0950111-016-AC
0950111-017-AV

Walt Disney World Co.

August 3, 1998

Mr. Claire Fancy, P.E.
Chief, Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Rd, MS 5505
Tallahassee, Florida 32399-2400

By Certified Mail

RE: Proposed Title V permit changes
Walt Disney World (WDW) Resort Complex, Facility ID 0950111

Dear Mr. Fancy:

Enclosed are proposed modifications and supporting documentation for the WDW Title V permit and the professional engineer's certification for this package. Attachment A lists each of the modifications requested, except for the changes requested for the combustion turbine/HRSG. The changes for that unit are listed in Attachment B. Attachments C-J contain the documents referenced in Attachment A.

In addition to the modifications to the existing permit conditions, it is requested that a number of unregulated emissions units be added to the Title V permit. These units are natural gas fired hot water generators and space heaters at the Animal Kingdom and at an expansion of Disney's All-Star Resort. Please refer to Attachments K and L for a listing of the units and for emissions information.

Also, Attachment M contains a comprehensive listing of the emergency generators at the Walt Disney World Resort. These generators are used only during power failures or during periodic readiness testing. Each operating area has its own policy for that testing, but generally each unit is not run for more than one hour each month (unless a power outage occurred.) This corresponds to an average usage of twelve hours per year for each emergency generator. Currently, there are 118 such units at the Walt Disney World Resort. The total estimated hourly fuel usage for all the generators is 1823 gallons of diesel fuel. The estimated annual fuel usage for these units for readiness testing purposes is approximately 22,000 gallons per year.

Attachment N contains emissions information and a process diagram for a new paint spray gun cleaning system which is planned to be implemented in spray booths at the North Service Area Central Shops location and eventually in all spray booths at Walt Disney World. It is requested that the descriptions of the Central Shops booths be modified to include the use of a gun cleaning system that recirculates and reuses the gun cleaning solvent. The gun cleaners are designed to be installed outside the spray booth with ducting connected to the booth to evacuate any vapors that are generated during the gun cleaning process. The installation of the system in each spray booth can be considered a "reconfiguration", since the potential emissions from the booth will not increase, but the physical configuration of the booth will change slightly. Please note that this proposal is part of a pollution prevention initiative that is being implemented to reduce solvent usage, costs, and emissions from the spray booths. It is not being requested at this time that the permitted emissions limits in the above referenced spray booths be modified to reflect the reduced potential emissions from spray gun cleaning. Rather, since the emission from spray gun cleaning will decrease, any future increases in production capacity will be offset by the reduced gun cleaning emissions. The new gun cleaners will thus allow future production increases without increasing potential or actual emissions from the existing paint spray booths.

The professional engineer certification for these proposals can be found in Attachment O.

One typographical error was discovered in the list of persons receiving copies of the permit. The designated representative for Reedy Creek Energy Services, Inc. is Willard K. Smith, not William. His name is spelled correctly in the Acid Rain section of the permit.

If you have any questions or need any further information, please call me at (407) 828-1723 or contact Rich Bumar at (407) 827-4524.

Sincerely,

Lee Schmudde
Vice President
Walt Disney World Co. Title V Responsible Official

cc: Mike Morrow (w/o Attachments)
Bruce Mitchell (w/o Attachments)

Walt Disney World Resort Complex
Proposed Title V Modifications

July 31, 1998

Walt Disney World Resort Complex Proposed Title V Modifications
Attachments Table of Contents

ATTACHMENT A

TABLE OF PROPOSED TITLE V PERMIT CHANGES

ATTACHMENT A

Walt Disney World Co. Title V permit proposed amendments

Emissions Unit (E.U.) ID No.	Brief Description	Applicable Permit Numbers	Proposed Modification/Specific Condition number change or removal and page number location
North Service Area (NSA) Dry Cleaning Plant			
001 (LDC-1)	Dry Cleaning Unit #1	0950111-012-AC	• designate the NSA Laundry Dry Cleaning (LDC) operation as a single E.U.-there is only one emissions point (see Attachment C "FACILITY PLOT PLAN - NORTH SERVICE AREA CENTRAL SHOPS AND LAUNDRY") • designate this source as one component of the LDC E.U. • change configuration of the E.U.: the Spencer dual carbon adsorber unit will be replaced by three American Laundry Machinery, Inc. model PC 212 carbon adsorbers. Please refer to Attachment C for adsorber specifications and a process flow diagram. In addition, one of the Hercules 70 machines will be taken off-line and removed from the project, for a total of three operating dry cleaning machines. Refer to Attachment D for supporting documentation.
002 (LDC-2)	Dry Cleaning Unit #2	0950111-012-AC	• designate this source as one component of the NSALDC E.U. • retire ID 002
003 (LDC-3)	Dry Cleaning Unit #3	0950111-012-AC	• designate this source as one component of the NSALDC E.U. • retire ID 003
004 (LDC-4)	Dry Cleaning Unit #4	0950111-012-AC	• designate this source as one component of the NSALDC E.U. • retire ID 004 • this unit will be retired at a future date
NSA Central Shops			
005 (NSA-15)	Sand Blast Chamber No. 1: unregulated	AO48-216580 no AC permit	• move to Appendix U-1 • delete NSA-15 designation (already assigned to NSA Central Shop Paint Mixing Stations), designate this source as NSA-17
006	not assigned		
007 (NSA-1)	NSA Paint Spray Booth (PSB) #1	AC48-108740 AO48-196805 AO48-118224	• designate the NSA Central Shops Building (NSACSB) as a single E.U.- see attached drawing, "FACILITY PLOT PLAN - NORTH SERVICE AREA CENTRAL SHOPS AND LAUNDRY" in Attachment C • designate this source as one emissions point within the NSACSB E.U. • consolidate VOC limit for NSACSB E.U. – 31.0 tons VOC per 12 Months, see Attachment E • remove limit on allowable hours/year and allow to operate continuously/D.1.(p. 42) • change VOC limit to a 12-month rolling avg. VOC limit @ 31.0 tons VOC per 12 Months/ D.3.(p. 42) See Attachment E. • remove particulate matter limit/ D.3.(p. 42) • remove opacity limit/D.3.(p. 42) • remove VE test requirement/D.5.-6.(p. 43) • change D.7. to "...submitted to the Department upon request." (p. 43) • remove emissions test procedure information/D.8.-10.(p. 44), D.12.(p. 45) • remove quarterly reporting and daily hour recordkeeping requirements/D.13.(p. 45) • assign new E.U. ID to NSACSB E.U.
008 (NSA-2)	NSA PSB #2	AC48-108741 AO48-196805 AO48-118224	• designate this source as one emissions point within the NSACSB E.U. • remove limit on allowable hours/year and allow to operate continuously/D.1.(p. 42) • change VOC limit to a 12-month rolling avg. VOC limit @ 31.0 tons VOC per 12 Months/ D.3.(p. 42) • remove particulate matter limit/D.3.(p. 42) • remove opacity limit/D.3.(p. 42) • remove VE test requirement/D.5.-6.(p. 43) • change D.7. to "...submitted to the Department upon request." (p. 43) • remove emissions test procedure information/D.8.-10.(p. 44), D.12.(p. 45) • remove quarterly reporting and daily hour recordkeeping requirements/D.13.(p. 45) • retire ID 008
009 (NSA-3)	NSA PSB #3	AC48-108742 AO48-196805 AO48-118224	• designate this source as one emissions point within the NSACSB E.U. • remove limit on allowable hours/year and allow to operate continuously/D.1.(p. 42) • change VOC limit to a 12-month rolling avg. VOC limit @ 31.0 tons VOC per 12 Months/ D.3.(p. 42) • remove particulate matter limit/D.3.(p. 42) • remove opacity limit/D.3.(p. 42) • remove VE test requirement/D.5.-6.(p. 43) • change D.7. to "...submitted to the Department upon request." (p. 43) • remove emissions test procedure information/D.8.-10.(p. 44), D.12.(p. 45) • remove quarterly reporting and daily hour recordkeeping requirements/D.13.(p. 45)

			• retire ID 009
010 (NSA-5)	NSA Staff Shop PSB #1	AC48-108743 AO48-196805 AO48-118224	• designate this source as one emissions point within the NSACSB E.U. • remove limit on allowable hours/year and allow to operate continuously/D.1.(p. 42) • change VOC limit to a 12-month rolling avg. VOC limit @ 31.0 tons VOC per 12 Months/ D.3.(p. 42) • remove particulate matter limit/D.3.(p. 42) • remove opacity limit/D.3.(p. 42) • remove VE test requirement/D.5.-6.(p. 43) • change D.7. to "...submitted to the Department upon request." (p. 43) • remove emissions test procedure information/D.8.-10.(p. 44), D.12.(p. 45) • remove quarterly reporting and daily hour recordkeeping requirements/D.13.(p. 45) • retire ID 010
011 (NSA-6)	NSA Staff Shop PSB #2	AC48-108744 AO48-196805 AO48-118224	• designate this source as one emissions point within the NSACSB E.U. • remove limit on allowable hours/year and allow to operate continuously/D.1.(p. 42) • change VOC limit to a 12-month rolling avg. VOC limit @ 31.0 tons VOC per 12 Months/ D.3.(p. 42) • remove particulate matter limit/D.3.(p. 42) • remove opacity limit/D.3.(p. 42) • remove VE test requirement/D.5.-6.(p. 43) • change D.7. to "...submitted to the Department upon request." (p. 43) • remove emissions test procedure information/D.8.-10.(p. 44), D.12.(p. 45) • remove quarterly reporting and daily hour recordkeeping requirements/D.13.(p. 45) • retire ID 011
012 (NSA-7)	NSA Water Wash Plastisol PSB #1; includes a natural gas-fired curing oven	AC48-108745 AO48-196805 AO48-118224	• designate this source as one emissions point within the NSACSB E.U. • remove limit on allowable hours/year and allow to operate continuously/D.1.(p. 42) • change VOC limit to a 12-month rolling avg. VOC limit @ 31.0 tons VOC per 12 Months/ D.3.(p. 42) • remove particulate matter limit/D.3.(p. 42) • remove opacity limit/D.3.(p. 42) • remove VE test requirement/D.5.-6.(p. 43) • change D.7. to "...submitted to the Department upon request." (p. 43) • remove emissions test procedure information/D.8.-10.(p. 44), D.12.(p. 45) • remove quarterly reporting and daily hour recordkeeping requirements/D.13.(p. 45) • retire ID 012
013 (NSA-4)	NSA Metalizing PSB	AC48-151472 AO48-183381	• designate as an unregulated E.U. (the only emissions are zinc particulates)/E.1. (p. 47) • remove limit on allowable hours/year/E.1. (p. 47) • remove VOC limit /E.2. (p. 49) • remove opacity limit /E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13. (p. 53) • remove Toluene AAC restrictions from E.U./E.17. (p. 54) • remove condition for runoff restrictions/E.25. (p. 56) • remove unneeded reference to local requirements and regulations/E.26. (p.56) • move to Appendix U-1 • retire ID 013
014 (NSA-8)	NSA Lofting Building PSB	AC48-151472 AO48-183381	• remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 47) • change VOC limit to a 12-month rolling avg. VOC limit @ 15.0 tons VOC per 12 Months/E.2. (p. 49) See Attachment E. • remove opacity limit /E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13. (p. 53) • remove Toluene AAC restrictions from E.U./E.17. (p. 54) • remove condition for runoff restrictions/E.25. (p. 56)
015 (NSA-9)	NSA Paint Shop PSB #4	AC48-151472 AO48-183381	• designate the NSA Central Shops Building Annex (NSASCB Annex) as a single E.U. - see Attachment C, "FACILITY PLOT PLAN - NORTH SERVICE AREA CENTRAL SHOPS AND LAUNDRY" • designate this source as one emissions point within the NSACSB Annex E.U. • consolidate VOC limit for NSACSB Annex E.U.- 4.38 tons VOC per 12 Months • remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 47) • change VOC limit to a 12-month rolling avg. VOC limit @ 4.38 tons VOC per 12

			Months/ E.2. (p. 49) See Attachment E. • remove opacity limit/E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13. (p. 53) • remove Toluene AAC restrictions from E.U./E.17. (p. 54) • remove condition for runoff restrictions/E.25. (p. 56) • retire ID 015 • assign new E.U. ID to NSACSB Annex E.U.
016 (NSA-10)	NSA Paint Shop PSB #5	AC48-151472 AO48-183381	• designate this source as one emissions point within the NSACSB Annex E.U. • remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 47) • change VOC limit to a 12-month rolling avg. VOC limit @ 4.38 tons VOC per 12 Months/ E.2. (p. 49) • remove opacity limit/E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13. (p. 53) • remove Toluene AAC restrictions from E.U./E.17. (p. 54) • remove condition for runoff restrictions/E.25. (p. 56) • retire ID 016 • assign new E.U. ID to NSACSB Annex E.U.
017 (NSA-11)	NSA Character Head Spray Box	AC48-151472 AO48-183381	• designate this source as one emissions point within the NSACSB E.U. • remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 47) • change VOC limit to a 12-month rolling avg. VOC limit @ 31.0 tons VOC per 12 Months/E.2. (p. 49) • remove opacity limit/E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • remove Toluene AAC restrictions from E.U./E.17. (p. 54) • remove condition for runoff restrictions/E.25. (p. 56) • retire ID 017
019 (NSA-12)	NSA Artist's Preparation Shop PSB	AC48-151472 AO48-183381	• designate this source as one emissions point within the NSACSB E.U. • remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 47) • change VOC limit to a 12-month rolling avg. VOC limit @ 31.0 tons VOC per 12 Months/E.2. (p. 49) • remove opacity limit/E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • remove Toluene AAC restrictions from E.U./E.17. (p. 54) • remove condition for runoff restrictions/E.25. (p. 56) • retire ID 019
NSA Laundry			
020 (LBB-1a)	Laundry Boiler #1	AC48-156350 AO48-169578	• designate the NSA Laundry Boilers as a single E.U. - see Attachment C, "FACILITY PLOT PLAN - NORTH SERVICE AREA CENTRAL SHOPS AND LAUNDRY" • designate this source as one component of the NSA Laundry Boiler E.U. • assign new E.U. ID to NSA Laundry Boiler E.U.
021 (LBB-1b)	Laundry Boiler #2	AC48-156350 AO48-169578	• designate this source as one component of the NSA Laundry Boiler E.U. • retire ID 021
022 (LBB-1c)	Laundry Boiler #3	AC48-156350 AO48-169578	• designate this source as one component of the NSA Laundry Boiler E.U. • retire ID 022
023 (LBB-2)	Laundry Boiler #4	AC48-158650 AO48-169578	• This unit has been dismantled, remove from permit • retire ID 023
024	not assigned		
NSA Central Shops			
025 (NSA-14)	NSA Paint Shop PSB #6	AO48-183381 no AC permit	• designate this source as one emissions point within the NSACSB E.U. • remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 47) • change VOC limit to a 12-month rolling avg. VOC limit @ 31.0 tons VOC per 12 Months/E.2. (p. 49)

			• remove opacity limit/E.2. (p. 49) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • retire ID 019 • assign new E.U. ID to NSACSB E.U.
026	not assigned		
027 (NSA-15)	NSA Central Shop Paint Mixing Stations (7)	AC48-179648 AO48-192215	• designate this source as one emissions point within the NSACSB E.U. • remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 47) • change VOC limit to a 12-month rolling avg. VOC limit @ 31.0 tons VOC per 12 Months/ E.2. (p. 49) • remove opacity limit/E.2. (p. 49) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • remove AAC restrictions from E.U./E.22. (p. 55) • retire ID 027
028 thru 034	unassigned		
Disney's Grand Floridian Hotel			
035 (GFR-1)	Main Bldg. Domestic Hot Water Generator (HWG) #1	AC48-149215 AO48-241327 AO48-155214	• unit has been dismantled, remove from permit • retire ID 035
036 (GFR-2)	Main Bldg. Domestic HWG #2	AC48-149215 AO48-241327 AO48-155214	• unit has been dismantled, remove from permit • retire ID 036
037 (GFR-3)	Seafood Restaurant Domestic HWG	AC48-149215 AO48-241327 AO48-155214	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 037
038 (GFR-4)	Main Bldg. Heating HWG #1	AC48-149215 AO48-241327 AO48-155214	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 038
039 (GFR-5)	Main Bldg. Heating HWG	AC48-149215 AO48-241327 AO48-155214	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 039
040 (GFR-6)	Lodge Bldg. No. 2, HWG #1	AC48-149215 AO48-241327 AO48-155214	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 040
041 (GFR-7)	Lodge Bldg. No. 2, HWG #2	AC48-149215 AO48-241327 AO48-155214	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 041
042 (GFR-8)	Lodge Bldg. No. 3, HWG #1	AC48-149215 AO48-241327 AO48-155214	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 042
043 (GFR-9)	Lodge Bldg. No. 3, HWG #2	AC48-149215 AO48-241327 AO48-155214	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 043
044 (GFR-10)	Lodge Bldg. No. 4, HWG #1	AC48-149215 AO48-241327 AO48-155214	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 044
045 (GFR-11)	Lodge Bldg. No. 4, HWG #2	AC48-149215 AO48-241327 AO48-155214	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 045
046 (GFR-12)	Lodge Bldg. No. 5, HWG #1	AC48-149215 AO48-241327 AO48-155214	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 046
047 (GFR-13)	Lodge Bldg. No. 5, HWG #2	AC48-149215 AO48-241327 AO48-155214	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 047
048 (GFR-14)	Lodge Bldg. No. 6, HWG #1	AC48-149215 AO48-241327 AO48-155214	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 048
049 (GFR-15)	Lodge Bldg. No. 6, HWG #2	AC48-149215 AO48-241327	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1

		AO48-155214	• retire ID 049
050 (GFR-16)	Swimming Pool HWG	AC48-149215 AO48-241327 AO48-155214	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 050
051 (GFR-17)	Main Bldg. Kitchen HWG #1	AC48-149215 AO48-241327 AO48-155214	• unit has been dismantled, remove from permit • retire ID 051
052 (GFR-18)	Main Bldg. Kitchen HWG #2	AC48-149215 AO48-241327 AO48-155214	• unit has been dismantled, remove from permit • retire ID 052
xxx (GFR-19)	Diesel Electric Generator (900 kW)	AC48-149215 AO48-241327 AO48-155214	• designate as unregulated emergency diesel electric generator • remove 312 hr/year operation limit/B.4.b. (p. 29) • move to Appendix U-1
Disney-MGM Studio			
053 (STB-1)	Studio HWG	AC48-151515 AO48-165448 AO48-252008	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 053
054 (STB-2A)	Studio HWG	AC48-151515 AO48-165448 AO48-252008	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 054
054 (STB-2B)	Studio HWG	AC48-151515 AO48-165448 AO48-252008	• unit no longer exists, remove from permit • this single unit has been replaced by two 0.495 MMBtu/hr units, designate as STB-2B1 and STB-2B2 - see Attachment F for the specification sheets and emissions calculations. • retire ID 054
055 (STB-3)	Studio HWG	AC48-151515 AO48-165448 AO48-252008	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 055
056 (STB-4)	Studio HWG	AC48-151515 AO48-165448 AO48-252008	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 056
057 (STB-5)	Studio HWG	AC48-151515 AO48-165448 AO48-252008	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 057
058 (STB-6)	Studio HWG	AC48-151515 AO48-165448 AO48-252008	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 058
059 (STB-7)	Studio HWG	AC48-151515 AO48-165448 AO48-252008	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 059
060 (STB-8)	Studio HWG	AC48-151515 AO48-165448 AO48-252008	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 060
061 (MGM-10)	Studio Craft PSB	AC48-151504 AO48-172592	• change booth model number to JBI Model OWA-26-SB-S/Subsection E. Emissions Unit Descriptions (p.46) • remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 47) • change VOC limit to a 12-month rolling avg. VOC limit @ 1.01 tons VOC per 12 Months/E.2. (p. 49) • remove opacity limit/E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • remove Toluene AAC restrictions from E.U./E.17. (p. 54) • remove condition for runoff restrictions/E.25. (p. 56)
Buena Vista Construction			
062 (BVC-1)	PSB	AC48-151509 AO48-169552	• remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 47) • change VOC limit to a 12-month rolling avg. VOC limit @ 7.73 tons VOC per 12 Months/E.2. (p. 49) • remove opacity limit/E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53)

			• remove Toluene AAC restrictions from E.U./E.17. (p. 54) • remove hexamethylene diisocyanate AAC restrictions from E.U./E.19. (p. 55) • remove condition for runoff restrictions/E.25. (p. 56)
Lake Buena Vista Community Village			
063 (LBV-1)	PSB #1	AC48-151510 AO48-172541	• remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 48) • change VOC limit to a 12-month rolling avg. VOC limit @ 14.8 tons VOC per 12 Months/E.2. (p. 49) • remove opacity limit/E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • remove Toluene AAC restrictions from E.U./E.17. (p. 54) • remove hexamethylene diisocyanate AAC restrictions from E.U./E.19. (p. 55) • remove condition for runoff restrictions/E.25. (p. 56)
064 (LBV-2)	PSB #2	AC48-151510 AO48-172541	• remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 48) • change VOC limit to a 12-month rolling avg. VOC limit @ 10.5 tons VOC per 12 Months/E.2. (p. 49) • remove opacity limit/E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • remove Toluene AAC restrictions from E.U./E.17. (p. 54) • remove hexamethylene diisocyanate AAC restrictions from E.U./E.19. (p. 55) • remove condition for runoff restrictions/E.25. (p. 56)
Disney Village			
065 (VM-3)	Marketplace PSB	AC48-243981 AO48-264508	• remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 48) • change Usage Rate limit from 1 gal/hr to a 12-month rolling avg. VOC limit @ 2.58 tons VOC per 12 Months/E.2. (p. 49) - see Attachment G for the construction permit application • remove opacity limit/E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • remove M.E.K. No Threat Level (NTL) restrictions from E.U./E.18. (p. 55)
Ft. Wilderness/Golf Course			
066 (FWR-4)	PSB	AC48-156346 AO48-169580	• remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 48) • change VOC limit to a 12-month rolling avg. VOC limit @ 1.45 tons VOC per 12 Months/E.2. (p. 49) • remove PM limit/E.2. (p. 49) • remove opacity limit/E.2. (p. 49) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • This spray booth is planned to be moved to the same location as E.U. 063 and 064 (LBV-1,2). Please change the address of the emissions unit to 1851 Community Dr., Lake Buena Vista. The Lat/Long is: 28°22'57"N/81°31'34"W. Since it will be moved, the booth should be renamed as LBV PSB #3.
Disney's Yacht & Beach Club			
067 (YBC-3)	PSB	AC48-179649 AO48-197148	• remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 48) • change VOC limit to a 12-month rolling avg. VOC limit @ 12.3 tons VOC per 12 Months/E.2. (p. 49) • remove PM limit/E.2. (p. 49) • remove opacity limit/E.2. (p. 49) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • remove AAC restrictions from E.U./E.22.-23. (p. 55)
Epcot			
068 (EP-1)	Maintenance PSB	AC48-151507 AO48-175837	• designate the Epcot Production Services (PICO) Building as an E.U. - see Attachment H containing "AREA MAP WITH PLOT PLAN- EPCOT CENTER"

			• designate this source as one emissions point within the PICO Bldg. E.U. • consolidate VOC limit for PICO Bldg. E.U. • remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 48) • change VOC limit to a 12-month rolling avg. VOC limit @ 7.0 tons VOC per 12 Months/E.2. (p. 49) See Attachment H. • remove PM limit/E.2. (p. 49) • remove opacity limit/E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • remove Toluene AAC restrictions from E.U./E.17. (p. 54) • retire ID 068 • assign new E.U. ID to PICO Bldg. E.U.
069 (EP-2)	Display PSB	AC48-151507 AO48-175837	• designate this source as one emissions point within the PICO Bldg. E.U. • consolidate VOC limit for PICO Bldg. E.U.-7.0 tons VOC per 12 Months • remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 48) • change VOC limit to a 12-month rolling avg. VOC limit @ 7.0 tons VOC per 12 Months/E.2. (p. 49) • remove PM limit/E.2. (p. 49) • remove opacity limit/E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • remove Toluene AAC restrictions from E.U./E.17. (p. 54) • retire ID 069 • assign new E.U. ID to PICO Bldg. E.U.
070 (EP-3)	Marina PSB	AC48-166499 AO48-175837 AO48-192132	• remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 48) • remove paint Usage Rate limit /E.2. (p. 49) • change VOC limit to a 12-month rolling avg. VOC limit @ 5.39 tons VOC per 12 Months/E.2. (p. 49) • remove PM limit/E.2. (p. 49) • remove opacity limit/E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53)
South Service Area			
071 (SSA-1)	Traffic Control Equipment PSB	AC48-205018 AO48-228914	• remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 48) • change Usage Rate limit from 2.5 lb/hr to a 12-month rolling avg. VOC limit @ 1.35 tons VOC per 12 Months/E.2. (p. 49) - see Table 1 of the attached Drainage Yard Spray Booth construction permit application and calculation sheet. Please refer to Attachment 1. • remove opacity limit/E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • remove Butyl Acetate NTL restrictions from E.U./E.20. (p. 55)
Administration Area			
072 (LAU-1)	Laundry Oil Heater #1	AC48-243687	• designate as unregulated natural gas-fired thermal fluid heater • move to Appendix U-1 • retire ID 072
072 (LAU-2)	Laundry Oil Heater #2	AC48-243687	• designate as unregulated natural gas-fired thermal fluid heater • move to Appendix U-1 • retire ID 072
073	unassigned		
074	unassigned		
Magic Kingdom			
075 (MK-1)	PSB #1	AC48-151506 AO48-172594	• remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 48) • change VOC limit to a 12-month rolling avg. VOC limit @ 0.52 tons VOC per 12 Months/E.2. (p. 50) • remove opacity limit/E.2. (p. 50)

			• remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53)
Reedy Creek Improvement District			
076 (EPCOT HWG-1)	EPCOT Water Heater #1 - West: unregulated	no AC permit	• move to Appendix U-1 • Appendix U-1, II., remove references to "... New No. 2 Distillate Fuel Oil..." • retire ID 076
077 (EPCOT HWG-2)	EPCOT Water Heater #2 - Middle: unregulated	no AC permit	• move to Appendix U-1 • Appendix U-1, II., remove references to "... New No. 2 Distillate Fuel Oil..." • retire ID 077
078 (EPCOT HWG-3)	EPCOT Water Heater #3 - East: unregulated	no AC permit	• move to Appendix U-1 • Appendix U-1, II., remove references to "... New No. 2 Distillate Fuel Oil..." • retire ID 078
079 (EPCOT DG-1)	Diesel Electric Generator #1 (2.5 MW)	AC48-105243 AC48-106650	•C.27. Drop the requirement for heat input on the VE Test. This unit is rated by Megawatts, not heat input.
080 (EPCOT DG-2)	Diesel Electric Generator #2 (2.5 MW)	AC48-105243 AC48-106650	• C.27. Drop the requirement for heat input on the VE Test. This unit is rated by Megawatts, not heat input.
081 (NSA-xx)	Hot Water Generator #3: unregulated	no AC permit	• move to Appendix U-1 • Appendix U-1, III., remove references to "... New No. 2 Distillate Fuel Oil..." • retire ID 081
082	unassigned		
Disney's Blizzard Beach			
083 (BB-1)	~~Boiler~~ HWG	AC48-264605	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 083
084 (BB-2)	~~Boiler~~ HWG	AC48-264605	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 084
085 (BB-3)	HWG	AC48-264605	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 085
086 (BB-4)	HWG	AC48-264605	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 086
087 (BB-5)	HWG	AC48-264605	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 087
Reedy Creek Improvement District			
088	Combined Cycle CT with a natural gas-fired Heat Recovery Steam Generator	AC48-137740 0950111-001-AC 0950111-002-AC	• please refer to Attachment B for comments
Construction Landfill			
089 (CL-1)	Diesel Electric Generator #1	AC48-268376	• no changes are proposed for this unit
089 (CL-2)	Diesel Electric Generator #2	AC48-268376	• no changes are proposed for this unit
Disney's Boardwalk Resort			
090 (BDW-1)	Boiler	AC48-271849	• no changes are proposed for this unit
090 (BDW-2)	Boiler	AC48-271849	• no changes are proposed for this unit
091 (BDW-3)	HWG	AC48-271849	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 091
091 (BDW-4)	HWG	AC48-271849	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 091
091 (BDW-5)	HWG	AC48-271849	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1

			• retire ID 091
091 (BDW-6)	HWG	AC48-271849	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 091
091 (BDW-7)	HWG	AC48-271849	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 091
091 (BDW-8)	HWG	AC48-271849	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 091
091 (BDW-9)	HWG	AC48-271849	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 091
091 (BDW-10)	HWG	AC48-271849	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 091
092	unassigned		
Magic Kingdom			
093 (MK-2)	PSB #2	0950111-003-AC	• remove paint Usage Rate limit /E.2. (p. 50) • remove opacity limit/E.2. (p. 49) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • remove Toluene AAC restrictions from E.U./E.21. (p. 55) • remove new HAP usage prior notice requirement from E.U./E.24. (p. 56)
Boardwalk Resort			
094 (BR-1)	PSB #1	0950111-003-AC	• remove paint Usage Rate limit /E.2. (p. 50) • remove opacity limit/E.2. (p. 49) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • remove Toluene AAC restrictions from E.U./E.21. (p. 55) • remove new HAP usage prior notice requirement from E.U./E.24. (p. 56)
Coronado Springs Resort			
095	HWG (2)	0950111-007-AC	• designate as unregulated natural gas-fired hot water generators • move to Appendix U-1 • retire ID 095
096	Pool HWG	0950111-007-AC	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 096
097	HWG (4)	0950111-007-AC	• designate as unregulated natural gas-fired hot water generators • move to Appendix U-1 • retire ID 097
099	Pool HWG (2)	0950111-007-AC	• designate as unregulated natural gas-fired hot water generators • move to Appendix U-1 • retire ID 099
100	HWG (20)	0950111-007-AC	• designate as unregulated natural gas-fired hot water generators • move to Appendix U-1 • retire ID 100
101	Diesel electric generators (3)	0950111-007-AC	• designate as unregulated emergency diesel electric generators • move to Appendix U-1 • retire ID 101
102 (***CSR***-1)	PSB #1	0950111-008-AC	• remove paint Usage Rate limit /E.2. (p. 50) • remove single and total HAPs limits from E.U./E.2. (p. 50) • remove opacity limit/E.2. (p. 49) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • remove Toluene AAC restrictions from E.U./E.21. (p. 55)
Disney's Animal Kingdom			
103	Conservation Station ~~Boiler~~ HWG	0950111-011-AC	• designate as unregulated natural gas-fired hot water generator- unit was initially permitted incorrectly as a boiler • move to Appendix U-1 • retire ID 103
104	Africa Support Building ~~Boiler~~ HWG	0950111-011-AC	• designate as unregulated natural gas-fired hot water generator- unit was initially permitted incorrectly as a boiler • move to Appendix U-1 • retire ID 104
105	Cast Café Boiler [1.8	0950111-011-	• designate as unregulated natural gas-fired hot water generator- unit was initially

	MMBtu/hr]	AC	permitted incorrectly as a boiler • move to Appendix U-1 • retire ID 105
106	Tusker House ~~Boiler~~ HWG	0950111-011-AC	• designate as unregulated natural gas-fired hot water generator- unit was initially permitted incorrectly as a boiler • move to Appendix U-1 • retire ID 106
107	Restaurantosaurus ~~Boiler~~ HWG	0950111-011-AC	• designate as unregulated natural gas-fired hot water generator- unit was initially permitted incorrectly as a boiler • move to Appendix U-1 • retire ID 107
108	Countdown to Extinction ~~Boiler~~ HWG	0950111-011-AC	• designate as unregulated natural gas-fired hot water generator- unit was initially permitted incorrectly as a boiler • move to Appendix U-1 • retire ID 108
109	Cast Café HWG [1.26 MMBtu/hr]	0950111-011-AC	• designate as unregulated natural gas-fired hot water generator • move to Appendix U-1 • retire ID 109
110	Safari Fare ~~Boiler~~ HWG	0950111-011-AC	• designate as unregulated natural gas-fired hot water generator- unit was initially permitted incorrectly as a boiler • move to Appendix U-1 • retire ID 110
Reedy Creek Energy Services Compost Facility			
111	Compost Facility Lundell Solid Waste Dryer	0950111-011-AC	• no changes are proposed for this unit
Disney's All Star Resort			
002	80 HWG	AC49-236247	• designate as natural gas-fired unregulated E.U.s: 78 hot water generators and 2 thermal fluid heaters • move to Appendix U-1 • retire ID 002
001 (***ASR*-1**)	PSB #1	AC49-232381 AO49-254323	• remove limit on allowable hours/year and allow to operate continuously/E.1. (p. 48) • change Usage Rate limit from 2 gal/hr to a 12-month rolling avg. VOC limit @ 8.42 tons VOC per 12 Months/E.2. (p. 50) - see Attachment J for the construction permit application • reference construction permit AC49-232381 in the list of emissions limits in table E.2. (p. 50) • remove opacity limit/E.2. (p. 49) • remove maximum air velocity limitation /E.3. (p. 50) • remove VE test requirement /E.5.-6. (p.51) • remove emissions test procedure information/E.9.-12. (p.52-53) • remove quarterly reporting and daily hour recordkeeping requirements/E.13.(p. 53) • remove M.E.K. No Threat Level (NTL) restrictions from E.U./referenced only in construction permit

ATTACHMENT B

PROPOSED TITLE V PERMIT CHANGES FOR CT WITH HRSG

Attachment B

E.U. ID No. 088 Combined Cycle Combustion Turbine with Natural Gas-Fired Heat Recovery Steam Generator.

A.4. Permitted Capacity. The maximum heat input to the Combustion Turbine (CT) and the duct burner, combined, shall not exceed 450 MMBtu/hr (normal duct burner heat input rate of 23 MMBtu/hr). When the CT is not in operation, the duct burner heat input rate shall not exceed 198 MMBtu/hr.

Comment: No increase in emissions, but for clarification delete the strike-through language below and if possible please add the following permitting note:

A.4. Permitted Capacity. The maximum heat input to the Combustion Turbine (CT) and the duct burner, combined, shall not exceed 450 MMBtu/hr. ~~(normal duct burner heat input rate of 23 MMBtu/hr).~~ When the CT is not in operation, the duct burner heat input rate shall not exceed 198 MMBtu/hr.

Add: Permitting note: When the duct burners are not in operation, the CT heat input rate shall not exceed 450 MMBtu/hr.

A.9. Nitrogen Oxides. Nitrogen oxides emissions, expressed as NO_X, shall not exceed 74 ppm by volume at 15 percent oxygen and on a dry basis (112 lbs/hr) during conditions of peak loading (based on 40°F), or 58 ppm by volume at 15 percent oxygen and on a dry basis (77 lbs/hr) for a 12-month rolling average, or 280 tons per year, while burning natural gas. The 12-month rolling average emissions will be calculated using hourly averages of the turbine and duct burners combined, during the month and then using consecutive monthly averages to obtain an annual average. The Department may alter this averaging method after due consideration of alternative compliance plans. The duct burner NO_X emissions shall not exceed 4.6 lbs/hr at 23 MMBtu/hr heat input (corresponding to 0.20 lb/MMBtu) or 40 lbs/hr at 198 MMBtu/hr heat input (corresponding to 0.20 lb/MMBtu). The nitrogen oxides emissions standard apply at all times including periods of startup, shutdown, or malfunction. ~~Compliance with the emissions limits of 40 CFR 60.44b(a)(4) (HRSG) is determined on a 30-day rolling average basis when the CT is not operating.~~
[40 CFR 60.44b(a)(4), (h) & (i); 0950111-001-AC and, 0950111-002-AC]

Comment: For clarification add the underlined wording and drop last sentence above(see strike-through). 40 CFR 60.48b(h) and specific condition A.30. exempts sources subject to 40 CFR 60.44b(a)(4), from the requirement to install or operate a continuous monitoring system(CMS) to measure nitrogen oxides from the duct burners. There is no practical way of recording this information other than through the use of a CMS. Additionally the present CMS has been designed to meet the requirements of Specific Condition 5, Footnote 3 of 0950111-002-AC that specifically defines the averaging methods for NOx emissions from this emissions unit as a rolling 12-month average, using monthly averages for the CT and the duct burners combined. It would appear that Specific Condition 5 supercedes the 40 CFR 60.49b(g) requirements. Additionally, the Department does not consider the "duct burner only" operation as a "stand alone Boiler" but rather as a temporary operation mode of the combined cycle system wherein the CT is unfired.

A.25 For the purpose of reports required under 40 CFR 60.7(c), periods of excess emissions that shall be reported are defined as follows:
(1) *Nitrogen oxides*. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with 40 CFR 60.332 by the performance test required in 40 CFR 60.8. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, and gas turbine load during the period of excess emissions. , ~~and the graphs or figures developed under 40 CFR 60.335(a).~~
A.25. cont.
Comment: Added .8 in reference to 40 CFR 60.8 above to correct a typographical error. Remove the requirement to include "the graphs or figures developed under 40 CFR 60.335(a)" in all quarterly excess emissions reports. The graphs or figures are used to establish a predicted water-to-fuel ratio prior to the initial compliance test and show what effects if any, fuel bound nitrogen might have. It has been established that the natural gas supply to this CT has no appreciable fuel bound nitrogen. Afterward the graphs or figures are no longer applicable because the initial compliance test and each subsequent annual compliance test verifies the actual water-to-fuel ratio required to meet the NOx limits. It serves no environmental benefit to require the inclusion of the graphs or figures in all quarterly excess emissions reports.

Continuous Monitoring Requirements

A.33. All continuous monitoring systems (CMS) or monitoring devices shall be installed such that representative measurements of emissions or process parameters from the affected facility are obtained. ~~Additional procedures for location of continuous monitoring systems contained in the applicable Performance Specifications of Appendix B of 40 CFR 60 shall be used.~~ For continuous monitoring systems other than opacity, 1-hour averages shall be computed from four or more data points equally spaced over each 1-hour period. Data recorded during periods of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this paragraph.
[40 CFR 60.13(f)] sentence 1, and [40 CFR 60.13(h) sentences 3 and 4.

Comment: The other portions of the above cited applicable rules are related to Part 60 Continuous Opacity Monitors and Continuous Emissions Monitors, and this source has neither.

A.37. The monitoring device of 40 CFR 60.334(a) shall be used to determine the fuel consumption and the water-to-fuel ratio necessary to comply with the permitted NO_x standard at 30, 50, 75, and 100 percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads shall be corrected to ISO conditions using the appropriate equations ~~supplied by the manufacturer~~.
[40 CFR 60.335(c)(2)]

A.37 cont.
Comment: Add permitting note: The initial compliance test and all subsequent annual compliance tests determine the proper water-to-fuel ratio (W/F ratio), the continuous monitoring (CMS) device does not. In addition to other information, the CMS records the average W/F ratio hourly to demonstrate the minimum W/F ratio is maintained. The equation in A.36 will be used for load corrections to ISO conditions in place of equations supplied by the manufacturer.

A.39. Sulfur Dioxide - Sulfur Content. The owner or operator shall determine compliance with the sulfur content standard of 0.4 percent, by weight, as follows: ASTM D 2880-96,(which includes ASTM D-4294) or the latest edition, shall be used to determine the sulfur content of liquid fuels and ASTM D 1072-90(94)E-1, D 3031-81(86), D 4084-94, D 3246-92, or the latest edition, shall be used for the sulfur content of gaseous fuels (incorporated by reference-see 40 CFR 60.17). The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Administrator.
[40 CFR 60.335(d)]

Comment: Clarification added for those not familiar with ASTM D2880-96. ASTM D4294 is one of five test procedures listed in the ASTM D 2880-96 specification.

