May 24, 2000

MEMORANDUM

TO: Audrey Cole
Regional Administrator
Pocatello Regional Office

FROM: Zach Klotovich ZK
Environmental Engineer
State Technical Services Office

SUBJECT: ***PERMIT TO CONSTRUCT TECHNICAL ANALYSIS***
P-990138, Kimberly-Clark/Ballard Medical, Pocatello
(Medical Device Manufacturing Facility, PTC No. 005-00036 Application)

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 16.01.01.200 (*Rules for the Control of Air Pollution in Idaho*) for issuing Permits to Construct (PTC).

PROJECT DESCRIPTION

This project is for the issuance of a PTC to Kimberly-Clark/Ballard Medical for the emissions from the existing medical device manufacturing facility located in Pocatello, Idaho.

SUMMARY OF EVENTS

On October 14, 1999, the Idaho Department of Health and Welfare, Division of Environmental Quality (DEQ) received an application from Kimberly-Clark/Ballard Medical for the medical device manufacturing facility. DEQ received updates to the permit application on November 26, 1999 and February 17, 2000. On December 21, 1999, the application was determined complete. On March 1, 2000, DEQ received a request from Kimberly-Clark/Ballard Medical for review of a draft permit prior to final issuance in accordance with IDAPA 16.01.01.209.01.b.i. On March 20, 2000, a draft PTC was issued, and on April 20, 2000, DEQ received consent to issue the permit without changes to the draft form.

DISCUSSION

1. Process Description (Taken from the October 11, 1999, application.)

   Kimberly-Clark/Ballard Medical is a Medical Device Manufacturing Facility designed to manufacture various small medical devices and plastic parts used in the medical industry. This manufacturing facility includes plastic molding and solvent bonding processes. The main process consists of three basic manufacturing steps, namely the injection molding, solvent bonding, and packaging.

   Injection Molding

   The first step in the manufacturing process involves forming the various plastic containers and parts, using injection molding machinery. This machinery takes the plastic resin raw materials in the form of solid pellets, heats the pellets to its melting point, and then molds the plastic into various parts.

Regardless of the type of part being produced, the heat used to melt the resins is supplied by electricity, so the only air emissions generated from this process are minor amounts of Volatile Organic Compounds (VOCs) associated with the melting of the polymer pellets used in the process.

Solvent Bonding

The second step in the manufacturing process involves the bonding of these various plastic parts together, using solvent bonding agents. The parts are bonded in rooms that are specially designed to ventilate the VOCs from the bonding chemicals. Several workstations exist per room, where the bonding agents are applied to the parts and the parts are then glued together. The bonding agents are kept in small open dishes (called birdfeeders), where the workers can then apply the bonding cement to the parts. Bonded parts are allowed to dry in the same room they are bonded in. These emissions are captured by vent hoods over the work area, and are then vented to the outside air through three roof vents.

Packaging

The final step in the manufacturing process is in the label printing and packaging area. In this area, product labels are printed using various inks onto labels, and applied to the various final products. The inks used to create the custom labels for these products are quantified and used in a material mass balance method for estimating emissions to the atmosphere.

Other Processes

In the Balloon department, heart catheter balloons are manufactured. The balloons are manufactured by dipping a mandrel into a liquid silicone solution, taken out and allowed to dry, and repeatedly dipped into the silicone solution until the desired wall thickness of the balloon is achieved. Xylene is added to the silicone solution so as to maintain the appropriate viscosity.

Various medical products require cleaning before they can be used for medical purposes. In the washing process, these parts are washed free of particulates in a Isopropyl Alcohol (IPA) bath. Emissions from this process use a material balance method, and account for waste IPA sent out by subtracting this amount from the total IPA purchased.

2. Equipment Listing

Kimberly-Clark/Ballard Medical does not operate any pollution control equipment. With the exception of the solvent bonding process, most emission sources from Kimberly-Clark/Ballard Medical's manufacturing facility are vented openly into the various production rooms, which are then ventilated to the outside air. The solvent bonding process emissions are captured by vent hoods over the work area, and are then vented to the outside air through three roof vents.

Onsite chemical storage of volatile liquids are kept in vessels no larger than 55 gallon drums. No large storage tanks are used for any volatile liquid at the facility.

3. Emission Estimates

Emissions were determined by the applicant using a material balance method, as recommended by AP-42 for Evaporative Loss Sources, with the exception of the natural gas space heaters. All emission calculations are contained in Appendix A.

The method for estimating emissions from this facility uses a chemical inventory/material mass balance calculation. The total amount of raw materials used at the facility are inventoried and MSDS information is then gathered for all of the chemicals which appear in the inventory. Information on the percent of each chemical compound using the CAS numbering system, which make up a particular raw material, is used to estimate the quantity of each CAS for each raw material. VOC chemicals use the EPA definition of VOC for determination of whether the compound is a VOC or not. A list of Hazardous Air Pollutants is developed, based on the quantities of each compound found in the chemical inventory.

