUST SYSTEM IN
THE FRONT END OF THE DRYER BTO TO TRY TO CATCH MOST OF THE C-B IN
A MUCH LOWER VOLUME AIR STREAM. THE PROJECT WILL PUT THIS STREAM
TO THE EXHAUST STACK. THE INTENT IS TO FIRST REDUCE IN PLANT
EXPOSURE, AND SECOND LEAVE A FUTURE CAPABILITY FOR TREATMENT OF
THIS RELATIVELY CONCENTRATED STREAM.

I BELIEVE WE NEED TO sit back down with the new
information we now have, and the feedback we have gotten from
these meetings and jointly with Putnam review our plant position.
Reasons at one point had rejected reduction as an option. This
needs to be included in our thinking again.