A.56 .....Written reports of excess emissions shall include the following information:
~~(1) The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.~~
~~(2)~~ (1) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.
~~(3)~~ (2) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.
~~(4)~~ (3) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.
[40 CFR 60.7(c)(1), (2), (3), and (4)]

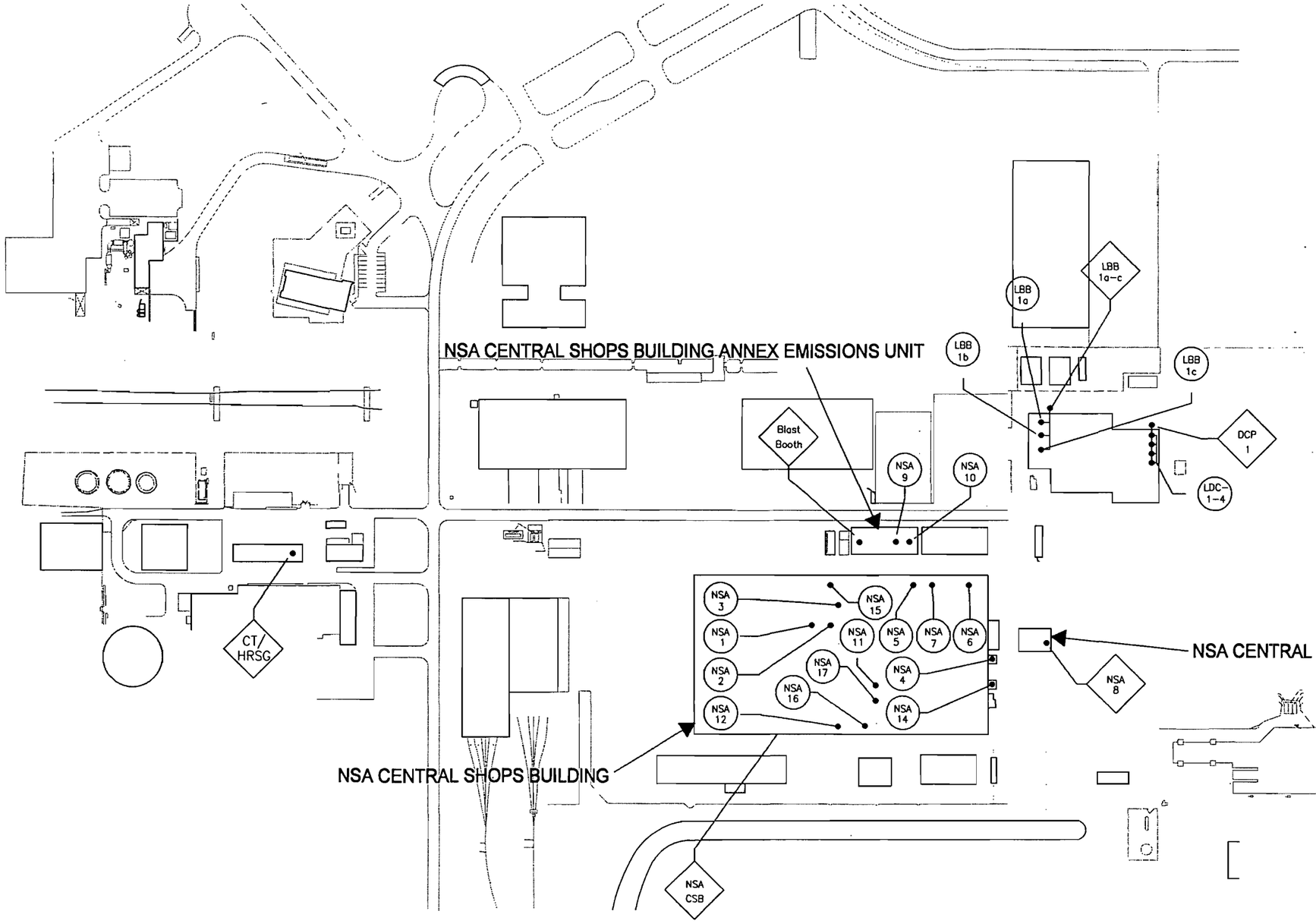
Comment: Delete (1) as it references Part 60 Continuous Opacity Monitors and Continuous Emissions Monitors, and this source has neither.

A.64. HRSG. The owner or operator of an affected facility (HRSG) subject to the nitrogen oxides standards under 40 CFR 60.44b shall maintain records of the following information for each steam generating unit operating day:
(1) Calendar date.
~~(2) The average hourly nitrogen oxides emission rates (expressed as NO_2) (ng/J or lb/million Btu heat input) measured or predicted.~~
~~(3) The 30-day average nitrogen oxides emission rates (ng/J or lb/million Btu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days.~~
~~(4) Identification of the steam generating unit operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards under 40 CFR 60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken.~~
~~(5) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.~~
~~(6) Identification of times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.~~
[40 CFR 60.49b(g)(1) ~~thru (6)~~]

A.64. cont.
Comment: For clarification delete above requirements noted by strike-through. Specific condition A.30, and 40 CFR 60.48b(h) exempt sources subject to 40 CFR 60.44b(a)(4), from the requirement to install or operate a continuous monitoring system (CMS) to measure nitrogen oxides. There is no practical way of recording this information other than through the use of a CMS. The present CMS has been designed to meet the requirements of Specific Condition 5, Footnote 3 of 0950111-002-AC that specifically defines the averaging methods for NOx emissions from this emission unit which calls for a rolling 12-month average, using monthly averages for the CT and the duct burners combined. It would appear that Specific Condition 5 supersedes the 40 CFR 60.49b(g) requirements. Additionally, the Department does not consider the "duct burner only" operation as a "stand alone Boiler" but rather as a temporary operation mode of the combined cycle system wherein the CT is unfired.

ATTACHMENT C

NORTH SERVICE AREA MAP-
CENTRAL SHOPS AND LAUNDRY



N

GRAPHIC SCALE

0 62.5 125 250

SCALE IN FEET

LEGEND

NSA CSB — EMISSIONS POINT

NSA 16 — EMISSIONS UNIT COMPONENT

1" = 250'

ATTACHMENT C
FACILITY PLOT PLAN
NORTH SERVICE AREA CENTRAL SHOPS AND LAUNDRY

Walt Disney World®

ATTACHMENT D

DRY CLEANING OPERATION-
EMISSIONS CALCULATIONS AND DOCUMENTATION

Dry cleaning carbon adsorber calculations

Field measurements

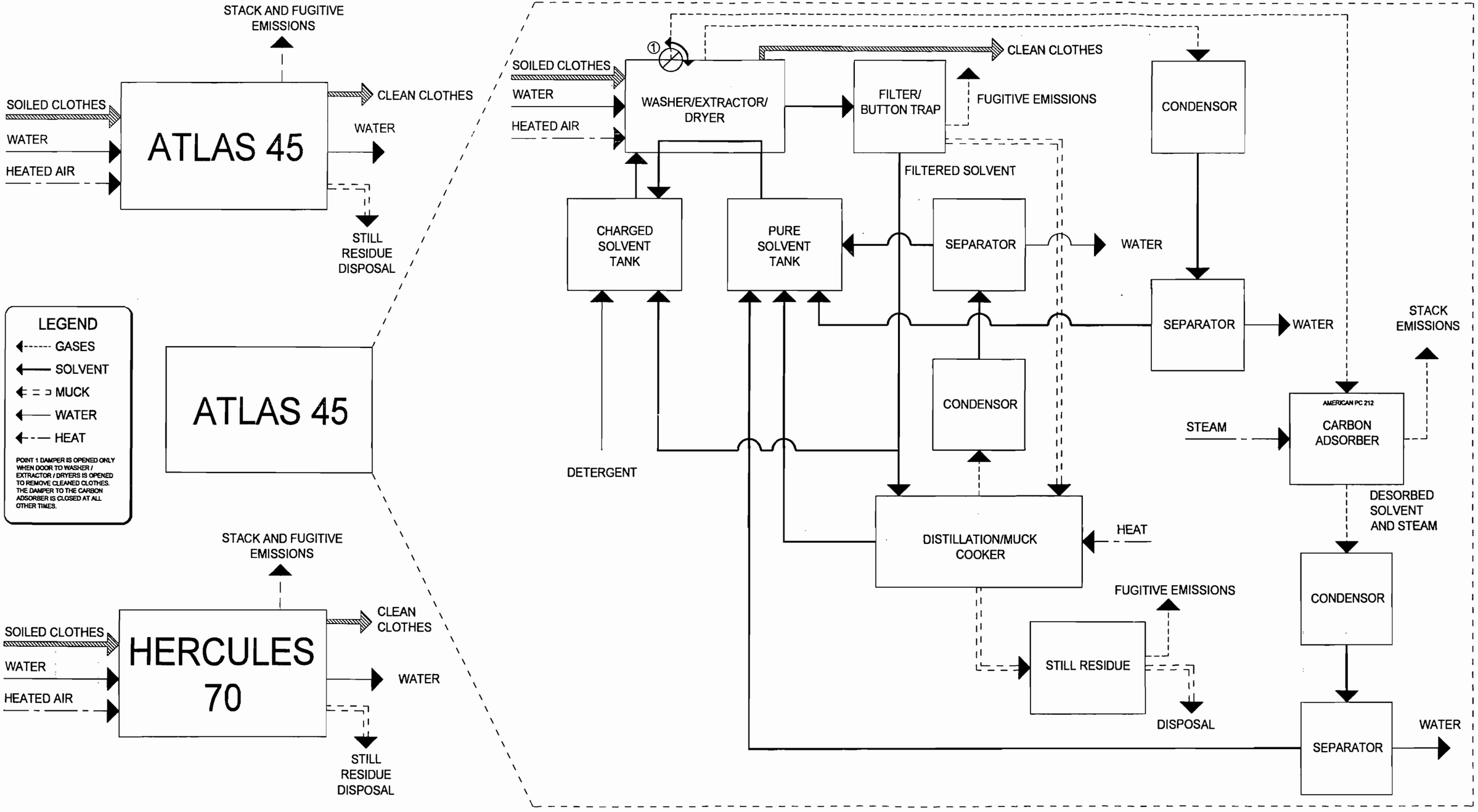
flow temp =	80	°F
flow temp =	576	°R
Flow concentration =	5000	ppm
Flow rate =	300	ft³ perc-laden air/min

Constants/Input data:

molar weight of perc:	165.83	lb/lb-mol
Ideal gas constant (R):	0.7302	atm-ft³/lbmol-°R
Pressure:	1	atm
Perc liquid density:	13.4	lb/gal
Adsorber capacity:	4	gal/adsorber
High flow/concentration time per door opening:	2	minutes

Emissions Mass calculations

perc volumetric flow rate (PVFR) = perc concentration (ppm) x air flow rate ÷ 1,000,000 =	1.50	ft³ perc/min
perc mass flow rate = PVFR x pressure/RT x perc molar density =	0.5917	lb perc/min
perc flow per load =	1.1835	lb perc/load
Perc volume reaching adsorber per load =	0.088	gal perc/load
Safety Factor =	1.5	
Regeneration frequency = 4 gal/adsorber ÷ (safety factor x 0.088 gal perc/load) =	30	loads per machine



ATTACHMENT C
PROCESS FLOW DIAGRAM
WALT DISNEY WORLD CO. TEXTILE FACILITY
DRY CLEANING SYSTEM

The above process flow diagram is for three independent dry cleaning machines: two Multimatic Atlas 45s and one Multimatic Hercules 70. The units are independently ducted to three American Laundry Machinery model PC 212 activated carbon vapor adsorbers.

Walt Disney World®

Designed for dry-to-dry and transfer machines

Vapor Adsorber II works with any manufacturer's dry-to-dry or transfer type machine

It also can be applied successfully to larger capacity drycleaners, but this is entirely dependent on the exhaust air volume of the machine. This must be known before a determination can be made.

Impressive features in every area

Check these features which, in total, make our Professional Vapor Adsorber II the best adsorber buy on the market today.

- 4-gallon capacity (with one hour regeneration time)
- All stainless steel construction
- Minimum floor space—only 27.5" x 43" (699 mm x 1092 mm)
- Built-in condenser—increases effective bed working capacity.
- Handles 1,000-1,200 pounds of drycleaning without regeneration
- Bonus perc mileage—by enabling you to cook-out "spent" cartridges
- Operates with both dry-to-dry and transfer machines of all makes
- Compact dimensions—43" wide by 27.5" deep x 51¼" high (1092 mm x 699 mm x 1295 mm)
- Modest weight—475 lbs. (216 kgs) crated for shipping

Optional components recommended for transfer machines

Several specially designed components, available at extra cost, are recommended to maintain operating efficiency when Vapor Adsorber II is used with transfer type drycleaning machines.

These include:

Lint Filter—required with transfer machines where the air is not filtered or no lint system is provided.

380 cfm Booster Fan and Control—required for transfer machines that do not have sufficient exhaust air volume to force perc vapors through the carbon bed. Also required when optional floor pick-up component is applied.

Floor Pick-up—Literally sucks up "scavenger" perc fumes at floor level when extracted load is being moved from transfer machines to the drying tumbler. Vapor Adsorber II's pick-up component has a built-in valve to resist any possible back flow of perc fumes.

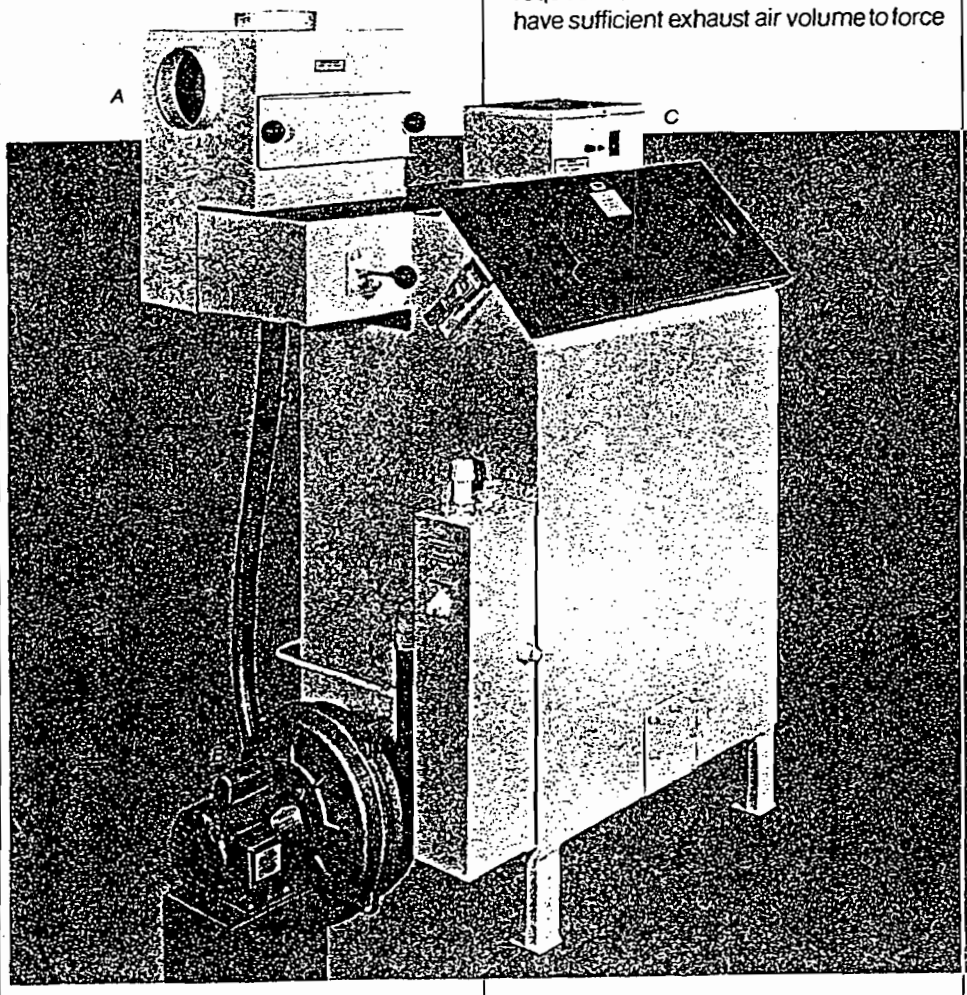
An Ultra Series product by

American

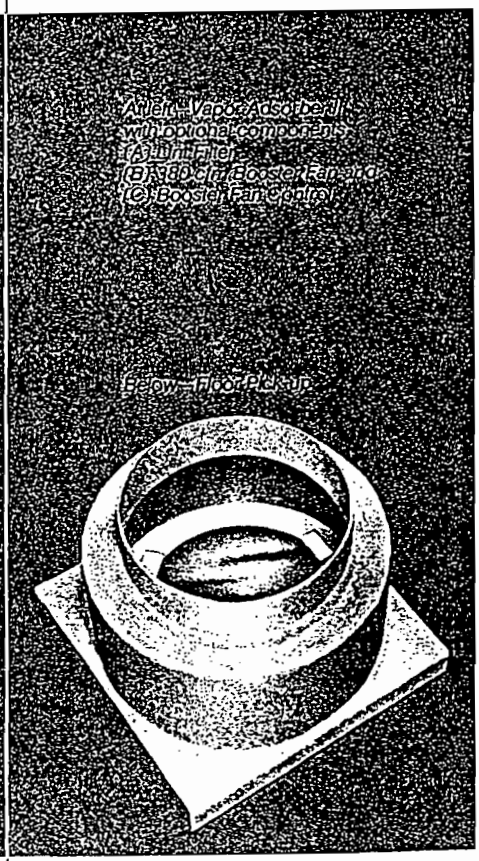
American Laundry Machinery Inc.
5050 Section Avenue, Cincinnati, Ohio 45212

Printed in U.S.A.

PC 212 ALM 825



American Vapor Adsorber II with optional components:
(A) Lint Filter
(B) 380 cfm Booster Fan and
(C) Booster Fan Control



Below—Floor Pick-up

PRODUCT CODE 212

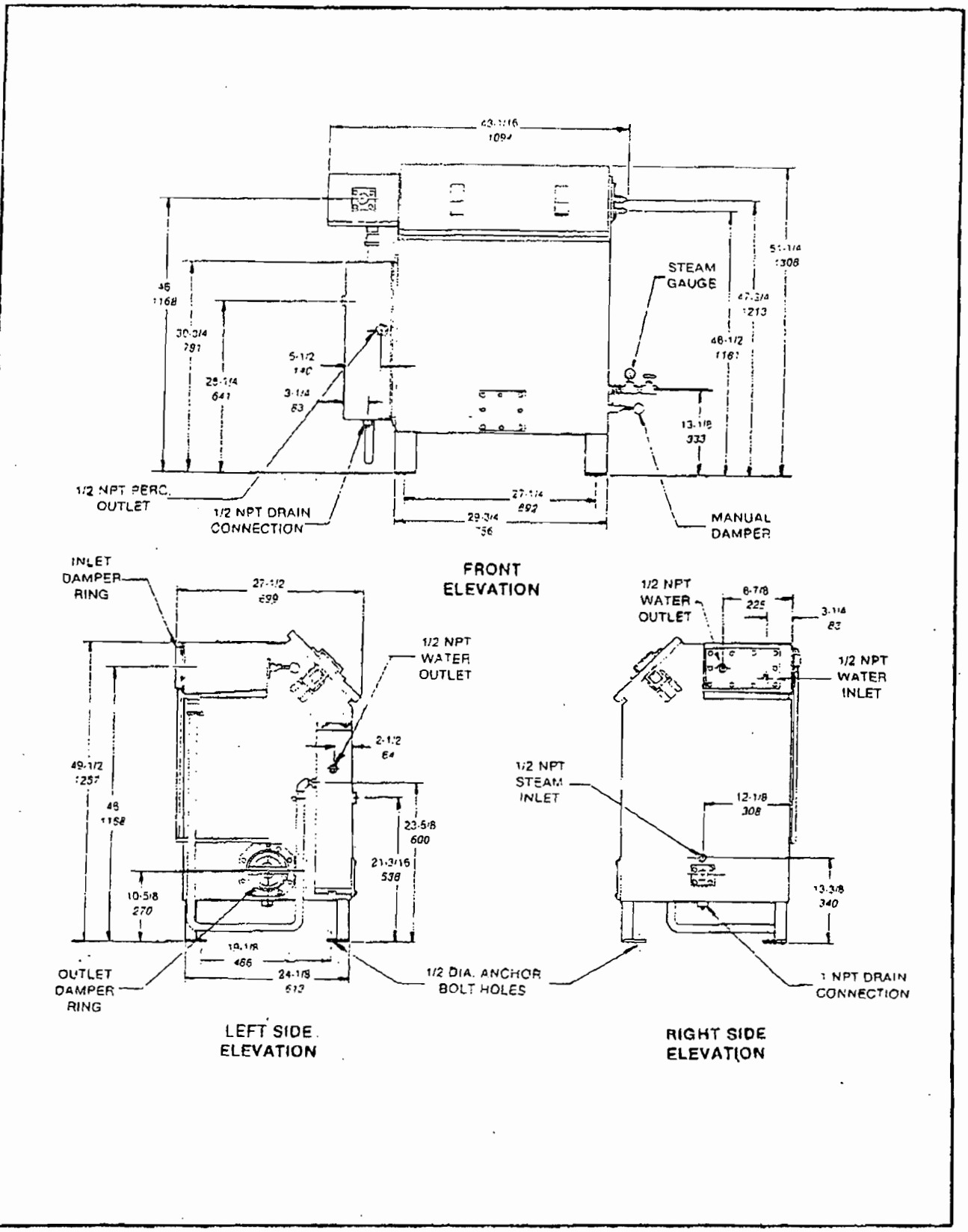


Figure 1-3. Vapor Adsorber, Basic Unit Dimensional and Connection Data

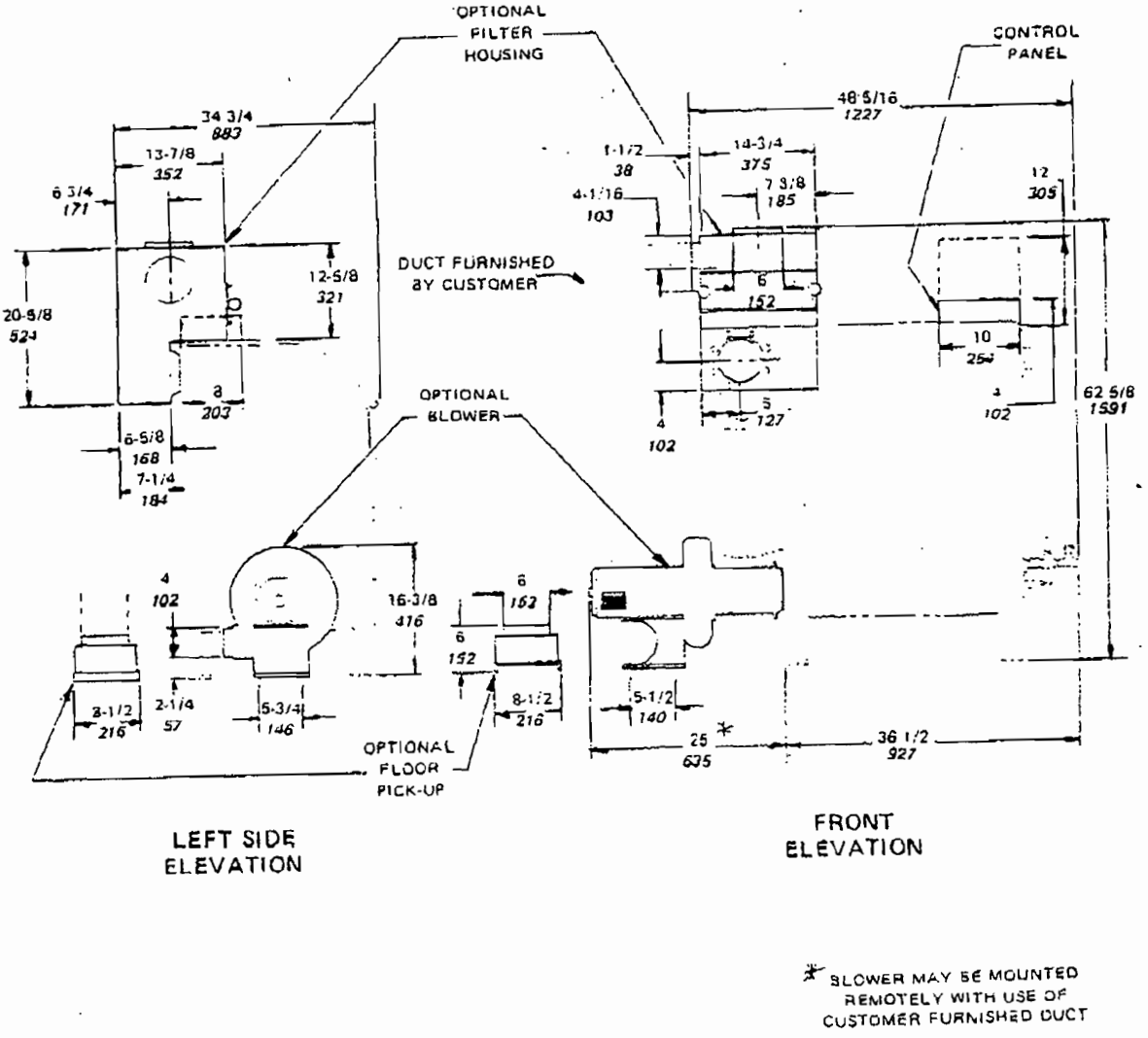


Figure 1-4. Vapor Adsorber with Options, Dimensional and Connection Data

Table 1-1. Vapor Adsorber General Specifications

ELECTRICAL DATA									
NOMINAL VOLTAGE*	115	220	200	230	460	575	220	380	415
Frequency/Phase	60/1	60/1	60/3	60/3	60/3	60/3	50/3	50/3	50/3
Rated Amperes**	12.0	6.0	3.0	2.5	1.25	1.0	3.0	2.0	1.6
Average Running Amperes	9.8	4.9	2.3	2.0	1.0	0.8	2.3	1.5	1.3
Quantity Electrical Connections	2 + gnd	2 + gnd	3 + neut gnd	3 + gnd	3 + gnd	3 + gnd	3 + gnd	3 + gnd	3 + gnd
Motor Horsepower	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2

* The voltages listed are rated machine voltages. The currents listed are rated for system voltage ranges of 220–210, 220–240, 440–480, and 550–600.

** Rated amperes are to be used to determine incoming conductor size and short-circuit protection. Rated amperes are figured in accordance with the 1981 NATIONAL ELECTRIC CODE, Sections 430-22 and 430-24.

GENERAL SPECIFICATIONS	U.S.	METRIC
Water Pressure @ Inlet	50 - 100 psig	3.5 - 7.0 kg/cm²G
Water Consumption Maximum Water Consumption/Stripping	3.5 gmp @ 70° F	13.2 liter/min @ 21° C
Maximum Steam Pressure	100 psig	7.0 kg/cm²G
Suggested Operating Pressure	50 psig	3.5 kg/cm²G
Static Steam Pressure Shown on Gauge During Stripping	2 - 4 psig	0.14 - 0.28 kg/cm²G
Consumption @ Suggested Pressure	133 lbs cnds/hr	60.3 kg cnds/hr
Consumption/Stripping	133 lbs cnds/hr stripping	60.3 kg cnds/hr stripping
Blower Static Pressure (Option)	3" wc @ 380 cfm @ 70° F	76 mm wc @ 11m³/min @ 21° C
Maximum Stack Static Pressure Without Performance Loss	0.5" wc	12.7 mm wc
Adsorption Capacity (Working)	4 gal	15.1 liter
Basic Machine Weight	450 lbs	204.1 kg
Basic Machine Weight/Bed Saturated	575 lbs	260.8 kg
Maximum Air Flow to Sniffer	500 cfm	14.2 m³/min
"Perc" Emissions @ Outlet*	< 100 ppm	< 100 ppm

*When Adsorber is operated in accordance with procedures outlined in owners manual.

Att: Rich Bumar

ATTACHMENT E

CENTRAL SHOPS SPRAY BOOTHS-
EMISSIONS CALCULATIONS AND MAP

ATTACHMENT E

Central Shops Spray Booth Emissions Limits

NSACSB E.U.

E.U. ID	Description	Permitted VOC Limit, tpy
-007 (NSA-1)	NSA Paint Spray Booth (PSB) #1	2.82
-008 (NSA-2)	NSA PSB #2	5.65
-009 (NSA-3)	NSA PSB #3	5.65
-010 (NSA-5)	NSA Staff Shop PSB #1	0.08
-011 (NSA-6)	NSA Staff Shop PSB #2	0.63
-012 (NSA-7)	NSA Water Wash Plastisol PSB #1; includes a natural gas fired curing oven	0.53
-017 (NSA-11)	NSA Character Head Spray Box	0.94
-019 (NSA-12)	NSA Artist's Preparation Shop PSB	1.02
-025 (NSA-14)	NSA Paint Shop PSB #6	2.20
-027 (NSA-15)	NSA Central Shop Paint Mixing Stations (7)	1.19
NSA-16	NSA Adhesive layup stations	5.53
NSA-17	NSA Character Head Spray Booth #2	4.75
Total VOC tpy		**31.0**

-014 (NSA-8)	NSA Lofting Building PSB	**15.00**

NSACSBA E.U.

-015 (NSA-9)	NSA Paint Shop PSB #4	2.19
-016 (NSA-10)	NSA Paint Shop PSB #5	2.19
Total VOC tpy		**4.38**

*will become unregulated- transfer the allocated VOC limit to the E.U.

ATTACHMENT F

DISNEY-MGM STUDIOS NEW UNREGULATED WATER HEATER-SPECIFICATIONS

Copper-Fin (CW)

The WATER HEATER shall be LOCHINVAR COPPER-FIN model CW0495 having an input rating of BTU/HR, a recovery capacity of 492 gallons per hour at a 100 degree rise and shall be operated on (Natural Gas) (L.P. Gas).

The water containing section shall be of a "Fin Tube" design, with straight copper tubes having extruded integral fins spaced seven (7) fins per inch. The tubes shall terminate into a one piece, lined, cast iron header. There shall be no bolts, gaskets or "O" rings in the head configuration. There shall be access to the front header of the heat exchanger for the purposes of inspection, cleaning or repair. The heat exchanger shall be mounted in a stress free jacket assembly in order to provide a "free floating design" able to withstand the effects of thermal shock. The water heater shall bear the ASME "H" stamp for 160 PSI working pressure and shall be National Board listed. The complete heat exchanger assembly shall carry a five (5) year warranty. The water heater shall be equipped with a factory installed circulating pump of sufficient capacity to insure scale-free heater performance. The pump shall bronze-fitted and provided for operation on 120 volt, 60 cycle, 1 phase power supply (unless otherwise specified).

The combustion chamber shall be sealed and completely enclosed with "Loch-Heat" ceramic fiberboard insulation. The burners shall be constructed of "310" stainless steel and fire on a horizontal plane. The water heater shall use a combustion air blower(s) to precisely control the fuel/air mixture for maximum efficiency. Combustion air blowers shall operate for a pre-purge period before burner ignition and a post-purge period burner operation.

The water heater shall be constructed with a heavy gauge galvanized steel jacket assembly. All steel jacket components must be galvanized on both sides. The exterior of the jacket assembly shall be finished in a 3-coat acrylic enamel finish. The jacket design shall allow single unit venting connection without the use of external drafthood devices.

The water heater shall be certified and listed by The American Gas Association under the latest edition of the applicable ANSI test standard. The water heater shall comply with the energy efficiency requirements of the latest edition of the ASHRAE 90.1 Standard. The water heater shall be certified and listed in Canada by the Canadian Gas Association under the latest edition of applicable CGA Standards. The water heater shall operate at a minimum of 81% efficiency.

Standard operating controls shall include an immersion type temperature controller to regulate water temperatures. Multiple immersion safety high limit controls shall also be supplied.

The standard control system shall include a Hot Surface Ignition system with full flame monitoring capability. Multiple main gas valves with redundant valve seats and built in low gas pressure regulators shall be supplied as standard.

Additional standard controls shall include a blocked flue pressure stitch/low air pressure switch for each fan, low voltage for the control circuit, 7 amp circuit breaker for 24 VAC control circuit shall be supplied on 985,000 BTU and larger inputs, ASME temperature and pressure relief valve factory installed.

A 24 VAC control circuit and components shall be used. All components shall be easily accessed and serviceable. All components shall have a multi-pin plug in type connector to ease service, troubleshooting and lower removal and replacement cost.

The units control panel shall contain the temperature adjustment control, a lighted on/off main power switch and indicating lights for call for heat and flame failure.

SEE NEXT PAGE

Maximum unit dimensions shall be: Length 56 5/8 inches, Width 45 1/4 inches, and Height inches. Maximum unit weight shall be 352 pounds.

The WATER HEATER shall be approved for indoor or outdoor installation. The WATER HEATER shall be approved for conventional venting (See mechanical detail) and shall be classified Category I, negative draft, non-condensing. The vent material shall be type "B" double wall.

The WATER HEATER shall have an independent laboratory rating for Oxides of Nitrogen (NOX) of 9.9 ppm corrected to 3% O2.

The Firing Control System shall be .(Options Below:) Prefix "F" denotes Standards on-off firing. Prefix "M" denotes staged Module Firing,

FIRING CONTROL SYSTEMS

F-9 Standard equipment on Copper Fin 495-2065, Hot Surface Ignition with electronic flame supervision to provide main burner shut-down upon flame failure, Control circuit is 24 volt.

M-9 Module Burner Firing: Stage firing of boiler to effect peak fuel efficiency using multiple aquastat stages. Optional on Copper Fin models 495-2065 (2 stage); Hot Surface Ignition with electronic flame supervision to provide main burner shut-down upon flame failure. Control circuit is 24 volt.

F-3/M-3 Provides Factory Mutual (FM) acceptable gas train and safety controls on units with inputs of 400,000 BTU and larger.

INSTALLATION AND SERVICE MANUAL

HOT WATER HEATING BOILER
HOT WATER SUPPLY BOILER
MODELS 495 thru 2065

Installation and service must be performed by a qualified service installer, service agency or the gas supplier.

WARRANTY

Factory warranty (shipped with unit) does not apply to units improperly installed or improperly operated.

Experience has shown that improper installation or system design, rather than faulty equipment, is the cause of most operating problems.

1. Excessive water hardness causing a lime build-up in the copper tube is not the fault of the equipment and is not covered under the manufacturer's warranty. (See Instructions for Operation).
2. Excessive pitting and erosion on the inside of the copper tube may be caused by too much water velocity through the tubes and is not covered by the manufacturer's warranty. (See Instructions for Operation for proper pump performance).

WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

— Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

— WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

— Installation and service must be performed by a qualified installer, service agency or the gas supplier.

WARNING: IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE CAN CAUSE INJURY OR PROPERTY DAMAGE. REFER TO THIS MANUAL. FOR ASSISTANCE OR ADDITIONAL INFORMATION CONSULT A QUALIFIED INSTALLER, SERVICE AGENCY OR THE GAS SUPPLIER.

SPECIAL INSTRUCTIONS TO OWNER

NOTE: Retain this manual for future reference.

This manual supplies information for the installation, operation and servicing of the appliance. It is strongly recommended that this manual be reviewed completely before proceeding with an installation.

CHECKING EQUIPMENT

Upon receiving equipment, check for signs of shipping damage. Pay particular attention to parts accompanying the boiler, which may show signs of being hit or otherwise being mishandled. Verify total number of pieces shown on packing slip with those actually received. In case there is damage or a shortage, immediately notify carrier.

DO NOT USE THIS APPIANCE IF ANY PART HAS BEEN UNDER WATER. IMMEDIATELY CALL A QUALIFIED SERVICE TECHNICIAN TO INSPECT THE UNIT AND TO REPLACE ANY PART OF THE CONTROL SYSTEM AND ANY GAS CONTROL WHICH HAS BEEN UNDER WATER.

CONTENTS

MNL7019 Rev. A

CODES

The equipment shall be installed in accordance with those installation regulations in force in the local area where the installation is to be made. These shall be carefully followed in all cases. Authorities having jurisdiction shall be consulted before installations are made. In the absence of such requirements, the installation shall conform to the latest edition of the National Fuel Gas Code, ANSI Z223 .1. Where required by the authority having jurisdiction, the installatioin must conform to American Society of Mechanical Engineers Safety Code for Controls and Safety Devices for Automatically Fired Boilers, No. (CSD-1). All boilers conform to the latest edition of the ASME Boiler and Pressure Vessel Code, Section IV. Where required by the authority having jurisdiction, the installation must comply with the Canadian Association Code, CAN/CGA-B149.2 and or local codes.

LOCATION

These units are suitable for indoor or outdoor installation. The optional outdoor venting configuration is illustrated in the venting section.

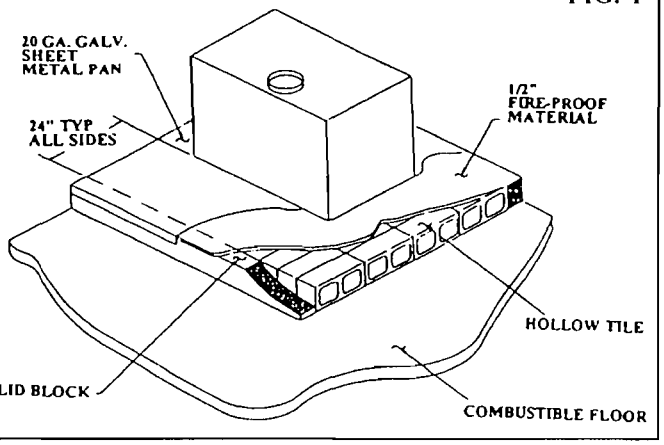
1. Locate the unit so that if water connections should leak, water damage will not occur. When such locations cannot be avoided, it is recommended that a suitable drain pan, adequately drained, be installed under the unit. The pan must not restrict combustion air flow. Under no circumstances is the manufacturer to be held responsible for water damage in connection with this unit, or any of its components.

2. Indoor units must be installed so that the ignition system components are protected from water (dripping, spraying, rain, etc.) during appliance operation and service (circulator replacement, control replacement, etc.)

3. The appliance must be placed on a level, non-combustible floor. Concrete over wood is not considered non-combustible.

4. The appliance must not be installed on carpet.

FIG. 1



5. Installation over a combustible floor:

495,000 thru 2,065,000 BTU input units installed over a combustible floor **MUST** be provided with a base of hollow clay tile or concrete blocks from 8" to 12" thick and extending 24" beyond the sides of the unit. The blocks must be placed in line so that the holes line up horizontally to provide a clear passage through the blocks. A 1/2", fire-proof millboard with a 20 gage sheet metal cover shall be provided over the block base. The unit must be centered on the base. This procedure should also be followed if electrical conduit runs through the floor, and beneath the appliance. A field installed base **MUST** meet all local fire and safety code requirements.

6. Outdoor models require the installation of an optional vent cap and air inlet shield. Instructions for mounting the vent cap assembly are included in the venting section. Outdoor models have special location and clearance requirements. These are specifically addressed in the venting section under outdoor installation. A windproof cabinet protects the unit from weather.

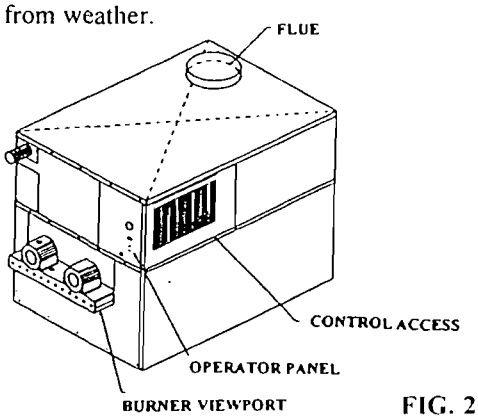


FIG. 2

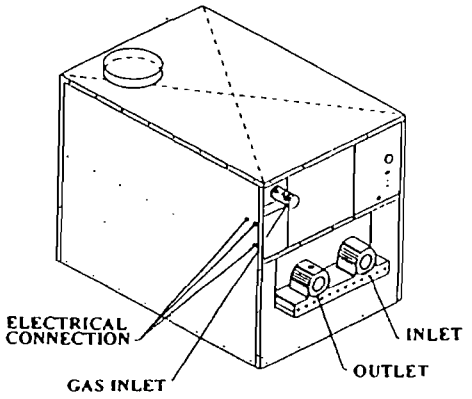


FIG. 3

CLEARANCES
TABLE A

Clearances from Combustible Construction:

Right Side - 3"
Rear - 3" (3" minimum from any surface)
Left Side - 3" (24" for service)
Front - ALCOVE (30" for service)
Top - 3"
Flue - 1"
Hot Water Pipes - 1"

Maintain 3" minimum clearance for adequate operation. Allow sufficient space for servicing pipe connections, pump and other auxiliary equipment, as well as the appliance.

COMBUSTION & VENTILATION AIR

Provisions for combustion and ventilation air must be in accordance with Section 5.3, Air For Combustion And Ventilation, of the latest edition of the National Fuel Gas Code ANSI Z223.1, in Canada, the latest edition of CGA Standard B149 Installation Code for Gas Burning Appliances and Equipment, or applicable provisions of the local building codes.

The equipment room MUST be provided with two openings to assure adequate combustion air and proper ventilation.

1. If air is taken directly from outside the building:
   a. Combustion air opening, one square inch per 2,000 BTU input. This opening must be located near the floor.
   b. Ventilation air opening, one square inch per 2,000 BTU input. This opening must be located near the ceiling.
2. If air is taken from another interior space: Each opening specified above should have a net free area of one square inch for each 1,000 BTU of input.