After a list of potential HAP and VOC quantities used in the facility are determined, the portion of each chemical which is considered to be emitted into the atmosphere is determined. For chemicals which are volatile at room temperature, a factor of 100% is used, which assumes all of the emissions end up in the atmosphere.

Potential to Emit (PTE) emission amounts have been estimated based on current production (based on 2080 hours per year), extrapolated to a continuous operating schedule of 8760 hours per year. Actual emissions are based on actual calendar year raw material usage, material mass balance, vendor emission information, and actual hours of operation for the various equipment. A complete chemical emissions inventory for the year 1998 was used in preparing the actual emission inventory.

AP-42 Used for Space Heating

Space heating emissions were calculated using AP-42 Chapters 1-4. The furnaces use Natural Gas as fuel and are rated less than 5 MMBtu/hr. All NOX, PM-10, and CO emissions result from these space heaters. Since these emissions units are considered insignificant, no permit conditions and associated compliance monitoring requirements are imposed.

Emission Totals

Table 1 summarizes the emission totals for all pollutants from the facility. This table indicates both the actual emissions emitted during 1998 and the proposed maximum potential emissions (PTE). As indicated, the amount of criteria pollutants emitted from Kimberly-Clark/Ballard Medical is less than the major source definition of 100 tons per year. In addition, based on table 1, the facility does not exceed the Title V trigger levels of 25 tons per year total HAPs, nor 10 tons per year of any individual HAP. In addition, this source is not subject to Idaho Tier II Operating Permit requirements since no limits were used to keep the facility's emissions below the Tier I threshold.

Pollutant	1998 Actual (Tons/Year)	PTE (Tons/Year)
NOx	0.494	6.769
CO	0.415	5.686
PM_{10}	0.038	0.514
SO_2	0.003	0.041
VOC	9.9	41.6
HAPs	0.7	2.8

Only two HAP or TAP emissions exceed the screening emission levels (EL). Methylene Chloride (CAS # 75-09-2), found in Acrylic Cement C003, and Acrylonitrile (CAS # 107-13-1), found in Cycolac PLN6000 A0011, have a potential to exceed the EL.

4. Modeling

For purposes of determining which HAPs require dispersion modeling, a comparison of the hourly emission rates of each HAP emitted by the facility was made for the toxic air pollutants listed in Sections 585 and 586. Appendix A summarizes the comparison of the screening emission levels (EL) contained in Sections 585 and 586 with the maximum allowable emission rates for each HAP at this facility. The conversion from annual to hourly emissions uses an assumption of 24 hours per day, 7 days per week, and 52 weeks per year operation. As Appendix A indicates, only two HAPs (methylene chloride and acrylonitrile) exceed the screening emission levels for this facility. The application uses an emission factor for Acrylonitrile of one tenth (0.1) of the mass applied. The emission factor was not used by DEQ since it is not an EPA accepted emission factor and does not appear to be manufacturer guaranteed. The manufacturer (General Electric Plastics) provided the emission factor and states that while they, "do not have extensive data, as a general rule-of-thumb, processing under recommended conditions might release approximately 1/10 of the residual monomers indicated." When the emission factor is not taken into account, Acrylonitrile emissions have the potential to exceed the EL of 0.000098 lb/hr.

5. Facility Classification

Kimberly-Clark/Ballard Medical is a Medical Device Manufacturing Facility designed to manufacture various small medical devices and plastic parts used in the medical industry. The Source Industrial Classification (SIC) code is 3841.

6. Area Classification

Kimberly-Clark/Ballard Medical's Pocatello facility is located in Bannock County, near Pocatello. The Pocatello area is designated nonattainment for PM-10.

7. Regulatory Review

IDAPA 16.01.01.201 Permit to Construct Required

A PTC is required to limit the emissions of methylene chloride and acrylonitrile to levels that do not exceed the acceptable ambient concentration for carcinogens (AACCs).

IDAPA 16.01.01.210 Demonstration of Preconstruction Compliance with Toxic Standards

Jay Witt modeled methylene chloride and acrylonitrile emissions using ISCST3 which showed that emission rates of 0.045 lb/hr for methylene chloride and 0.00285 lb/hr for acrylonitrile will not violate the AACCs. The Modeling Assessment can be found in Appendix B.

IDAPA 16.01.01.577 Ambient Air Quality Standards for Specific Air Pollutants

Kimberly-Clark/Ballard Medical is located in the Power/Bannock County nonattainment area for PM-10. As a result, PM-10 fence line impacts must be at or below significant impact limits. The Modeling Assessment in Appendix B shows that PM-10 emissions will not cause an exceedance of the significant impact limits.

