

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.

RJZ009997

JAS 5/21/84

RJZ009997

EID603010

ENGINEERING STUDY RESULTS

● THERMAL DESTRUCTION

- ECONOMICS

\$1MM + INVESTMENT

\$1MM ANNUAL OPERATING COST

(APPROXIMATELY \$0.15/LB. OF PRODUCT)

~~● CARBON ADSORPTION~~

~~TECHNICAL UNCERTAINTY~~

● 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

JAS 5/2/84

RJ2009996

EID603009

ENGINEERING STUDY

DEFINE METHODS OF REMOVING C-8 FROM THE FINE POWDER
DRYER EXHAUSTS STACKS:

- TRAILER PARK NEAR PLANT SITE ESTIMATED TO HAVE ANNUAL
MEAN C-8 CONCENTRATION OF .0056 PPB (~~1% OF AEL~~)
(1/100 OF AEL).
- ESTIMATE OF PROBABILITY OF EXPOSURE AT THIS LOCATION
TO C-8 LEVELS ABOVE THE AEL IS .0002.

2717W-8

JAS 5/21/84

RJ2009995

EID603008

11/21/1993

BLOOD DATA

VIA WATER - UNKNOWN
VIA AIR - .026 PPM (NON-TEFLON®)
VIA PRODUCT - .027 PPM (SPRUANCE PLANT)

JAS/NSW
2717W-6

R1/10/1991

5/2/84

RJZ009993

EID603006

C-8 PROGRAM

WATER - TBSA

AIR - DECISION ON ENGINEERING STUDY

JAS/NSW
2717W-7

11/000001/11

JAS 6/2/89

RJZ009994

EID603007

OFF PLANT EMISSIONS

WATER - 16.000 LBS. PER YEAR

AIR - 16.000 LBS. PER YEAR

PRODUCT - 5.000 LBS. PER YEAR

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JAS 5/21/84

RJZ009992

EID603005

C-8 DATA TO-DATE

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

JAS 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.

*Go to Charles Rames
Review*

JAS/NSW
2717W-3

PL/000000

5/21/84

RJZ009990

EID603003

C-8 EXPOSURE LIMITS

AEL IN AIR 0.56 MOLES PER BILLION
 OR .56 PPB
 OR 10 MICROGRAMS/M³

BLOOD LEVELS NONE ESTABLISHED

PUBLIC EXPOSURE LIMITS NONE ESTABLISHED

AEL OF .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.

JAS/NSW
2717W-2

KJ/100980

5/21/94

RJ2009889

EID603002

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
TRANSFERED 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.

JAS/nsw
2717W-1

11/11/79

5/20/84

RJ2009988

EID603001

5/23/84

cc. R. E. PUTNAM

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 BESPENKA, BENNETT, RIDDICK, GLEASON, HEGENBARTH, SERENBETZ, RAINES, KENNEDY, VON SCHRILTZ, AND INGALLS 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 3M, 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 TBSA WAS.

EID602999

RJ2009986

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 BUSSINESS CANNOT AFFORD IT. THE END RESULT, IN MY OPPINON, WILL BE THAT WE ELIMINATE ALL C-8 EMMISIONS AT OUR MANUFACTURING SITES IN A WAY YET TO BE DEVELOPED WHICH DOES NOT ECONOMICALLY PENALIZE THE BUSSINESS, AND ADDRESSES THE C-8 EMISSION AND EXPOSURES OF OUR DISPERSION CUSTOMERS.

SOME INFORMATION WHICH WE JUST DEVELOPED 5/21/84 IS THAT DETECTIBLE LEVELS OF C-8 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-8 AIR EMMISIONS WILL RISE 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 (12MMAP FINE POWDER) TO ABOUT 37,000 LBS./YR..

C-8 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 PREPERATION 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 BED TO TRY TO CATCH MOST OF THE C-8 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. RAINE'S AT ONE POINT HAD REJECTED REDUCTION AS AN OPTION. THIS NEEDS TO BE INCLUDED IN OUR THINKING AGAIN.

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