CAUTION: Under no circumstances should the equipment room ever be under a negative pressure. Particular care should be taken when exhaust fans, compressors, air handling units, etc. may rob air from the boiler.

The combustion air supply must be completely free of any chemical fumes which may be corrosive to the boiler. Common chemical fumes which must be avoided are fluorocarbons and other halogenated compounds, most commonly present as refrigerants or solvents, such as freon, trichlorethylene, perchlorethylene, chlorine, etc. These chemicals, when burned, form acids which quickly attack the boiler tubes, tube sheets, flue collectors, and boiler stack. The result is improper combustion and premature boiler failures.

VENTING

General

Vent installations for connection to gas vents or chimneys must be in accordance with Part 7, "Venting of Equipment," of the latest edition of the National Fuel Gas Code, ANSI Z223.1, in Canada, the latest edition of CGA Standard B149 Indstallation Code for Gas Burning Appliances and Equipment, or applicable provisions of the local building codes.

Adequate combustion and ventilation air must be supplied to the mechanical room in accordance with the latest edition of the National Fuel Gas Code, ANSI Z223.1 in Canada, the latest editon of CGA Standard B149 Insatallation Code for Gas Burning Appliances and Equipment, or applicable provisions of the local building codes.

The distance of the vent terminal from adjacent buildings, windows that open and building openings MUST comply with the latest edition of the National Fuel Gas Code, ANSI Z223.1, in Canada, the latest edition of CGA Standard B149 Installation Code for Gas Burning Appliances and Equipment.

Vent connection is made directly to the top of the unit. No additional draft diverter or barometric damper is required on single unit installations when draft is within the specified range. Multiple unit installations with combined venting require barometric dampers to regulate draft at each unit.

The negative draft must be within the range of 0.01 to 0.08 inches water negative to insure proper operation. All draft readings are made while unit is in stable operation (approximately 2 to 5 minutes).

FLUE PIPE SIZES - TABLE B

The flue pipe sizes are:	
Input BTU/hr	**Flue Size**
495,000	6"
645,000	8"
745,000	8"
985,000	10"
1,255,000	12"
1,435,000	12"
1,795,000	14"
2,065,000	14"

Locate units as close as possible to chimney or gas vent. The connection from the vent to the stack or vent termination outside the building **MUST** be made with listed Type "B" double wall (or equivalent) vent connectors and must be direct as possible with no reduction in diameter.

Horizontal portions of the venting system shall be supported to prevent sagging. Horizontal runs must slope upwards not less than 1/4 inch per foot (21 mm/m) from the boiler to the vent terminal. Follow manufacturers instructions.

Vent connectors serving appliances vented by natural draft shall not be connected to any portion of a mechanical draft system operating under positive pressure. To avoid a blocked flue condition, keep the vent cap clear of snow, ice, leaves, debris, etc.

Flue gas condensate can freeze on exterior walls on the vent cap. Frozen condensate on the vent cap can result in a blocked flue condition. Some discoloration of exterior building or unit surfaces can be expected. Adjacent brick or masonry surfaces should be protected with a rust resistant sheet metal plate.

Common venting systems may be too large when an exiting unit is removed. At the time of removal of an existing appliance, the following steps shall be followed with each appliance remaining connected to the common venting system placed in operation, while other appliances remaining connected to the common venting system are not in operation.

(a). Seal any unused opening in the common venting system.
(b). Visually inspect the venting system for proper size and horizontal pitch and determine there is no blockage or restriction, leakage, corrosion and other unsafe condition.
(c). Insofar as is practical, close all building doors and windows and all doors between the space in which the appliances remaining connected to the common venting system are located and other spaces of the building. Turn on clothes dryers and any other

appliances not connected ot the common venting system. Turn on any exhaust fans, such as range hoods and bathroom exhausts, so they will operate at maximum speed. Do not operate a summer exhaust fan. Close fire place dampers.

(d). Place in operation, the appliance being inspected. Follow the lighting instructions. Adjust thermostatso appliance will operate continuously.

(e). Test for spillage at the draft hood relief opening after 5 minutes of main burner operation. Use the flame of a match or candle, or smoke from a cigarette, cigar or pipe.

(f). After it has been determined that each appliance remianing connected to the common venting systems properly vents when tested as above, return doors, windows, exhaust fans, fireplace dampers and other gas buring appliances to their previous conditions of use.

(g). Any improper operation of the common venting system should be corrected so that the installation conforms to the latest edition of the National Fuel Gas Code, ANSI Z223.1, in Canada, the latest edition of CGA Standard B149 Installation Code for Gas Burning Appliances and Equipment. When resizing any portion of the common venting system, the common venting system should be resized to approach the minimum size as determined using the appropriate tables in Appendix G in the latest edition of the National Fuel Gas Code, ANSI Z223.1, in Canada, the latest edition of CGA Standard B149 Installation Code for Gas Burning Appliances and Equipment.

This unit has two venting options. They are: (1) conventional negative draft venting and (2) outdoor installation.

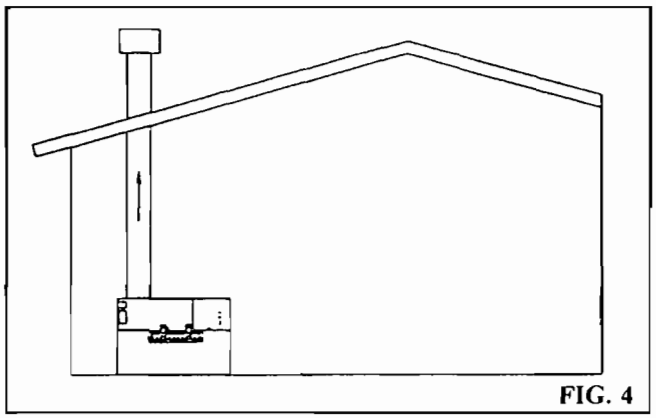


FIG. 4

CONVENTIONAL VENTING

The vent terminal should be vertical and exhaust outside the building at least 2 feet (0.6m) above the highest point of the roof within a 10 foot (3.05m) radius of the termination.

The vertical termination must be a minimum of 3 feet (0.91m) above the point of exit. A vertical termination less than 10 feet (0.91m) from a parapet wall must be a minimum of 2 feet (0.61m) higher than the parapet wall.

The vent cap should have a minimum clearance of 4 feet (1.22m) horizontally from and in no case above or below, unless a 4 foot (1.22m) horizontal distance is maintained from electric meters, gas meters, regulators and relief equipment.

Follow all requirements in the General Venting section for venting flue products to the outdoors, obtaining adequate combustion and ventilation air and general installation instructions.

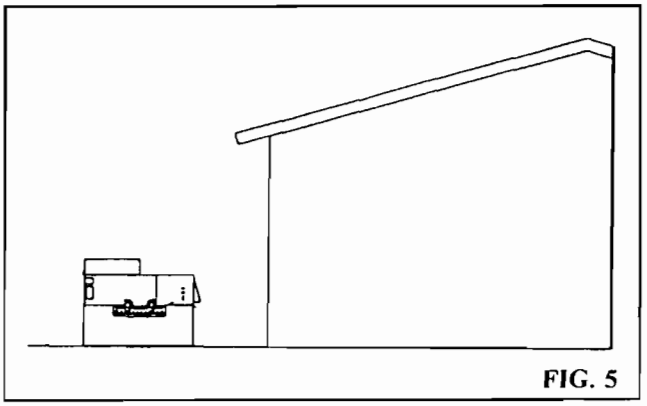


FIG. 5

OUTDOOR INSTALLATION

Units are self venting and can be used outdoors when installed with the optional Outdoor Cap and Air Inlet Shield. The flue cap mounts over the flue outlet on top of the unit and no additional vent piping is required. The air inlet shield mounts over air inlet grill on the front of the unit. Use prepunched screw and mounting holes.

WARNING: Outdoor models **MUST** be installed outdoors and **MUST** use the vent cap and air inlet shield supplied by the manufacturer. Personal injury or product damage may result if any other cap is used or if an outdoor model is used indoors. All covers, doors and jacket panels must be properly installed to insure proper operation and prevent a hazardous condition.

Combustion air supply must be free of contaminants (See Combustion and Ventilation Air). To prevent recirculation of the flue products into the combustion air inlet, follow all instructions in this section.

The venting areas must never be obstructed. Keep area clean and free of combustible and flammable materials. Maintain a minimum clearance of 3" to combustible surfaces and a minimum of 3" clearance to the air inlet. To avoid a blocked air inlet or blocked flue condition, keep the outdoor cap air inlet, flue outlet and drain slot clear of snow, ice, leaves debris, etc.

A unit should not be located so that high winds can deflect off of adjacent walls, buildings or shrubbery causing recirculation. Recirculation of flue products may cause operational problems, bad combustion or damage to controls. The unit should be located at least 3 feet (0.19m) from any wall or vertical surface to prevent adverse wind conditions from affecting performance.

Multiple unit outdoor installations require 48" (1.22m) clearance between caps.

The outdoor cap must be located 4 feet (1.22m) below and 4 feet (1.22m) horizontally from any window, door, walkway or gravity air intake. The combustion air inlet shield of the outdoor cap assembly must be located at least one foot (0.30m) above grade and above normal snow levels.

The unit must be at least 10 feet (3.05m) away from any forced air inlet. The unit must be at least 3 feet (0.91m) outside any overhang.

Clearances around outdoor installations can change with time. Do not allow the growth of trees, shrubs or other plants to obstruct the proper operation of the outdoor vent system. Do not install in locations where rain from building runoff drains will spill onto the boiler.

Flue gas condensate can freeze on exterior walls or on the vent cap. Frozen condensate on the vent cap can result in a blocked flue condition. Some discoloration to exterior building or unit surfaces can be expected. Adjacent brick or masonry surfaces should be protected with a rust resistant sheet metal plate.

The required outdoor cap asssembly part numbers are listed by unit size. The venting kit must be furnished by the manufacturer in accordance with AGA/CGA requirements. Each kit includes the flue products outlet cap with gasket and combustion air inlet shield.

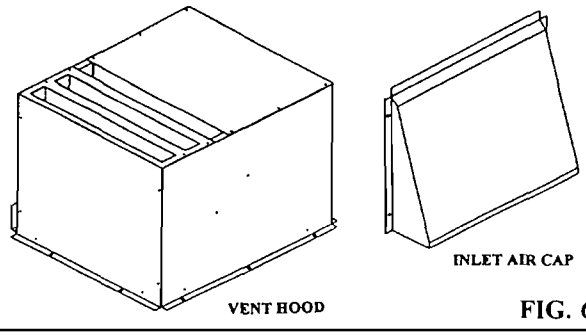


FIG. 6

TABLE C

Input BTU/hr	Outdoor Cap Kit Number
495,000	ODK3014
645,000	ODK3015
745,000	ODK3015
985,000	ODK3016
1,255,000	ODK3017
1,435,000	ODK3017
1,795,000	ODK3018
2,065,000	ODK3018

GAS SUPPLY

Verify unit is supplied with type gas specified on rating plate. This unit is orificed for operation up to 2000 feet altitude. Unit derated 4% per 1000 feet above 2000 feet elevation. Consult factory for installtions above 2000 feet elevation. Conversions authorized by factory personnel only. The rating plate will be marked to indicate high altitude rating of unit.

INLET PRESSURE: Measured at the inlet pressure tap located at the main gas cock. This is upstream of the combination gas valve(s) for each stage of operation.

TABLE D

BTU Input	Nat. Gas	LPG
Max. Allowable (Inches-water column)		
495,000 - 2,065,000	10.5"	13"
Min. Allowable (Inches-water column)		
495,000 - 645,000	5"	11"
745,000	5.5"	11"
985,000 - 2,065,000	5"	11"

The maximum inlet gas pressure must not exceed the value specified. Minimum value listed is for the purposes of input adjustment.

MANIFOLD PRESSURE: Measured at the pressure tap on the downstream side of each combination gas valve.

TABLE E

BTU Input	Nat. Gas	LPG
495,000 - 745,000 BTU	4.0"	10"
985,000 - 2,065,000 BTU	3.5"	10"

GAS PRESSURE TEST

1. The appliance must be disconnected from the gas supply piping system during any pressure testing of that system at test pressure in excess of 1/2 PSIG (3.5kPa). The appliance must be isolated from the gas supply piping system by closing the manual shutoff valve during any pressure testing of the gas supply pipingsystem at test pressure equal to or less than 1/2 PSIG (3.5 kPa).
2. The appliance and its gas connection must be leak-tested before placing it in operation.

GAS CONNECTION

1. Safe operation of unit requires properly sized gas supply piping. See data below.
2. Gas pipe size may be larger than heater connection.
3. Installation of a union is suggested for ease of service.
4. Install a manual main gas shutoff valve, outside of the appliance gas connection and before the gas valve, when Local Codes require.
5. A trap (drip leg) **MUST** be provided in the inlet of the gas connection to the unit.
6. Route bleeds and vents to the atmosphere, outside the building when required by Local Codes.

SINGLE UNIT INSTALLATIONS SUGGESTED GAS PIPE SIZE

TABLE F

BTU Input	DISTANCE FROM METER				
	0-50'	51-100'	101-200'	201-300'	301-500'
495,000	1¼"	1½"	2"	2"	2½"
645,000	1½"	2"	2"	2½"	2½"
745,000	1½"	2"	2"	2½"	3"
985,000	2"	2"	2½"	2½"	3"
1,255,000	2"	2½"	2½"	3"	3"
1,435,000	2"	2½"	3"	3"	3½"
1,795,000	2½"	2½"	3"	3"	3½"
2,065,000	2½"	3"	3"	3½"	4"

For each elbow or tee, add equivalent of straight pipe to total length.

FITTINGS TO EQUIVALENT STRAIGHT PIPE
TABLE G

Diameter Pipe (inches)	¾"	1"	1¼"	1½"	2"	3"	4"	5"
Equivalent Length of Straight Pipe (feet)	2'	2'	3'	4'	5'	10'	14'	20'

MULTIPLE UNIT INSTALLATIONS
GAS PIPING SIZE CHART
TABLE H

Nominal Iron Pipe Size, Inches	Length of Pipe in Straight Feet													
	10	20	30	40	50	60	70	80	90	100	125	150	175	200
¾	369	256	205	174	155	141	128	121	113	106	95	86	79	74
1	697	477	384	328	292	267	246	256	210	200	179	164	149	138
1¼	1,400	974	789	677	595	543	502	472	441	410	369	333	308	287
1½	2,150	1,500	1,210	1,020	923	830	769	707	666	636	564	513	472	441
2	4,100	2,820	2,260	1,950	1,720	1,560	1,440	1,330	1,250	1,180	1,100	974	871	820
2½	6,460	4,460	3,610	3,100	2,720	2,460	2,310	2,100	2,000	1,900	1,700	1,540	1,400	1,300
3	11,200	7,900	6,400	5,400	4,870	4,410	4,000	3,800	3,540	3,330	3,000	2,720	2,500	2,340
4	23,500	16,100	13,100	11,100	10,000	9,000	8,300	7,690	7,380	6,870	6,150	5,640	5,130	4,720

Maximum capacity of pipe in thousands of BTU's per hour for gas pressures of 14" Inches Water Column (0.5 PSIG) or less and a pressure drop of 0.05 Inch Water Column (Based on NAT GAS, 1025 BTU's per Cubic Foot of Gas and 0.60 Specific Gravity).

WATER CONNECTIONS

Inlet and Outlet Water Connections

For ease of service, install unions on inlet and outlet of the unit. The connection to the unit marked "Inlet" on the header should be used for return from the system. The connection on the header marked "Outlet" is to be connected to the supply side of the system.

RELIEF VALVE

This unit is supplied with a relief valve(s) sized in accordance with ASME Boiler and Pressure Vessel Code, Section IV ("Heating Boilers"). The relief valve(s) is installed in the hot water outlet. No valve is to be placed between the relief valve, and the unit. To prevent water damage, the discharge from the relief valve shall be piped to a suitable floor drain for disposal when relief occurs. No reducing coupling or other restriction shall be installed in the discharge line. The discharge line shall allow complete drainage of the valve and line. Relief valves should be manually operated at least once a year.

CAUTION: Avoid contact with hot discharge water.

WATER FLOW SWITCH (IF EQUIPPED)

A water flow switch is available as a factory installed option on all models. The flow switch will be installed in the boiler outlet piping. The flow switch on models 495,000 thru 745,000 BTU requires a minimum of 18 GPM to start the burners. The flow switch on models 985,000 thru 2,065,000 BTU requires a minimum of 26 GPM flow to start burner operation. A special sealed flow switch and conduit is available for outdoor installations. A water flow switch meets most code requirements for a low-water cut off device on boilers requiring forced circulation for operation.

LOW WATER CUTOFF (IF EQUIPPED)

Low water cutoffs should be inspected every six months including flushing of float types.

COMBINATION GAS VALVES

500,000 thru 990,000 BTU Input:

Each unit has multiple combination gas valves to cycle the gas supply on and off and regulate gas to the burners. Each valve has an individual gas control knob that must remain in the open position at all times when the unit is in service. A manifold pressure adjustment is located on each valve. The manifold gas pressure tap for each valve is located on the discharge side of the valve.

1,260,000 thru 2,070,000 BTU Input:

Each unit has multiple combination gas valves to cycle the gas supply on and off and regulate gas to the burners. Each valve has an individual gas control knob that must remain in the open position at all times when the unit is in service. A manifold pressure adjustment is located on each valve. The manifold gas pressure tap for each valve is located in the discharge side of the valve. A gas pressure switch(s) located in the valve discharge proves operation of adjacent valve(s) before the next valve will open to provide gas to the burners.

The manifold pressure is preset at the factory and adjustment is not usually required. If the manifold pressure is to be adjusted, the burner stage must be firing while the manifold pressure is set.

ELECTRICAL REQUIREMENTS (USA)

The appliance is wired for 120 volt service. The heater, when installed, must be electrically grounded in accordance with the requirements of the authority having jurisdiction or in the absence of such requirements, with the latest edition of the National Electrical Codes ANSI/NFPA No. 70. When the unit is installed in Canada, it must conform to the CAE C22.1, Canadian Electrical Code, Part 1 and/or local Electrical Codes.

1. All wiring between the unit and field installed devices shall be made of type T wire [63° F (35° C) rise].
2. Line voltage wire exterior to the appliance must be enclosed in approved conduit or approved metal clad cable.
3. The pump must run continuously when unit is being fired (except when unit is provided with optional intermittent pump controller).
4. To avoid serious damage, DO NOT energize the unit until the system is full of water.

AMP DRAW DATA - TABLE I

BTU INPUT	FAN(S)	CONTROLS	APPROXIMATE TOTAL AMPS @ 120 VAC
495,000	3.6	3.6	7.2
645,000	3.6	3.6	7.2
745,000	3.6	3.6	7.2
985,000	7.2	3.6	10.8
1,255,000	7.2	3.6	10.8
1,435,000	7.2	3.6	10.8
1,795,000	10.8	3.6	14.4
2,065,000	10.8	3.6	14.4

TEMPERATURE ADJUSTMENT

495,000 thru 2,065,000 BTU Models:

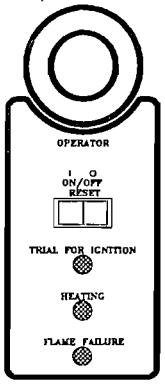


FIG. 7

Operating Temperature Control

An adjustable immersion operating control is located on the end of the jacket, above the ON/OFF switch. The control uses a remote sensing bulb mounted in the front header. Turn the control setpoint dial to adjust the desired operating water temperature of the unit.

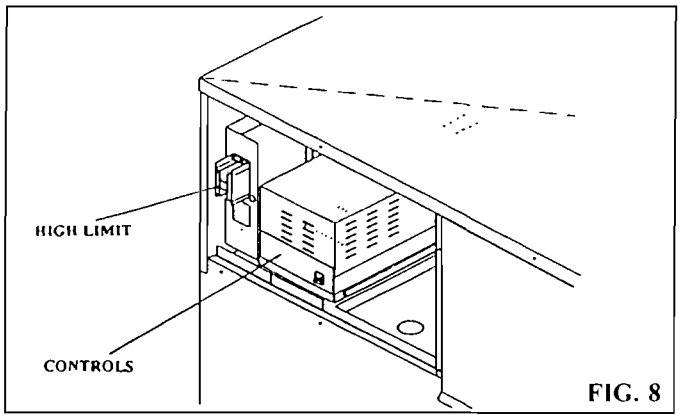


FIG. 8

HighWater Temperature Limit Control

An adjustable high limit control(s) is located on the internal control panel. The setting of this control(s) limits maximum discharge water temperature. An optional manual reset function is available. A small red reset button, located beside the knob, must be pushed whenever water temperature has exceeded the set point of the manual reset limit.

NOTE: The control will not reset until the water temperature has dropped below the set point of the high limit.

OPTIONAL TWO STAGE BURNER CONTROL SYSTEM

495,000 Thru 2,065,000 BTU Models:

An optional two stage burner control system is available. This system is equipped with two operating temperature controls to fire each burner stage at a different temperature set point. Stage one (Low Fire) must fire before stage two (Hi-Fire) will function. Set Low Fire operator at the desired system set point, Set Hi-Fire operator at a lower setting, approximately 5-15 degrees lower, for staged operation.

LIGHTING INSTRUCTIONS

FOR YOUR SAFETY READ BEFORE OPERATING

WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do NOT try to light the burner by hand.

B. BEFORE OPERATING, smell around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle to the floor.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

C. Use only your hand to turn the gas control lever. Never use tools. If the lever will not turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

LIGHTING INSTRUCTIONS
495,000 THRU 2,065,000 BTU MODELS

1. Stop! Read the safety information.
2. Turn off all electrical power to the appliance.
3. Open the top front jacket panel(s) to access the gas valve controls.
4. Set the thermostat(s) to the lowest setting.
5. This appliance is equipped with an ignition device which automatically lights the burners. DO NOT attempt to light the burners by hand.
6. Turn the gas control knob on each gas valve clockwise to the "OFF" position.

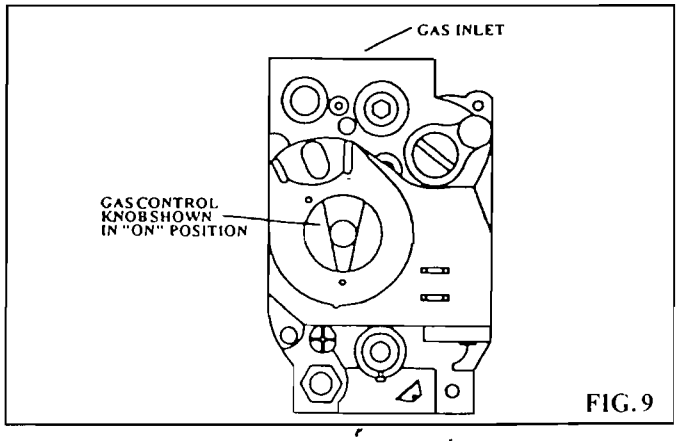


FIG. 9

7. Wait five (5) minutes to clear out any gas. If you smell gas, STOP! Follow "B" in the safety information. If you don't smell gas, go on to next step.
8. Turn the gas control knob on each gas valve counter clockwise to the "ON" position.
9. Set the thermostats(s) to the desired setting.
10. Replace gas control access panel(s).
11. Turn on all electric power to the appliance.
12. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.

TO TURN OFF GAS TO APPLIANCE

1. Turn off all electric power to the appliance if service is to be performed.
2. Open the top front jacket panel(s) to access gas valve controls.
3. Turn the gas control knob on each gas valve clock wise to the "OFF" position. Do not force.
4. Replace control access panel.

WARNING: Should overheating occur or the gas fail to shut off, turn off the manual gas control valve to the appliance.

IGNITION SYSTEM CHECKOUT

495,000 thru 2,065,000 BTU Models:

1. Turn off gas supply to unit.
2. Turn thermostat(s) and high limit controls to highest setting.
3. Turn electric power on.
4. The ignition module will lock out.
5. Readjust thermostat(s) and high limit to normal setting.
6. Turn on gas supply.
7. Turn power off then on to reset ignition module.
8. If ignition system fails to operate properly, repair work must be performed by a qualified serviceman or installer.

HOT SURFACE IGNITION SYSTEM

The hot surface igniton module is not repairable. Any modification or repairs will invalidate the warranty and may create hazardous conditions that result in property damage, personal injury, fire, explosion and/or toxic gases. A faulty ignition module must be replaced with a new unit. 495,000 thru 2,065,000 BTU units have one ignition module and one hot surface ignitor. The hot surface ignitor is also the flame sensor.

OPERATION AND DIAGNOSTIC SYSTEM

495,000 thru 2,065,000 BTU Models:

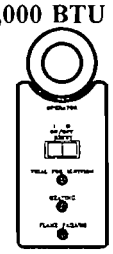


FIG. 10

The external control panel has a lighted ON/OFF power switch and two indicating lights. Internal lights are provided to monitor fan operation.

EXTERNAL INDICATING LIGHTS	TABLE J FUNCTION
Power On	— Lighted power switch in on position.
Flame Failure Red	— Ignition module unable to properly prove ignition.
Heating-Green	— Burner On.

INTERNALLY MOUNTED LIGHT	TABLE K FUNCTION
Low Air-Amber	— Improper level of combustion air provided or a blockage in the flue. Located beside each combustion air fan.

FREEZE PROTECTION

Although these units are AGA design certified for outdoor installations - such installations are not recommended in areas where the danger of freezing exist. Proper freeze protection must be provided for outdoor installations, units installed in unheated mechanical rooms or where temperatures may drop to the freezing point or lower. If freeze protection is not provided for the system, a low ambient temperature alarm is recommended for the mechanical room. Damage to the unit by freezing is non-warrantable.

1. If the system pump does not run continuously an additional pump must be installed to provide constant circulation through the unit. This can help prevent freezing.

2. Freeze protection can be provided by using hydronic system antifreeze. Follow the manufacturers instructions. **DO NOT** use undiluted or automotive type anti freeze.

3. A snow screen should be installed to prevent snow and ice accumulation around the appliance or its venting system.

4. If for any reason the unit is to be shut off, you must:
   (a). Shut off water supply.
   (b). Drain unit completely.
   (c). Drain pump and piping.

MAINTENANCE

Listed below are items that should be checked to insure safe reliable operations. Verify proper operation after servicing.

CAUTION: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

1. Examine the venting system at least once a year. Check more often in first year to determine inspection interval. Check all joints and pipe connections for tightness, corrosion or deterioration. Clean screens in the venting air intake system as required. Have the entire system,

including the venting system, periodically inspected by a qualified service agency.

2. Using the view port, located below the water connections, visually check main burner flames at each start-up after long shutdown periods or at least every six months.

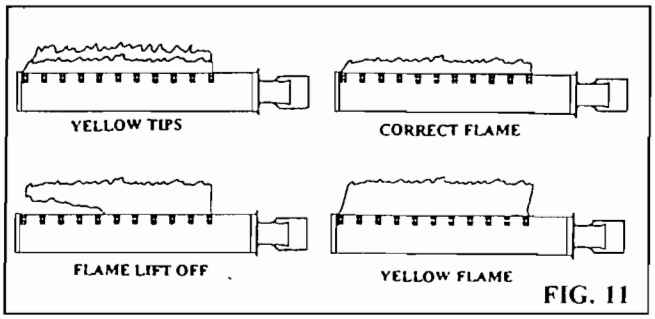


FIG. 11

a. **Normal Flame:** A normal flame is blue, without yellow tips, with a well defined inner cone and with no flame lifting.
b. **Yellow Tip:** Yellow tip can be caused by blockage or partial obstruction of air flow to the burner(s).
c. **Yellow Flames:** Yellow flames can be caused by blockage of primary air flow to the burner(s), venturi tubes not properly in place or excessive gas input. This condition MUST be corrected immediately.
d. **Lifting Flames:** Lifting flames can be caused by overfiring the burner(s) or excessive primary air.

3. Flue Gas Passageways Cleaning Procedures: Any sign of soot at burners indicates a need for cleaning. The following cleaning procedure must only be performed by a qualified serviceman or installer. Proper service is required to maintain safe operation. Properly installed and adjusted units seldom need flue cleaning.

All gaskets on disassembled components must be replaced on reassembly. Gasket kits are available from your distributor.

BURNER REMOVAL AND CLEANING

a. Turn off main power to unit.
b. Turn off gas supply.
c. Remove the front outer jacket panels.
d. Disconnect manifold from gas train using union(s) just below gas valve(s).
e. Remove screws from manifold mounting brackets. Pull manifold(s)/orifice assemblies away from burners.
f. Remove two mounting screws from each burner and slide burner out toward front of unit. Use caution to prevent damage to refractory or hot surface ignitors.
g. Remove soot from burners with a stiff bristle brush. Damaged burners must be replaced.

HEAT EXCHANGER CLEANING

h. Check the heat exchanger surface for sooting. If present, heat exchanger must be cleaned and problem corrected. Proceed as follows.
i. Remove manifold(s)/orifice assemblies and dividers for fan chambers.
j. Disconnect wiring from hot surface ignitor and hose from burner tap.
k. Remove inner jacket mounting screws and slide door assembly out toward front of unit. Use caution to prevent damage to refactory.
l. Remove soot from heat exchanger with a stiff bristle brush. Use a vacuum to remove loose soot from surfaces and inner chamber.
m. Check "V" baffles on top of heat exchanger. Remove and clean if necessary.
n. Carefully reinstall inner jacket panels, dividers, burners, manifolds wires and hoses. Use new gasket material for proper air seal.
o. Reassemble and test for gas leaks.
p. Cycle unit and check for proper operation.

A boiler installed in a dust or dirt contaminated atmosphere will require cleaning of the burners on a 3 to 6 month schedule or more often, based on severity of contamination. Contaminants can be drawn in with the combustion air. Non-combustible particulate matter such as dust, dirt, concrete dust or dry wall dust can block burner ports and cause non-warrantable failure.

4. Combustion Air Fan: Each combustion air fan should be checked and oiled every 6 months. Use non-detergent SAE 20 oil. Clean as required when installed in a dust or dirt contaminated location.

5. Water Circulation Pump: Inspect pump every 6 months and oil as necessary. Use SAE 30 oil or lubricant specified by pump manufacturer.

6. Keep appliance area clear and free from combustible materials, gasoline and other flammable vapors and liquids.

7. Check frequently to be sure the flow of combustion and ventilation air to the boiler is not obstructed.

8. This unit uses a transformer to supply a low voltage control circuit. The voltage on the secondary side should be 24 to 28 VAC when measured with a volt meter. 985,000 thru 2,065,000 BTU models have a 7 AMP circuit breaker provided on the secondary side of the transformer. A tripped circuit breaker indicates a short in the 24VAC controls that must be corrected.

9. Combustion Air Adjustment: This unit uses a fan assisted combustion process. 495,000 thru 745,000 BTU models have one combustion air fan, 985,000 thru 2,065,000 BTU models have multiple fans to supply combustion air to the burners. They are factory pre-set and should not need adjustment in most cases. 495,000 thru 745,000 BTU models have the fan located in the right top chamber; 985,000 thru 2,065,000 BTU models have fans located left, center and right in the top chamber. Follow the steps below to adjust fan if a continuous Low Air Light condition is observed.

a. Check for proper installation and draft in venting system. Correct as required.
b. Single fan units have one low air light. On units with multiple fans, determine which fan is to be adjusted by observing the low air lights beside each fan.
c. Open the front jacket panel to access the combustion air fan(s).
d. Fan air shutter adjustment:

COMBUSTION AIR FAN

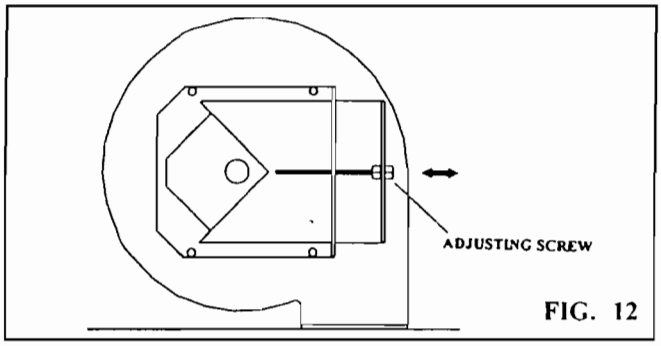


FIG. 12

495,000 thru 2,065,000 BTU Models - With the fan running and the low air light on, slowly turn the air shutter adjustment screw clockwise until the low air light for that fan turns off. Turn the adjustmentscrew four additional turns after the low air light turns off. Repeat for each additional fan on low air.

e. Replace the top front jacket panel(s).
f. Fire the unit, check operation and verify proper draft.

GAS TRAIN AND CONTROLS

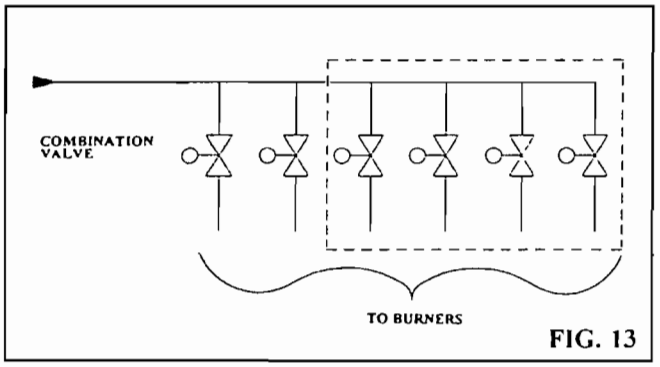


FIG. 13

NOTE: The gas train and controls assembly provided on this unit have been tested under the applicable American National Standard to meet minimum safety and performance criteria such as safe lighting, combustion and safety shutdown operation.

HOT WATER HEATING BOILER 495,000 THRU 2,065,000 BTU MODELS

This section contains specific requirements for Hot Water Boilers. All warnings, cautions, notes and instructions from the general section apply to these units in addition to the following instructions. These instructions must be followed closely to obtain maximum life and usage from your boiler.

IMPORTANT: Operation of this boiler on low temperature systems requires special piping to insure correct operation. Consult low temperature system section for piping details.

LOW WATER CUT-OFF

If this boiler is installed above radiation level, a low water cut-off device must be installed at the time of boiler installation (option, available from factory).

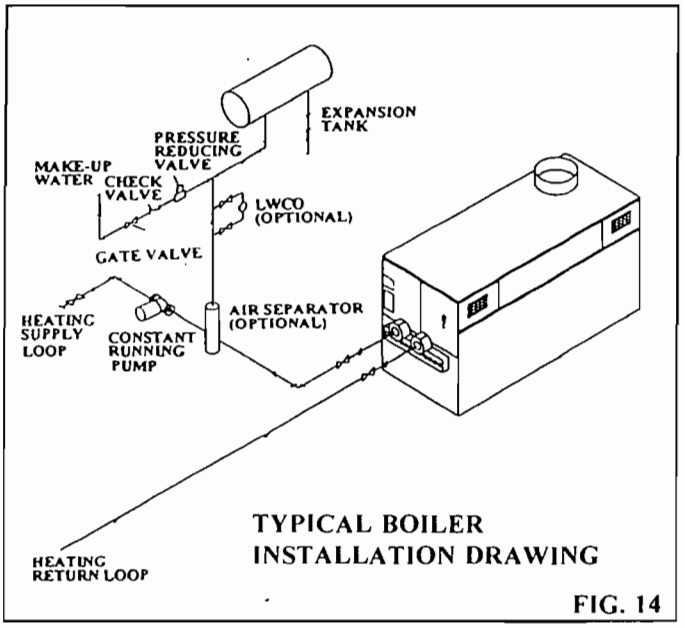
FILLING THE BOILER

1. Fill the system with water. To be sure that the boiler is not "air bound," open the relief valve. Leave the valve open until a steady flow of water is observed. Close valve and complete filling the boiler.

2. In hard water areas, water treatment should be used to reduce introduction of minerals into the system. Minerals in the water can collect in the tubes and cause noise on operation. Excessive buildup of minerals in the heat exchanger can cause a non-warrantable failure.

3. Make sure there are no system leaks. **DO NOT** use petroleum based stop leak products. All system leaks must be repaired. The constant addition of make-up water can cause minerals to collect in the heat exchanger and damage the boiler.

4. If freeze protection is required. **DO NOT** use undiluted or automotive type antifreeze. Use only hydronic system antifreeze following the manufacturers instructions.



TYPICAL BOILER INSTALLATION DRAWING

FIG. 14

SPECIAL DESIGN APPLICATIONS

The boiler, when used in connection with a refrigeration sytem, must be installed so the chilled medium is piped in parallel with the boiler with appropriate valves to prevent the chilled medium from entering the boiler.

The boiler piping system of the hot water boiler (when connected to heating coils located in air handling units where they may be exposed to refrigerated air circulation) must be equipped with flow control valves or other automatic means to prevent gravity circulation of the boiler water during the cooling cycle.

LOW WATER TEMPERATURE SYSTEM

A number of hydronic boiler applications call for system water temperature operation in the range of 60° to 100° F. Several of the more typical applications are: Water Source Heat Pump Systems; Greenhouse Soil Heating and Irrigation Systems; Process or Manufacturing Operations.

Installations such as these, while increasingly common, often present problems resulting from boiler condensation, thermal stresses and poor overall system eficiency. Copper-tube boilers are particularly adaptable to applications of this type for several reasons:

1. This is an instantaneous boiler, requiring virtually no heat-up time, and having no temperature "overshoot." Result? High system efficiency.
2. The boilers unique construction prevents the transfer of heat exchanger thermal stresses to the other boiler components-reducing wear and tear, while increasing equipment life expectancy.
3. Its compact, simple design and low boiler mass permits a simple by-pass arrangement which will allow the system to be operated at any temperature above 60° F.

The piping illustrations and instructions in Figure 15 detail a simple by-pass arrangement which will allow the system to be operated at any temperature above 60° F, without condensation forming on the boiler.

Condensation is prevented by simply regulating the flow balancing valves. This diverts sufficient water flow through the boiler maintaining specified water temperatures while allowing the system to operate at design temperatures (as low as 60° F).

LOW TEMPERATURE PIPING

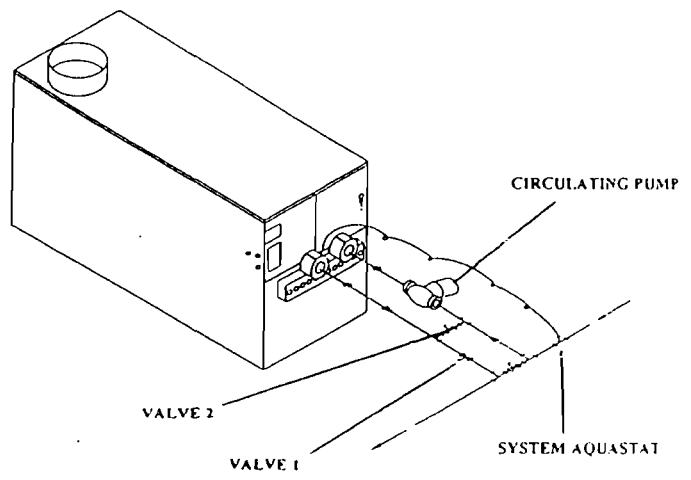
Boilers in this input range should be operated with a 140° F inlet temperature to prevent condensation. Install the boiler with a secondary pump, valves and bypass as shown below.

NOTE: Closed Loop Systems may require an expansion tank, water feeder, air vents and/or other components not furnished with the boiler.

For Low Temperature Operation Proceed as Follows:

1. Select boiler type and size.
2. Set remote control aquastat at desired system temperature.
3. Start system and adjust balancing valve (1) slowly closing until inlet temperature to the boiler is 140° F minimum.
4. If temperature to boiler exceeds 140° F, slowly close valve (2) until 140° is maintained.
5. Operate boiler until desired system operating temperature is achieved. Check out all components for operation.
6. Carefully following these instructions will permit the system circulating loop to operate at the desired temperature regardless of the higher boiler water temperature.

LOW TEMPERATURE BOILER PIPING
FIGURE 15



SYSTEM TEMPERATURE RISE CHART - TABLE L

Based on BTU Input

LOW TEMPERATURE PIPING

		ΔT 10°		ΔT 20°		ΔT 30°		ΔT 40°		ΔT 50°		ΔT 60°	
Input	Output	GPM	FT.HD	GPM	FT.HD	GPM	FT.HD	GPM	FT.HD	GPM	FT.HD	GPM	FT.HD
495,000	400,950	82+		41	4.1	27	1.6	20	0.7	16	0.6	14	0.6
645,000	522,450	106+		53	5.1	35	3.0	27	1.6	21	0.8	18	0.6
745,000	603,450	123+		61+	*	41	4.1	31	2.3	25	1.2	20	0.7
985,000	797,850	162+		81	5.2	54	2.5	41	1.5	32	1.0	27	0.9
1,255,000	1,016,550	206+		103+	*	69	4.3	52	2.7	41	1.7	34	1.2
1,435,000	1,162,350	236+		118+	*	79	6.3	59	3.7	47	2.3	39	1.8
1,795,000	1,453,950	295+		147+	*	98+	*	74	6.5	59	4.4	49	2.9
2,065,000	1,672,650	339+		169+	*	113+	*	85	8.8	68	6.1	56	4.5

+These flow rates exceed recommended flow rates of boiler. If these system temperature rises are used, an external piping by-pass must be installed.
*These foot head calculations exceed the maximum allowable flow rate of the boiler.