The PTE of all other criteria pollutants were small enough for staff to assume fence line impacts would not exceed the NAAQS.

40 CFR 52 Prevention of Significant Deterioration

40 CFR 52 is not applicable because Kimberly-Clark/Ballard Medical is a minor facility for all criteria air pollutants.

40 CFR 60 New Source Performance Standards

Medical device manufacturing facilities are not designated sources under 40 CFR 60

40 CFR 61 & 63 National Emission Standards for Hazardous Air Pollutants & MACT

Medical device manufacturing facilities are not designated sources under 40 CFR 61 or 63.

8. Permit Requirements

8.1 Emission Limits

Emissions of Methylene Chloride shall not exceed forty-six thousandths pounds per hour (0.046 lb/hr) on an annual average. Emissions of Acrylonitrile shall not exceed twenty-eight ten thousandths pounds per hour (0.0028 lb/hr) on an annual average.

These emission limits will prevent Ballard Medical from violating the acceptable ambient concentrations for carcinogens given in IDAPA 16.01.01.586.

8.2 Operating Requirements

8.2.1 Throughput Limits

The maximum hourly throughput of Acrylic Cement C003 shall not exceed eighty-three thousandths pounds per hour (0.083 lb/hr) on an annual average. The maximum hourly throughput of Cycolac PLN6000 A0011 shall not exceed twenty-eight pounds per hour (28 lb/hr) on an annual average.

The product throughput limits will prevent Ballard Medical from exceeding the emission limits for methylene chloride and acrylonitrile. According to manufacturer supplied MSDSs Acrylic Cement C003 contains less than 55% methylene chloride and Cycolac PLN6000 A0011 contains less than .01% acrylonitrile. See Appendix A for calculations.

8.3 Monitoring and Record keeping Requirements

8.3.1 Throughput Monitoring

Each month, the Permittee shall monitor and record the throughput of Acrylic Cement C003 for that month and for the previous consecutive 12-month period. Each month, the Permittee shall monitor and record the throughput of Cycolac PLN6000 A0011 for that month and for the previous 12-month period. The most recent two (2) years' compilation of data shall be kept on site and shall be made available to DEQ representatives upon request.

Since the AACC for Methylene Chloride and Acrylonitrile is an annual average, monthly monitoring and recordkeeping will ensure that the standard is not violated.

8.3.2 Monitor Operating Hours

Each month, the Permittee shall monitor and record the hours of operation in hours per month (hr/mo) and hours for the previous consecutive 12-month period (hr/yr). The most recent two (2) years' compilation of records shall be kept on site, in a log, and shall be made available to DEQ representatives upon request.

8.3.3 Determine Average Hourly Usage Rate

Each month, the Permittee shall determine the average hourly usage rate of Acrylic Cement C003 and Cycolac PLN6000 A0011 for the previous consecutive 12-month period using the following equation:

Usage rate (lb/hr) = Product Usage (lb/yr) / Hours of Operation (hr/yr)

Usage rate (lb/hr) =	Average hourly usage rate of Acrylic Cement C003 or Cycolac PLN6000 A0011
Product Usage (lb/yr) =	mass of Acrylic Cement C003 or Cycolac PLN6000 A0011 used during the most recent consecutive 12-month period
Hours of Operation (hr/yr) =	Hours of operation during the most recent consecutive 12-month period

For example:

Acrylic Cement usage rates for the previous 12 months (lb/mo): 13, 12.5, 10, 11, 14, 13.5, 9, 8, 10, 14, 13, 13 = 141 lb/yr

Operating hours for the previous 12 months (hr/mo): 160, 158, 156, 164, 166, 163, 168, 152, 152, 160, 168, 168 = 1,935 hr/yr

Usage rate = (141 lb/yr) / (1,935 hr/yr) = 0.073 lb Acrylic Cement/hr

Monitoring operating parameters on a monthly basis will help ensure Ballard Medical does not exceed the annual limits.

9. Permit Coordination

Kimberly-Clark/Ballard Medical is not a major facility. Therefore, it does not require a Tier I operating permit.

10. AIRS Information

Information necessary to the AIRS database is included as Attachment C of this Technical Memorandum.

FEES

The Kimberly-Clark/Ballard Medical facility is not a major facility as defined in IDAPA 16.01.01.008.10 and therefore is not subject to registration fees.

RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommend that Kimberly-Clark/Ballard Medical be issued a Permit to Construct for their Pocatello facility. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

ZQK/ld 86387 G:\AHW\KLOTOVIC\PTC\BALLAR~1\P990138.TM

cc: P. Rayne, AFS
R. Wilkosz, AQP
Z. Klotovich, TSO
Pocatello RO
Source File (005-00036)
COF

Appendix A

Emission Estimate Calculations

P-990138
Kimberly-Clark/Ballard Medical, Pocatello

Kimberly-Clark/Ballard Medical - Pocatello, Idaho Facility

VOC Totals

Total T/YR 9.9 41.6

Chemical Name	Cas #	Total Cas lb/yr	Amount Emitted into Air	ref	1998 Actual VOC t/yr	PTE/Actual Factor	Proposed PTE t/yr
ETHYL BENZENE	100-41-4	203.52	100%		0.10176	4.2	0.42856615
STYRECA (AMORPHOUS), STYRENE, STYREPOTASSIUM PYROSULF	100-42-5	28.131	100%		0.0140655	4.2	0.05923739
1,2-EPOXYBUTANE (1,2-BUTYLENE OXIDE)	106-88-7	0.229	100%		0.0001145	4.2	0.00048222
ETHYLENE DICHLORIDE (1,2-DICHLOROETHANE)	107-06-2	84.5047619	100%		0.042252381	4.2	0.17794753
METHYL ISOBUTYL KETONE (MIBK) (4-METHYL 2-PENTANONE)	108-10-1	1.7	100%		0.00085	4.2	0.00357981
PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE (PMA)	108-65-6	7.25	100%		0.003625	4.2	0.01526683
CYCLOHEXANONE	108-94-1	340.62	100%		0.17031	4.2	0.71726712
DIMETHYL ETHER PROPELLANT	115-10-6	21.6	100%		0.0108	4.2	0.04548462
DIACETONE ALCOHOL	123-42-2	4	100%		0.002	4.2	0.00842308
BUTYL ACETATE	123-86-4	35.08	100%		0.01754	4.2	0.07387038
Xylenes (isomers and mixture)	1330-20-7	620.88	100%		0.31044	4.2	1.30743
ETHYL ACETATE	141-78-6	1000	100%		0.5	4.2	2.10576923
HEPTANE	142-82-5	159.775	100%		0.0798875	4.2	0.33644928
ETHYLTRIACETOXYSILANE	17689-77-9	4.38	100%		0.00219	4.2	0.00922327
ETHANOL, 2-PROPOXY-	2807-30-9	0.96	100%		0.00048	4.2	0.00202154
METHYLTRIACETOXYSILANE	4253-34-3	4.38	100%		0.00219	4.2	0.00922327
FORMALDEHYDE	50-00-0	0.4	100%		0.0002	4.2	0.00084231
ETHANOL	64-17-5	1228.26	100%		0.61413	4.2	2.58643212
DIOXOLANE	646-06-0	6.87	100%		0.003435	4.2	0.01446663
NAPHTHA, PETROLEUM, PARAFFINS AND NAPHTHANES	64742-89-8	7.2	100%		0.0036	4.2	0.01516154
PETROLEUM DISTILLATE, AROMATIC	64742-95-6	49.7	100%		0.02485	4.2	0.10465673
METHANOL	67-56-1	71.75	100%		0.035875	4.2	0.15108894
ISOPROPYL ALCOHOL	67-63-0	30830.65	50%	2	7.7076625	4.2	32.4611171
BENZENE	71-43-2	0.017	100%		8.5000E-06	4.2	0.0000358
PROPANE	74-98-6	4.8	100%		0.0024	4.2	0.01010769
ISOBUTANE	75-28-5	3.6	100%		0.0018	4.2	0.00758077
BUTYL ALCOHOL, SEC-	78-92-2	4.58	100%		0.00229	4.2	0.00964442
METHYL ETHYL KETONE	78-93-3	400	100%		0.2	4.2	0.84230769
PETROLEUM OIL	8042-47-5	42.325	100%		0.0211625	4.2	0.08912668
MINERAL SPIRITS, PETROLEUM	8052-41-3	8.4	100%		0.0042	4.2	0.01768846

Field	Description
CAS #	Chemical indentification number
Total CAS lb/yr	Yearly total of Chemical, found in products used, in pounds
Amount Emitted into Air	Fraction of chemical used which is emitted into the atmosphere (see reference below)
Ref	Reference for air emission calculations: *1 - Vendor indicates only .00001% volatilized during injection modeling* *2 - Based on mass balance = (1- (Waste Amount)/(Total purchased amount))*
1998 Actual VOC	Actual VOC air emissions for 1998 Equal to (Total CAS lb/yr) * (Amount Evaporated into Air % / 100)
PTE/Actual Factor	Ratio of potential emissions to actual emissions Based on current production level of 2080 hrs/yr and maximum potential level of 8760 hrs/yr
Proposed PTE	Proposed Potential to Emit (PTE) VOC emissions into the atmosphere Equal to (1998 Actual VOC) * (PTE/Actual Factor)