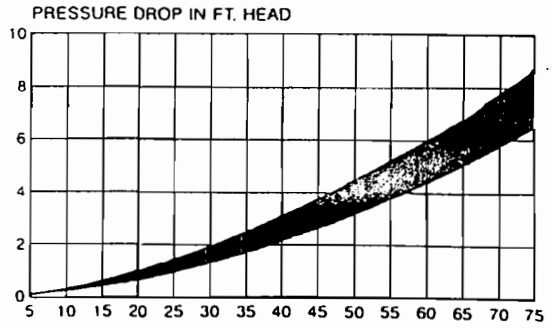
HEATING BOILER PERFORMANCE DATA

These boilers are generally capable of operating within the design flow rates for the building heating system. Should the flow rate of the system exceed the maximum flow rate through the boiler, an external boiler by-pass must be installed. This will prevent boiler damage.

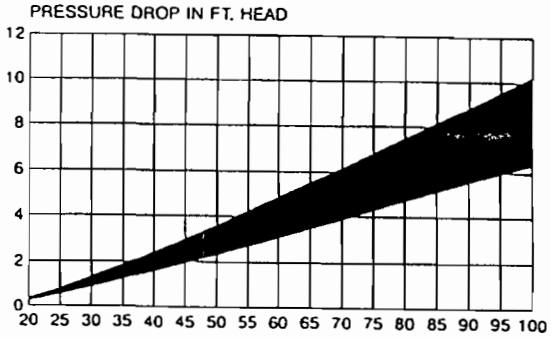
MAXIMUM BOILER FLOW RATES
TABLE M

INPUT	FLOW
495,000	75 GPM
645,000	75 GPM
745,000	75 GPM
985,000	90 GPM
1,255,000	90 GPM
1,435,000	90 GPM
1,795,000	90 GPM
2,065,000	90 GPM

HEAT EXCHANGER HEAD-LOSS CHART
FIG. 16

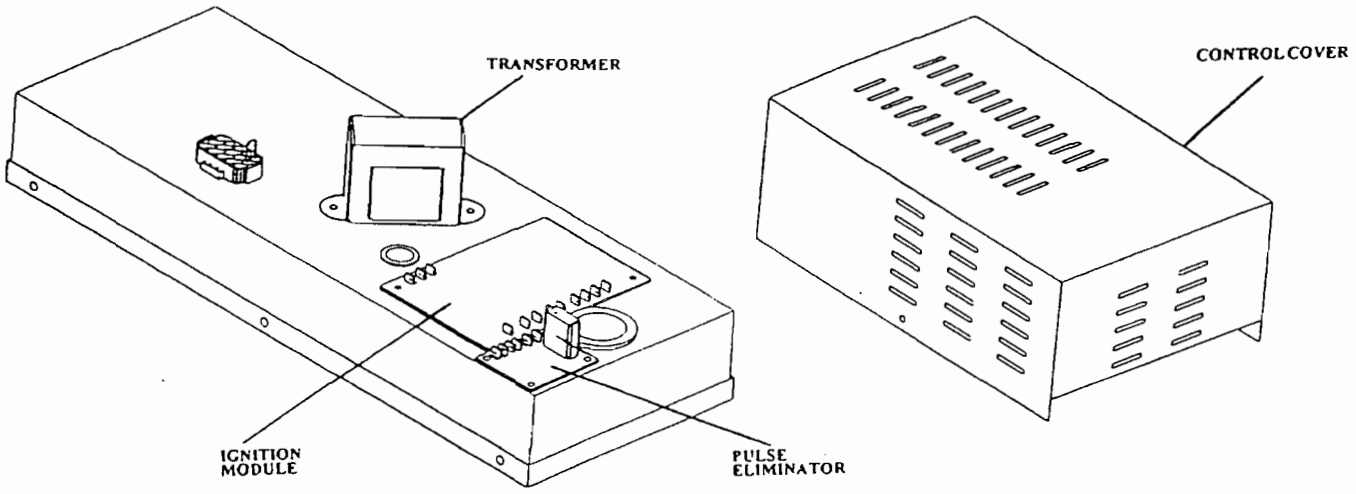


495,000 THRU 745,000 BTU MODELS - 75 GPM

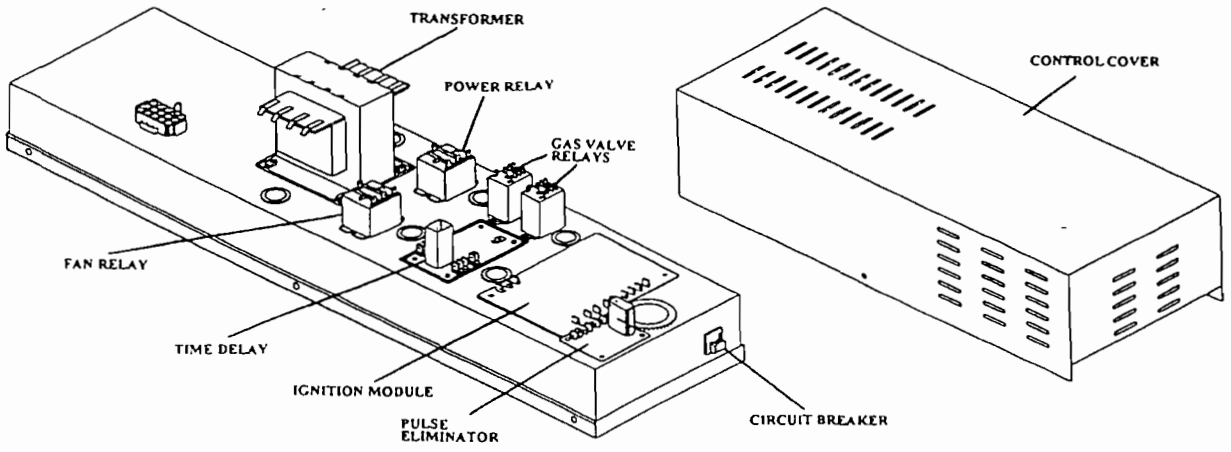


985,000 THRU 2,065,000 BTU MODELS - 90 GPM

CONTROL PANEL ASSEMBLY 495-745
FIG. 17



CONTROL PANEL ASSEMBLY 985-2065
FIG. 18



HOT WATER SUPPLY BOILER
495,000 - 2,065,000 BTU MODELS

This section contains specific instructions for those units used to supply domestic hot water. All warnings, cautions, notes and instructions in the general installation and service sections apply to these instructions. Hot water supply boilers are usually installed with a storage tank. The use of a properly sized pump and the control of water velocity, as explained below, is important for correct operation of your hot water supply boiler.

WATER VELOCITY CONTROL

IMPORTANT - To insure proper velocity through the heat exchanger, it is necessary to regulate the temperature rise across the heat exchanger from inlet to outlet. This must be done on initial installation and periodically rechecked. With the correct temperature rise across the heat exchanger, you may be assured of the proper velocity in the tubes. This will yield long life and economical operation from your hot water supply boiler. Excessive lime build-up in the tubes is a result of too little velocity in the tubes. Excessive pitting or erosion in the tube is caused by too much velocity through the tubes. Care should be taken to measure temperature rise and maintain a velocity as follows:

1. The pump must run continuously.
2. With the pump running and the hot water supply boiler off, the inlet and outlet thermometers should read the same temperature. If they do not, an adjustment must be made to your final calculation.
3. Turn the hot water supply boiler on and allow time for the temperature to stabilize. Record the difference between the inlet and outlet temperatures. This difference will be the "temperature rise".
4. Compare the temperature rise on the heater with the required temperatures rise in Table N below. Should adjustment be needed, proceed as follows:

If the temperature rise is too high, the water velocity is too low, check the following:

1. Check for restrictions in the outlet of the heater.
2. Be sure all valves are open between the heater and the tank.
3. Check the pump to be sure it is running properly and that the pump motor is running in the proper direction.
4. Be sure that the circulation pipes between the heater and storage tank are no less than 2" diameter for 495,000 thru 745,000 BTU models and not less than 2 ½" diameter for 985,000 thru 2,065,000 BTU models.

If the temperature rise is too low, the water velocity is too high, adjust as follows:

1. Slowly throttle the valve on the outlet side of the heater until the temperature rise is steady at the required temperature rise as noted in Table N.

REQUIRED TEMPERATURE RISE
TABLE N

BTUs	ΔT,°F	BTUs	ΔT,°F
495,000	15	1,255,000	23
645,000	19	1,435,000	26
745,000	22	1,795,000	32
985,000	18	2,065,000	37

COMMON WATER MANIFOLD SIZE FOR MULTIPLE HOT WATER SUPPLY BOILER INSTALLATION TABLE O

Pipe sizing chart provides minimum pipe size for common manifold piping to insure adequate flow.

Number of Units	Common Manifold Size (Min.)
495,000-745,000	
1	2"
2	3"
3	3½"
4	4"
5	5"
6	5"
985,000-2,065,000	
1	2½"
2	4"
3	4"
4	5"
5	6"
6	6"

PUMP OPERATION

1. The hot water supply boiler must be connected to a properly sized, continuously running pump that circulates water between heater and storage tank.
2. Pump is sized to heater input and water hardness. Care should be taken to size pump correctly.
3. Lubricate pump to manufacturers recommendations. Pump damage due to inadequate lubrication is non-warrantable.

The pump chart is based on the following fittings:

6-90° elbows
2- unions
2 -ball valves
1 -cold water tee
Not more than 45 feet of straight pipe

For every elbow and tee in excess of those shown above, DEDUCT 5 FEET from maximum allowable straight pipe in heater to tank circulating loop.

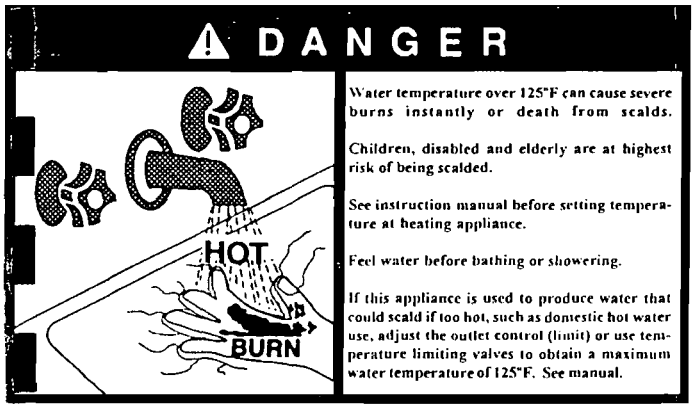
PUMP PERFORMANCE TABLE P		
	Water Hardness of 25 grains	
BTUs	**GPM**	**Ft. Hd.**
495,000-745,000	55	10
985,000-2,065,000	90	15

HEAT EXCHANGER

This is a highly sophisticated heat exchanger, designed to carry water in such a way that it generates a scouring action which keeps all interior surfaces free from a build-up of impurities. The straight-line, two pass design of the tubes sends water into the headers at a properly rated velocity. The configuration of the headers, in turn, creates a high degree of turbulence which is sufficient to keep all contaminants in suspension. This "scouring action" provides greater cost savings for owners. Tubes are always able to transfer heat at peak efficiency. Every surface within this water containing section is of a non-ferrous material, providing clear, clean, rust-free hot water. Straight copper tubes - finned on the outside for maximum heat transfer - coated cast iron one piece cored headers make up an entirely rust-proof unit. On all models, header inspection plugs can be removed for field inspection and cleaning of copper tubes. The entire heat exchanger may be easily removed from the unit.

THERMOSTAT SETTINGS

1. The thermostat is adjusted to a low test setting when shipped from the factory.
2. Set the thermostat or temperature control to the lowest settings which will satisfy hot water demands and prevent risk of scald injury.



WARNING: SHOULD OVERHEATING OCCUR OR THE GAS SUPPLY FAIL TO SHUT OFF, TURN OFF THE MANUAL GAS CONTROL VALVE TO THE APPLIANCE.

TEMPERATURE ADJUSTMENT
(Domestic Hot Water Use)

This unit has an adjustable thermostat to control water temperature. The thermostat is factory pre-set at approximately 125° F. Households with small children or invalids may require a 120° F or lower temperature setting to reduce risk of scald injury. Some states may require a lower temperature setting. Check with your gas supplier for local requirements governing the temperature setting. Remember, no water heating system will provide exact temperatures at all times. Allow a few days of operation at this setting to determine the correct temperature setting consistent with your needs.

NOTE: (1) This water heater, when set at the lower temperature setting, is not capable of producing hot water of sufficient temperature for sanitizing purposes. (2) Higher stored water temperature increases the ability of the water heater to supply desired quantities of hot water, however remember-

CAUTION: Hotter water increases the risk of scald injury. Incorrect piping of the cold water supply to the system may result in condensate formation on the heat exchanger and operational problems. See typical installation drawings provided with the unit for correct piping. Higher water temperatures reduce condensate formation.

CAUTION: Setting the temperature selector to higher settings provides hotter water, which increases the risk of scald injury.

RELIEF VALVE

This hot water supply boiler is supplied with temperature and pressure relief valve(s) sized in accordance with ASME Boiler and Pressure Vessel Code, Section IV ("Heating Boilers"). The relief valve(s) is installed in the hot water outlet. No valve is to be placed between the relief valve, and the hot water supply boiler. To prevent water damage, the discharge from the relief valve shall be piped to a suitable floor drain for disposal when relief occurs. No reducing couplings or other restrictions shall be installed in the discharge line. The discharge line shall allow complete drainage of the valve and line. Relief valves should be manually operated at least once a year.

CAUTION: Avoid contact with hot discharge water.

THERMAL EXPANSION

A relief valve which discharges periodically may be due to thermal expansion in a closed system. A water heater installed in a closed system, such as one with a backflow preventer or check valve in the cold water supply, shall be provided with means to control expansion. Contact the water supplier or local plumbing inspector on how to correct this situation. Do not plug the relief valve.

CATHODIC PROTECTION

Hydrogen gas can be produced in a hot water system that has not been used for a long period of time (generally, two weeks or more). ***Hydrogen gas is extremely flammable.*** To prevent the possibility of injury under these conditions, we recommend the hot water faucet be open for several minutes at the kitchen sink before you use any electrical appliance which is connected to the hot water system. If hydrogen is present, there will be an unusual sound such as air escaping through the pipe as the hot water begins to flow. There should be no smoking or open flames near the faucet at the time it is open.

ATTACHMENT G

DISNEY VILLAGE MARKETPLACE SPRAY BOOTH-
CONSTRUCTION PERMIT APPLICATION

AIR CONSTRUCTION PERMIT APPLICATION
FOR
WALT DISNEY WORLD CO.
DISNEY VILLAGE PAINT SPRAY BOOTH

Prepared for:

WALT DISNEY WORLD CO.
Lake Buena Vista, Florida

Prepared by:

ECT
Environmental Consulting & Technology, Inc.
3701 Northwest 98th Street
Gainesville, Florida 32606

ECT No. 93648-0100

January 1994

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed Thomas W. Davis

Thomas W. Davis
Name (Please Type)

Environmental Consulting & Technology, Inc.
Company Name (Please Type)

3701 Northwest 98th Street, Gainesville, FL 32606
Mailing Address (Please Type)

Florida Registration No. 36777 Date: 1/31/94 Telephone No. 904/332-0444

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

The Disney Village Enhancement Project includes construction of a spray paint booth to support Disney Village operations and maintenance. This project will be in compliance with applicable state regulations.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction January 31, 1994 Completion of Construction March 31, 1994

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Filters approximately $1,000

D. Indicate any previous OER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

None

E. Requested permitted equipment operating time: hrs/day 16 ; days/wk 7 ; wks/yr 52 ;

if power plant, hrs/yr _____ ; if seasonal, describe: Not seasonal

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No

   a. If yes, has "offset" been applied? _____

   b. If yes, has "Lowest Achievable Emission Rate" been applied? _____

   c. If yes, list non-attainment pollutants. _____

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. No

3. Does the State "Prevention of Significant Deterioration" (PSD) requirement apply to this source? If yes, see Sections VI and VII. No

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? No

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

G. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? Yes

   a. If yes, for what pollutants? VOC

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

Under the applicability criteria of Rule 17-296.500(1)(a), Florida Administrative Code (F.A.C.), this paint spray booth is subject to R.A.C.T. regulations. However, the specific source requirements of Rule 17-296.500 through 17-296.516, F.A.C., are not applicable because this paint spray booth does not meet the applicability requirements of these rules.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Raw materials are characterized in Attachment A. Material safety data sheets (MSDSs) for each coating are included in Attachment A also.				

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): Not applicable

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
Emissions information is summarized in Attachment B, including calculations.							
VOC	3.09	2.58	NA	NA	5,157.36	2.58	

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Binks Manufacturing Company paint spray booth (see Attachment C for description)	Particulate matter	99% *	NA	Engineering estimate
	VOC	0%	--	--
*Particulate matter is controlled with two 3- by 14-ft exhaust filters.				

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average Not applicable Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

Liquid and solid waste will be managed within the Walt Disney World Co. FDEP-approved hazardous material handling program.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 14 ft. Stack Diameter: 3.5 ft.

Gas Flow Rate: 18,450 ACFM _____ DSCFM Gas Exit Temperature: 70 °F.

Water Vapor Content: Ambient % Velocity: 32 FPS

SECTION IV: INCINERATOR INFORMATION

Not applicable

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

_____

_____

_____

_____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

_____

_____

_____

_____

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

   Not applicable

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.

   See Attachment B

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

   See Attachment A

4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

   See Attachment C

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).

   See Attachment B

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

   Not applicable

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

   See Figures 1 and 2

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

   See Figures 1 and 2

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.

Attached

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

Not applicable

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

Not applicable

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[ ] Yes [ ] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft. b. Diameter: ft.

c. Flow Rate: ACFM d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy [2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1] Explain method of determining efficiency.
[2] Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1] Explain method of determining efficiency.
[2] Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

Not applicable

a. Company Monitored Data

1. _____ no. sites _____ TSP _____ ( ) SO_2 _____ Wind spd/dir

Period of Monitoring _____/_____/_____ to _____/_____/_____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location)_____

4. Stability wind rose (STAR) data obtained from (location)_____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	_____ grams/sec
SO^2	_____ grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

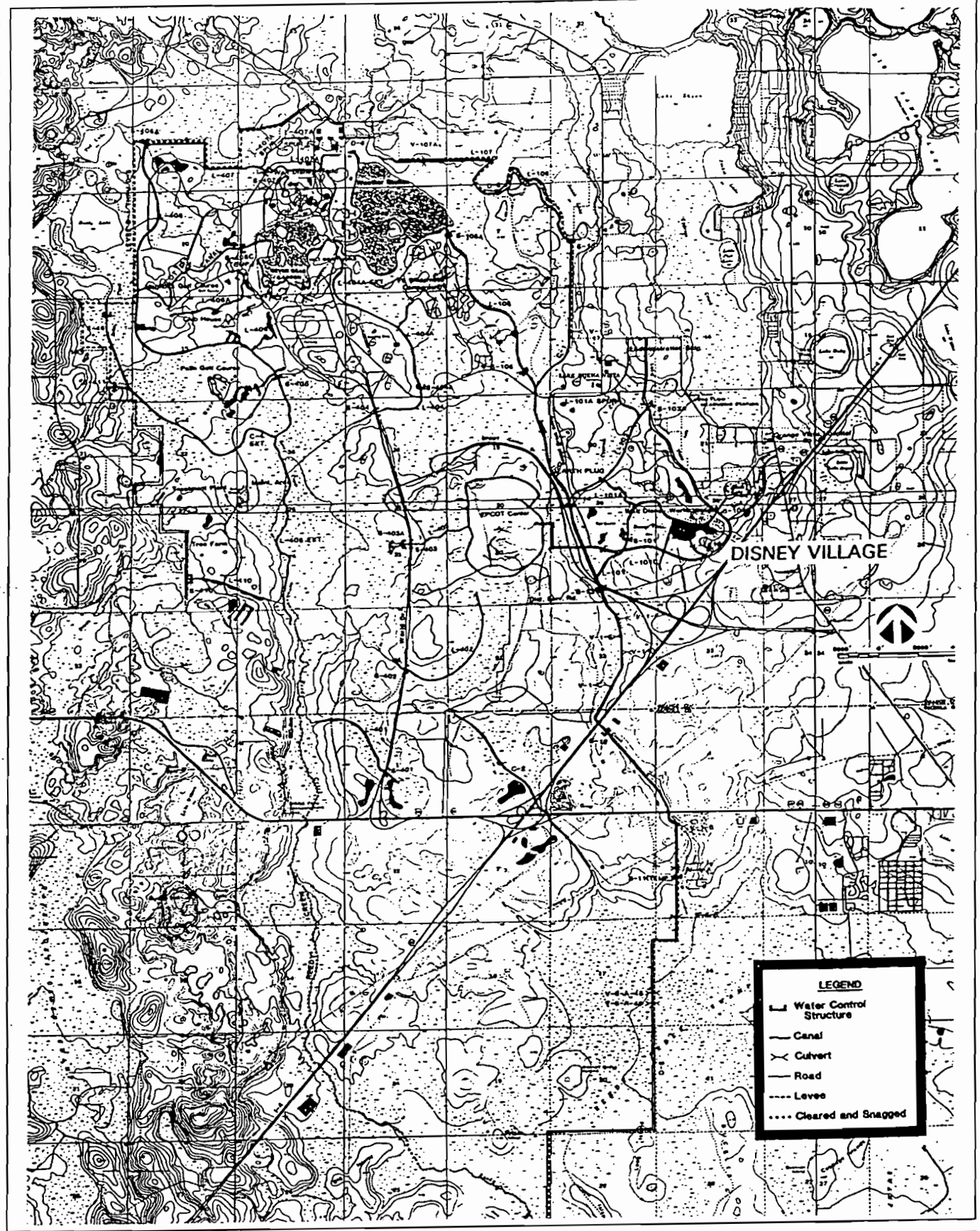


FIGURE 1

VICINITY MAP

SOURCE: WDW, 1994.

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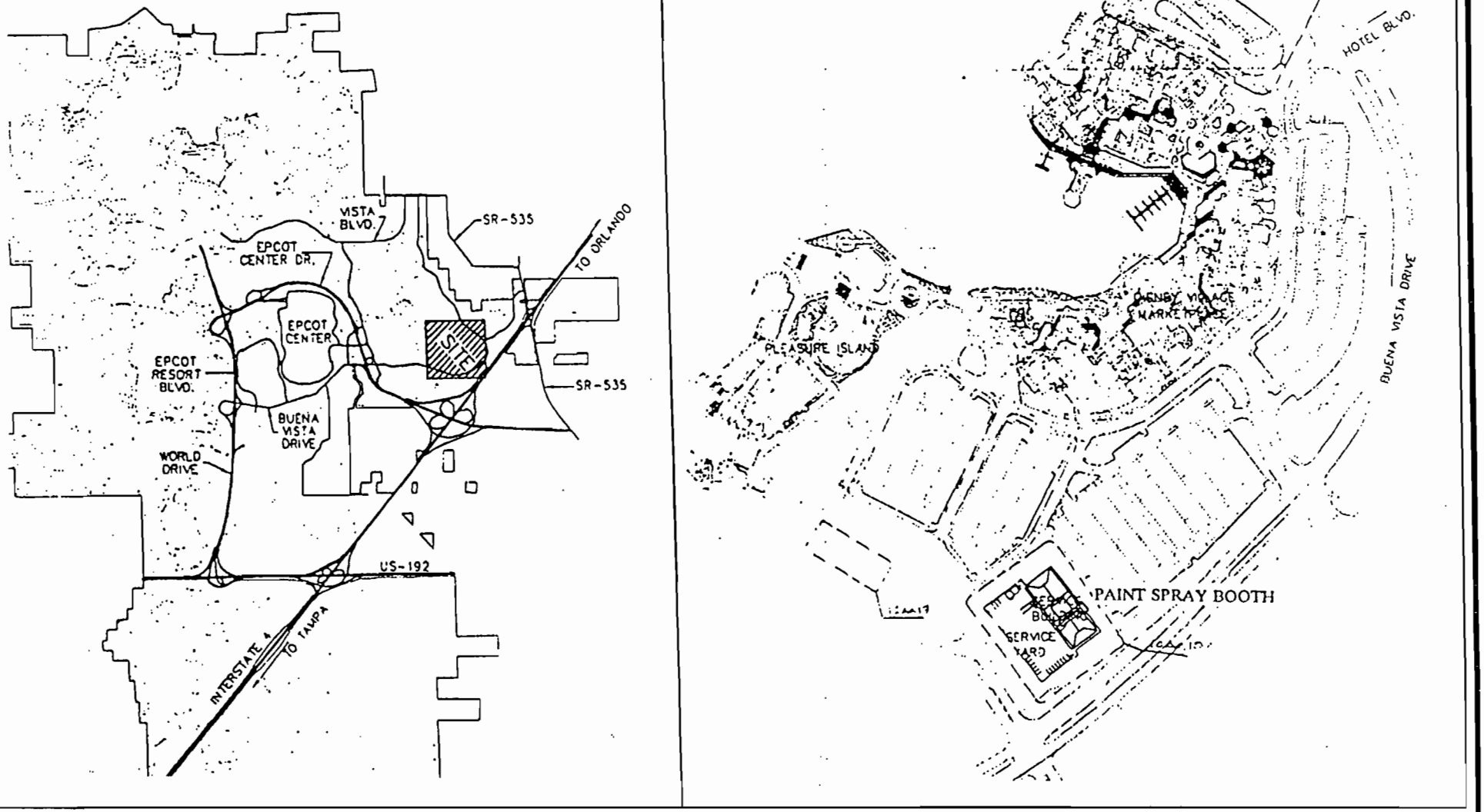

FIGURE 2

DISNEY VILLAGE PAINT SPRAY BOOTH LOCATION

SOURCE: WDW, 1993.

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Environmental Consulting & Technology, Inc.

st of Applicable Regulations

If the facility addressed in this application is a Title V source, complete this part of the form by entering each federal, state, and ate-enforceable local air pollution regulation applicable to the facility as a whole. The intent of this list of regulations is to ovide the applicant the opportunity (in this section of the form for regulations of facility-wide applicability and in Section III-B of the form for regulations applicable to emissions unit individually) to identify all "applicable requirements" as defined in Rule 62-213.200, F.A.C., and thereby claim the "permit shield" described in Rule 62-213.460, F.A.C.

Enter each regulation to only such level of detail as may be required to provide an unambiguous interpretation of how the pecific provisions of the regulation apply. For example, it is not necessary to list every subsection within a rule section, or very paragraph within a rule subsection, if the rule section or subsection, respectively, applies in its entirety to the facility. Conversely, if a section, subsection, or any other rule division applies in part, but not in its entirety, to the facility, a greater level of detail is needed to identify the applicable rule. Regulations should be entered using the following example formats:

ederal: 40 CFR 60, Subpart Da (where sufficient detail is provided by reference to the subpart only);

40 CFR 60, Appendix D (where it is necessary to reference an appendix to a part)

40 CFR 60.43a(a)(1) (where it is necessary to go to a greater level of detail than subpart)

State: 62-296.502 (where sufficient detail is provided by reference to the section only)

62-296.404(3)(c)1.b. (where it is necessary to go to a greater level of detail than section)

ocal: Will vary in format from county to county.

Note: The Department has identified, and will make available upon request, a core list of rules to which all Title V sources re presumptively subject. To help in completing this section of the form, a simplified procedure for referencing the core list in its entirety, or with specific exceptions, is also available from the Department.

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOLY ORANGE Acrylic Polyurethane Paint HMIS CODES: H 3 F 4 R 0 P C
PRODUCT CODE: 85-32

SECTION I - MANUFACTURER IDENTIFICATION

MANUFACTURER'S NAME: LILLY INDUSTRIES, INC.
ADDRESS: 2601 EAST HENRY AVENUE, TAMPA, FL 33610
EMERGENCY PHONE: INFORMATION PHONE: (813) 236-5594
DATE REVISED : 01-11-93 NAME OF PREPARER : E.F. Godbey

SECTION II - HAZARDOUS INGREDIENTS/SARA III INFORMATION

HAZARDOUS COMPONENTS	CAS NUMBER	OCCUPATIONAL EXPOSURE LIMITS OSHA PEL	ACGIH TLV	OTHER	VAPOR PRESSURE mm Hg @	TEMP	WEIGHT PERCENT
XYLENE 1350	1330-20-7	100 PPM	100 PPM	100 PPM	3.7	68F	27
*TOLUENE	108-88-3	200 PPM	50 PPM	500 PPM	24.0	68F	3
*2-BUTOXYETHANOL 1700	111-76-2	25 PPM	25 PPM	75 PPM	0.6	68F	2
ISOPROPANOL	67-63-0	400 PPM	400 PPM	500 PPM	33.0	68F	(5.0%
*METHYL ETHYL KETONE 5400	78-93-3	200 PPM	200 PPM	300 PPM	74.9	68F	12
*Methyl Isobutyl Ketone 2050	108-10-1	100 PPM	50 PPM	75 PPM	15.0	68F	6
*PROPYLENE GLYCOL METHYL ETHER ACETATE	108-65-6	NE	NE		3.7	68F	5
*BUTYL BENZYL PHTHALATE	85-68-7	NE	NE		N/A		5

* Indicates toxic chemical(s) subject to the reporting requirements of section 313 of Title III and of 40 CFR 372.

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING RANGE: 175 to 698 Deg F WT./GAL.: 8.6
VAPOR DENSITY: HEAVIER THAN AIR EVAPORATION RATE: SLOWER THAN ETHER
COATING V.O.C. : 5.22 LB/GL (626 G/L)
MATERIAL V.O.C.: 5.22 LB/GL (626 G/L)
SOLUBILITY IN WATER: NON-SOLUBLE
APPEARANCE AND ODOR: VISCOUS LIQUID, SOLVENT ODOR %VOL BY VOLUME

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 21 Deg F METHOD USED: TCC
FLAMMABLE LIMITS IN AIR BY VOLUME- LOWER: 0.3% UPPER: 13.1%
FLAMMABILITY CLASS: 1B
DOT CLASSIFICATION: Flammable liquid UN 1263.
EXTINGUISHING MEDIA: FOAM, CO2, DRY CHEMICAL, WATER FOG
The National Fire Protection Association Class B Extinguisher is designed to extinguish NFPA Class 1B flammable liquid fires.

SPECIAL FIREFIGHTING PROCEDURES

Full protective equipment including self contained breathing apparatus should be used. Water spray with fog nozzles is preferable method to cool closed containers to prevent pressure build up and possible auto ignition when exposed to heat

UNUSUAL FIRE AND EXPLOSION HAZARDS

Keep containers tightly closed. Isolate from heat, sparks, and open flames. Closed containers may explode if exposed to extreme heat. Vapors may be heavier than air and may travel along the floor before ignition, flashing back to the vapor source. Never use welding or cutting torches on or near containers (even empty).

SECTION V - REACTIVITY DATA

STABILITY: STABLE

CONDITIONS TO AVOID

Heat, open flames, static electricity, electric equipment, and sparks. Closed containers may explode if exposed to heat.

INCOMPATIBILITY (MATERIALS TO AVOID)

Strong acids, alkalies and oxidizers.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS

Thermal decomposition or combustion can produce fumes containing organic acids, carbon dioxide, carbon monoxide and smoke

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

Will not occur.

SECTION VI - HEALTH HAZARD DATA

INHALATION HEALTH RISKS AND SYMPTOMS OF EXPOSURE

May cause nausea and respiratory irritation, central nervous system effects including dizziness, weakness, fatigue, headache, and possibly unconciousness leading to possible asphixation.

SKIN AND EYE CONTACT HEALTH RISKS AND SYMPTOMS OF EXPOSURE

EYES: Can cause irritation, reddness, tearing, and blurred vision.

SKIN ABSORPTION HEALTH RISKS AND SYMPTOMS OF EXPOSURE

Prolonged or repeated contact can cause moderate irritation and defatting dermatitus.

INGESTION HEALTH RISKS AND SYMPTOMS OF EXPOSURE

May cause gastrointestional irritaion, nausea, vomiting and diarreha. Aspiration of material into the lungs can cause chemical pneumonia which can be fatal.

HEALTH HAZARDS (ACUTE AND CHRONIC)

Reports have associated repeated or prolonged occupational overexposure to solvents with permanent brain and central nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

Prolonged and repeated exposure to solvents may cause liver, kidney and/or red blood cell damage.

CARCINOGENICITY: NTP? NO IARC MONOGRAPHS? NO OSHA REGULATED? YES

This material contains pigments that are based on lead and/or chromates. Pigmentsbased on these chemicals are listed as carcinogens because of these components.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

Preexisting eye, skin, liver, kidney and respiratory disorders.

EMERGENCY AND FIRST AID PROCEDURES

EYES:

Flush with large amounts of water for at least 15 minutes. Seek medical attention.

SKIN:

Remove contaminated clothing. Thoroughly wash exposed area with soap and water. If irritation or reddness develops and persists seek medical attention. Launder contaminated clothing before reuse.

INHALATION:

If affected, remove individual to fresh air. If breathing has stopped give artificaial respiration. Seek medical attention.

INGESTION: DO NOT INDUCE VOMITING. Keep person warm and quiet. Seek medical attention. 1

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Stay upwind and away from spill unless wearing appropriate protective equipment.Stop and/or contain discharge if it may be done safely.Keep all sources of ignition away. Ventilate area of spill. Use nonsparking tools for clean up.

WASTE DISPOSAL METHOD

DO NOT FLUSH TO SEWER, WATERSHED OR WATERWAY. Dispose of in accordance with local, state, and federal regulations. Do not incinerate closed containers.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Do not store above 120 deg. F. Store large quantities in building designed to comply with OSHA 1919.106. Keep away from heat,sparks,and flame.Keep containers closed when not in use and in an upright position to prevent leakage.

OTHER PRECAUTIONS

ontainers should be grounded when pouring. Do not take internally.Wash hands after use and before smoking or eating. Emptied containers may retain hazardous residue and explosive vapors. Keep away from heat,sparks,and flames.Do not cut, puncture or weld on or near emptied containers. Follow all hazard precautions given in this data sheet until the container is thoroughly cleaned or destroyed.

KEEP OUT OF REACH OF CHILDREN FOR INDUSTRIAL USE ONLY.

SECTION VIII - CONTROL MEASURES

RESPIRATORY PROTECTION

Lilly Industries, Inc. takes no responsibility for determining what protection is necessary in any specific application. The general information given should be used with discretion.

If workplace exposure limit(s) of product or any component is exceeded a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environment. OSHA regulations also permit other NIOSH/MSHA respirators, (neg. pressure type) under specified conditions. See your safety equipment supplier. Engineering or admin.controls should be implemented.

VENTILATION

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure limits below TLV's.

PROTECTIVE GLOVES

Wear resistant gloves such as: Nitrile Rubber

EYE PROTECTION

Chemical splash goggles in compliance with OSHA regs. are advised. However OSHA regs. also permit other safety glasses.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT

To prevent sufficient repeated or prolonged skin contact, wear impervious boots and clothing.

WORK/HYGIENIC PRACTICES

Always wash hands after using products, and before eating and smoking.

SECTION IX - DISCLAIMER

DISCLAIMER

The information contained herein is information from our raw material suppliers and other sources.It is believed to be reliable.This data is not to be taken as a warranty or representation for which Lilly Industries, Inc. assumes legal responsibility.

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MAR 2 1 1988

HEALTH SERVICES DEPT

MAF SPRAY REDUCER 3-27-87

INFORMATION PHONE
(312) [illegible]

710-623851

SECTION I - PRODUCT IDENTIFICATION

P45-203 F24 mix liquid

PRODUCT NUMBER : 45-203 HMIS : [illegible]
PRODUCT NAME : MAP SPRAY REDUCER Mathews PREPARATION DATE: 03/27/87

CHEMICAL NAME : ORGANIC COATING
CHEMICAL FAMILY : PAINT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT DESCRIPTION	CAS NUMBER	WEIGHT PERCENT	TLV	PEL
TOLUOL	108-88-3	10.04	100.00 PPM	100.00 PPM
NIOSH PAGE 226(2)				
METHYL ETHYL KETONE	78-93-3	40.17	200.00 PPM	200.00 PPM
NIOSH PAGE 60(4)				
ISOBUTYL ACETATE	110-19-0	10.04	150.00 PPM	150.00 PPM
NIOSH PAGE 142(3)				
PROPYLENE GLYCOL M.E. ACETATE	108-65-6	39.74	N/EST.	N/EST.
NO NIOSH REF.				

SECTION III - PHYSICAL DATA

BOILING RANGE : [illegible] TO [illegible] (deg F)
EVAPORATION RATE: SLOWER THAN ETHER
WEIGHT PER GALLON: 7.307
: 7.307 [illegible]
SPECIFIC GRAVITY = .876
APPEARANCE : CLEAR LIQUID
ODOR : TYPICAL SOLVENT ODOR

VAPOR DENSITY : HEAVIER THAN AIR
% VOLATILE VOLUME : [illegible]
% NON-VOLATILE [illegible] :
% NON-VOLATILE [illegible] :

CLASSIFICATION: [illegible] PAINT RELATED MATL FLAM. LIQ.

[illegible]: 23 deg F) TCC LEL: 1.20 UEL: [illegible]

SPECIAL FIRE FIGHTING PROCEDURES
Foam, CO2, or dry chemical. Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build up, explosion, or possible auto ignition when exposed to extreme heat.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
[illegible] should be stored in tightly closed containers away from electrical equipment, sparks and open flame. Closed [illegible] may explode when exposed to extreme heat. During emergency conditions, overexposure to decomposition products may be a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SECTION V - HEALTH HAZARD DATA

TARGET ORGANS/SYSTEMS WHICH MAY BE AFFECTED:
skin, eyes, respiratory system, central nervous system, gastro-intestinal system

EFFECTS OF OVEREXPOSURE:
ACUTE OVEREXPOSURE MAY LEAD TO THE FOLLOWING INDICATIONS/CONDITIONS:
CONTACT:
Irritates eyes, irritates skin
INHALATION:
Irritates nose and throat, dizziness, drowsiness, loss of coordination, fatigue, irritates respiratory system, irritates gastro-intestinal system
INGESTION:
Irritates respiratory system, dizziness, drowsiness, loss of coordination, fatigue, irritates gastro-intestinal [illegible], irritates nose and throat, lung damage/inflammation
[illegible]:
[illegible]

CHRONIC OVEREXPOSURE MAY LEAD TO THE FOLLOWING INDICATIONS/CONDITIONS:
[illegible], asthma

WARNING: Persons have associated repeated and prolonged occupational exposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

[illegible] (D) DERMAL (A) INHALATION

(E) FIRST AID PROCEDURES:
Remove to fresh air and treat symptomatically, flush skin or eyes with water.
Call physician if ingested. DO NOT induce vomiting.

SECTION VI - REACTIVITY DATA

STABILITY : STABLE
CONDITIONS TO AVOID:
Heat, sparks, open flame and fire and open containers.
MATERIALS TO AVOID:
Strong oxidizing agents
HAZARDOUS DECOMPOSITION PRODUCTS:
Normal decomposition may yield oxides of carbon.
HAZARDOUS POLYMERIZATION:
Will not occur.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Remove all sources of ignition (flame, hot surfaces, electrical, static or frictional sparks). Avoid breathing vapors. Ventilate area. Contain and remove with inert absorbent and non-sparking tools.
WASTE DISPOSAL METHOD:
Dispose in accordance with local, state and federal regulations. Incinerate in approved facility. Do not incinerate closed containers.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
Wear appropriate, properly fitted respirator (NIOSH MSHA approved) during and after application, and until all fumes and mists have been removed. Follow respirator manufacturer's directions for respirator use.
VENTILATION:
Local exhaust ventilation is recommended to control exposures to within OSHA limitations for [illegible] and solvents.
PROTECTIVE GLOVES:
Impervious gloves.
EYE PROTECTION:
Chemical goggles or face shield.
OTHER PROTECTIVE EQUIPMENT:
Impervious apron, safety shoes, eye wash [illegible]
[illegible]

[illegible] SPECIAL PRECAUTIONS

[illegible] TO BE TAKEN [illegible] NDLING AND STORING.
Always keep containers closed when not in use.
Always provide adequate ventilation. DO NOT use near flames or sparks. Avoid prolonged skin contact and breathing of vapor mist. Ground all containers when pouring.

FOR INDUSTRIAL USE ONLY

[illegible] information contained herein is furnished without warranty of a[illegible] [illegible] should consider these data only as supplement to other inf[illegible] [illegible] by them and must make independent determinations of suita[illegible] completeness of information from all sources to assure proper use [illegible] disposal of these materials and the safety and health of employe[illegible] customers.

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HEALTH SERVICES DEPT.

45-211

MANUFACTURER:
MATTHEWS PAINT COMPANY
400 SOUTH MERCANTILE COURT
WHEELING, ILLINOIS 60090

EMERGENCY PHONE:
1-800-424-9300

MAP BRUSHING REDUCER 3-27-87

INFORMATION PHONE:
(312)/537-9200

F14 mix liquid

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER : 45-211
PRODUCT NAME : MAP BRUSHING REDUCER

HMIS : H2F2B1P
PREPARATION DATE: 03/27/8

CHEMICAL NAME : ORGANIC COATING
CHEMICAL FAMILY : PAINT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT DESCRIPTION	CAS NUMBER	WEIGHT PERCENT	TLV	PEL
PROPYLENE GLYCOL M.E. ACETATE	108-65-6	100.00	N/EST.	N/EST.

NO NIOSH REF.

SECTION III - PHYSICAL DATA

BOILING RANGE : 302 TO 302 (deg F)
EVAPORATION RATE: SLOWER THAN ETHER
WEIGHT PER GALLON: 8.060
VOC : 8.060 (lb/gl)

VAPOR DENSITY : HEAVIER THAN AIR
% VOLATILE VOLUME : 100.000
% NON-VOLATILE (WGT) : .000
% NON-VOLATILE (VOL) : .000

APPEARANCE : CLEAR LIQUID
ODOR : TYPICAL SOLVENT ODOR

SPECIFIC GRAVITY= .965

CONFIDENTIAL TRADE SECRET

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: NATIONAL PAINT RELATED MAT'L COMM. LTD.

FLASH POINT: 114 (deg F) TCC LEL: 1.30 UEL: 13.1

SPECIAL FIRE FIGHTING PROCEDURES
Foam, CO2N. or dry chemical. Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build up, explosion, or possible auto ignition when exposed to extreme heat.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Should be stored in tightly closed containers away from heat, electrical equipment, sparks and open flame. Closed containers may explode when exposed to extreme heat. During emergency conditions, overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SECTION V - HEALTH HAZARD DATA

TARGET ORGANS/SYSTEMS WHICH MAY BE AFFECTED:
skin, eyes, respiratory system, central nervous system, gastro-intestinal system

EFFECTS OF OVEREXPOSURE:
ACUTE OVEREXPOSURE MAY LEAD TO THE FOLLOWING INDICATIONS/CONDITIONS:
CONTACT:
irritates eyes, irritates skin
INHALATION:
irritates nose and throat, dizziness, drowsiness, loss of coordination, fatigue
INGESTION:
irritates respiratory system, dizziness, drowsiness, loss of coordination, fatigue
ABSORBTION:
None Known
CHRONIC OVEREXPOSURE MAY LEAD TO THE FOLLOWING INDICATIONS/CONDITIONS:
dermatitis, asthma

WARNING: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

SECTION V (CONT) - HEALTH HAZARD DATA

PRIMARY ROUTE(S) OF ENTRY: [X] DERMAL [X] INHALATION [X] INGESTION

EMERGENCY FIRST AID PROCEDURES:
Remove to fresh air and treat symptomatically, flush skin or eyes with water.
Call physician if ingested. DO NOT induce vomiting

SECTION VI - REACTIVITY DATA

STABILITY : STABLE
CONDITIONS TO AVOID:
Heat, sparks, open flame and fire and open containers.
MATERIALS TO AVOID:
Strong oxidizing agents.
HAZARDOUS DECOMPOSITION PRODUCTS:
Normal decomposition may yield oxides of carbon.
HAZARDOUS POLYMERIZATION:
Will not occur.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Remove all sources of ignition (flame, hot surfaces, electrical, static or frictional sparks). Avoid breathing vapors. Ventilate area. Contain and remove with inert absorbent and non-sparking tools.
WASTE DISPOSAL METHOD:
Dispose in accordance with local, state and federal regulations. Incinerate in approved facility. Do not incinerate closed containers.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
Wear appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application, and until all fumes and mists have been removed. Follow respirator manufacturer's directions for respirator use.
VENTILATION:
Local exhaust ventilation is recommended to control exposures to within OSHA limitations for lead, chromates and solvents.
PROTECTIVE GLOVES:
Impervious gloves.
EYE PROTECTION:
Chemical goggles or face shield.
OTHER PROTECTIVE EQUIPMENT:
Impervious apron,safety shoes, eye wash facility, emergency shower.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
Always keep containers closed when not in use. Always provide adequate ventilation. DO NOT use near flames or sparks. Avoid prolonged skin contact and breathing of vapor mist. Ground all containers when pouring.

FOR INDUSTRIAL USE ONLY

The information contained herein is furnished without warranty of any kind. Users should consider these data only as supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.

MANUFACTURER:
MATTHEWS PAINT COMPANY
400 SOUTH MERCANTILE COURT
WHEELING, ILLINOIS 60090

EMERGENCY PHONE:
1-800-424-9300

INFORMATION PHONE:
(312)/537-9200

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER : 45-070
PRODUCT NAME : MAP UNIVERSAL CATALYST

HMIS : MATERIAL

CHEMICAL NAME : ORGANIC COATING
CHEMICAL FAMILY : PAINT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT DESCRIPTION	CAS NUMBER	WEIGHT PERCENT	TLV	VAPOR PRESSURE
HEXAMETHYLENE DIISOCYANATE	[illegible]	36.1	15 ppb	7.50
BENZENE	1330-20-7	5.4	100 ppm	9.50
XYLOL	108-38-3	27.7	200 ppm	22.00
METHYL ETHYL KETONE	78-93-3	15.2	200 ppm	75.00
BUTYL ACETATE	123-86-4	5.4	5 ppm	.09

THE -DI FREE MONOMER CONTENT MAY RISE TO A MAXIMUM OF 0.50% DURING STORAGE.

SECTION III - PHYSICAL DATA

BOILING RANGE : 175 TO 367 (deg F)
EVAPORATION RATE: SLOWER THAN ETHER
WEIGHT PER GALLON: 7.822
VOC : 5.245 (lb/gl)

VAPOR DENSITY : HEAVIER THAN AIR
% VOLATILE VOLUME : 70.957
% NON-VOLATILE (WGT) : 36.147
% NON-VOLATILE (VOL) : 29.043

APPEARANCE : CLEAR LIQUID
ODOR : TYPICAL SOLVENT ODOR

CONFIDENTIAL TRADE SECRET

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

INFLAMMABILITY CLASSIFICATION: UN1263 PAINT ENAMEL FLAMMABLE LQD

FLASH POINT: 23 (Deg F) TCC LEL: .88 UEL: 11.50

SPECIAL FIRE FIGHTING PROCEDURES / UNUSUAL FIRE OR EXPLOSION HAZARDS:
Full emergency equipment with self-contained breathing apparatus should be worn. During a fire irritating and highly toxic gases (See Reactivity Data) and smoke are present form the decomposition / combustion products. Isolate form heat, electrical equipment, sparks, and open flame. Closed container may explode when exposed to extreme heat or burst when contaminated with water (CO2 evolved). Solvent vapors may be heavier than air. Under conditions of stagnant air, vapors may build up and travel along the ground to an ignition source which may result in a flash back to the source of vapors.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:
To vapor and / or mist: Can cause irritation to skin, eyes, respiratory tact (nose, throat, lungs). Symptoms may be watering of eyes, dryness of throat, coughing, headache, tightness in chest or burning sensation. Allergic skin or respiratory reaction may occur in some individuals. Respiratory sensitivity results in asthmatic like symptoms on subsequent exposure even below the TLV. Skin sensitivity results in allergic dermatitis which may include rash, itching, hives and swelling of extremities. Headache, dizziness or nausea may be experienced by some as a result of exposure to solvents.

EMERGENCY & FIRST AID PROCEDURES:
EYE CONTACT.....Flush with clean lukewarm water (low pressure) at least 15 minutes, occasionally lifting eye lids. Consult physician.
SKIN CONTACT.....Remove contaminated clothing. Wash affected areas thoroughly with soap and water. Wash contaminated clothing thoroughly before reuse.
INHALATION.....Move to an area free from risk of further exposure. Administer oxygen or artifical respiration as needed. Obtain medical attention.
INJECTION..... Consult physician.

SECTION VI - REACTIVITY DATA

ILITY:
Stable under normal conditions.

OLYMERIZATION
None under normal conditions.

ONDITIONS TO AVOID
Contact with moisture and other materials which react with isocyanates. Temperatures above maximum storage temperature.

NCOMPATIBILITY
(MATERIALS TO AVOID): Contact with moisture and other materials strong bases, metal compounds or surface active materials.

AZARDOUS DECOMPOSITION PRODUCTS:
By fire: COC, CO, oxides of nitrogen, traces of HCN, HCl .

SECTION VII - SPILL OR LEAK PROCEDURES

EPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Evacuate nonessential personnel. Remove all sources of ignition. Ventilate the area. Equip clean-up crew with appropriate protective equipment (See Employee Protection Recommendations). Dike or isolate spilled material and control futher spillage if feasible. Notify appropriate authorities if necessary. Cover spill with sawdust, vermiculite, Fuller's earth or other absorbent material; pour liquid decontaminant over spillage -- allow to react at least 10 minutes. collect material in open containers -- add futher amounts of decontamination solution. Remove containers to safe place -- cover LOOSELY. Wash down area with liquid decontaminant and flush spill area with water. Decontamination solutions: Ammonium hydroxide (0-10%) detergent (2-5%) and balance water; or solution of Union Carbide's Tergitol TMN-10 (20%) and water (80%).

TE DISPOSAL METHOD:
Waste material must be disposed of in accordance with federal, state and local environmental control regulations. Empty containers must be handled with care due to product residue and combustible solvent vapor. Decontaminate containers prior to disposal.

SECTION VIII - SPECIAL PROTECTION INFORMATION

PROTECTION: Safety glasses, splash goggles or face shield. Contact lenses should not be worn.

SKIN PROTECTION: Chemical resistant gloves. Cover as much of the exposed skin area as possible with appropriate clothing. If skin creams are used, keep the area protected only by the cream to a minimum.

RESPIRATORY PROTECTION: Use respirator that is recommended or approved for use in isocyanate containing environments (air purifying or fresh air supplied). Consider type of application and environmental concentrations. In spray application you must protect against exposure to both vapor and spray mist. Observe OSHA regulations for respirator use (29 CFR 1910.134). When airborne isocyanate monomer concentrations are known to be below 0.2 ppm and if the polyisocyanate (polymeric, oligomer) concentrations are known to be below 10 mg/m3, a properly fitted air-purifying (combination organic vapor and particulate) respirator, proven by test to be effective in isocyanate-containing spray aerosol environments, will provide sufficient protection. When airborne isocyanate concentration are not known, or if either of the above guidelines is exceeded, or if spraying is performed in a confined space or area with limited ventilation, the use of a positive pressure supplied air respirator is mandatory.

VENTILATION: Ventilation as required to maintain air concentrations below TLV. If material is spray-applied, ventilation should be provided and a respirator worn. Exhaust air may need to be cleansed by scrubbers or filters to reduce environmental contamination.

OTHER: Safety showers and eyewash stations should be available. EDUCATE and TRAIN employees in safe use of product. Follow all label instructions.

SECTION XI - SPECIAL PRECAUTIONS

TORAGE TEMPERATURE:
(MIN/MAX).....: 32 F (0 C) / 122 F (20 C)
ECIAL SENSITIVITY:
(HEAT, LIGHT, MOISTURE): If container of material is exposed to heat, container can pressurize and burst. If moisture enters container, pressure can build due to reaction producing CO2 which can cause sealed container to pressurize and burst. Do not reseal if contamination is suspected.
CAUTIONS TO BE TAKEN:
IN HANDLING AND STORING: Keep away form heat, sparks and open flame. Store in tightly closed container and protect from moisture and foreign materials. At maximum temperatures noted, material may slowly polymerize without hazard. Some MAP colors contain lead. MAP also contains ester solvents. Breathing of these solvents is hazardous and should be avoided. Always keep containers closed when not in use.
IMPORTANT: When mixed, MAP will have hazards of all components. Observe all applicable label warnings.

The information contained herein furnished without warranty of any kind. Users should consider these data only as supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customer.

SECTION III-PHYSICAL DATA

Boiling Point	for COMPONENT(27%)	133.00 Deg F (56.11 Deg C) @ 760.00 mm Hg
Vapor Pressure	for COMPONENT(27%)	181.70 mm Hg @ 68.00 Deg F (20.00 Deg C)
Specific Vapor Density		HEAVIER THAN AIR
Specific Gravity		LESS THAN WATER
Percent Volatiles		100.00%
Evaporation Rate		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT < 73 Deg F (< 23 Deg C)

EXPLOSIVE LIMIT (LOWEST VALUE OF COMPONENT) LOWER - 1.0%

EXTINGUISHING MEDIA: REGULAR FOAM OR WATER FOG OR CARBON DIOXIDE OR DRY CHEMICAL.

HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.

FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WHEN FIGHTING FIRES.

SPECIAL FIRE & EXPLOSION HAZARDS: VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.

NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL: NOT ESTABLISHED FOR PRODUCT. SEE SECTION II.

EFFECTS OF ACUTE OVEREXPOSURE:

EYES - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.
SKIN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE AND POSSIBLE UNCONSCIOUSNESS, AND EVEN DEATH.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. ASPIRATION OF MATERIAL INTO THE LUNGS CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

FIRST AID:

IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE.

IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY, GET MEDICAL ATTENTION.

IF SWALLOWED: DO NOT INDUCE VOMITING. KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION. ASPIRATION OF MATERIAL INTO THE LUNGS DUE TO VOMITING CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION, SKIN CONTACT

EFFECTS OF CHRONIC OVEREXPOSURE:

MINOR EMBRYOTOXIC/FETOTOXIC EFFECTS HAVE BEEN OBSERVED IN LABORATORY RATS EXPOSED TO METHYL ETHYL KETONE BY INHALATION AT LEVELS GREATER THAN 1000 PPM (5 TIMES THE OSHA-PEL/TWA) FOR MOST OF THE GESTATION PERIOD. METHYL ETHYL KETONE MAY POTENTIATE (SHORTEN THE TIME OF ONSET) PERIPHERAL NEUROPATHY CAUSED BY METHYL N-BUTYL KETONE OR N-HEXANE. METHYL ETHYL KETONE BY ITSELF HAS NOT BEEN SHOWN TO CAUSE PERIPHERAL NEUROPATHY.

OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS APPARENTLY BEEN FOUND TO CAUSE THE FOLLOWING EFFECTS IN LABORATORY ANIMALS:, KIDNEY DAMAGE, EYE DAMAGE, LIVER ABNORMALITIES, BRAIN DAMAGE, ANEMIA, LUNG DAMAGE, SPLEEN DAMAGE

OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS BEEN SUGGESTED AS A CAUSE OF THE FOLLOWING EFFECTS IN HUMANS:, KIDNEY DAMAGE, CARDIAC ABNORMALITY, LIVER ABNORMALITIES

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR

STABILITY: STABLE

INCOMPATIBILITY: AVOID CONTACT WITH:, STRONG OXIDIZING AGENTS.

MATERIAL SAFETY DATA SHEET

Manufacturer's Name:

Masterchem Industries, Inc.
P.O. Box 368
3135 Highway K
Barnhart, MO 63012

Transportation Emergencies:
Call Chemtrec
1-800-424-9300
Emergency Telephone No.
1-800-325-3552
Medical Emergencies:
1-314-426-4227

NFPA HAZARDOUS MATERIALS IDENTIFICATION SYSTEM	
RATING	IDENTIFICATION
4=EXTREME	HEALTH 1
3=HIGH	FLAMMABILITY 1
2=MODERATE	REACTIVITY 0
1=SLIGHT	CHRONIC HEALTH See Section V
0=MINIMAL	

Section I - Product Identification

PRODUCT NAME: Kilz
PRODUCT NUMBER: 51652-10001-3
PRODUCT CLASS: ALKYD RESIN PRIMER

SECTION II A-HAZARDOUS INGREDIENTS

CAS REGISTRY NO.	%W	CHEMICAL NAME(S)	OCCUPATIONAL EXPOSURE LIMITS		VAPOR PRESSURE	LISTED AS A CARCINOGEN
			TLV	PEL		
64742-88-7	14.64	Mineral Spirits (Aliphatic Hydrocarbon)	100 ppm	100 ppm	20 mm Hg @ 20°F	No
64742-89-8	21.45	VM & P Naptha (Aliphatic Hydrocarbon)	300 ppm	300 ppm	15.0 mm Hg @ 37.7°F	No

SECTION II B - OTHER INGREDIENTS

68554-99-4	15-25	Alkyd Resin				No
14807-96-6	20-30	Magnesium Silicate				No
13463-67-7	10-20	Titanium Dioxide				No

SECTION III - PHYSICAL DATA

APPEARANCE: White, Low Viscosity Liquid	ODOR: Characteristic Hydrocarbon
BOILING RANGE: 240 375° F	VAPOR DENSITY: ☒ HEAVIER ☒ LIGHTER THAN AIR
EVAPORATION RATE: ☐ FASTER ☒ SLOWER THAN ETHER	62% VOLATILE VOLUME: 10.15 POUNDS WT/GAL

KLLZ

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: OSHA 1B	FLASH POINT: 80°F PMCC	LEL: 0.9	DOT: Flammable Liquid UN 1263		
EXTINGUISHING MEDIA:					
DRY CHEMICAL ☒	ALCOHOL FOAM ☐	WATER FOG ☐	FOAM ☒	CO_2 ☒	OTHER ☐

UNUSUAL FIRE AND EXPLOSION HAZARDS: Isolate from heat, electrical equipment, sparks and open flame. Closed containers may explode when exposed to extreme heat. During emergency conditions, overexposure to combustion products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention. Vapors may be ignited by static electricity or friction sparks.

SPECIAL FIREFIGHTING PROCEDURES: Full protective equipment, including self-contained breathing apparatus, should be used to protect firefighters from any hazardous combustion products.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE: Inhalation: Anesthetic, irritation of the respiratory tract or acute nervous system depression characterized by the following progressive steps; headache, dizziness, staggering gait, confusion, unconsciousness, or coma. Skin or eye contact: Primary irritant.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE: Reports have associated repeated and prolonged occupation overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

PRIMARY ROUTE(S) OF ENTRY:

DERMAL ☒	INHALATION ☒	INGESTION ☒

EMERGENCY AND FIRST AID PROCEDURES: Inhalation: Remove to fresh air. Restore breathing. Treat symptomatically. Consult a physician. Splash (eyes): Flush immediately with large amounts of water for at least 15 minutes. Take to physician for medical treatment. Splash (skin): Wash affected areas with soap and water. Remove contaminated clothing. Consult a physician if irritation persists. Ingestion: Drink 1 or 2 glasses of water to dilute. Do not induce vomiting. Consult physician or poison control center immediately. Treat symptomatically.

SECTION VI - REACTIVITY DATA

STABILITY:	UNSTABLE ☐	STABLE ☒
HAZARDOUS POLYMERIZATION:	MAY OCCUR ☐	WILL NOT OCCUR ☒

HAZARDOUS DECOMPOSITION PRODUCTS: May produce fumes when heated to decomposition, as in welding or fire. Fumes may contain: carbon monoxide, carbon dioxide, hydrocarbons and other products of combustion.

CONDITIONS TO AVOID: High temperatures or high humidities. Heat, sparks or open flame.

INCOMPATIBILITY: (MATERIALS TO AVOID) Peroxides or strong oxidizing agents.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Limit spread of spill or leak. Remove all sources of ignition. Soak up with inert absorbent material. Use non-sparking tools when removing wet absorbent. See Section VIII for required protective measures. Keep material out of sewers and/or drains.

WASTE DISPOSAL METHOD: Dispose of in accordance with all local, state and federal regulations. Dry primer and empty containers may be landfilled. Full or partially full containers should be treated as hazardous waste which requires disposal at an approved hazardous waste site or incinerator.

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RECEIVED

MAF SPRAY REDUCER 3-27-87

MAR 21 1988

HEALTH SERVICES DEPT

INFORMATION PHONE

(312) [illegible]

710-623851

SECTION I - PRODUCT IDENTIFICATION

P45-253

F24 mix liquid

[illegible]DUCT NUMBER : 45-203 HMIS : [illegible]

[illegible]DUCT NAME : MAF SPRAY REDUCER Mathews PREPARATION DATE: [illegible]

[illegible]MICAL NAME : ORGANIC COATING

[illegible]MICAL FAMILY : PAINT

SECTION II - HAZARDOUS INGREDIENTS

[illegible]REDIENT DESCRIPTION	CAS NUMBER	WEIGHT PERCENT	TLV	PEL
[illegible]LUOL NIOSH PAGE 226(2)	108-88-3	10.04	100.00 PPM	100.00 PPM
[illegible]HYL ETHYL KETONE NIOSH PAGE 60(4)	78-93-3	40.17	200.00 PPM	200.00 PPM
[illegible]BUTYL ACETATE NIOSH PAGE 142(3)	110-19-0	10.04	150.00 PPM	150.00 PPM
[illegible]PYLENE GLYCOL M.E. ACETATE [illegible] NIOSH REF.	108-65-6	39.74	N/EST.	N/EST.

SECTION III - PHYSICAL DATA

[illegible] RANGE : [illegible] TO [illegible] (DEG F) VAPOR DENSITY : HEAVIER [illegible]

[illegible]ORATION RATE: SLOWER THAN ETHER % VOLATILE VOLUME : [illegible]

[illegible] % NON-VOLATILE [illegible] :

: 7.307 [illegible] % NON-VOLATILE [illegible] :

[SPE]CIFIC GRAVITY = .876

[illegible]EARANCE : CLEAR LIQUID

[ODO]R : TYPICAL SOLVENT ODOR

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CLASSIFICATION ... PAINT RELATED MAT'L FLAM. LIQ.

... POINT: 23 (deg F) ... LEL: 1.20 ... UEL: ...

SPECIAL FIRE FIGHTING PROCEDURES

Foam, CO2, or dry chemical. Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed container to prevent pressure build up, explosion, or possible auto ignition when exposed to extreme heat.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Should be stored in tightly closed containers away from electrical equipment, sparks and open flame. Closed containers may explode when exposed to extreme heat. During emergency conditions, overexposure to decomposition products may be a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SECTION V - HEALTH HAZARD DATA

TARGET ORGANS/SYSTEMS WHICH MAY BE AFFECTED:

skin, eyes, respiratory system, central nervous system, gastro-intestinal system

EFFECTS OF OVEREXPOSURE:

ACUTE OVEREXPOSURE MAY LEAD TO THE FOLLOWING INDICATIONS/CONDITIONS:

CONTACT:

irritates eyes, irritates skin

INHALATION:

irritates nose and throat, dizziness, drowsiness, loss of coordination, fatigue, irritates respiratory system, irritates gastro-intestinal system

INGESTION:

irritates respiratory system, dizziness, drowsiness, loss of coordination, fatigue, irritates gastro-intestinal ... irritates nose and throat, lung damage/inflammation

ABSORPTION:

...

CHRONIC OVEREXPOSURE MAY LEAD TO THE FOLLOWING INDICATIONS/CONDITIONS:

... asthma

WARNING: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

(X) DERMAL (X) INHALATION

FIRST AID PROCEDURES:
Remove to fresh air and treat symptomatically, flush skin or eyes with water.
Call physician if ingested. DO NOT induce vomiting.

SECTION VI - REACTIVITY DATA

STABILITY : STABLE

CONDITIONS TO AVOID:
Heat, sparks, open flame and fire and open containers.

MATERIALS TO AVOID:
Strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS:
Normal decomposition may yield oxides of carbon.

HAZARDOUS POLYMERIZATION:
Will not occur.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Remove all sources of ignition (flame, hot surfaces, electrical, static or frictional sparks). Avoid breathing vapors. Ventilate area. Contain and remove with inert absorbent and non-sparking tools.

WASTE DISPOSAL METHOD:
Dispose in accordance with local, state and federal regulations. Incinerate in approved facility. Do not incinerate closed containers.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
Use appropriate, properly fitted respirator (NIOSH MSHA approved) during and after application, and until all fumes and mists have been removed. Follow respirator manufacturer's directions for respirator use.

VENTILATION:
Local exhaust ventilation is recommended to control concentrations within OSHA limitations for methyl cellosolve and solvents.

PROTECTIVE GLOVES:
Impermeable gloves.

EYE PROTECTION:
Chemical goggles or face shield.

OTHER PROTECTIVE EQUIPMENT:
Impermeable apron, safety shoes, eye wash fountain.

SPECIAL PRECAUTIONS

HANDLING AND STORING.

Always keep containers closed when not in use. Always provide adequate ventilation. DO NOT use near flames or sparks. Avoid prolonged skin contact and breathing of vapor/mist. Ground all containers when pouring.

FOR INDUSTRIAL USE ONLY

The information contained herein is furnished without warranty of any kind. Employers should consider these data only as supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.

45-211

MANUFACTURER:
MATTHEWS PAINT COMPANY
400 SOUTH MERCANTILE COURT
WHEELING, ILLINOIS 60090

MAR 21 1988
HEALTH SERVICES DEPT.

EMERGENCY PHONE:
1-800-424-9300
MAP BRUSHING REDUCER 3-27-87
INFORMATION PHONE:
(312)/537-9200

F14 mix liquid

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER : 45-211
PRODUCT NAME : MAP BRUSHING REDUCER
HMIS : H2F2B1P
PREPARATION DATE: 03/27/8

CHEMICAL NAME : ORGANIC COATING
CHEMICAL FAMILY : PAINT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT DESCRIPTION	CAS NUMBER	WEIGHT PERCENT	TLV	PEL
PROPYLENE GLYCOL M.E. ACETATE	108-65-6	100.00	N/EST.	N/EST.
NO NIOSH REF.				

SECTION III - PHYSICAL DATA

BOILING RANGE : 302 TO 302 (deg F)
VAPORATION RATE: SLOWER THAN ETHER
WEIGHT PER GALLON: 8.060
VOC : 8.060 (lb/gl)

VAPOR DENSITY : HEAVIER THAN AIR
% VOLATILE VOLUME : 100.000
% NON-VOLATILE (WGT) : .000
% NON-VOLATILE (VOL) : .000

APPEARANCE : CLEAR LIQUID
ODOR : TYPICAL SOLVENT ODOR

SPECIFIC GRAVITY= .965

CONFIDENTIAL TRADE SECRET

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: NAILED PAINT RELATED MAT'L COMP. LTD.

FLASH POINT: 114 (deg F) TCC LEL: 1.00 UEL: 13.1

SPECIAL FIRE FIGHTING PROCEDURES
Foam, CO2N. or dry chemical. Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build up, explosion, or possible auto ignition when exposed to extreme heat.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Should be stored in tightly closed containers away from heat, electrical equipment, sparks and open flame. Closed containers may explode when exposed to extreme heat. During emergency conditions, overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SECTION V - HEALTH HAZARD DATA

TARGET ORGANS/SYSTEMS WHICH MAY BE AFFECTED:
skin, eyes, respiratory system, central nervous system, gastro-intestinal system

EFFECTS OF OVEREXPOSURE:
ACUTE OVEREXPOSURE MAY LEAD TO THE FOLLOWING INDICATIONS/CONDITIONS:
CONTACT:
irritates eyes, irritates skin
INHALATION:
irritates nose and throat, dizziness, drowsiness, loss of coordination, fatigue
INGESTION:
irritates respiratory system, dizziness, drowsiness, loss of coordination, fatigue
ABSORBTION:
None Known
CHRONIC OVEREXPOSURE MAY LEAD TO THE FOLLOWING INDICATIONS/CONDITIONS:
dermatitis, asthma

WARNING: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

SECTION V (CONT) - HEALTH HAZARD DATA

PRIMARY ROUTE(S) OF ENTRY: [X] DERMAL [X] INHALATION [X] INGESTION

EMERGENCY FIRST AID PROCEDURES:
Remove to fresh air and treat symptomatically, flush skin or eyes with water.
Call physician if ingested. DO NOT induce vomiting

SECTION VI - REACTIVITY DATA

STABILITY : STABLE
CONDITIONS TO AVOID:
Heat, sparks, open flame and fire and open containers.
MATERIALS TO AVOID:
Strong oxidizing agents.
HAZARDOUS DECOMPOSITION PRODUCTS:
Normal decomposition may yield oxides of carbon.
HAZARDOUS POLYMERIZATION:
Will not occur.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Remove all sources of ignition (flame, hot surfaces, electrical, static or frictional sparks). Avoid breathing vapors. Ventilate area. Contain and remove with inert absorbent and non-sparking tools.
WASTE DISPOSAL METHOD:
Dispose in accordance with local, state and federal regulations. Incinerate in approved facility. Do not incinerate closed containers.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
Wear appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application, and until all fumes and mists have been removed. Follow respirator manufacturer's directions for respirator use.
VENTILATION:
Local exhaust ventilation is recommended to control exposures to within OSHA limitations for lead, chromates and solvents.
PROTECTIVE GLOVES:
Impervious gloves.
EYE PROTECTION:
Chemical goggles or face shield.
OTHER PROTECTIVE EQUIPMENT:
Impervious apron,safety shoes, eye wash facility, emergency shower.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
Always keep containers closed when not in use. Always provide adequate ventilation. DO NOT use near flames or sparks. Avoid prolonged skin contact and breathing of vapor mist. Ground all containers when pouring.

FOR INDUSTRIAL USE ONLY

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MANUFACTURER:
MATTHEWS PAINT COMPANY
400 SOUTH MERCANTILE COURT
WHEELING, ILLINOIS 60090

EMERGENCY PHONE:
1-800-424-9300

INFORMATION PHONE:
(312)537-9200

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER : 45-070 HMIS : MATERIAL
PRODUCT NAME : MAP UNIVEREAL CATALYST

CHEMICAL NAME : ORGANIC COATING
CHEMICAL FAMILY : PAINT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT DESCRIPTION	CAS NUMBER	WEIGHT PERCENT	TLV	VAPOR PRESSURE
DIPHENYLMETHANE DIISOCYANATE	[illegible]	36.1	10 ppb	7.50
[illegible]E	1330-20-7	5.4	100 ppm	9.50
[illegible]OL	108-95-2	27.7	200 ppm	22.00
BUTYL ETHYL KETONE	76-93-3	15.2	200 ppm	75.00
[illegible]TATE SOLVENT	123-86-4	5.4	5 ppm	.09

THE -DI FREE MONOMER CONTENT MAY RISE TO A MAXIMUM OF 0.50% DURING STORAGE.

SECTION III - PHYSICAL DATA

BOILING RANGE : 175 TO 367 (deg F) VAPOR DENSITY : HEAVIER THAN AIR
EVAPORATION RATE: SLOWER THAN ETHER % VOLATILE VOLUME : 70.357
WEIGHT PER GALLON: 7.822 % NON-VOLATILE (WGT) : 36.147
VOC : 5.245 (lb/gl) % NON-VOLATILE (VOL) : 29.643

APPEARANCE : CLEAR LIQUID
ODOR : TYPICAL SOLVENT ODOR

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TRADE SECRET

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: UN1263 PAINT ENAMEL FLAMMABLE LQD.

FLASH POINT: 23 (deg F) TCC LEL: .88 UEL: 11.50

SPECIAL FIRE FIGHTING PROCEDURES / UNUSUAL FIRE OR EXPLOSION HAZARDS:
Full emergency equipment with self-contained breathing apparatus should be worn. During a fire irritating and highly toxic gases (See Reactivity Data) and smoke are present form the decomposition / combustion products. Isolate form heat, electrical equipment, sparks, and open flame. Closed container may explode when exposed to extreme heat or burst when contaminated with water (CO2 evolved). Solvent vapors may be heavier than air. Under conditions of stagnant air, vapors may build up and travel along the ground to an ignition source which may result in a flash back to the source of vapors.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:
To vapor and / or mist: Can cause irritation to skin, eyes, respiratory tact (nose, throat, lungs). Symptoms may be watering of eyes, dryness of throat, coughing, headache, tightness in chest or burning sensation. Allergic skin or respiratory reaction may occur in some individuals. Respiratory sensitivity results in asthmatic like symptoms on subsequent exposure even below the TLV. Skin sensitivity results in allergic dermatitis which may include rash, itching, hives and swelling of extremities. Headache, dizziness or nausea may be experienced by some as a result of exposure to solvents.

EMERGENCY & FIRST AID PROCEDURES:
EYE CONTACT.....Flush with clean lukewarm water (low pressure) at least 15 minutes, occasionally lifting eye lids. Consult physician.
SKIN CONTACT.....Remove contaminated clothing. Wash affected areas thoroughly with soap and water. Wash contaminated clothing thoroughly before reuse.
INHALATION.....Move to an area free from risk of futher exposure. Administer oxygen or artifical respiration as needed. Obtain medical attention.
INGESTION..... Consult physician.

SECTION VI - REACTIVITY DATA

ILITY:
Stable under normal conditions.

OLYMERIZATION
None under normal conditions.

ONDITIONS TO AVOID
Contact with moisture and other materials which react with isocyanates. Temperatures above maximum storage temperature.

NCOMPATIBILITY
(MATERIALS TO AVOID): Contact with moisture and other materials strong bases, metal compounds or surface active materials.

AZARDOUS DECOMPOSITION PRODUCTS:
By fire: CO2, CO, oxides of nitrogen, traces of HCN, HCl .

SECTION VII - SPILL OR LEAK PROCEDURES

EPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Evacuate nonessential personnel. Remove all sources of ignition. Ventilate the area. Equip clean-up crew with appropriate protective equipment (See Employee Protection Recommendations). Dike or impound spilled material and control futher spillage if feasible. Notify appropriate authorities if necessary. Cover spill with sawdust, vermiculite, Fuller's earth or other absorbent material; pour liquid decontaminant over spillage -- allow to react at least 10 minutes. collect material in open containers -- add futher amounts of decontamination solution. Remove containers to safe place -- cover LOOSELY. Wash down area with liquid decontaminant and flush spill area with water. Decontamination solutions: Ammonium hydroxide (0-10%) detergent (2-5%) and balance water; or solution of Union Carbide's Tergitol TMN-10 (20%) and water (80%).

TE DISPOSAL METHOD:
Waste material must be disposed of in accordance with federal, state and local environmental control regulations. Empty containers must be handled with care due to product residue and combustible solvent vapor. Decontaminate containers prior to disposal.

SECTION VIII - SPECIAL PROTECTION INFORMATION

PROTECTION: Safety glasses, splash goggles or face shield. Contact lenses should not be worn.

SKIN PROTECTION: Chemical resistant gloves. Cover as much of the exposed skin area as possible with appropriate clothing. If skin creams are used, keep the area protected only by the cream to a minimum.

RESPIRATORY PROTECTION: Use respirator that is recommended or approved for use in isocyanate containing environments (air purifying or fresh air supplied). Consider type of application and environmental concentrations. In spray application you must protect against exposure to both vapor and spray mist. Observe OSHA regulations for respirator use (29 CFR 1910.134). When airborne isocyanate monomer concentrations are known to be below 0.2 ppm and if the polyisocyanate (polymeric, oligomer) concentrations are known to be below 10 mg/m3, a properly fitted air-purifying (combination organic vapor and particulate) respirator, proven by test to be effective in isocyanate-containing spray aerosol environments, will provide sufficient protection. When airborne isocyanate concentration are not known, or if either of the above guidelines is exceeded, or if spraying is performed in a confined space or area with limited ventilation, the use of a positive pressure supplied air respirator is mandatory.

VENTILATION: Ventilation as required to maintain air concentrations below TLV. If material is spray-applied, ventilation should be provided and a respirator worn. Exhaust air may need to be cleansed by scrubbers or filters to reduce environmental contamination.

OTHER: Safety showers and eyewash stations should be available. EDUCATE and TRAIN employees in safe use of product. Follow all label instructions.

SECTION XI - SPECIAL PRECAUTIONS

TORAGE TEMPERATURE:
(MIN/MAX).....: 32 F (0 C) / 122 F (20 C)
ECIAL SENSITIVITY:
(HEAT, LIGHT, MOISTURE): If container of material is exposed to heat, container can pressurize and burst. If moisture enters container, pressure can build due to reaction producing CO2 which can cause sealed container to pressurize and burst. Do not reseal if contamination is suspected.
CAUTIONS TO BE TAKEN:
IN HANDLING AND STORING: Keep away form heat, sparks and open flame. Store in tightly closed container and protect from moisture and foreign materials. At maximum temperatures noted, material may slowly polymerize without hazard. Some MAP colors contain lead. MAP also contains ester solvents. Breathing of these solvents is hazardous and should be avoided. Always keep containers closed when not in use. IMPORTANT: When mixed, MAP will have hazards of all components. Observe all applicable label warnings.

The information contained herein furnished without warranty of any kind. Users should consider these data only as suplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customer.

SECTION III-PHYSICAL DATA

Boiling Point	for COMPONENT(27%)	133.00 Deg F (56.11 Deg C) @ 760.00 mm Hg
Vapor Pressure	for COMPONENT(27%)	181.70 mm Hg @ 68.00 Deg F (20.00 Deg C)
Specific Vapor Density		HEAVIER THAN AIR
Specific Gravity		LESS THAN WATER
Percent Volatiles		100.00%
Evaporation Rate		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT < 73 Deg F (< 23 Deg C)

EXPLOSIVE LIMIT (LOWEST VALUE OF COMPONENT) LOWER - 1.0%

EXTINGUISHING MEDIA: REGULAR FOAM OR WATER FOG OR CARBON DIOXIDE OR DRY CHEMICAL

HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.

FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WHEN FIGHTING FIRES.

SPECIAL FIRE & EXPLOSION HAZARDS: VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.

NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL: NOT ESTABLISHED FOR PRODUCT. SEE SECTION II.

EFFECTS OF ACUTE OVEREXPOSURE:

EYES - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.
SKIN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE AND POSSIBLE UNCONSCIOUSNESS, AND EVEN DEATH.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. ASPIRATION OF MATERIAL INTO THE LUNGS CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

FIRST AID:

IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE.

IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY, GET MEDICAL ATTENTION.

IF SWALLOWED: DO NOT INDUCE VOMITING; KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION. ASPIRATION OF MATERIAL INTO THE LUNGS DUE TO VOMITING CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION, SKIN CONTACT

EFFECTS OF CHRONIC OVEREXPOSURE:

MINOR EMBRYOTOXIC/FETOTOXIC EFFECTS HAVE BEEN OBSERVED IN LABORATORY RATS EXPOSED TO METHYL ETHYL KETONE BY INHALATION AT LEVELS GREATER THAN 1000 PPM (5 TIMES THE OSHA-PEL/TWA) FOR MOST OF THE GESTATION PERIOD. METHYL ETHYL KETONE MAY POTENTIATE (SHORTEN THE TIME OF ONSET) PERIPHERAL NEUROPATHY CAUSED BY METHYL N-BUTYL KETONE OR N-HEXANE. METHYL ETHYL KETONE BY ITSELF HAS NOT BEEN SHOWN TO CAUSE PERIPHERAL NEUROPATHY.

OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS APPARENTLY BEEN FOUND TO CAUSE THE FOLLOWING EFFECTS IN LABORATORY ANIMALS:, KIDNEY DAMAGE, EYE DAMAGE, LIVER ABNORMALITIES, BRAIN DAMAGE, ANEMIA, LUNG DAMAGE, SPLEEN DAMAGE

OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS BEEN SUGGESTED AS A CAUSE OF THE FOLLOWING EFFECTS IN HUMANS:, KIDNEY DAMAGE, CARDIAC ABNORMALITY, LIVER ABNORMALITIES

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR

STABILITY: STABLE

INCOMPATIBILITY: AVOID CONTACT WITH:, STRONG OXIDIZING AGENTS.