Kimberly-Clark/Ballard Medical - Pocatello, Idaho Facility

HAP Totals

		Total	*T/YR*		0.7		2.8
Chemical Name	**Cas #**	**Total Cas lb/yr**	**Amount Emitted into Air**	**ref**	**1998 Actual HAP t/yr**	**PTE/Actual Factor**	**Proposed PTE t/yr**
ETHYL BENZENE	100-41-4	203.52	100%		0.1018	4.2	0.4286
STYRECA (AMORPHOUS), STYRENE, STYREPOTASSIUM PYROSULFA	100-42-5	28.131	100%		0.0141	4.2	0.0592
p-XYLENE	106-42-3	41.4	100%		0.0207	4.2	0.0872
1,2-EPOXYBUTANE (1,2-BUTYLENE OXIDE)	106-88-7	0.229	100%		0.0001	4.2	0.0005
ETHYLENE DICHLORIDE (1,2-DICHLOROETHANE)	107-06-2	84.5047619	100%		0.0423	4.2	0.1779
ACRYLONITRILE (2-PROPENENITRILE)	107-13-1	2.8131	~~0.10000%~~ 100%	1	~~0.0000~~ 0.0014	4.2	~~0.0000~~ 0.0059
VINYL ACETATE	108-05-4	7.443	100%		0.0037	4.2	0.0157
METHYL ISOBUTYL KETONE (MIBK) (4-METHYL 2-PENTANONE)	108-10-1	1.7	100%		0.0009	4.2	0.0036
m-XYLENE	108-38-3	96.83	100%		0.0484	4.2	0.2039
FORMALDEHYDE	50-00-0	0.4	100%		0.0002	4.2	0.0008
METHANOL	67-56-1	71.75	100%		0.0359	4.2	0.1511
BENZENE	71-43-2	0.017	100%		0.0000	4.2	0.0000
METHYL CHLOROFORM (1,1,1-TRICHLOROETHANE)	71-55-6	206.1	100%		0.1031	4.2	0.4340
VINYL CHLORIDE	75-01-4	0.0492	100%		0.0000	4.2	0.0001
METHYLENE CHLORIDE	75-09-2	93.4	100%		0.0467	4.2	0.1967
HYDROCHLORIC ACID	7647-01-0	36.26	100%		0.0181	4.2	0.0764
METHYL ETHYL KETONE	78-93-3	400	100%		0.2000	4.2	0.8423
o-XYLENE	95-47-6	43.7	100%		0.0219	4.2	0.0920

Field	**Description**
CAS #	Chemical indentification number
Total CAS lb/yr	Yearly total of Chemical, found in products used, in pounds
Amount Emitted into Air	Fraction of chemical used which is emitted into the atmosphere (see reference below)
Ref	Reference for air emission calculations: *1 - Vendor indicates only .00001% volatilized during injection modeling* *2 - Based on mass balance = (1- (Waste Amount)/(Total purchased amount))*
1998 Actual HAP	Actual Hazardous Air Pollutant (HAP) air emissions for 1998 Equal to (Total CAS lb/yr) * (Amount Emitted into Air % / 100)
PTE/Actual Factor	Ratio of potential emissions to actual emissions Based on current production level of 2080 hrs/yr and maximum potential level of 8760 hrs/yr
Proposed PTE	Proposed Potential to Emit (PTE) HAP emissions into the atmosphere Equal to (1998 Actual HAP) * (PTE/Actual Factor)

Kimberly-Clark/Ballard Medical - Pocatello, Idaho Facility
HAP Modeling Threshold