MATERIAL SAFETY DATA SHEET

Manufacturer's Name:

Masterchem Industries, Inc.
P.O. Box 368
3135 Highway K
Bernhart, MO 63012

Transportation Emergiencies:
Call Chemtrec
1-800-424-9300
Emergency Telephone No.
1-800-325-3552
Medical Emergencies:
1-314-426-4227

NFCA HAZARDOUS MATERIALS IDENTIFICATION SYSTEM	
RATING	IDENTIFICATION
4=EXTREME	HEALTH 1
3=HIGH	FLAMMABILITY 2
2=MODERATE	REACTIVITY 0
1=SLIGHT	CHRONIC HEALTH See Section V
0=MINIMAL	

Section I - Product Identification

PRODUCT NAME: Kilz
PRODUCT NUMBER: 51652-10001-3
PRODUCT CLASS: ALKYD RESIN PRIMER

SECTION II A-HAZARDOUS INGREDIENTS

CAS REGISTRY NO.	%W	CHEMICAL NAME(S)	OCCUPATIONAL EXPOSURE LIMITS		VAPOR PRESSURE	LISTED AS A CARCINOGEN
			TLV	PEL		
64742-88-7	14.64	Mineral Spirits (Aliphatic Hydrocarbon)	100 ppm	100 ppm	20 mm Hg @ 20°F	No
64742-89-8	21.45	VM & P Naptha (Aliphatic Hydrocarbon)	300 ppm	300 ppm	15.0 mm Hg @ 37.7°F	No

SECTION II B - OTHER INGREDIENTS

68554-99-4	15-25	Alkyd Resin				No
14807-96-6	20-30	Magnesium Silicate				No
13463-67-7	10-20	Titenium Dioxide				No

SECTION III - PHYSICAL DATA

APPEARANCE: White, Low Viscosity Liquid	ODOR: Characteristic Hydrocarbon
BOILING RANGE: 240 375° F	VAPOR DENSITY: ☒ HEAVIER ☒ LIGHTER THAN AIR
EVAPORATION RATE: ☐ FASTER ☒ SLOWER THAN ETHER	62% VOLATILE VOLUME: 10.15 POUNDS WT/GAL

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SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: OSHA 1B	FLASH POINT: 80°F PMCC	LEL: 0.9	DOT: Flammable Liquid UN 1263		
EXTINGUISHING MEDIA:					
DRY CHEMICAL ☒	ALCOHOL FOAM ☐	WATER FOG ☐	FOAM ☒	CO_2 ☒	OTHER ☐

UNUSUAL FIRE AND EXPLOSION HAZARDS: Isolate from heat, electrical equipment, sparks and open flame. Closed containers may explode when exposed to extreme heat. During emergency conditions, overexposure to combustion products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention. Vapors may be ignited by static electricity or friction sparks.

SPECIAL FIREFIGHTING PROCEDURES: Full protective equipment, including self-contained breathing apparatus, should be used to protect firefighters from any hazardous combustion products.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE: Inhalation: Anesthetic, irritation of the respiratory tract or acute nervous system depression characterized by the following progressive steps; headache, dizziness, staggering gait, confusion, unconsciousness, or coma. Skin or eye contact: Primary irritant.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE: Reports have associated repeated and prolonged occupation overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

PRIMARY ROUTE(S) OF ENTRY:

DERMAL ☒	INHALATION ☒	INGESTION ☒

EMERGENCY AND FIRST AID PROCEDURES: Inhalation: Remove to fresh air. Restore breathing. Treat symptomatically. Consult a physician. Splash (eyes): Flush immediately with large amounts of water for at least 15 minutes. Take to physician for medical treatment. Splash (skin): Wash affected areas with soap and water. Remove contaminated clothing. Consult a physician if irritation persists. Ingestion: Drink 1 or 2 glasses of water to dilute. Do not induce vomiting. Consult physician or poison control center immediately. Treat symptomatically.

SECTION VI - REACTIVITY DATA

STABILITY:	UNSTABLE ☐	STABLE ☒
HAZARDOUS POLYMERIZATION:	MAY OCCUR ☐	WILL NOT OCCUR ☒

HAZARDOUS DECOMPOSITION PRODUCTS: May produce fumes when heated to decomposition, as in welding or fire. Fumes may contain: carbon monoxide, carbon dioxide, hydrocarbons and other products of combustion.

CONDITIONS TO AVOID: High temperatures or high humidities. Heat, sparks or open flame.

INCOMPATIBILITY: (MATERIALS TO AVOID) Peroxides or strong oxidizing agents.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Limit spread of spill or leak. Remove all sources of ignition. Soak up with inert absorbent material. Use non-sparking tools when removing wet absorbent. See Section VIII for required protective measures. Keep material out of sewers and/or drains.

WASTE DISPOSAL METHOD: Dispose of in accordance with all local, state and federal regulations. Dry primer and empty containers may be landfilled. Full or partially full containers should be treated as hazardous waste which requires disposal at an approved hazardous waste site or incinerator.

KILZ

SECTION VIII-SAFE HANDLING AND USE INFORMATION

RESPIRATORY PROTECTION: If you experience eye watering, headaches or dizziness, increase fresh air or wear respiratory protection (NIOSH/MSHA TC 23C or Equivalent) or leave the area.

VENTILATION: Ventilation of sufficient volume and pattern should be provided to keep air contaminant concentrations below occupational exposure limits as show in Section II.

PROTECTIVE GLOVES: Required, rubber or neoprene to prevent skin contact.

EYE PROTECTION: Use safety eyewear including slash guards or side shields.

OTHER PROTECTIVE EQUIPMENT: Wear protective clothing. Remove and wash contaminated clothing before re-use.

HYGIENIC PRACTICES: Wash hands before eating or using the washroom. Smoke in smoking areas only.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store away from extreme heat, fire, or open flame. Store in accordance with OSHA 1910.106. Store in well ventilated areas.

OTHER PRECAUTIONS: **DO NOT TAKE INTERNALLY.** Avoid prolonged contact with skin. Keep closure tight and container upright to prevent leakage. Do not store near heat, sparks, or open flame. Drums of this material should be grounded and bonded when pouring. Containers must not be washed out or used for other purposes. Avoid contact with or breathing of vapors released during curing process. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.

PREPARED BY: Wm. R. Benton	DATE PREPARED: March 1, 1993
NAME AND TITLE: W.R. Benton, MSDS Coordinator	SUPERSEDES: August 27, 1990

MATERIAL SAFETY DATA SHEET

DATE: 07/22/91 (001)

SECTION I

SUPERCEDES: 07/17/89

MANUFACTURER'S NAME & ADDRESS:
Devoe & Raynolds Co.
4000 DuPont Circle
Louisville, KY 40207

PRODUCT NAME:
Paint Thinner - Mineral Spirits
[Plastic Container]

PRODUCT CATALOG NUMBER:
17000

PRODUCT CLASS:
Solvent/Thinner

GENERAL MSDS INFORMATION: (502) 589-9348
EMERGENCY ASSISTANCE: Devoe (502) 589-9340 (M-F 8AM-4:30PM Eastern)
Medical Emergency: Call Collect (303) 623-5716 (24 Hrs.) | Transportation Emergency: Chemtrec (800) 424-9300 (24 Hrs

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS:	CAS NO.:	Percent WT.	Hazardous a b c	ACGIH TLV PPM	ACGIH TLV mg/M3	OSHA PEL PPM	OSHA PEL mg/M3	LEL	Vapor Pressure*
MINERAL SPIRITS	64742-88-7	100		100	525	100	525	1.0	2.8 @68 °F

J Hazardous according to: a-SARA 302/304, b-SARA 313, c-CERCLA 103(a) *Vapor Pressure = mm Hg NA = Not Available

SECTION III - PHYSICAL DATA

VAPOR DENSITY: (X)Heavier ( )Lighter than Air
EVAPORATION RATE: ( )Faster (X)Slower than Ether
BOILING RANGE: 300 - 390 °F
PERCENT VOLATILE BY VOLUME: 100
POUNDS PER GALLON: 6.45
VOC: 6.45 Lbs/Gal (- Water)

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION:
OSHA 29 CFR - 1910.106(a)
Parts 18-19
Combustible Liquid - Class II Combustible (FHSA)
FLASH POINT: 102 °F Setaflash
LEL: See Section II

EXTINGUISHING MEDIA: In case of fire, use CO2, Dry Chemical, Foam or other National Fire Protection Association (NFPA) appro method for treating a Class B Fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Keep containers tightly closed. Isolate from heat and flame. Due to pressure build-up, closed containers exposed to extreme heat may explode. Never use a welding or cutting torch on or near container (ev empty) as product or its residue may ignite. During emergency conditions, overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES: Summon professional firefighters. Use full protective equipment including self-contained breathing apparatus. Water spray may be ineffective. If water is used, fog nozzles are preferable. If exposed to fire or extreme heat, water should be used to cool closed containers and prevent pressure build-up or possible auto-ignition.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE See Section II

EFFECTS OF OVEREXPOSURE:

ACUTE- Breathing: Irritation of the respiratory tract; may affect the brain or nervous system causing dizziness, headache, nausea, weakness and fatigue. Extreme exposure can result in unconsciousness and even respiratory arrest.
Eye or Skin Contact: Causes eye and skin irritation.
HARMFUL OR FATAL IF SWALLOWED. Can cause stomach and/or intestinal irritation, nausea, vomiting and diarrhea. Aspiration of vomitus can cause chemical pneumonitis, which can be fatal.

CHRONIC- Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervo system damage. Prolonged and repeated breathing of spray mist and/or sanding dust over a period of years may cause disease of the lungs.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE: None when used in accordance with Safe Handling and Use Information, (S Section VIII).

PRIMARY ROUTE(S) OF ENTRY: ( )SKIN (X)BREATHING (X)SWALLOWING

EMERGENCY AND FIRST AID PROCEDURES:

IF BREATHED : If you experience difficulty in breathing, leave the area to obtain fresh air. If continued difficulty experienced, summon medical assistance immediately. If breathing ceases, restore using approved CPR techniques and summon medical assistance immediately.

IF IN EYES : In case of eye contact, flush with large amounts of water for at least 15 minutes. Get medical assistanc

IF ON SKIN : In case of skin contact, wash area thoroughly with soap and water. Remove soiled clothing. Get medical assistance if irritation persists.

IF SWALLOWED: DO NOT INDUCE VOMITING. Consult physician immediately. Aspiration of vomitus can cause chemical pneumoni which can be fatal.

WARNING: Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

SECTION VI - REACTIVITY DATA

STABILITY: ( )UNSTABLE (X)STABLE

INCOMPATABILITY: Avoid contact with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: May cause hazardous fumes when heated to decomposition. Fumes may contain carbon monoxid

STABILITY: ( )UNSTABLE (X)STABLE
INCOMPATABILITY: Avoid contact with strong oxidizing agents.
HAZARDOUS DECOMPOSITION PRODUCTS: May cause hazardous fumes when heated to decomposition. Fumes may contain carbon monoxide, carbon dioxide and oxides of metals listed in Section II.
HAZARDOUS POLYMERIZATION: ( )MAY OCCUR (X)WILL NOT OCCUR

Continued on Next Page

SECTION VII - SPILL OR LEAK PROCEDURES 17000

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Remove all sources of ignition (heat, flame). Do not smoke. Avoid breathing vapors. Before attempting clean-up refer to hazard caution information in other sections of this material safety data form. Ventilate area. Contain spilled material and remove with inert absorbent and non-sparking tools. Store in closed containers until properly disposed of.
WASTE DISPOSAL METHOD: Dispose of in accordance with local, state and federal regulations. Incinerate only in approved facility. Do not incinerate closed containers.

SECTION VIII - SAFE HANDLING AND USE INFORMATION

RESPIRATORY PROTECTION: Do not breathe vapors, spray mist or sanding dust. When spray applied in outdoor or open areas with unrestricted ventilation, and during sanding or grinding operations, use NIOSH/MSHA approved mechanical filter respirator to remove solid airborne particles of overspray and sanding dust. When used in restricted areas, wear NIOSH/MSHA approved chemical/mechanical filters designed to remove a combination of particulates and vapor. When used in confined areas, wear NIOSH/MSHA approved air supply respirators or hoods. Use NIOSH/MSHA approved respirators when flame cutting, welding, brazing and sanding material coated with this product. Follow respirator manufacturer's directions for respirator use.
VENTILATION: Use only with adequate ventilation. Provide general dilution or local exhaust ventilation in volume and pattern to keep air contaminant concentration below current applicable safety and health standards in the mixing, application and curing areas, and to remove sanding dusts of dried coating and decomposition product during welding and flame cutting on surfaces coated with this product. Heavy solvent vapors should be removed from lower levels of the work area and all ignition sources should be eliminated.
PROTECTIVE GLOVES: Do not get on skin. Solvent impermeable gloves to prevent contact are recommended.
EYE PROTECTION: Do not get in eyes. Solvent resistant safety eyewear with splash guards or sideshields is recommended to prevent contact.
OTHER PROTECTIVE EQUIPMENT: Do not get on skin. Solvent impermeable clothing and boots to prevent contact are recommended.
HYGIENIC PRACTICES: Remove and wash soiled clothing before reuse. Wash hands before eating, smoking or using the washroom.

SECTION IX - OTHER PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Keep away from heat and flame. Do not smoke. Prevent build-up of vapors by maintaining continuous flow of fresh air.
Do not store above 120°F or near fire or open flame. Store large quantities in buildings designed to comply with OSHA 1910.106. Keep container closed when not in use. Do not transfer contents to bottles or other unlabelled containers.
Do not reuse empty containers.
Keep out of reach of children.
WARNING: This product may contain a chemical known to the state of California to cause cancer, birth defects or other reproductive harm.

Caution No. 416 Caution Code 05-04- HMIS Rating: H 1* F 2 R 0 NFPA Rating: H 1 F 2 R 0

ATTN: Chris Dolin

MATERIAL SAFETY DATA SHEET NFPA 1-82

FOR COATINGS, RESINS, AND RELATED MATERIALS

REPLACES NPCA 1-82

9010-623758

9010-623758

MANUFACTURER'S NAME WILLIAM ZINSSER & CO., INC.
39 Belmont Drive
Somerset, N.J. 08873

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DEC 19 1988
HEALTH SERVICES DEPT.

EMERGENCY TELEPHONE NO.
(201) 469-8100

DATE OF PREPARATION 1/8/87

INFORMATION TELEPHONE NO.
Same as above

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER

PRODUCT NAME 3# CUT WHITE OR ORANGE BULLS EYE SHELLAC SOLUTION

PRODUCT CLASS Shellac Solution

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS No.	PERCENT	OCCUPATIONAL EXPOSURE LIMITS TLV	PEL	VAPOR PRESSURE mm Hg @ 68°F
Ethyl Alcohol	64-17-5	50-60	1000 ppm	1000 ppm	53
Isopropyl Alcohol	67-63-0	<10	400 ppm	400 ppm	33
Methyl Alcohol	67-56-1	< 4	200 ppm	200 ppm	100

F P R AH CH
Y N N Y Y

f14
mix liquid

SECTION III - PHYSICAL DATA

BOILING RANGE 173°F (Ethyl Alcohol) VAPOR DENSITY X HEAVIER LIGHTER THAN AIR

EVAPORATION RATE FASTER X SLOWER THAN ETHER % VOLATILE VOLUME 77

LB/GAL 7.52 lbs.

Beige or orange liquid with alcohol odor.

Sp. Gr 0.90

SECTION VII - SPILL OR LEAK PROCEDURES

S. S TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Provide adequate ventilation or use respiratory protection in confined area. Clean area with absorbent material, sand or rags.

ASTE DISPOSAL METHOD Dried shellac can be disposed of in trash.
Dispose of solution in accordance with local, state or federal regulations.

SECTION VIII - SAFE HANDLING AND USE INFORMATION

SPIRATORY PROTECTION None required in well ventilated areas. In confined areas where high vapor concentrations are expected, use NIOSH/MSHA approved respiratory protection in accordance with 29CFR 1910.134.

NTILATION Use explosion-proof exhaust system suitable to maintain concentration of vapors in workplace atmosphere below TLV/PEL's (Sec. II). Exhaust vapors should be vented to non-explosive area.

ROTECTIVE GLOVES For prolonged contact.

E PROTECTION - Safety Glasses.

HER PROTECTIVE EQUIPMENT Clothing adequate to protect skin.

GIENIC PRACTICES: Wash hands after using.

SECTION IX - SPECIAL PRECAUTIONS

CAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in a cool place away from high heat, open flames, sparks and oxidizing agents. Use only with adequate ventilation. Avoid prolonged breathing of vapor or spray mist and prolonged contact with skin. Do not take internally.

ER PRECAUTIONS Keep out of direct sunlight. Keep container closed. Drum should be grounded and bonded when pouring.

IS Rating:		
	Health	1
	Flammability	3
	Reactivity	0

PPE is dependent on the condition of use. Use PPE sufficient to prevent prolonged skin and eye contact and the inhalation of vapors in poorly ventilated or confined areas where high concentrations of vapors are likely to occur.

NONE OF THE CHEMICAL SUBSTANCES IN THIS PRODUCT IS LISTED AS A POTENTIAL CARCINOGEN EITHER THE NTP THIRD ANNUAL REPORT ON CARCINOGENS OR THE IARC MONOGRAPHS OR BY OSHA.

MATERIAL SAFETY DATA SHEET

P O BOX 22?5, COLUMBUS ...

MAR 24 1988

24-HOUR EMERGENCY TELEPHONE (606) 324-1133

Best Available Copy

003278

HEALTH SERVICES DEPT

USA DA-9 DENATURED ALCOHOL

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

PRODUCT NAME: ETHANOL SPEC IND. PDP +085
CAS NUMBER: IG LIST

SPATZ PAINT, INC.
DBA UNITED SOLVENTS OF AMERIC
3756 SILVER STAR ROAD
ORLANDO FL 32808

DS 50 093 8314350-
DATA SHEET NO: 0001436-002
LATEST REVISION DATE: 03/86-86063
PRODUCT: 7030800
INVOICE: 063319
INVOICE DATE: 06/04/86
TO: UNITED SOLVENTS OF AMERICA
3756 SILVER STAR ROAD
ORLANDO FL 32808

ATTN: PLANT MGR./SAFETY DIR.

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: ALCOHOL

DOT HAZARD CLASSIFICATION: FLAMMABLE LIQUID (173.115)

SECTION II-COMPONENTS

INGREDIENT	% (BY VOL)	PEL	TLV	NOTE
ETHYL ALCOHOL CAS #: 64-17-5	84.36	1000	1000 PPM	
ETHYL ACETATE CAS #: 141-78-6	4.72	400	400 PPM	
METHYL ALCOHOL CAS #: 67-56-1	4.49	200	200 PPM - SKIN	(1)

(1): SKIN ABSORPTION MAY POTENTIALLY CONTRIBUTE TO THE OVERALL EXPOSURE TO THIS MATERIAL. APPROPRIATE MEASURES SHOULD BE TAKEN TO PREVENT ABSORPTION SO THAT THE TLV IS NOT INVALIDATED.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT	MEASUREMENT
BOILING POINT	FOR PRODUCT	170.60 - 174.20 DEG F (77.00 - 79.00 DEG C) @ 760.00 MMHG
VAPOR PRESSURE	FOR PRODUCT	45.00 MMHG @ 68.00 DEG F (20.00 DEG C)
SPECIFIC VAPOR DENSITY	AIR = 1	1.6
SPECIFIC GRAVITY		.818 @ 60.00 DEG F (15.55 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE	(N-BUTYL ACETATE = 1)	3.30

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT(TOC) 68.00 DEG F
(20.00 DEG C)

EXPLOSIVE LIMIT (LOWEST VALUE OF COMPONENT) LOWER - 3.3% UPPER - 19.0%

EXTINGUISHING MEDIA: ALCOHOL FOAM OR WATER FOG OR CARBON DIOXIDE OR DRY CHEMICAL

HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE, ETC.

FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE WHEN FIGHTING FIRES.

SPECIAL FIRE & EXPLOSION HAZARDS: VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.

NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.
ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.

NFPA CODES: HEALTH- 0 FLAMMABILITY- 3 REACTIVITY- 0

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL 1000 PPM

THRESHOLD LIMIT VALUE 1000 PPM

SECTION V-HEALTH HAZARD DATA (CONTINUED)

EFFECTS OF ACUTE OVEREXPOSURE: FOR PRODUCT

EYES - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.
SKIN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, POSSIBLE UNCONSCIOUSNESS, AND EVEN ASPHYXIATION.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, DIARRHEA, BLINDNESS AND DEATH.

FIRST AID:

IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE.

IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY, GET MEDICAL ATTENTION.

IF SWALLOWED: IMMEDIATELY DRINK TWO GLASSES OF WATER AND INDUCE VOMITING BY EITHER GIVING IPECAC SYRUP OR BY PLACING FINGER AT BACK OF THROAT. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION IMMEDIATELY.

IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION

SKIN ABSORPTION
SKIN CONTACT

EFFECTS OF CHRONIC OVEREXPOSURE: FOR PRODUCT

OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS APPARENTLY BEEN FOUND TO CAUSE THE FOLLOWING EFFECTS IN LABORATORY ANIMALS:, LIVER ABNORMALITIES, ANEMIA, KIDNEY DAMAGE, LUNG DAMAGE, EYE DAMAGE, SPLEEN DAMAGE, BRAIN DAMAGE, NERVOUS SYSTEM DAMAGE

OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS BEEN SUGGESTED AS A CAUSE OF THE FOLLOWING EFFECTS IN HUMANS:, LIVER ABNORMALITIES, EYE DAMAGE

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR

STABILITY: STABLE

INCOMPATIBILITY: AVOID CONTACT WITH:, STRONG OXIDIZING AGENTS.

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: ABSORB LIQUID ON PAPER, VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND TRANSFER TO HOOD.

LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE, DIKE AREA OF SPILL TO PREVENT SPREADING, PUMP LIQUID TO SALVAGE TANK. REMAINING LIQUID MAY BE TAKEN UP ON SAND, CLAY, EARTH, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND SHOVELED INTO CONTAINERS. PREVENT RUN-OFF TO SEWERS, STREAMS OR OTHER BODIES OF WATER. IF RUN-OFF OCCURS, NOTIFY PROPER AUTHORITIES AS REQUIRED, THAT A SPILL HAS OCCURED.

WASTE DISPOSAL METHOD:

SMALL SPILL: ALLOW VOLATILE PORTION TO EVAPORATE IN HOOD. ALLOW SUFFICIENT TIME FOR VAPORS TO COMPLETELY CLEAR HOOD DUCT WORK. DISPOSE OF REMAINING MATERIAL IN ACCORDANCE WITH APPLICABLE REGULATIONS.

LARGE SPILL: DESTROY BY LIQUID INCINERATION. CONTAMINATED ABSORBENT MAY BE DEPOSITED IN A LANDFILL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF TLV OF THE PRODUCT OR ANY COMPONENT IS EXCEEDED, A NIOSH/MSHA JOINTLY APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS UNDER SPECIFIED CONDITIONS. (SEE YOUR SAFETY EQUIPMENT SUPPLIER). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.

VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).

GLOVES: WEAR RESISTANT GLOVES SUCH AS: NEOPRENE

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED (CONTINUED)

EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED, HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. (CONSULT YOUR SAFETY EQUIPMENT SUPPLIER)

OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINS METHANOL.

CANNOT BE MADE NON-POISONOUS.

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED. SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THIS DATASHEET MUST BE OBSERVED.

THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

8010-624893

MATERIAL SAFETY DATA SHEET
COATINGS AND RESINS GROUP

SECTION I - PRODUCT INFORMATION

MANUFACTURER'S NAME: PPG INDUSTRIES INC.
PRODUCT SAFETY LOC.: 260 KAPPA DRIVE
PITTSBURGH, PA 15238
MSDS CONTACT: MANAGER, INDUSTRIAL HYGIENE AND PRODUCT SAFETY
(412) 963-5822
EMERGENCY TELEPHONE: (304) 843-1300

CODE/IDENTITY: DP40 (091185D)
TRADE NAME: EPOXY PRIMER
CHEMICAL FAMILY: EPOXY
DOT CLS: PAINT, FLAMMABLE LIQUID
DATE OF PREPARATION: 6/09/86
CUSTOMER PART #:

SECTION II - INGREDIENTS

INGREDIENTS	APPROX. % WT.	CAS NO.	EXPOSURE LIMITS ACGIH TLV	OSHA PEL	PPG IPEL
MAGNESIUM SILICATE	5	14807-96-6	NOT EST.	NOT EST.	NOT EST.
TITANIUM DIOXIDE	10	13463-67-7	10.00Mg/M3	15.00Mg/M3	10.00Mg/M3
BARIUM SULFATE	10	7727-43-7	0.50Mg/M3	NOT EST.	0.50Mg/M3
STRONTIUM CHROMATE * **	5	7789-06-2	0.05Mg/M3	0.10Mg/M3	0.05Mg/M3
1-METHOXY-2-PROPANOL	5	107-98-2	100.00PPM	NOT EST.	100.00PPM
OXO-HEPTYL ACETATE	1	90438-79-2	NOT EST.	NOT EST.	NOT EST.
ISOBUTYL ACETATE	15	110-19-0	150.00PPM	150.00PPM	150.00PPM
ISOPROPYL ALCOHOL, ANHYDROUS	5	67-63-0	400.00PPM	400.00PPM	400.00PPM
METHYL ETHYL KETONE	15	78-93-3	200.00PPM	200.00PPM	200.00PPM
TOLUENE	5	108-88-3	100.00PPM	200.00PPM	100.00PPM
FILM FORMERS, RESINS, AND ADDITIVES	20	PROPRIETARY	NOT EST.	NOT EST.	NOT EST.

CARCINOGENIC ACCORDING TO CRITERIA ESTABLISHED BY: * = NTP ** = IARC @ = OSHA # = OTHER

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING RANGE : 78 - 200 DEG.C
VAPOR PRESSURE: 37.6 mmHg
VAPOR DENSITY : HEAVIER THAN AIR
% VOL/VOLUME : 70.00
EVAP RATE(BuOAc=100): 275

SOLUBILITY IN WATER: 13.4 %
WT/GAL (LBS): 10.41
pH: U/I
% SOLID BY WEIGHT: 52.7

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

DOT CATEGORY: FLAMMABLE
FLASHPOINT: 30 DEG. F PMCC FLAMMABLE LIMITS: LEL 1.7 UEL U/I

EXTINGUISHING MEDIA:
USE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CLASS B EXTINGUISHERS (CARBON DIOXIDE, DRY CHEMICAL, OR UNIVERSAL AQUEOUS FILM FORMING FOAM) DESIGNED TO EXTINGUISH NFPA CLASS IB FLAMMABLE LIQUID FIRES.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
KEEP CONTAINERS TIGHTLY CLOSED. ISOLATE FROM HEAT, ELECTRICAL EQUIPMENT, SPARKS, AND OPEN FLAMES. CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT. DO NOT APPLY ON HOT SURFACES. TOXIC GASES MAY FORM WHEN PRODUCT IS CONTACTED BY FLAME OR HOT SURFACES.

SPECIAL FIRE FIGHTING PROCEDURES:
WATER SPRAY MAY BE INEFFECTIVE. WATER SPRAY MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT PRESSURE BUILD-UP AND POSSIBLE AUTOIGNITION OR EXPLOSION WHEN EXPOSED TO EXTREME HEAT. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE. FIRE-FIGHTERS SHOULD WEAR SELF CONTAINED BREATHING APPARATUS.

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INDUSTRIAL HYGIENE

SECTION V - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: NOT EXPECTED TO OCCUR

INCOMPATIBILITY (MATERIALS AND CONDITIONS TO AVOID):
AVOID CONTACT WITH STRONG ALKALIES, STRONG MINERAL ACIDS, OR STRONG OXIDIZING AGENTS.

HAZARDOUS DECOMPOSITION PRODUCTS:
MAY PRODUCE HAZARDOUS DECOMPOSITION PRODUCTS WHEN HEATED. WELDING, BRAZING, OR FLAME-CUTTING ON SURFACES COATED WITH THIS PRODUCT MAY PRODUCE FUMES INCLUDING: Carbon Monoxide, Hydrogen Chloride Chlorinated Products,chlorine, Oxides of Chromium

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Continued on Back of Page

Continuation of Manufacturer's Code - DP40 DATE OF PREP: 6/09/86

SECTION VI - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

PROVIDE MAXIMUM VENTILATION. ONLY PERSONNEL EQUIPPED WITH PROPER RESPIRATORY AND SKIN AND EYE PROTECTION SHOULD BE PERMITTED IN THE AREA. REMOVE ALL SOURCES OF IGNITION. TAKE UP SPILLED MATERIAL WITH SAWDUST, VERMICULITE, OR OTHER ABSORBENT MATERIAL AND PLACE INTO CONTAINERS FOR DISPOSAL.

WASTE DISPOSAL METHOD:

WASTE MATERIAL MUST BE DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL ENVIRONMENTAL CONTROL REGULATIONS. EMPTY CONTAINERS SHOULD BE RECYCLED OR DISPOSED OF THROUGH AN APPROVED WASTE MANAGEMENT FACILTY.

SECTION VII - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE FROM:

INGESTION:

HARMFUL OR FATAL IF SWALLOWED.

EYE CONTACT:

CAUSES SEVERE EYE IRRITATION.

SKIN CONTACT:

MAY CAUSE MODERATE SKIN IRRITATION.
PROLONGED OR REPEATED CONTACT MAY CAUSE AN ALLERGIC SKIN REACTION.

INHALATION:

VAPOR AND SPRAY MIST MAY BE HARMFUL IF INHALED.
VAPOR IRRITATING TO EYES, NOSE AND THROAT.
REPEATED EXPOSURE TO HIGH VAPOR CONCENTRATIONS MAY CAUSE IRRITATION OF THE RESPIRATORY SYSTEM AND PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE.
INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS CAN BE HARMFUL OR FATAL.

CHRONIC OVEREXPOSURE:

AVOID LONG-TERM AND REPEATED CONTACT.
THIS PRODUCT CONTAINS A SLIGHTLY SOLUBLE FORM OF A CHROMIUM (6+)COMPOUND. NTP AND IARC HAVE DESIGNATED THESE MATERIALS AS CONTRIBUTING TO AN INCREASED RISK CANCER FOLLOWING HIGH LEVEL, LONG-TERM EXPOSURE.

SIGNS AND SYMPTONS OF OVEREXPOSURE:

EYE WATERING, HEADACHES, NAUSEA, DIZZINESS, AND LOSS OF COORDINATION ARE INDICATIONS THAT SOLVENT LEVELS ARE TOO HIGH.
REDNESS, ITCHING, BURNING SENSATIONS AND VISUAL DISTURBANCES MAY BE INDICATIONS THAT EXCESSIVE EYE CONTACT HAS OCCURED.
DRYNESS, ITCHING, CRACKING, BURNING, REDNESS, AND SWELLING ARE CONDITIONS ASSOCIATED WITH EXCESSIVE SKIN CONTACT.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: NOT APPLICABLE

SECTION VIII - FIRST AID PROCEDURES

INGESTION:

IF SWALLOWED, DO NOT INDUCE VOMITING.

EYE CONTACT:

IN CASE OF EYE CONTACT, FLUSH EYES IMMEDIATELY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES.

SKIN CONTACT:

IN CASE OF SKIN CONTACT, REMOVE PROMPTLY BY WIPING, FOLLOWED BY WATERLESS HAND CLEANER AND SOAP AND WATER.

INHALATION:

IF AFFECTED BY INHALATION OF VAPOR OR SPRAY MIST, REMOVE TO FRESH AIR. APPLY ARTIFICIAL RESPIRATION AND OTHER SUPPORTIVE MEASURES AS REQUIRED.

OTHER:

IF ANY OF THE FOLLOWING OCCUR DURING OR FOLLOWING USE OF THIS PRODUCT, CONTACT A POISON

Continued on Page 2

Continuation of Manufacturer's Code - DP40 DATE OF PREP: 6/09/86

CONTROL CENTER, EMERGENCY ROOM OR PHYSICIAN IMMEDIATELY; HAVE MATERIAL SAFETY DATA SHEET INFORMATION AVAILABLE. *INGESTION *EXCESSIVE EXPOSURE TO A CORROSIVE MATERIAL. * PERSISTENT SKIN/EYE IRRITATION OR BREATHING DIFFICULTIES.

SECTION IX - PROTECTION INFORMATION

PERSONAL PROTECTIVE EQUIPMENT FOR:

EYE PROTECTION:

WEAR CHEMICAL-TYPE SPLASH GOGGLES OR FULL FACE SHIELD.

SKIN PROTECTION:

WEAR PROTECTIVE CLOTHING, INCLUDING IMPERMEABLE APRON AND GLOVES CONSTRUCTED OF: POLYVINYL ALCOHOL, NEOPRENE RUBBER, OR LATEX RUBBER

RESPIRATORY PROTECTION:

OVEREXPOSURE TO VAPORS MAY BE PREVENTED BY ENSURING VENTILATION CONTROLS, VAPOR EXHAUST OR FRESH AIR ENTRY. NIOSH/MSHA-APPROVED (TC-23C-) PAINT SPRAY OR AIR SUPPLIED (TC-19C-) RESPIRATORS MAY ALSO REDUCE EXPOSURE. IN ALL CASES, READ RESPIRATOR MANUFACTURER'S INSTRUCTIONS AND LITERATURE CAREFULLY TO DETERMINE THE TYPE OF AIRBORNE CONTAMINANTS AGAINST WHICH THE RESPIRATOR IS EFFECTIVE AND HOW IT IS TO BE PROPERLY FITTED.

OTHER EQUIPMENT:

CLEAN OR DISCARD CONTAMINATED CLOTHING AND SHOES.

VENTILATION REQUIREMENTS:

PROVIDE GENERAL DILUTION OR LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP THE CONCENTRATION OF INGREDIENTS LISTED IN SECTION II BELOW THE LOWEST SUGGESTED EXPOSURE LIMITS. THE LEL IN SECTION IV BELOW THE STATED LIMIT, AND TO REMOVE DECOMPOSITION PRODUCTS DURING WELDING OR FLAME CUTTING ON SURFACES COATED WITH THIS PRODUCT.

SECTION X - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS:

DO NOT STORE ABOVE 120 DEGREES F. STORE LARGE QUANTITIES IN BUILDINGS DESIGNED AND PROTECTED FOR STORAGE OF NFPA CLASS IB FLAMMABLE LIQUIDS.

OTHER PRECAUTIONS:

IF THIS MATERIAL IS PART OF A MULTIPLE COMPONENT COATING SYSTEM, READ THE MATERIAL SAFETY DATA SHEET(S) FOR THE OTHER COMPONENT OR COMPONENTS BEFORE BLENDING AS THE RESULTING MIXTURE MAY HAVE THE HAZARDS OF ALL OF ITS PARTS.

CONTAINERS SHOULD BE GROUNDED WHEN POURING. AVOID FREE FALL OF LIQUIDS IN EXCESS OF A FEW INCHES.

ALL CHEMICAL SUBSTANCES IN THIS PRODUCT COMPLY WITH ALL APPLICABLE RULES OR ORDERS UNDER THE ENVIRONMENTAL PROTECTION AGENCY'S TOXIC SUBSTANCE CONTROL ACT.

THIS MATERIAL SAFETY DATA SHEET HAS BEEN PREPARED IN ACCORDANCE WITH THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200)

U/I = UNKNOWN INFORMATION N/A = NOT APPLICABLE NOT EST. = NOT ESTABLISHED

LOCATION:

MATERIAL SAFETY DATA SHEET

MANUFACTURER: MATTHEWS PAINT COMPANY
400 SOUTH MERCANTILE COURT
WHEELING, ILLINOIS 60090

EMERGENCY PHONE: 1-800-424-9300
INFORMATION PHONE: (312)/537-9200

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER : 42-202
PRODUCT NAME : MAP WHITE NATURAL

HMIS : H2F3R1PI

CHEMICAL NAME : ORGANIC COATING
CHEMICAL FAMILY : PAINT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT DESCRIPTION	CAS NUMBER	WEIGHT PERCENT	TLV	PEL
GLYCOL NIOSH PAGE 226(2)	108-88-3	7.08	100.00 PPM	200.00 PPM
ETHYL BENZENE NIOSH PAGE 118(2)	100-41-4	3.42	100.00 PPM	100.00 PPM
ISOBUTYL ACETATE NIOSH PAGE 142(3)	110-19-0	4.80	150.00 PPM	150.00 PPM 700MG/M3
PROPYLENE GLYCOL M.E. ACETATE NIOSH REF.	108-65-6	23.22	N/EST.	N/EST.
M P NAPTHA 90 NIOSH PAGE 170(1)		2.16	500.00 PPM	100.00 PPM

SECTION III - PHYSICAL DATA

BOILING RANGE : 230 TO 302 (deg F)
EVAPORATION RATE: SLOWER THAN ETHER
WEIGHT PER GALLON: 10.447
VOC : 4.360 (lb/gl)

VAPOR DENSITY : HEAVIER THAN AIR
% VOLATILE VOLUME : 57.253
% NON-VOLATILE (WGT) : 58.267
% NON-VOLATILE (VOL) : 42.747

APPEARANCE : WHITE LIQUID
ODOR : TYPICAL SOLVENT ODOR

SPECIFIC GRAVITY = 1.25

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TRADE SECRET

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATON: UN1263 PAINT FLAMMABLE LIQ.

FLASH POINT: 45 (deg F) TCC LEL: .80 UEL: 13.10

SPECIAL FIRE FIGHTING PROCEDURES

Foam, CO2N, or dry chemical. Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed container to prevent pressure build up, explosion, or possible auto ignition when exposed to extreme heat.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Should be stored in tightly closed containers away from heat, electrical equipment, sparks and open flame. Closed containers may explode when exposed to extreme heat. During emergency conditions, overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SECTION V - HEALTH HAZARD DATA

TARGET ORGANS/SYSTEMS WHICH MAY BE AFFECTED:

skin, eyes, respiratory system, central nervous system, gastro-intestinal system, kidney, liver, lymphatic system, blood

EFFECTS OF OVEREXPOSURE:

ACUTE OVEREXPOSURE MAY LEAD TO THE FOLLOWING INDICATIONS/CONDITIONS:

CONTACT:

irritates eyes, irritates skin, irritates mucous membranes

INHALATION:

irritates nose and throat, dizziness, drowsiness, loss of coordination, fatigue, irritates respiratory system, shortness of breath, light headedness, headache, irritates gastro-intestinal system

INGESTION:

irritates respiratory system, dizziness, drowsiness, loss of coordination, fatigue, irritates gastro-intestinal system, nausea, vomiting, narcosis, coma, lung damage/inflammation, irritates nose and throat, toxic by ingestion

ABSORBTION:

toxic by contact

CHRONIC OVEREXPOSURE MAY LEAD TO THE FOLLOWING INDICATIONS/CONDITIONS:

dermatitis, asthma, liver damage, kidney damage, red blood cell damage

WARNING: Reports have associated repeated and prolonged occupational over-exposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

SECTION V (CONT) - HEALTH HAZARD DATA

PRIMARY ROUTE(S) OF ENTRY: [X] DERMAL [X] INHALATION [X] INGESTION

EMERGENCY FIRST AID PROCEDURES:
Remove to fresh air and treat symptomatically, flush skin or eyes with water.
Call physician if ingested. DO NOT induce vomiting.

SECTION VI - REACTIVITY DATA

STABILITY : STABLE

CONDITIONS TO AVOID:
Heat, sparks, open flame and fire and open containers.

MATERIALS TO AVOID:
Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:
Normal decomposition may yield oxides of carbon.

HAZARDOUS POLYMERIZATION:
Will not occur.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Remove all sources of ignition (flame, hot surfaces, electrical, static or frictional sparks). Avoid breathing vapors. Ventilate area. Contain and remove with inert absorbent and non-sparking tools.

WASTE DISPOSAL METHOD:
Dispose in accordance with local, state and federal regulations. Incinerate in approved facility. Do not incinerate closed containers.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
Wear appropriate, properly fitted respirator (NIOSH/MSHA approved for ISOCYANATES) during and after application, and until all fumes and mists have been removed. Follow respirator manufacturer's directions for respirator use.

VENTILATION:
Local exhaust ventilation is recommended to control exposures to within OSHA limitaions for lead, chromates and solvents.

PROTECTIVE GLOVES:
Impervious gloves.

EYE PROTECTION:
Chemical goggles or face shield.

OTHER PROTECTIVE EQUIPMENT:
Impervious apron, safety shoes, eye wash facility, emergency shower.

SECTION IX - SPECIAL PRECAUTIONS

CAUTIONS TO BE TAKEN IN HANDLING AND STORING:

MAP contains ester solvents. Breathing of these solvents is hazardous and should be avoided. Always keep containers closed when not in use. IMPORTANT: When mixed with a MAP CATALYST, MAP will have hazards of all components. Observe all applicable label warnings. Always provide adequate ventilation. DO NOT use near flames or sparks. Avoid prolonged skin contact and breathing of vapor mist. Ground all containers when pouring.

FOR INDUSTRIAL USE ONLY

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he information contained herein is furnished without warranty of any kind. sers should consider these data only as supplement to other information athered by them and must make independent determinations of suitability nd completeness of information from all sources to assure proper use and isposal of these materials and the safety and health of employees and stomers.

MATERIAL SAFETY DATA SHEET

Date: July 1, 1987

Supersedes: 9/10/85

SECTION I

MANUFACTURER'S NAME & ADDRESS
Devoe & Raynolds Co.
4000 DuPont Circle
Louisville, KY 40207

EMERGENCY TELEPHONE NO.
(502) 589-9340
INFORMATION TELEPHONE NO.
(502) 589-9340

PRODUCT CLASS
Alkyd Eggshell Enamel

PRODUCT NAME
~~VELOUR - Interior Alkyd~~
Eggshell Enamel

PRODUCT CATALOG NUMBER(S)
2301 White
2349 High Hide Base
2351 Medium Base
2353 Deep Base
2355 Ultra Deep Base
2393 Soft White

Section II - HAZARDOUS INGREDIENTS

INGREDIENTS	CAS NO.	Percent WT.	ACGIH TLV PPM	ACGIH TLV mg/M3	OSHA PEL PPM	OSHA PEL mg/M3	LEL	VAPOR PRESSURE
Mineral Spirits	64742-88-7	15-20	100	525	500	2900	1.0	2.0 @ 68°F
Odorless Mineral Spirits	8052-41-3	10-15	100	525	500	2900	1.0	2.0 @ 68°F
Titanium Dioxide	13463-67-7	5-25	NA	10	NA	15	NA	NA
Calcium Carbonate	1317-65-3	20-35	NA	10	NA	15	NA	NA
Aluminum Silicate	1332-58-7	5-10	NA	10	NA	15	NA	NA
A-Diatomaceous Earth	68855-54-9	<5	NA	0.08*	1.7 mppcf*	0.07*	NA	NA
Tall Oil Alkyd	NA	5-15	NA	NA	NA	NA	NA	NA
Soya Alkyd	NA	3-10	NA	NA	NA	NA	NA	NA

A-Not in 2393

MS-1C

* = Respirable Dust NA = Not Available

SPECIFIC GRAVITY = 1.454

Section III - PHYSICAL DATA

2301

VAPOR DENSITY X HEAVIER __ LIGHTER THAN AIR
EVAPORATION RATE __ FASTER X SLOWER THAN ETHER
BOILING RANGE 300-405°F
PERCENT VOLATILE BY VOLUME 47.9 - 50.2
POUNDS PER GALLON 10.96 - 12.14

Section IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION
OSHA 29 CFR-1910.106(a)
Parts 18-19
Combustible Liquid - Class II

FLASH POINT 112°F Setaflash

LEL
SEE SECTION II

EXTINGUISHING MEDIA

In case of fire use CO_2, Dry Chemical, Foam or other National Fire Protection Association (NFPA) approved method for treating a Class B Fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Keep containers tightly closed. Isolate from heat and flame. Due to pressure build-up, closed containers exposed to extreme heat may explode. Never use a welding or cutting torch on or near container (even empty) as product or its residue may ignite. During emergency conditions, overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Summon professional firefighters. Use full protective equipment including self-contained breathing apparatus. Water spray may be ineffective. If water is used, fog nozzles are preferable. If exposed to fire or extreme heat, water should be used to cool closed containers and prevent pressure build-up or possible auto-ignition.

Section V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE See Section II

EFFECTS OF OVEREXPOSURE

ACUTE- Breathing: Irritation of the respiratory tract; headache, nausea, dizziness, weakness and fatigue. Extreme exposure can result in unconsciousness and even respiratory arrest.

Skin or Eye Contact: Primary irritation.

Swallowing: Can cause stomach and/or intestinal irritation, nausea, vomiting and diarrhea. Aspiration of vomitus can cause chemical pneumonitis which can be fatal.

CHRONIC- Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Prolonged and repeated breathing of spray mist and/or sanding dust over a period of years can cause dust disease of the lungs.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE None when used in accordance with Safe Handling and Use Information. (See Section VIII).

PRIMARY ROUTE(S) OF ENTRY __ SKIN X BREATHING X SWALLOWING

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Section V Continued on Next Page

GENCY AND FIRST AID PROCEDURES

IF BREATHED: If you experience difficulty in breathing, leave the area to obtain fresh air. If continued difficulty is experienced, summon medical assistance immediately. If breathing ceases, restore using approved CPR techniques and summon medical assistance immediately.

IF IN EYES: In case of eye contact, flush with large amounts of water for at least 15 minutes. Get medical assistance.

IF ON SKIN: In case of skin contact, wash area thoroughly with soap and water. Remove soiled clothing. Get medical assistance if irritation persists.

IF SWALLOWED: DO NOT INDUCE VOMITING. Consult physician immediately. Aspiration of vomitus can cause chemical pneumonitis which can be fatal.

WARNING: Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

Section VI - REACTIVITY DATA

STABILITY ___ UNSTABLE X STABLE

INCOMPATIBILITY Avoid contact with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS May cause hazardous fumes when heated to decomposition. Fumes may contain carbon monoxide, carbon dioxide and oxides of metals listed in Section II.

HAZARDOUS POLYMERIZATION ___ MAY OCCUR X WILL NOT OCCUR

Section VII -SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition (heat, flame). Do not smoke. Avoid breathing vapors. Before attempting clean-up refer to hazard caution information in other sections of this material safety data form. Ventilate area. Contain spilled material and remove with inert absorbent and non-sparking tools. Store in closed containers until properly disposed of.

WASTE DISPOSAL METHOD

Dispose of in accordance with local, state and federal regulations. Incinerate only in approved facility. Do not incinerate closed containers.

Section VIII - SAFE HANDLING AND USE INFORMATION

RESPIRATORY PROTECTION

Do not breathe vapors, spray mist or sanding dust. When spray applied in outdoor or open areas with unrestricted ventilation, and during sanding or grinding operations, use NIOSH/MSHA approved mechanical filter respirator to remove solid airborne particles of overspray and sanding dust. When used in restricted ventilation areas, wear NIOSH/MSHA approved chemical/mechanical filters designed to remove a combination of particulates and vapor. When used in confined areas, wear NIOSH/MSHA approved air supply respirators or hoods. Use NIOSH/MSHA approved respirators when flame cutting, welding, brazing and sanding material coated with this product. Follow respirator manufacturer's directions for respirator use.

Section VIII Continued on Next Page

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Section VIII - SAFE HANDLING AND USE INFORMATION (CONTINUED) 2001

VENTILATION

Use only with adequate ventilation. Provide general dilution or local exhaust ventilation in volume and pattern to keep air contaminant concentration below current applicable safety and health standards in the mixing, application and curing areas, and to remove sanding dusts of dried coating and decomposition product during welding and flame cutting on surfaces coated with this product. Heavy solvent vapors should be removed from lower levels of the work area and all ignition sources should be eliminated.

PROTECTIVE GLOVES

Do not get on skin. Solvent impermeable gloves to prevent contact are recommended.

EYE PROTECTION

Do not get in eyes. Solvent resistant safety eyewear with splash guards or sideshields is recommended to prevent contact.

OTHER PROTECTIVE EQUIPMENT

Do not get on skin. Solvent impermeable clothing and boots to prevent contact are recommended.

HYGIENIC PRACTICES

Remove and wash soiled clothing before reuse. Wash hands before eating, smoking or using the washroom.

Section IX - OTHER PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Keep away from heat and flame. Do not smoke. Prevent build-up of vapors by maintaining continuous flow of fresh air.

Do not store above 120°F or near fire or open flame. Store large quantities in buildings designed to comply with OSHA 1910.106. Keep container closed when not in use. Do not transfer contents to bottles or other unlabelled containers. Do not reuse empty containers.

Keep out of reach of children.

Distributor:
Devoe + Raynolds Co.
1121 N. Mills Ave.
Orlando 32803
(407) 896-1161

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: ZAR GLOSS INTERIOR
PRODUCT CODE: 15

HMIS CODES:

H	F	R	P
1	2	0	

SECTION I - MANUFACTURER IDENTIFICATION

MANUFACTURER'S NAME: UNITED GILSONITE LABORATORIES
ADDRESS: 1396 JEFFERSON AVENUE
SCRANTON, PA 18509
DATE REVISED: AUG. 1992

EMERGENCY PHONE: (800) 424-9300
INFORMATION PHONE: (717) 344-1202
NAME OF PREPARER: R. Baraka

SECTION II - HAZARDOUS INGREDIENTS/SARA III INFORMATION

HAZARDOUS COMPONENTS	CAS NUMBER	OCCUPATIONAL EXPOSURE LIMITS OSHA PEL	ACGIH TLV	OTHER	VAPOR PRESSURE mmHg	@ TEMP	WEIGHT PERCENT
OIL MODIFIED POLYURETHANE	NOT ESTAB	NOT ESTAB	NOT ESTAB	NONE	N/A		50
STODDARD SOLVENT 5250	8052-41-3	100PPM	100PPM	100PPM	3.0	64F	45
KEROSENE	8008-20-6	500PPM	100PPM	NONE	1.0	70F	<5.0%

No toxic chemical(s) subject to the reporting requirements of section 313 of Title III and of 40 CFR 372 are present.

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING RANGE: 305-350 F.
VAPOR DENSITY: LIGHTER THAN AIR
COATING V.O.C.: 3.63 LB/GL (435 G/L)
SOLUBILITY IN WATER: Insoluble
APPEARANCE AND ODOR: Light amber liquid with aromatic odor

SPECIFIC GRAVITY (H2O=1): 0.9
EVAPORATION RATE: SLOWER THAN ETHER

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 104 F. *METHOD USED.* SETA CC

FLAMMABLE LIMITS IN AIR BY VOLUME: *LOWER:* 0.7% *UPPER:* 7.0%

EXTINGUISHING MEDIA: FOAM, ALCOHOL FOAM, CO2, DRY CHEMICAL, WATER FOG

SPECIAL FIREFIGHTING PROCEDURES
Firefighters and others exposed to vapors or products of combustion should wear self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Keep containers tightly closed. Isolate from heat, sparks, electrical equipment and open flame. Closed containers may explode when exposed to extreme heat.

SECTION V - REACTIVITY DATA

STABILITY: STABLE

CONDITIONS TO AVOID
Heat, sparks, open flames, high temperatures.

INCOMPATIBILITY (MATERIALS TO AVOID)
Strong oxidizing agents.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS
Fumes, smoke, carbon dioxide, carbon monoxide, aldehydes and other decomposition products, in case of incomplete combustion.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

TO: Devoe Paint

FROM: UGL - SCRANTON, PA 18501
TELEPHONE # 717-344-1202

RECEIVED
MAR 23 1993

SECTION VI - HEALTH HAZARD DATA

INHALATION HEALTH RISKS AND SYMPTOMS OF EXPOSURE
Excessive exposure to vapors or spray mists can result in headache, dizziness, incoordination, nausea and loss of consciousness.

SKIN AND EYE CONTACT HEALTH RISKS AND SYMPTOMS OF EXPOSURE
This material may be an eye irritant

SKIN ABSORPTION HEALTH RISKS AND SYMPTOMS OF EXPOSURE
This material may cause defatting and irritation of skin. Prolonged or repeated contact may cause dermatitis

INGESTION HEALTH RISKS AND SYMPTOMS OF EXPOSURE
May produce signs of intoxication characterized by incoordination, dizziness, drowsiness, headache, nausea, mental confusion, slurred speech and stupor, depending on the quantity of material ingested.

HEALTH HAZARDS (ACUTE AND CHRONIC)
Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and central nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

CARCINOGENICITY: NTP? NO IARC MONOGRAPHS? NO OSHA REGULATED? NO
None of the components listed in this product are listed by IARC, NTP or OSHA as a carcinogen.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE
Kidney diseases, respiratory illnesses, skin allergies.

EMERGENCY AND FIRST AID PROCEDURES
EYES: Flush immediately with large amount of water for at least 15 minutes. Take to a physician for medical attention. SKIN: Wash affected areas with soap and water. Remove contaminated clothing. Consult a physician if irritation persists. INGESTION: Drink 1 or 2 glasses of water to dilute. Do not induce vomiting. Consult physician or poison control center immediately. Treat symptomatically. INHALATION: Remove to fresh air, restore breathing. Treat symptomatically. Consult physician.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove any sources of ignition. Provide adequate ventilation and, or self-contained breathing apparatus. Dike spill, apply absorbent material.

WASTE DISPOSAL METHOD
Using non-sparking tools, scrape up and store in closed metal container. Avoid breathing vapors. Dispose of in approved sites according to local, state, and federal regulations

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Avoid breathing sanding dust. Avoid storage at temperatures greater than 90 degrees (F) or near heat, sparks, electrical equipment or open flames.

OTHER PRECAUTIONS
Avoid prolonged breathing of vapors or contact with skin. Prevent prolonged or repeated breathing of vapor or spray. To avoid spontaneous combustion during temporary storage, soak soiled rags and waste immediately after use, in a water filled, closed metal container.

SECTION VIII - CONTROL MEASURES

RESPIRATORY PROTECTION
Wear NIOSH-approved respirator with organic vapor and solid particle filter cartridges.

VENTILATION
Use adequate ventilation in volume and pattern to maintain level below that listed in Section II

PROTECTIVE GLOVES
Use neoprene rubber gloves to prevent skin contact.

EYE PROTECTION
Use safety eyewear with splash guards or side shields.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT
Remove and wash contaminated clothing before reuse

WORK/HYGIENIC PRACTICES
Wash hands before eating, smoking, or using the washroom.

SECTION IX - DISCLAIMER

This information is furnished without warranty, representation inducement or license of any kind, except that it is accurate to the best of UGL's knowledge, or obtained from sources believed by UGL to be accurate, and UGL does not assume any legal responsibility for use or reliance upon same. Before using any product, read it's label.

UFACTURER:
MATTHEWS PAINT COMPANY
400 SOUTH MERCANTILE COURT
WHEELING, ILLINOIS 60090

RECEIVED
MAR 2 1 1988
HEALTH SERVICES DEPT.

EMERGENCY PHONE:
1-800-424-1300
INFORMATION PHONE:
(312)537-9200

f14
my liquid

SECTION I - PRODUCT IDENTIFICATION

DUCT NUMBER : 504-923
DUCT NAME : TINTING BLACK

HMIS : H2F3R1P1
PREPARATION DATE: 12/21/87

MICAL NAME : ORGANIC COATING
MICAL FAMILY : PAINT

SECTION II - HAZARDOUS INGREDIENTS

REDIENT DESCRIPTION	CAS NUMBER	WEIGHT PERCENT	TLV	PEL
THA.	64742-89-8	5.73	500.00 PPM	100.00 PPM
NIOSH PAGE 170(1)				
UOL	108-88-3	8.50	100.00 PPM	100.00 PPM
NIOSH PAGE 226(2)				
HYL BENZENE	100-41-4	5.73	100.00 PPM	100.00 PPM
NIOSH PAGE 118(2)				
BUTYL ACETATE	110-19-0	10.75	150.00 PPM	150.00 PPM
IOSH PAGE 142(3)				
YLENE GLYCOL M.E. ACETATE	108-65-6	24.79	N/EST.	N/EST.
NO NIOSH REF.				

SECTION III - PHYSICAL DATA

ILING RANGE : 230 TO 320 (deg F)
APORATION RATE: SLOWER THAN ETHER
GHT PER GALLON: 8.280
C : 4.623 (lb/gl)

VAPOR DENSITY : HEAVIER THAN AIR
% VOLATILE VOLUME : 61.543
% NON-VOLATILE (WGT) : 44.404
% NON-VOLATILE (VOL) : 38.457

EARANCE : BLACK LIQUID
R : TYPICAL SOLVENT ODOR

SPECIFIC GRAVITY = .992

CONFIDENTIAL
TRADE SECRET

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

AMMABILITY CLASSIFICATON: UN1263 PAINT FLAMMABLE LIQ.

H POINT: 45 (deg F) TCC LEL: .90 UEL: 13.1%

CIAL FIRE FIGHTING PROCEDURES
Foam, CO2N, or dry chemical. Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed container to prevent pressure build up, explosion, or possible auto ignition when exposed to extreme heat.

SUAL FIRE AND EXPLOSION HAZARDS:
Should be stored in tightly closed containers away from heat, electrical equipment, sparks and open flame. Closed containers may explode when exposed to extreme heat. During emergency conditions, overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SECTION V - HEALTH HAZARD DATA

RGET ORGANS/SYSTEMS WHICH MAY BE AFFECTED:
skin, eyes, respiratory system, central nervous system, gastro-intestinal system, kidney, liver, lymphatic system, blood

FECTS OF OVEREXPOSURE:

UTE OVEREXPOSURE MAY LEAD TO THE FOLLOWING INDICATIONS/CONDITIONS:

CONTACT:
irritates eyes, irritates skin, irritates mucous membranes

INHALATION:
irritates nose and throat, dizziness, drowsiness, loss of coordination, fatigue, irritates respiratory system, shortness of breath, light headedness, headache, irritates gastro-intestinal system

INGESTION:
irritates respiratory system, dizziness, drowsiness, loss of coordination, fatigue, irritates gastro-intestinal system, nausea, vomiting, narcosis, coma, lung damage/inflammation, irritates nose and throat, toxic by ingestion

ABSORBTION:
toxic by contact

CHRONIC OVEREXPOSURE MAY LEAD TO THE FOLLOWING INDICATIONS/CONDITIONS:
dermatitis, asthma, liver damage, kidney damage, red blood cell damage

NING: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

SECTION V (CONT) - HEALTH HAZARD DATA

RIMARY ROUTE(S) OF ENTRY: [X] DERMAL [X] INHALATION [X] INGESTION

ERGENCY FIRST AID PROCEDURES:
Remove to fresh air and treat symptomatically, flush skin or eyes with water.
Call physician if ingested. DO NOT induce vomiting.

SECTION VI - REACTIVITY DATA

TABILITY : STABLE

NDITIONS TO AVOID:
Heat, sparks, open flame and fire and open containers.

TERIALS TO AVOID:
Strong oxidizing agents.

ZARDOUS DECOMPOSITION PRODUCTS:
Normal decomposition may yield oxides of carbon.

AZARDOUS POLYMERIZATION:
Will not occur.

SECTION VII - SPILL OR LEAK PROCEDURES

EPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Remove all sources of ignition (flame, hot surfaces, electrical, static or frictional sparks). Avoid breathing vapors. Ventilate area. Contain and remove with inert absorbent and non-sparking tools.

TE DISPOSAL METHOD:
Dispose in accordance with local, state and federal regulations. Incinerate in approved facility. Do not incinerate closed containers.

SECTION VIII - SPECIAL PROTECTION INFORMATION

SPIRATORY PROTECTION:
Wear appropriate, properly fitted respirator (NIOSH/MSHA approved for ISOCYANATES) during and after application, and until all fumes and mists have been removed. Follow respirator manufacturer's directions for respirator use.

NTILATION:
Local exhaust ventilation is recommended to control exposures to within OSHA limitations for lead, chromates and solvents.

PROTECTIVE GLOVES:
Impervious gloves.

EYE PROTECTION:
Chemical goggles or face shield.

OTHER PROTECTIVE EQUIPMENT:
Impervious apron,safety shoes, eye wash facility, emergency shower.

SECTION IX - SPECIAL PRECAUTIONS

CAUTIONS TO BE TAKEN IN HANDLING AND STORING:

MAP contains ester solvents. Breathing of these solvents is hazardous and should be avoided. Always keep containers closed when not in use. IMPORTANT: When mixed with a MAP CATALYST, MAP will have hazards of all components. Observe all applicable label warnings. Always provide adequate ventilation. DO NOT use near flames or sparks. Avoid prolonged skin contact and breathing of vapor mist. Ground all containers when pouring.

FOR INDUSTRIAL USE ONLY

information contained herein is furnished without warranty of any kind. ers should consider these data only as supplement to other information hered by them and must make independent determinations of suitability completeness of information from all sources to assure proper use and sposal of these materials and the safety and health of employees and tomers.

MATERIAL SAFETY DATA SHEET

Essentially Similar to Form OSHA-20

Best Available Copy

PRATT & LAMBERT
Paints/Chemical Coatings/Adhesives

BOX TWENTY-TWO
BUFFALO, N.Y. 14240
(716) 873-6000

Section I

EMERGENCY TELEPHONE NO. (716) 873-6000 DATE OF PREP. 10-8-79

INFORMATION TELEPHONE NO.

PRODUCT CLASS

MANUFACTURERS CODE IDENTIFICATION RB11

TRADE NAME Varmour Clear Finish Satin VARNISH

Section II - HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	TLV PPM	TLV mg/M³	LEL	VAPOR PRESSURE
Petroleum Distillates	60%	100		1.0%	5 mm Hg

Section III - PHYSICAL DATA

BOILING RANGE 323 - 390° F VAPOR DENSITY ☒ HEAVIER. ☐ LIGHTER THAN AIR

EVAPORATION RATE ☐ FASTER. ☒ SLOWER THAN ETHER PERCENT VOLATILE BY VOLUME 65% WEIGHT PER GALLON 7.30lbs.

Section IV - FIRE AND EXPLOSION HAZARD DATA

DOT CATEGORY Red Label, Flammable FLASH POINT (METHOD) 20 - 100° F

EXTINGUISHING MEDIA Foam, Carbon Dioxide or Dry Chemicals for small fires.

UNUSUAL FIRE AND EXPLOSION HAZARDS Closed containers may explode when heated.

SPECIAL FIRE FIGHTING PROCEDURES Use self-contained air supply for persons in enclosed areas. Cool exposed containers.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE Irritation of nose, throat, eyes and possible dizziness and nausea.

EMERGENCY AND FIRST AID PROCEDURES Move to fresh air and call a physician. Flush eyes with water. Wash off skin contact with soap and water. If ingested, do not induce vomiting.

SECTION VI - REACTIVITY DATA

STABILITY ☐ UNSTABLE ☒ STABLE CONDITIONS TO AVOID

INCOMPATIBILITY (Materials to avoid) Avoid strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS Oxides of carbon and smoke upon burning.

HAZARDOUS POLYMERIZATION ☐ MAY OCCUR ☒ WILL NOT OCCUR

CONDITIONS TO AVOID

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Extinguish pilot lights, open flames and other ignition sources. Ventilate area. Recover free liquid with absorbant material and place in covered metal containers.

WASTE DISPOSAL METHOD Incinerate. Observe precautions for disposal of flammable materials. Do not incinerate closed containers.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION If applied by spraying, use approved respirator. (Example - NIOSH 23c)

VENTILATION Provide adequate cross air circulation (from windows or forced air) to prevent occurence of symptoms listed under Section V.

PROTECTIVE GLOVES Solvent resistant when prolonged exposure is anticipated.

EYE PROTECTION Face shield or safety goggles as necessary when spraying.

OTHER PROTECTIVE EQUIPMENT

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS Keep away from heat and open flame. Avoid prolonged contact with skin and breathing vapor or mist. Do not take internally. Close container after each use. Use only with adequate ventilation.

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor "Essentially Similar" to Form OSHA-20)

CEP ✓

DATE PREP 7/6/76

Section I

MANUFACTURER'S NAME

Devoe & Raynolds Company, Inc.

STREET ADDRESS

4000 Dupont Circle

CITY, STATE, AND ZIP CODE

Louisville, Kentucky 40207

EMERGENCY TELEPHONE NO.

(502) 897-9861

PRODUCT CLASS

Oil modified phenolic-alkyd varnish

MANUFACTURERS CODE IDENTIFICATION

CATALOG 5500

TRADE NAME

87 SPAR® EXTERIOR VARNISH, SOLVENT BASE

Section II — HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	TLV PPM	TLV mg/M³	LEL	VAPOR PRESSURE
Mineral Spirits ✓	49.0	300	---	1.1	3 mm @68

Section III — PHYSICAL DATA

BOILING RANGE 310° -420° F.

VAPOR DENSITY [X] HEAVIER [ ] LIGHTER THAN AIR

EVAPORATION RATE [ ] FASTER [X] SLOWER THAN ETHER

PERCENT VOLATILE BY VOLUME 57.2

WEIGHT PER GALLON 7.63 lbs.

Section IV — FIRE AND EXPLOSION HAZARD DATA

DOT CATEGORY Combustible liquid

FLASH POINT 100° -200° F. (Tag Closed Cup)

LEL 1.1

EXTINGUISHING MEDIA Carbon dioxide, dry chemical or foam

UNUSUAL FIRE AND EXPLOSION HAZARDS None

SPECIAL FIRE FIGHTING PROCEDURES None

Section V — HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE Refer to Section II.

EFFECTS OF OVEREXPOSURE

Prolonged breathing of concentrated vapors may cause headache, drowsiness, dizzy feeling, nausea, vomiting and irritation of respiratory tract.

EMERGENCY AND FIRST AID PROCEDURES

Inhalation - Remove to fresh air; keep quiet, warm and lying flat; consult physician if discomfort persists.

Section VI — REACTIVITY DATA

STABILITY [ ] UNSTABLE [X] STABLE CONDITIONS TO AVOID: Heat, sparks and fire.

INCOMPATABILITY (*Materials to avoid*) None

HAZARDOUS DECOMPOSITION PRODUCTS None

HAZARDOUS POLYMERIZATION [ ] MAY OCCUR [X] WILL NOT OCCUR

CONDITIONS TO AVOID: Storing paint-soaked rags in open containers as spontaneous combustion may o

Section VII — SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED : Recheck immediate area to remove any potential ignition sources. Soak up spill on sawdust or other absorbent solid and store in a closed metal container until this waste can be properly disposed.

WASTE DISPOSAL METHOD Bury in a landfill.

Section VIII — SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

Air supply mask if working in a warm, unventilated, confined area.

VENTILATION

Local Exhaust - Acceptable if vapor concentrations are maintained below LEL & TLV levels.

PROTECTIVE GLOVES Not required.

EYE PROTECTION None required.

OTHER PROTECTIVE EQUIPMENT None

Section IX — SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING : Store away from high temperature sources and eliminate all ignition sources, such as flame, sparks and resistence heating wires in storage area.

OTHER PRECAUTIONS

Promptly dispose of rags or other combustible adsorbents used to clean up spills. Store paint-soaked rags temporarily, if necessary, in closed, metal containers to prevent spontaneous combustion.

PAINT SPRAY MATERIAL SUMMARY

Material	Annual Use (gal/yr)	Hourly Use (gal/hr)	VOC Content (lb/gal)	Annual VOC Emission (lb/yr)
Acrylic Polyurethane[a]	288	0.5	6.18	1779.84
Lacquer Thinner[b]	60	0.25	6.45	387.00
Kilz Oil Primer	144	0.5	3.67	528.48
Mineral Spirits[b]	60	0.25	6.45	387.00
Shellac	144	0.5	5.56	800.64
Denatured Alcohol[b]	36	0.25	6.83	245.88
Epoxy Primer	60	0.5	4.92	295.20
Metal Primer	24	0.5	4.36	104.64
Alkyd Enamel Finish	36	0.5	4.25	153.00
Lacquer Paint	12	0.5	4.60	55.20
Varnish	96	0.5	4.38	420.48
Total VOC Emission				5157.36

Notes: [a]Acrylic polyurethane coating is a mixture of acrylic polyurethane paint, acrylic polyurethane reducer and acrylic polyurethane catalyst. The data presented represents a conservative 1:1:1 mixture.
[b]Used for clean-up.

Source: ECT, 1993.

ANNUAL VOLATILE ORGANIC COMPOUND EMISSION CALCULATION

A. Acrylic Polyurethane Paint

8 *gal/mo* x 5.22 *lb VOC/gal* = 41.76 *lb VOC/mo* = 501.12 *lb VOC/yr.*

B. Acrylic Polyurethane Reducer

8 *gal/mo* x 8.06 *lb VOC/gal* = 64.48 *lb VOC/mo* = 773.76 *lb VOC/yr.*

C. Acrylic Polyurethane Catalyst

8 *gal/mo* x 5.25 *lb VOC/gal* = 42.00 *lb VOC/mo* = 504.00 *lb VOC/yr.*

D. Lacquer Thinner

5 *gal/mo* x 6.45 *lb VOC/gal* = 32.25 *lb VOC/mo* = 387.00 *lb VOC/yr.*

E. Kilz Oil Primer

12 *gal/mo* x 3.67 *lb VOC/gal* = 44.04 *lb VOC/mo* = 528.48 *lb VOC/yr.*

F. Mineral Spirits

5 *gal/mo* x 6.45 *lb VOC/gal* = 32.25 *lb VOC/mo* = 387.00 *lb VOC/yr.*

G. Shellac

12 *gal/mo* x 5.56 *lb VOC/gal* = 66.72 *lb VOC/mo* = 800.64 *lb VOC/yr.*

H. Denatured Alcohol

3 *gal/mo* x 6.83 *lb VOC/gal* = 20.49 *lb VOC/mo* = 245.88 *lb VOC/yr.*

I. Epoxy Primer

5 *gal/mo* x 4.92 *lb VOC/gal* = 24.60 *lb VOC/mo* = 295.20 *lb VOC/yr.*

J. Metal Primer

2 *gal/mo* x 4.36 *lb VOC/gal* = 8.72 *lb VOC/mo* = 104.64 *lb VOC/yr.*

K. Alkyd Enamel Finish Paint

3 *gal/mo* x 4.25 *lb VOC/gal* = 12.75 *lb VOC/mo* = 153.00 *lb VOC/yr.*

L. Lacquer Paint

1 *gal/mo* x 4.60 *lb VOC/gal* = 4.60 *lb VOC/mo* = 55.20 *lb VOC/yr.*

M. Varnish

8 *gal/mo* x 4.38 *lb VOC/gal* = 35.04 *lb VOC/mo* = 420.48 *lb VOC/yr.*

MAXIMUM HOURLY VOLATILE ORGANIC COMPOUND CALCULATION

The hourly application rate of each coating is 0.5 gal/hr. The acrylic polyurethane mixture is the coating with the highest VOC content. Because only one type of coating is applied at any one time, the application of the acrylic polyurethane mixture represents the highest hourly emission rate. This emission rate is calculated as follows:

$$0.5\ gal/hr\ x\ 6.18\ lb\ VOC/gal\ =\ 3.09\ lb/hr\ =\ 0.39\ g/\text{sec.}$$

PAINT SPRAY BOOTH SPECIFICATIONS

This is a specification for a special, enclosed paint spray booth with special weather-proofing features.

It will be fabricated by Binks Manufacturing Company in Chicago and shipped knocked-down and crated.

The booth will be constructed of 18 gauge galvanized panels, flanged on all sides with rolled edges for rigidity.

DIMENSIONS

Inside Work Dimensions: 14' wide; 10' high; 15' deep.

Overall (Footprint) Dimensions: 14'-6" wide; 13' high; 19'-2" deep

Front Entrance Filter Doors: 5' wide; 8'-6" high.

Personnel Door: 2'-6" wide; 6'-9" high.

EXHAUST SYSTEM

The furnished exhaust system will include a 42" diameter, spark-proof fan, belt driven through a vapor-proof drive tube via a 5 HP, open-type, drip proof, ball bearing, 230/460/60, 3-phase motor.

Fan capacity will be 18,450 CFM at 1/2" SP for a calculated velocity through the empty booth of 135 FPM.

The exhaust filter media is made of special non-fire supporting paper. The filters have a Class II UL listing and comply with NFPA Code 33.

The front filter doors and panels beside the front filter doors will be provided with tight-seal air filters for inlet make-up air.

LIGHTING

The booth will be furnished with ten (10) fluorescent light fixtures for 120V service. (Bulbs not included.) Fixtures will have Class I, Div. 2 ratings for hazardous locations. Fixtures will be outside of the booth and illuminate the booth interior through wire-glass panels built into the booth ceiling.

SPECIAL WEATHER PROOFING FEATURES

The booth will be furnished with a separate 22 gauge corrugated roof, mounted just above the booth. Louvered panels will be supplied to close off the gables. Light fixtures will be furnished with louvered enclosures. Removeable louvered cover panels will be furnished for the front filter doors.

EXHAUST STACK

An exhaust stack package will be provided, consisting of:

1, 42" diameter x 3' length of exhaust stack with a code-required clean-out-door.

1, weather proof motor housing for the exhaust fan motor.

1, 42" diameter stack weather head with automatic, gravity dampers.

Necessary fan connector rings.

ELECTRICAL CONTROLS/SAFETY EQUIPMENT PACKAGE

1, 5 HP NEMA 12 magnetic fan motor starter

1, Explosion proof push button station

2, Explosion proof light switches

1, Gun hook energy saving device

1, Manometer (Dirty filter indicator)

ITEMS NOT FURNISHED WITH THIS BOOTH

Fire suppression equipment.

Compressed air equipment.

OPTIONAL MECHANICAL INSTALLATION OF SPRAY BOOTH

Lee Patterson Co. will perform the mechanical installation of this booth as follows:

Uncrate and inventory the booth.

Erect the booth; install the exhaust plenum, fan and motor.

Install the light fixtures (furnish bulbs) and covers.

Align the booth and fsten to your slab.

Install the manometer.

GENERAL CONTRACTOR'S OR OWNER'S RESPONSIBILITIES IF WE INSTAL

Receive and unload the booth from the freight carrier.

Deliver the booth to within 100' of job site when ready for installation.

Store items vulnerable to weather (fan motor, filters, etc.) safe from weather.

Provide a debris dispoasl area (for crating) within 200' of job site.

Provide a clean, level slab suitable for installation.

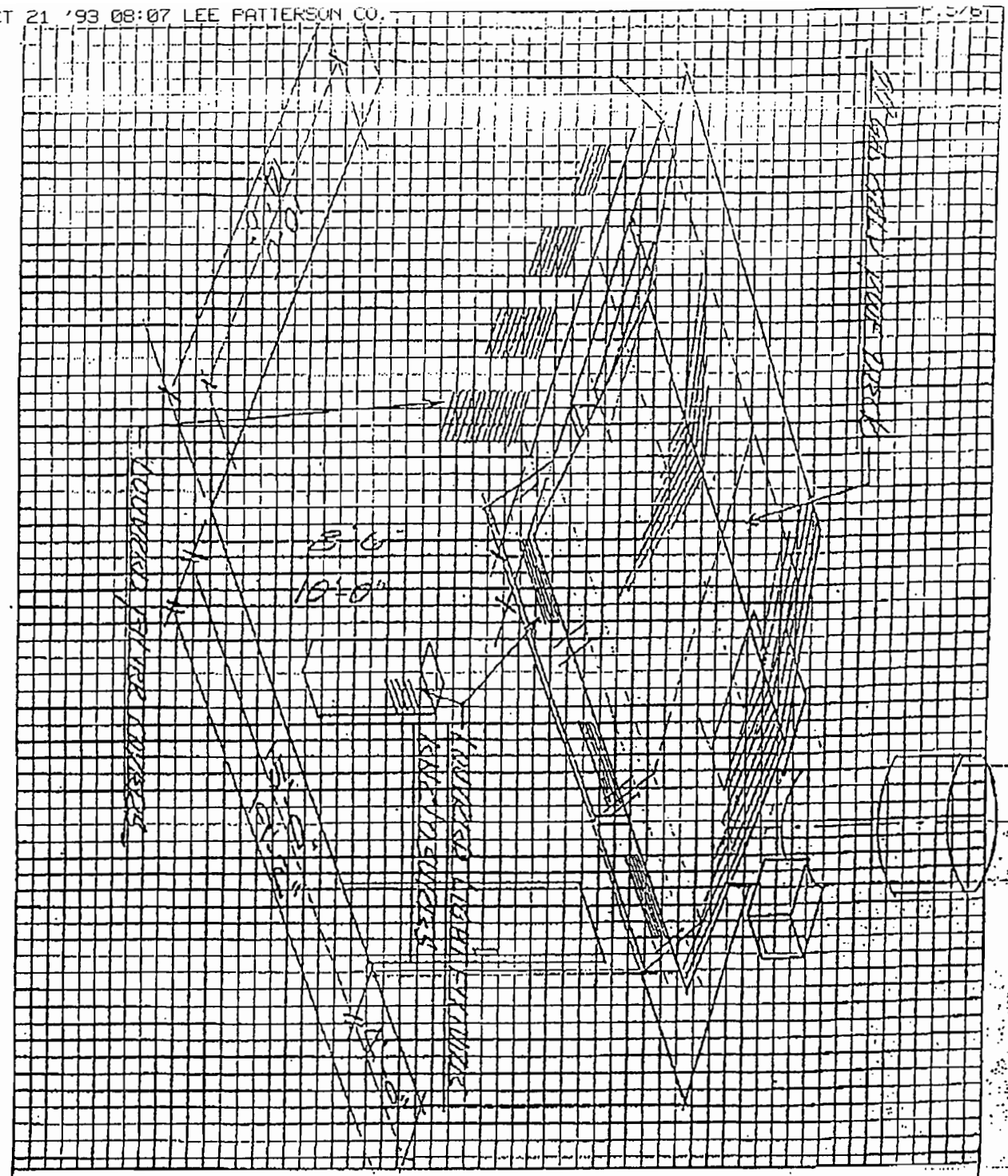
Provide any permits or licenses required.

Provide electrical wiring and hook-up.

GENERAL INFORMATION

Lee Patterson Co. is a non-union organization. We work a standard 40-hour, 5-day week.

We are not a contractor, and we work for general contractors or owners via purchase orders.



LEE PATTERSON Co	1022 W. ROBINSON ST. ORLANDO, FL 32805-1599
BY GARY PATTERSON 422-4567	TITLE SPECIAL PAINT BOOTH
16 JAN '92	CUSTOMER WOW - PARKS PLANNED WORKS

BINKS MANUFACTURING COMPANY
9201 WEST BELMONT AVENUE, FRANKLIN PARK, ILLINOIS 60131
MAILING ADDRESS:
P.O. BOX 66090 AMF O'HARE, ILLINOIS 60666
PHONE: 708/671-3000
FAX: 708/671-1471
OFFICES IN ALL PHINCIPAL CITIES

BINKS

RE:

TO WHOM IT MAY CONCERN:

BINKS SPRAY BOOTHS CONFORM WITH NFPA 33: SPRAY APPLICATION USING FLAMMABLE AND COMBUSTIBLE MATERIAL - 1985 EDITION.

U. S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) (GENERAL INDUSTRIAL STANDARDS AND INTERPRETATIONS) (REVISION CHANGE NUMBER 45, APRIL 30, 1987) 1910.107 - SPRAY FINISHING USING FLAMMABLE AND COMBUSTIBLE ... MATERIALS.

BINKS SPRAY BOOTHS AND THEIR NECESSARY COMPONENTS CONFORM WITH NFPA 33, OSHA AND EPA REGULATIONS. HOWEVER, THIS EQUIPMENT IS DESIGNED EXPRESSLY FOR THE REMOVAL OF PARTICULATE MATTER ONLY. REDUCTION OF "VOLATILE ORGANIC CHEMICALS" (VOC) REQUIRES EITHER COATING REFORMULATION OR OPTIONAL ADDITIONAL EQUIPMENT.

THESE STANDARDS SUGGEST PRACTICAL REQUIREMENTS FOR REASONABLE SAFETY UNDER AVERAGE CONTEMPLATED CONDITIONS. IF UNUSUAL INDUSTRIAL PROCESSES ARE INVOLVED, THE AUTHORITY HAVING JURISDICTION MAY REQUIRE ADDITIONAL SAFEGUARDS OR MODIFY THE REQUIREMENTS OF THE STANDARDS, PROVIDED EQUIVALENT SAFETY CAN BE OBTAINED.

BINKS' 29-359 ANDREAE FILTER IS CLASSIFIED BY UNDERWRITERS LABORATORIES, INC. ("UL") AS TO FLAMMABILITY ONLY CLASS 2-641N.

FM APPROVED - APPROVED BY THE BOARD OF STANDARDS AND APPEALS FOR USE IN THE NEW YORK CITY UNDER CALENDER NUMBER 740-72-SM.

BINKS' 29-103 AND 29-107 PAD TYPE FILTERS - FOR CODE COMPLIANCES CALL: RESEARCH PRODUCTS CORP.: 800/356-9652 (EXCEPT WISC.). WISCONSIN CALL: 608/257-8801.

FLUORESCENT LIGHT FIXTURES - CLASSIFICATION OF HAZARDOUS ATMOSPHERES -
29-1090, 115 VOLTS - 3 TUBES* CLASS 1 - GASES, VAPORS
29-1091, 277 VOLTS - 3 TUBES* DIVISION 2 - NOT NORMALLY HAZARDOUS
29-1094, 115 VOLTS - 4 TUBES* GROUP - A, B, C AND D
29-1095, 277 VOLTS - 4 TUBES*

*FLUORESCENT TUBES BY OTHERS.
ABOVE FIXTURES ARE UL LISTED - 597R & 2386.

(rec'd 4-10-90)

BINKS EXHAUST FANS CONFORM WITH NFPA 91: BLOWER AND EXHAUST SYSTEMS FOR DUST, STOCK AND VAPOR REMOVAL OR CONVEYING - 1983 EDITION.