Chemical Name	Cas #	1998 Actual HAP t/yr	Estimated Hours/Yr	998 Actual Actual lb/hr	Idaho HAP EL lb/hr	Proposed PTE t/yr	Estimated Hours/Yr	Proposed PTE lb/hr	Modeling Required (Y/N)
ETHYL BENZENE	100-41-4	0.1018	2080	0.0978	29.0000	0.4286	8760	0.0978	
STYRECA (AMORPHOUS), STYRENE, STYREPOTASSIUM PYROSULF	100-42-5	0.0141	2080	0.0135	6.6700	0.0592	8760	0.0135	
p-XYLENE	106-42-3	0.0207	2080	0.0199	29.00	0.0872	8760	0.0199	
1,2-EPOXYBUTANE (1,2-BUTYLENE OXIDE)	106-88-7	0.0001	2080	0.0001	0.8000	0.0005	8760	0.0001	
ETHYLENE DICHLORIDE (1,2-DICHLOROETHANE)	107-06-2	0.0423	2080	0.0406	2.6670	0.1779	8760	0.0406	
ACRYLONITRILE (2-PROPENENITRILE)	107-13-1	~~0.0000~~0.0014	2080	~~0.0000~~0.0013	9.800E-05	~~0.0000~~0.0057	8760	~~0.0000~~0.013	Yes
VINYL ACETATE	108-05-4	0.0037	2080	0.0036	0.0133	0.0157	8760	0.0036	
METHYL ISOBUTYL KETONE (MIBK) (4-METHYL 2-PENTANONE)	108-10-1	0.0009	2080	0.0008	13.7000	0.0036	8760	0.0008	
m-XYLENE	108-38-3	0.0484	2080	0.0466	29	0.2039	8760	0.0466	
FORMALDEHYDE	50-00-0	0.0002	2080	0.0002	5.100E-04	0.0008	8760	0.0002	
METHANOL	67-56-1	0.0359	2080	0.0345	17.3000	0.1511	8760	0.0345	
BENZENE	71-43-2	0.0000	2080	0.0000	0.0008	0.0000	8760	0.0000	
METHYL CHLOROFORM (1,1,1-TRICHLOROETHANE)	71-55-6	0.1031	2080	0.0991	127.0000	0.4340	8760	0.0991	
VINYL CHLORIDE	75-01-4	0.0000	2080	0.0000	0.00094	0.0001	8760	0.0000	
METHYLENE CHLORIDE	75-09-2	0.0467	2080	0.0449	0.0016	0.1967	8760	0.0449	YES
HYDROCHLORIC ACID	7647-01-0	0.0181	2080	0.0174	0.050	0.0764	8760	0.0174	
METHYL ETHYL KETONE	78-93-3	0.2000	2080	0.1923	39.3000	0.8423	8760	0.1923	
o-XYLENE	95-47-6	0.0219	2080	0.0210	29.0000	0.0920	8760	0.0210	

Field	Description
CAS #	Chemical indentification number
Total CAS lb/yr	Yearly total of Chemical, found in products used, in pounds
Amount Emitted into Air	Fraction of chemical used which is emitted into the atmosphere (see reference below)
1998 Actual HAP	Actual Hazardous Air Pollutant (HAP) air emissions for 1998 Equal to (Total CAS lb/yr) * (Amount Emitted into Air % / 100)
PTE/Actual Factor	Ratio of potential emissions to actual emissions Based on current production level of 2080 hrs/yr and maximum potential level of 8760 hrs/yr
Proposed PTE	Proposed Potential to Emit (PTE) HAP emissions into the atmosphere Equal to (1998 Actual HAP) * (PTE/Actual Factor)

Product Usage Limits

Acrylic Cement C003

Methylene Chloride emission limit = 0.046 lb/hr

Max. percent Methylene Chloride = 55%

$$x \frac{\text{lb C003}}{\text{hr}} (0.55) = 0.046 \frac{\text{lb MC}}{\text{hr}}$$

$$x \frac{\text{lb C003}}{\text{hr}} = \frac{0.046 \frac{\text{lb MC}}{\text{hr}}}{0.55} = \boxed{0.083 \frac{\text{lb}}{\text{hr}} \text{ Acrylic Cement C003}}$$

Cycolac PLN 6000 A0011

Acrylonitrile emission limit = 0.0028 lb/hr

Max. percent Acrylonitrile = 0.01%

$$x \frac{\text{lb A0011}}{\text{hr}} (0.0001) = 0.0028 \text{ lb/hr}$$

$$x \frac{\text{lb A0011}}{\text{hr}} = \frac{0.0028 \text{ lb/hr}}{0.0001} = 28.0 \frac{\text{lb A0011}}{\text{hr}}$$

KIMBERLY-CLARK/BALLARD MEDICAL POCATELLO EMISSIONS (POTENTIAL)

SOURCE: SPACE HEATERS - NATURAL GAS FIRED

74 Heating Units

PARAMETER	CAS NUMBER	MAXIMUM HEAT INPUT (MMBTU/HR)	FUEL USAGE (UNITS/HR)	FUEL USE UNITS	EMISSION FACTOR (Lbs/Unit)	POTENTIAL EMISSION (Lbs/Hour)	POTENTIAL EMISSION (Tons/Year)
Particulate (PM-10) (C)	N/A	15.8	0.0155	10^6 cubic feet	7.6	0.117	0.514
SO2 (C)	N/A	15.8	0.0155	10^6 cubic feet	0.6	0.009	0.041
NOx (C)	N/A	15.8	0.0155	10^6 cubic feet	100.0	1.545	6.769
CO (C)	N/A	15.8	0.0155	10^6 cubic feet	84.0	1.298	5.686

C - Criteria Pollutant

Fuel Input (MMbtu/hour)	15.76
Fuel Heat Value (btu/cu ft)	1020

Emission factors from USEPA AP-42 (March 1998 edition) used for all pollutants unless otherwise noted below.

Marty Rockwell, Mill Manager

2/14/00
Date

KIMBERLY-CLARK/BALLARD MEDICAL POCATELLO EMISSIONS (1998 ACTUAL)

SOURCE: SPACE HEATERS - NATURAL GAS FIRED

74 Heating Units

PARAMETER	CAS NUMBER	MAXIMUM HEAT INPUT (MMBTU/HR)	FUEL USAGE (UNITS/HR)	FUEL USE UNITS	EMISSION FACTOR (Lbs/Unit)	ACTUAL EMISSION (Lbs/Hour)	ACTUAL EMISSION (Tons/Year)
Particulate (PM-10) (C)	N/A	1.2	0.0011	10^6 cubic feet	7.6	0.009	0.038
SO2 (C)	N/A	1.2	0.0011	10^6 cubic feet	0.6	0.001	0.003
NOx (C)	N/A	1.2	0.0011	10^6 cubic feet	100.0	0.113	0.494
CO (C)	N/A	1.2	0.0011	10^6 cubic feet	84.0	0.095	0.415

C - Criteria Pollutant

Fuel Input (MMbtu/hour)	1.15
Fuel Heat Value (btu/cu ft)	1020

Emission factors from USEPA AP-42 (March 1998 edition) used for all pollutants unless otherwise noted below.

Marty Rockwell, Mill Manager

2/14/00
Date

Appendix B

Modeling Results

P-990138
Kimberly-Clark/Ballard Medical, Pocatello

March 3, 2000

MEMORANDUM

TO: Dan Salgado, Process Engineering Lead, Technical Services Office

FROM: Jay Witt, Air Quality Engineer, Technical Services Office J.W.

SUBJECT: ***Modeling Assessment for P-990138, Ballard Medical Products***

1. SUMMARY:

Ballard Medical Products, located in Pocatello, applied for a Permit to Construct, after production had begun. As part of the permitting process, Technical Services Office (TSO) staff conducted toxic air pollutant (TAP) analyses for methylene chloride and acrylonitrile using predicted ambient impacts produced via dispersion modeling with the Industrial Source Complex Model (ISCST3) and data submitted by the facility. The analysis produced predicted maximum ambient methylene chloride impacts that met the acceptable abient concentration for a carcinogen (AACC) for methylene chloride. However the analysis for acrylonitrile determined that predicted impacts based on the maximum potential to emit exceeded the AACC. Therefore, staff recommend that the maximum potential to emit acrylonitrile be limited to 0.00285 lb/hr.

2. DISCUSSION:

2.1 Project Description

Ballard Medical Products produces small medical devices and plastic parts used in the medical industry. There are three basic manufacturing steps: injection molding, solvent bonding, and packaging. Injection molding takes raw plastic resin pellets and melts them in a mold. Various solvents are then used to bond these newly formed plastic parts together. Finished products are then packaged and shipped to customers.

2.2 Applicable Air Quality Impact Limits

Ambient impacts from specific TAPs must be below a pollutant specific acceptable ambient concentration (AAC) or a pollutant specific acceptable ambient concentration for a carcinogen (AACC) given in the Rules for the Control of Air Pollution in Idaho (IDAPA 16.01.01.585-586). Of all the TAPs listed by the applicant, only methylene chloride and acrylonitrile have the potential to be emitted above emissions screening levels and require dispersion modeling analyses. The AACCs for methylene chloride and acrylonitrile are given in Table 2.2.1. AACCs are based on an annual averaging period.

Criteria pollutant emissions impacts at the fence line must be at or below the National Ambient Air Quality Standards (NAAQS) for a given pollutant. The area in which Ballard Medical Products is located, Power/Bannock County, is designated as a nonattainment area for PM_{10}. As a result, PM_{10} fence line impacts must be at or below significant impact limits. The significant impact limits, as defined by IDAPA 16.01.01.006.89, and the NAAQS for the other criteria pollutants are also located in Table 2.2.1.

Table 2.2.1: Definitions of Applicable Ambient Impact Limits

Pollutant	Averaging Period	Allowable Impacts (in $\mu g/m^3$)
Methylene Chloride	Annual	0.24
Acrylonitrile	Annual	0.015
PM_{10}	Annual	1.0
	24-Hour	5.0
CO	8-Hour	10,000
	1-Hour	40,000
NO_2	Annual	100
SO_2	Annual	80
	24-Hour	365
	3-Hour	1,300
Lead	Calender Quarter	1.5

2.3 Background Concentrations

Background concentrations for PM_{10} are included in the definition of significant impact limits. General statewide background concentrations are used for all other criteria pollutant fence line impacts analyses. Background concentrations are unavailable for TAP analyses.

2.4 Co-contributing Sources

Co-contributing sources are assumed to be included in the definition of the significant impact limits and background concentrations. Co-contributing sources were not considered in the ambient TAP impact analysis.

2.5 Modeling Impact Assessment

Ballard Medical Products submitted a permit to construct application in June of 1999, after production had started. Because the emissions rates for all of the TAPs except for methylene chloride were below their respective screening emissions levels, a modeling analysis was conducted for methylene chloride. This initial ISCST3 dispersion modeling analysis used all regulatory defaults along with the rural land use option. A rural land use option was used because it best represents land usage around the facility. Site specific meteorological data are nonexistent. Therefore, five years of Pocatello surface meteorological data combined with five years of Salt Lake City, Utah upper air meteorological data were used in replacement. Topographic data were not input into the model. Instead, terrain at the site was assumed to be at a common elevation (below stack height). The analysis used a scaled plot plan of the facility to

obtain building information for the one main structure, allowing building downwash to be considered in the analysis.

Stack impacts were modeled at a unit emissions rate of one pound of pollutant per hour (1.0 lb/hr) to predict a unit impact. A course receptor grid (approximately 500 m spacing) and a fine receptor grid (approximately 200 m spacing) were used in conjunction with receptors placed on the facility's fence line (50 m spacing). Stack parameters for three stacks were given in the application. Methylene chloride and acrylonitrile are emitted from all three stacks at once. As a result, the most conservative unit impact predicted from one stack by the model was used in the TAP and PM_{10} analyses to produce a "worst case" scenario.

The maximum annual unit impact predicted by ISCST3 (5.25 $\mu g/m^3$/ lb/hr) was multiplied by the uncontrolled potential methylene chloride emissions rate (0.61 lb/hr) to estimate a maximum annual ambient impact. This impact was compared to the AACC for methylene chloride and the predicted impact was found to exceed the AACC. As a result, Ballard Medical Products withdrew their application.

In October of 1999, Ballard Medical Products reapplied for a permit to construct. In this application the methylene chloride emissions rate was reduced (to 0.045 lb/hr). The new methylene chloride emissions rate was applied to the conservative annual unit impact (5.25 $\mu g/m^3$/ lb/hr) previously predicted by ISCST3. The reduction in methylene chloride emissions rate was sufficient enough to produce an ISCST3 predicted fence line impact that met the AACC for methylene chloride.

In addition to methylene chloride, the impact from the maximum potential emissions of acrylonitrile was also analyzed. Based on the application submitted by Ballard Medical Products, the maximum potential emissions rate of acrylonitrile is 0.0057 lb/hr. This maximum emissions rate was multiplied by the maximum annual unit impact predicted by ISCST3 (5.25 $\mu g/m^3$/ lb/hr) to produced a maximum impact above the AACC for acrylonitrile. In order to meet the AACC for acrylonitrile, the facility would need to limit its maximum potential to emit acrylonitrile to 0.0028 lb/hr.

Maximum potential emissions rates of the criteria pollutants, with the exception of PM_{10}, were small enough for staff to assume fence line impacts would not exceed the NAAQS. The worst case annual and 24-hour unit impacts were multiplied by the maximum potential PM_{10} emissions rate to produce estimates of Ballard Medical's PM_{10} fence line impacts. The estimated maximum impacts were below the annual and 24-hour significant impact limits for PM_{10}.

3. MODELING RESULTS:

Pollutant	Predicted Maximum Concentrations ($\mu g/m^3$)	Averaging Period	Standard/AAC ($\mu g/m^3$)	Impact on Limit (%)
PM_{10}	0.61	Annual	1	61
	2.8	24-Hour	5	56
Methylene chloride	0.24	Annual	0.24	100
Acrylonitrile	0.015	Annual	0.015	100

Staff's modeling analysis is based on information submitted to IDEQ from Ballard Medical Products. Electronic copies of the modeling analysis are saved on disk.

4. RECOMMENDATIONS:

DEQ staff recommend limiting the maximum potential emissions of methylene chloride to 0.045 lb/hr and acrylonitrile to 0.0028 lb/hr.

JW: tk 86387 G:\AH\WKLOTOVIC\PTC\BALLARDM\990138.MOD

cc: P. Rayne/AFS
R. Wilkosz/AQP
T. Floyd, Pocatello RO
Database/Source File
RO Source File
RO COF
Z. Klotovich, TSO
COF

Appendix C

AIRS Information

P-990138
Kimberly-Clark/Ballard Medical, Pocatello

ABBREVIATED AIRS DATA ENTRY SHEET

Name of Facility: Kimberly-Clark / Ballard Medical, Pocatello

AIRS/Permit #: 005-00036

PTC Issued Date:

*Source/Emissions Unit Name (25 spcs) (Please use name as indicated in permit)	SCC # (8 digit #)	Air Program (SIP/NESHAP/ NSPS/PSD)
* Facility-wide		STP

RETURN TO PAT RAYNE
AIRS-PT.LST (9/95)