BINKS EXHAUST DUCTS CONFORM WITH NFPA 91: BLOWER AND EXHAUST SYSTEMS FOR DUST, STOCK AND VAPOR REMOVAL OR CONVEYING - 1983 EDITION - CLASS I: CONSTRUCTION ONLY.

" OFFICIAL SEAL "
LILLIAN SOCKI
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 3/25/94

SIGNED: _____ DATE: 4-5-90

ATTACHMENT H

EPCOT SPRAY BOOTHS-
EMISSIONS CALCULATIONS AND MAP

Epcot Spray Booths

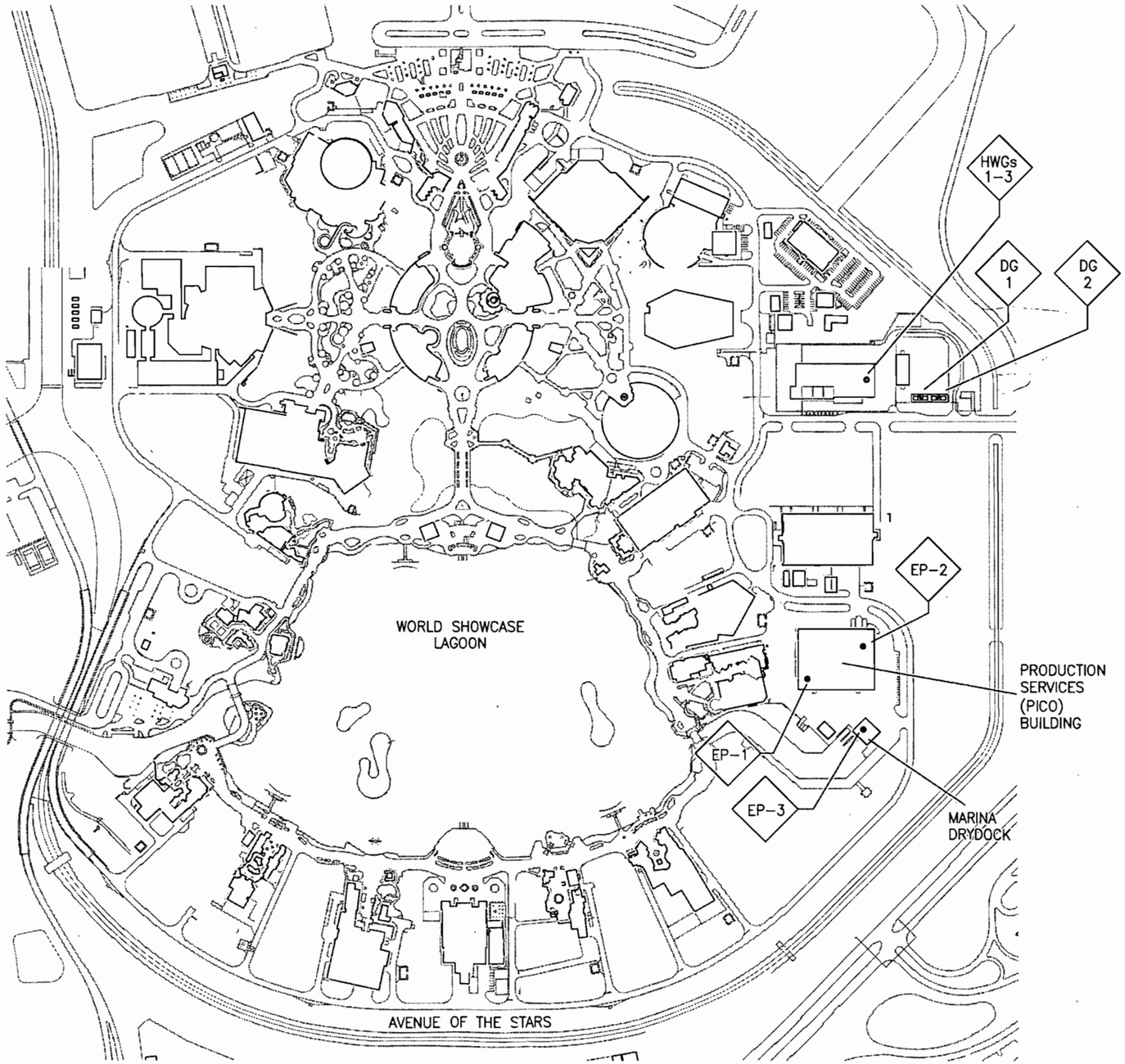
E.U. ID	Description	Permitted VOC Limit, tpy
068 (EP-1)	Maintenance PSB	11.40
069 (EP-2)	Display PSB	0.06
070 (EP-3)	Marina PSB	0.93
Total VOC tpy		12.39

PICO Building E.U. Allocation

068 (EP-1)	Maintenance PSB	6.00
069 (EP-2)	Display PSB	1.00
Total VOC tpy		7.00

Marina Spray Booth Allocation remaining from 12.39 tpy
= (12.39 - 7.00) tpy = 5.39 tpy

070 (EP-3)	Marina PSB	5.39



N

GRAPHIC SCALE

0 125 250 500

SCALE IN FEET

LEGEND

DG 2 EMISSION POINT

AREA MAP WITH PLOT PLAN
EPCOT CENTER

Walt Disney World®

ATTACHMENT I

DRAINAGE SPRAY BOOTH-
EMISSIONS CALCULATIONS AND CONSTRUCTION PERMIT APPLICATION

Drainage Yard Spray Booth
Data from TABLE I in construction permit application

Material	pound VOC/yr	VOC TPY
MEK	541	0.27
Propylene Glycol	790	0.40
Butyl Acetate	166	0.08
MIBK	83	0.04
MAK	42	0.02
Xylene	1062	0.53
Acrylonitrile	11.3	0.01
Total VOC tpy	2695.30	1.35

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

.071 PSA-1

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Paint Spray Booth [ ] New[1] [ ] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [ ] Modification

COMPANY NAME: Walt Disney World Co. COUNTY: Orange

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Drainage Yard Paint Spray Booth

SOURCE LOCATION: Street Bear Island Road City Lake Buena Vista

UTM: East _____ North _____

Latitude 28 ° 22 ' 30 "N Longitude 81 ° 35 ' 30 "W

APPLICANT NAME AND TITLE: Bob Penn, Director-Environmental Affairs

APPLICANT ADDRESS: P.O. Box 10,000, Lake Buena Vista, FL 32830

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Walt Disney World Co.

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: _____

Bob Penn, Director-Environmental Affairs
Name and Title (Please Type)

Date: _____ Telephone No. 827-2730

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed _____

Robert Beaver
Name (Please Type)

Walt Disney World Co.-Design & Engineering
Company Name (Please Type)

P.O. Box 10,000, Lake Buena Vista, FL 32830
Mailing Address (Please Type)

Florida Registration No. 32528 Date: _____ Telephone No. 828-1584

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

Installation of a JBI Dry Filter Automotive Paint Spray Booth, equipped with Columbus Industries, Inc. dry filters. The paint spray booth will be used to paint traffic control equipment and will operate in compliance with applicable regulations.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction December 15, 1991 Completion of Construction January 30, 1992

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

$30,000.00

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

This is a new installation.

E. Requested permitted equipment operating time: hrs/day 8 ; days/wk 5 ; wks/yr 52 ;

if power plant, hrs/yr ____; if seasonal, describe: not seasonal

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No

   a. If yes, has "offset" been applied? ____

   b. If yes, has "Lowest Achievable Emission Rate" been applied? ____

   c. If yes, list non-attainment pollutants. ____

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. No

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. No

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? No

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? No

   a. If yes, for what pollutants? ____

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Xymax 66 Series	VOC	60		
	Particulate	40		
Delstar Acrylic Enamel	VOC	45.5	2.36	
	Particulate	54.5		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
SEE TABLE I							

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
JBI Dry Filter	VOC	0%		Manufacturer's
Paint Spray Booth	Particulate	96%		Specifications
with Columbus				
Industries filters				

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average _____ Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

All hazardous wastes will be disposed in compliance with RCRA and 17-730, F.A.C. regulations.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 18 ft. ft. Stack Diameter: 2.83 ft. ft.

Gas Flow Rate: 20,600 ACFM DSCFM Gas Exit Temperature: ambient °F.

Water Vapor Content: appx. 90% RH % Velocity: 54.58 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

_____

_____

_____

_____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

_____

_____

_____

_____

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

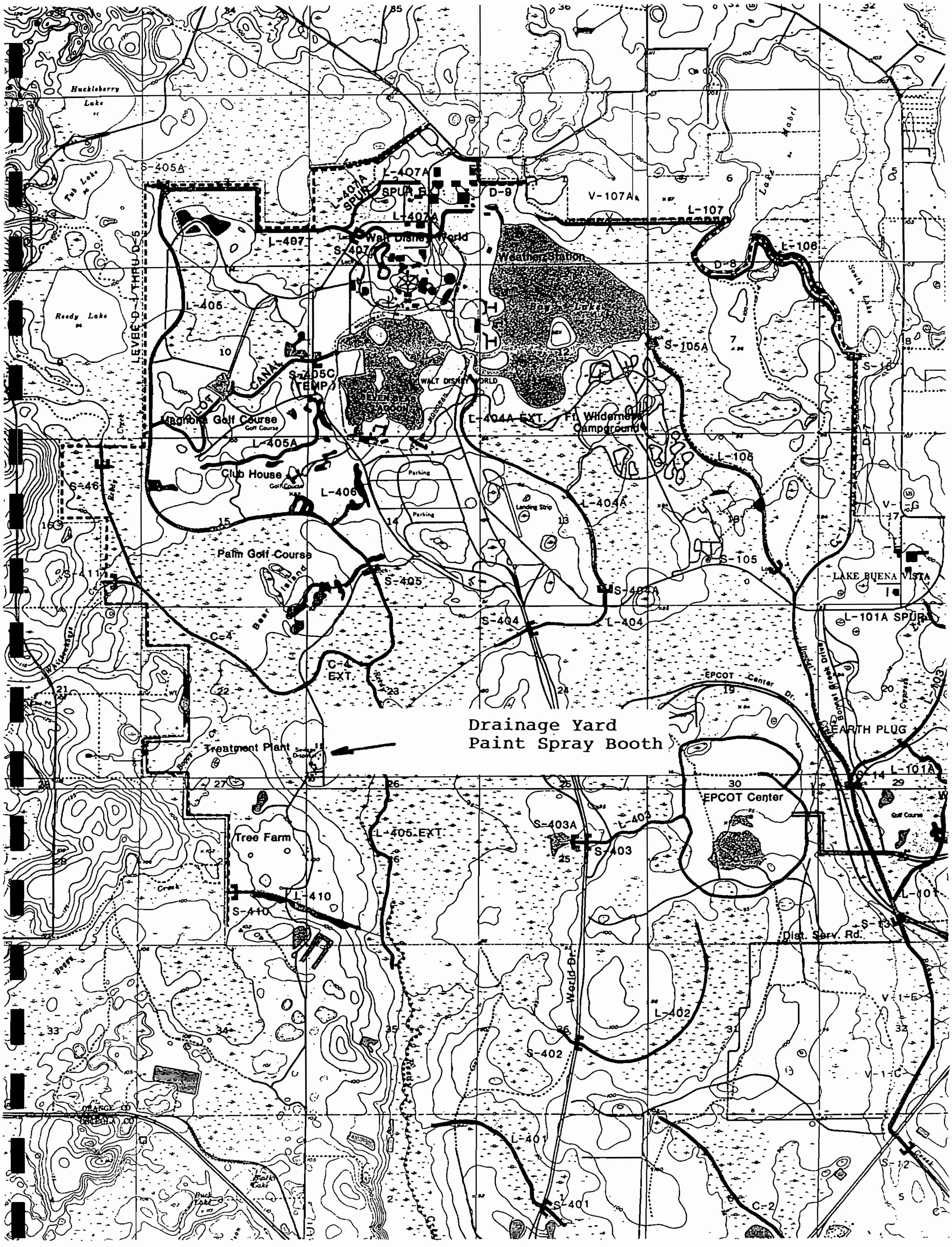
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.



Drainage Yard
Paint Spray Booth
Huckleberry Lake
Reedy Lake
S-405A
L-407A
L-407A SPUR
SPUR B
L-407A
D-9
V-107A
L-107
L-407
S-407
Walt Disney World
Weather Station
L-106
D-8
Bay Lake
S-105A
L-405
LEVEE D-1 THRU D-5
10
S-405C (TEMP)
PILOT CANAL
WALT DISNEY WORLD
Magnolia Golf Course
L-404A EXT.
Ft. Wilderness Campground
L-405A
Club House
L-406
S-46
Parking
Landing Strip
L-404A
15
14
13
18
Palm Golf Course
S-105
S-411
S-405
S-404A
LAKE BUENA VISTA
S-404
L-404
L-101A SPUR
C-4
Bear Island
C-4 EXT.
22
23
24
EPCOT Center Dr.
19
20
L-103
EARTH PLUG
Treatment Plant
L-101A
27
26
25
30
29
EPCOT Center
Tree Farm
L-405 EXT.
S-403A
L-403
S-403
L-410
S-410
L-101
S-13
Dist. Serv. Rd.
World Dr.
L-402
V-1-E
33
34
35
36
31
32
S-402
V-1-C
ORANGE CO
OSCEOLA CO
L-401
S-401
C-2
S-12

TABLE I

TOTAL EMISSIONS - DELSTAR ACRYLIC AND XYMAX 66

	Lb/Hr	Lb/Yr	TPY
MEK	0.26	541	0.27
Propylene Glycol	0.38	790	0.40
Butyl Acetate	0.08	166	0.08
MIBK	0.04	83	0.04
MAK	0.02	42	0.02
Xylene	0.51	1062	0.53
Acrylonitrile	0.1	11.3	0.01
Particulates			
Potential	1.06	2213.0	1.11
Actual	0.04	88.2	.04

CALCULATIONS

Delstar Acrylic Enamel

Volatiles	=	45.5% (by weight)
Xylene	=	45.0%
Acrylonitrile	=	0.5%
Non-Volatile	=	54.5%
Density	=	8.73 lb/gal.
Usage Rate	=	1.09 lb/hr.

Volatile Emissions

Xylene

(1.09 lb/hr) (0.45)	=	0.49 lb/hr.
(0.49 lb/hr) (2080 hr/yr)	=	1020 lb/yr = 0.51 TPY.

Acrylonitrile

(1.09 lb/hr) (0.005)	=	.01 lb/hr
(0.01 lb/hr) (2080 hr/yr)	=	11.34 lb/yr = 0.01 TPY.

Particulate Emissions

Potential Emissions

(1.09 lb/hr) (0.545)	=	0.59 lb/hr
(0.59 lb/hr) (2080 hr/yr)	=	1235.6 lb/yr = 0.62 TPY.

Actual Emissions

(0.59 lb/hr) (1-.96)	=	0.02 lb/hr
(0.02 lb/hr) (2080 hr/yr)	=	49.09 lb/yr = 0.02 TPY

Xymax 66 Series Polyurethane

Characteristics

Paint		Catalyst	
Volatiles	-60% (by wt.)	Volatiles	-69.7% (by wt.)
Non-volatiles	-40% (by wt.)	Non-volatiles	-30.3% (by wt.)
Density	-11.45 lb/gal.	Density	- 7.78 lb/gal.

Mix ratio 2 parts (66%) paint to 1 part (33%) catalyst. The resultant mixture contains:

Volatiles	-	63%
Non-volatiles	-	37%
Density	-	10.12 lb/gal.

The usage rate of mixed paint is 1.27 lb/hr.

Volatile Emissions

	From Paint 66%	From Catalyst (33%)	Total In Mix	% In Mix
MEK	1.51 lb	0.53 lb	2.04 lb.	20.2
Propylene Glycol	3.02 lb	0	3.02 lb.	29.8
Butyl Acetate	0	0.64 lb	0.64 lb.	6.3
MIBK	0	0.31 lb	0.31 lb.	3.1
MAK	0	0.13 lb	0.13 lb.	1.3
Xylene	0	0.18 lb	0.18 lb.	1.8

	%	EMISSIONS		
	In Mix	Lb/Hr	Lb/Yr	TPY
MEK	20.2 lb.	0.26	541	0.27
Propylene Glycol	29.8 lb.	0.38	790	0.40
Butyl Acetate	6.3 lb.	0.08	166	0.08
MIBK	3.1 lb.	0.04	83	0.04
MAK	1.3 lb.	0.02	42	0.02
Xylene	1.8 lb.	0.02	42	0.02

NOTE: See MSDS provided for contaminant concentrations in paint and catalyst.

Particulate Emissions

Potential Emissions

(1.27 lb/hr) (0.37) = 0.47 lb/hr
(0.47 lb/hr) (2080 hr/yr) = 977.4 lb/yr = 0.49 TPY.

Actual Emissions

(0.47 lb/hr) (1-.96) = 0.02 lb/hr
(0.02 lb/hr) (2080 hr/yr) = 39.10 lb/yr = 0.02 TPY.

ATTACHMENT J

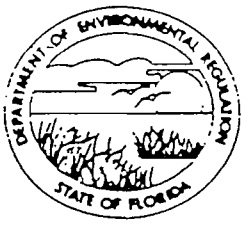
ALL-STAR RESORT SPRAY BOOTH-
CONSTRUCTION PERMIT APPLICATION

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

xxx/ASR-1

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Paint Spray Booth [X] New[1] [ ] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [ ] Modification

COMPANY NAME: Walt Disney World Co. COUNTY: Osceola

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Disney's All-Star Reso Paint Spray Booth

SOURCE LOCATION: Street 3499 W. Buena Vista Drive City Kissimmee

UTM: East _____ North _____

Latitude 28 ° 21 ' 00 "N Longitude 81 ° 34 ' 00 "W

APPLICANT NAME AND TITLE: Walt Disney World Co.

APPLICANT ADDRESS: P.O. Box 10,000, Lake Buena Vista, FL 32830

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Walt Disney World Co.

I certify that the statements made in this application for a Construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: Bob Penn

Bob Penn, Director-Environmental Affairs
Name and Title (Please Type)

Date: 6-2-93 Telephone No. (407)827-2730

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed _____

Robert Beaver
Name (Please Type)

Walt Disney World Co.
Company Name (Please Type)

P.O. Box 10,000, Lake Buena Vista, FL 32830
Mailing Address (Please Type)

Florida Registration No. 32528 Date: 6/1/93 Telephone No. (407)828-1584

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

Installation of a Binks Model PFF-12-8-T-LH Paint Spray Booth equipped with paint arrestor particulate filters. The booth will be used to spray miscellaneous parts for maintenance functions. The project will be in compliance with applicable State regulations.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction August 1993 Completion of Construction January 1994

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

$25,000.00

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

None-this is a new installation.

E. Requested permitted equipment operating time: hrs/day 16 ; days/wk 5 ; wks/yr 52 ;

if power plant, hrs/yr____; if seasonal, describe: Not seasonal

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No

   a. If yes, has "offset" been applied?

   b. If yes, has "Lowest Achievable Emission Rate" been applied?

   c. If yes, list non-attainment pollutants.

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. No

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. No

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? No

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? No

   a. If yes, for what pollutants?

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Acrylic Polyurethane	VOC	34.04	8.6	
Acrythane	VOC	36.86	0.6	
Alcohol Primer	VOC	54.0	0.9	
DP-40 Primer	VOC	46.0	0.9	

SEE TABLE I

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
VOC	4.05	8.42			16,848	8.42	
Particulate	0.35	0.72			28,995	14.50	

[1]See Section V, item 2. SEE TABLE II.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Binks Model	VOC	-0-		Manufacturer
PFF-12-8-T-LH Booth	Part.	95%		Specificatio
with Paint Arrestor				
Filters				

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average _____ Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

Liquid wastes will be properly disposed of as hazardous wastes. All solid wastes will be properly disposed of by the RCID Solid Waste Department.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 27 ft. Stack Diameter: 2.83 ft.

Gas Flow Rate: 11700 ACFM _____ DSCFM Gas Exit Temperature: Ambient °F.

Water Vapor Content: Ambient % Velocity: 31.0 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

_____

_____

_____

_____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

_____

_____

_____

_____

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

TABLE I

Acrylic Polyurethane - 8.62 lb/gal

VOC	Wt. %	Lb/Gal
Toluol	7.34	0.63
Aliphatic Ketone	5.21	0.45
Butyl Acetate	10.60	0.91
Methyl Amyl Ketone	10.89	0.94
TOTAL VOC	34.04	2.93
Particulate	65.96	5.69
Utilization Rate - 8.6 lb/hr.		

Acrythane - 10.44 lb/gal

Naptha	4.51	0.47
Toluol	7.47	0.78
Ethyl Benzene	6.22	0.65
Propylene Glycol M.E. Acetate	18.66	1.95
TOTAL VOC	36.86	3.85
Particulate	63.14	6.59
Utilization Rate - 0.6 lb/hr.		

Alcohol Primer (Shellac) - 9.94 lb/gal

Ethyl Alcohol	40.0	4.0
Isopropyl Alcohol	10.0	1.0
Methyl Alcohol	<4.0	0.4
TOTAL VOC	54.0	5.4
Particulate	46.0	4.5
Utilization Rate - 0.9 lb/hr.		

DP-40 Primer - 10.41 lb/gal

1-Methoxy-2-Propanol	5.0	0.52
Oxo-heptyl Acetate	1.0	0.10
Isobutyl Acetate	15.0	1.56
Isopropyl Alcohol	5.0	0.52
M.E.K.	15.0	1.56
Toluene	5.0	0.52
TOTAL VOC	46.0	4.78
Particulate	54.0	5.63
Utilization Rate - 0.9 lb/hr.		

TABLE 2

Maximum Utilization Rate - 11.0 lb/hr.

Total Emissions (from Table I)

	VOC (lb/hr)	Part (lb/hr)
Acrylic Polyurethane	2.93	5.69
Acrythane	0.22	0.38
Alcohol Primer	0.49	0.41
DP-40 Primer	0.41	0.49
Emissions Rate	4.05	6.97

VOC Emissions

(4.05 lb/hr) (4160 hr/yr) = 16,848 lb/yr = 8.41 TPY

Particulate Emissions

Potential Emissions
(6.97 lb/hr) (4160 hr/yr) = 28,995 lb/yr = 14.50 TPY

Actual Emissions
(6.97 lb/hr) (4160 hr/yr) (0.05) = 1,449.8 lb/yr
= 0.72 TPY
(6.97 lb/hr) (.05) = 0.35 lb/hr

Actual Emissions based on 95% filter efficiency.

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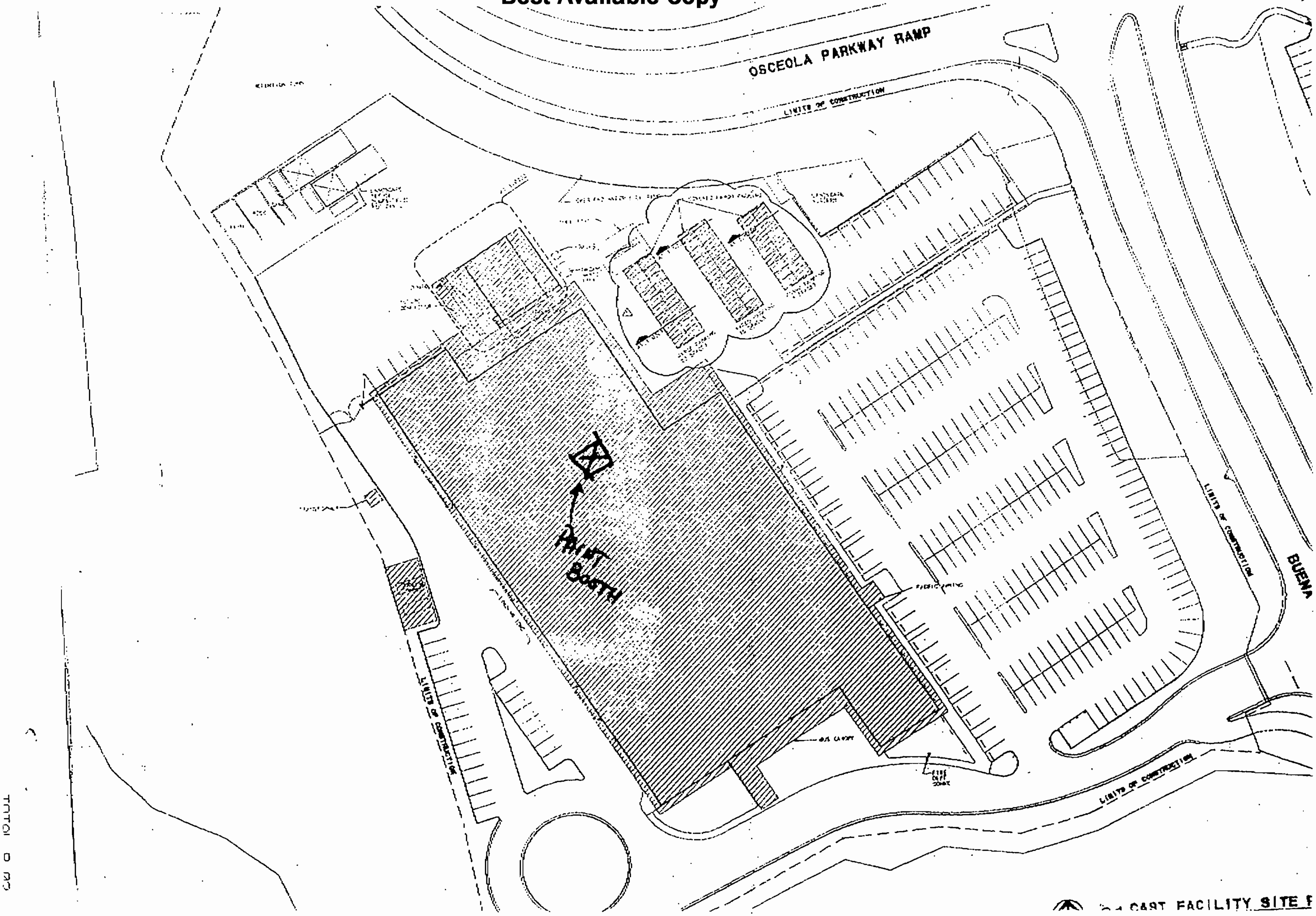

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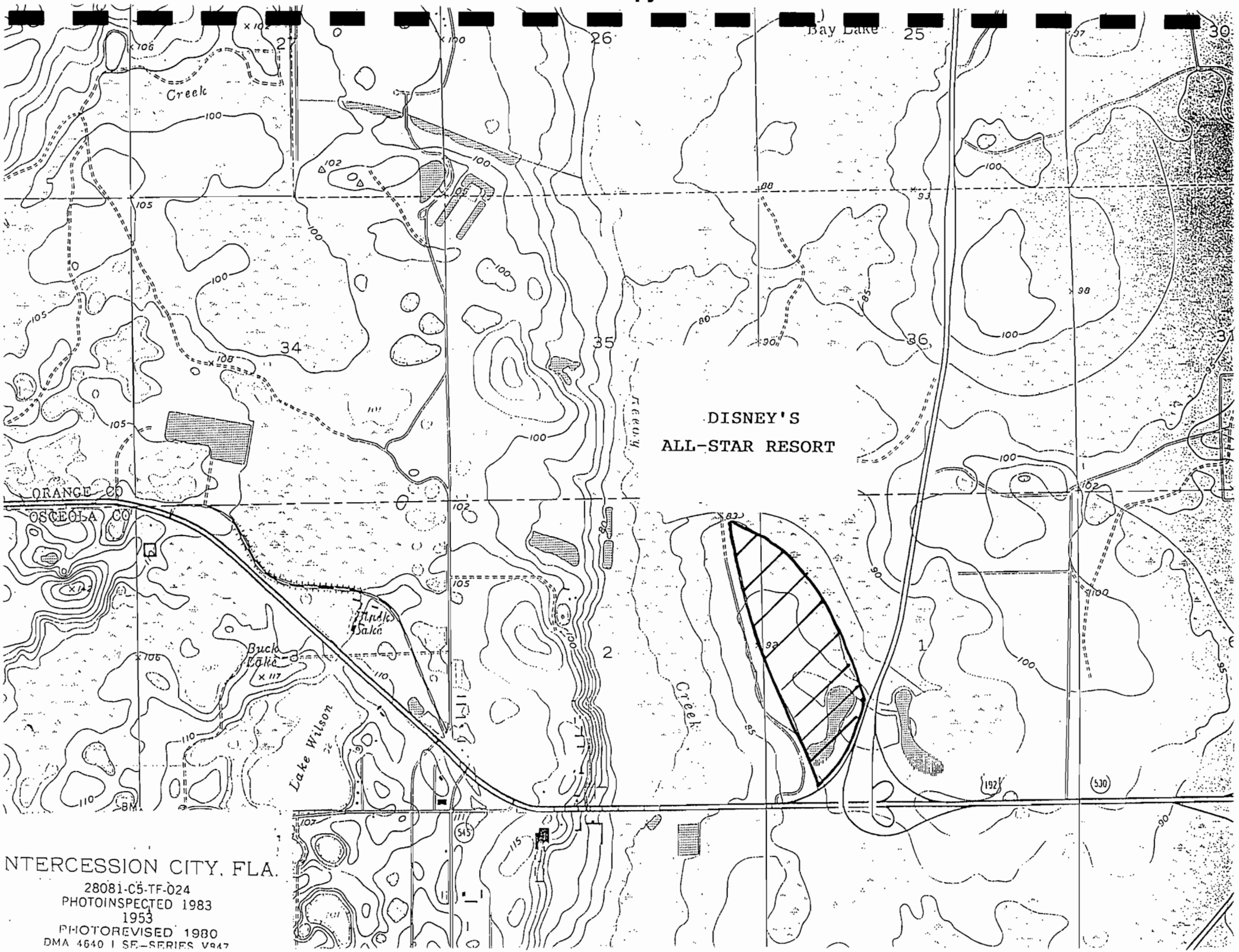

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PAINT ARRESTOR FILTER SPRAY BOOTH

Floor-Type and Conveyor-Type

Paint Arrestor Spray Booths

Binks Paint Arrestor Floor-Type Spray Booths efficiently remove overspray and equalize air flow through the work area. The paint arrestor filters trap airborne paint particles and minimize paint accumulation on the exhaust system fan and stack.

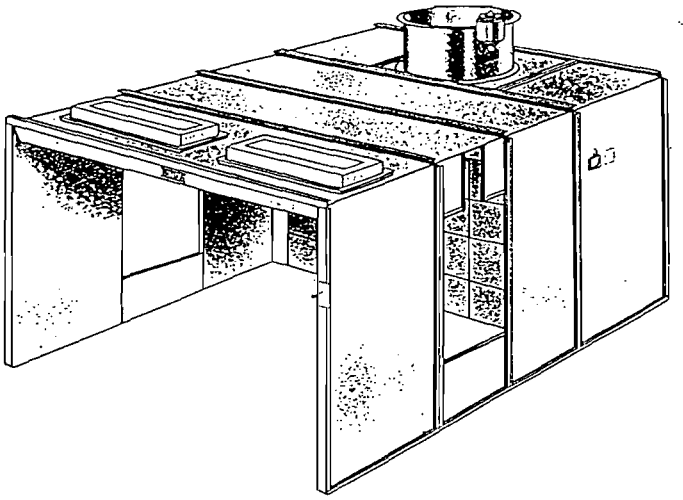
Construction Features

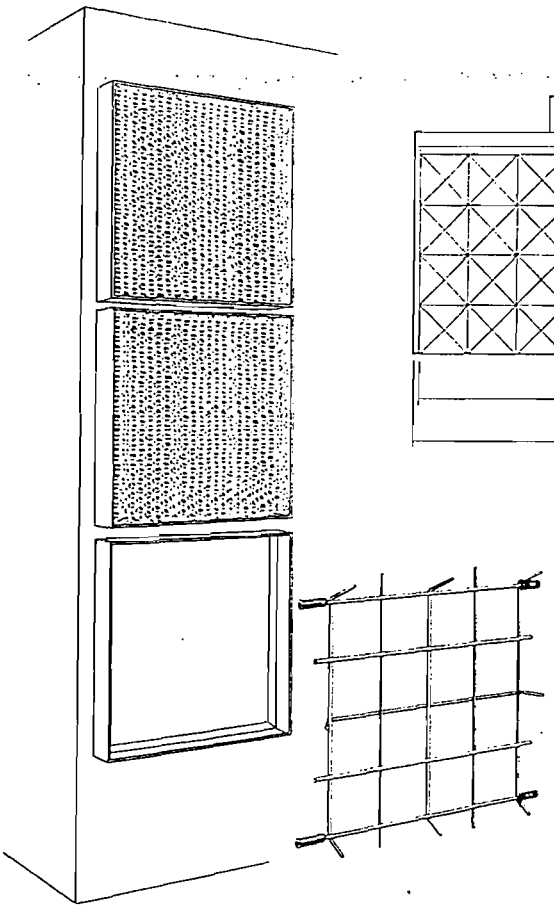
Built of 18 gauge galvanized panels with exterior flanges, the booth is easily assembled by two men. Interior of booth is smooth.

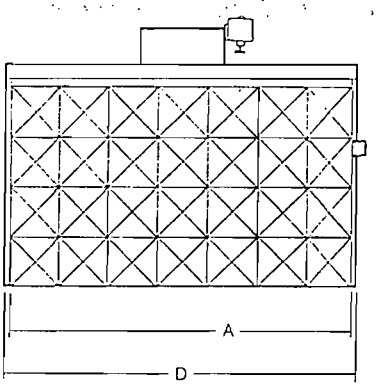
The filter bank is preassembled and shipped in either one or two sections. Individual filter cells consist of two 20" x 20" x 1" Paint Arrestor filter pads. Filters are easily replaced. They have a Class 2 listing by Underwriters' Laboratories and are Factory Mutual approved.

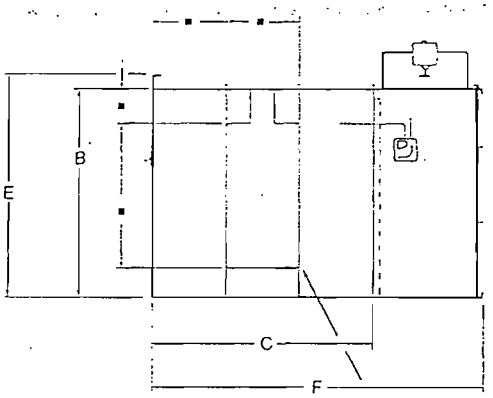
Exhaust Unit & Lighting equipment for dry filter booths can be ordered separately or included in package models.

Paint Arrestor Filter Booths are available in floor-type and conveyor models. Refer to appropriate chart for model selection.





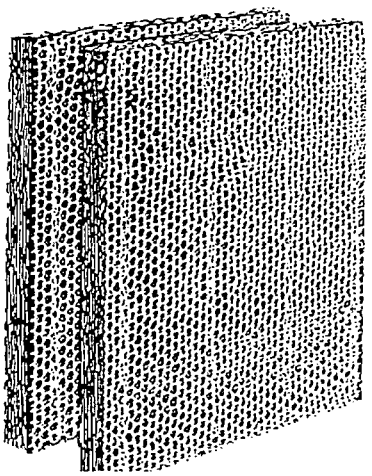




SIDE OPENING CONVEYOR BOOTH ONLY

■ When ordering please advise Binks of dimensions.

Paint Arrestor Filter Booths are available in floor-type and conveyor models. Refer to appropriate chart for model selection.



A double layer of one inch thick pads are used. Only one layer need be replaced at a time as most paint particles are caught in the first inch filter thickness.

7'-0" PAINT ARRESTOR FILTER BOOTH

125 FPM Min. Face Velocity, Floor-Type

Model Number ♦	Work Dimensions A	B	C	Overall Dimensions D	E	F	No. of Filter Cells	Air Flow at .25" Water Col. SCFM	Fan and Motor Model No.	Dia.	H.P.	Qty. Windows & Lights	Shpg. Wt. Lbs.
FF-4-7-T	4'-0"	7'-0"	4'-0"	4'-4"	7'-2'	6'-8"	8	3750	30-1620	18"	3/4	0	550
PFF-4-7-T												0	675
FF-5-7-T												0	575
PFF-5-7-T	5'-0"	7'-0"	4'-0"	5'-4"	7'-2"	6'-8"	12	4500	30-4200	24"	1/2	0	750
PFF-5-7-T-LH												1	840
FF-6-7-T												0	660
PFF-6-7-T	6'-0"	7'-0"	4'-0"	6'-4"	7'-2"	6'-8"	12	5600	30-4202	24"	3/4	0	850
PFF-6-7-T-LH												1	940
FF-8-7-T												0	950
PFF-8-7-T	7'-8"	7'-0"	6'-0"	8'-0"	7'-2"	8'-8"	16	7400	30-4206	24"	1½	0	1150
PFF-8-7-T-LH												1	1240
FF-10-7-T												0	1150
PFF-10-7-T	9'-8"	7'-0"	6'-0"	10'-0"	7'-2"	9'-8"	20	8800	30-4301	34"	1½	0	1450
PFF-10-7-T-LH												2	1630
FF-12-7-T												0	1300
PFF-12-7-T	11'-8"	7'-0"	6'-0"	12'-0"	7'-6"	9'-8"	28	10600	30-4304	34"	2	0	1600
PFF-12-7-T-LH												3	1870
FF-14-7-T												0	1750
PFF-14-7-T	13'-8"	7'-0"	7'-6"	14'-8"	7'-8"	11'-2"	32	12500	30-4306	34"	3	0	2050
PFF-14-7-T-LH												4	2450
FF-16-7-T												0	1950
PFF-16-7-T	15'-8"	7'-0"	7'-6"	16'-8"	7'-10"	11'-2"	36	13800	30-4307	34"	3	0	2250
PFF-16-7-T-LH												4	2650
FF-18-7-T												0	2300
PFF-18-7-T	17'-8"	7'-0"	7'-6"	18'-8"	8'-0"	11'-2"	40	15400	30-4309	34"	5	0	2600
PFF-18-7-T-LH												4	3000
FF-20-7-T												0	2600
PFF-20-7-T	19'-8"	7'-0"	7'-6"	20'-8"	8'-0"	11'-8"	44	18000	30-4410	42"	5	0	3000
PFF-20-7-T-LH												6	3540

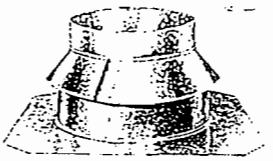
8'-0" PAINT ARRESTOR FILTER BOOTH

125 FPM Min. Face Velocity, Floor-Type

Model Number ♦	Work Dimensions A	B	C	Overall Dimensions D	E	F	No. of Filter Cells	Air Flow at .25" Water Col. SCFM	Fan and Motor Model No.	Dia.	H.P.	Qty. Windows & Lights	Shpg. Wt. Lbs.
FF-4-8-T	4'-0"	8'-0"	4'-0"	4'-4"	8'-2'	6'-8"	8	4500	30-4200	24"	1/2	0	570
PFF-4-8-T												0	730
FF-5-8-T												0	660
PFF-5-8-T	5'-0"	8'-0"	4'-0"	5'-4"	8'-2"	6'-8"	12	5600	30-4202	24"	3/4	0	810
PFF-5-8-T-LH												1	900
FF-6-8-T												0	750
PFF-6-8-T	6'-0"	8'-0"	4'-0"	6'-4"	8'-2"	6'-8"	12	6200	30-4204	24"	1	0	930
PFF-6-8-T-LH												1	1020
FF-8-8-T												0	1100
PFF-8-8-T	7'-8"	8'-0"	6'-0"	8'-0"	8'-2"	8'-8"	16	8000	30-4207	24"	2	0	1400
PFF-8-8-T-LH												1	1490
FF-10-8-T												0	1300
PFF-10-8-T	9'-8"	8'-0"	6'-0"	10'-0"	8'-2"	9'-8"	20	10000	30-4303	34"	1½	0	1600
PFF-10-8-T-LH												2	1780
FF-12-8-T												0	1700
PFF-12-8-T	11'-8"	8'-0"	7'-6"	12'-0"	8'-6"	11'-2"	28	11700	30-4305	34"	2	0	2000
→ PFF-12-8-T-LH												3	2270
FF-14-8-T												0	1900
PFF-14-8-T	13'-8"	8'-0"	7'-6"	14'-8"	8'-8"	11'-2"	32	13800	30-4307	34"	3	0	2200
PFF-14-8-T-LH												4	2600
FF-16-8-T												0	2100
PFF-16-8-T	15'-8"	8'-0"	7'-6"	16'-8"	8'-10"	11'-2"	36	17000	30-4312	34"	5	0	2400
PFF-16-8-T-LH												4	2810
FF-18-8-T												0	2450
PFF-18-8-T	17'-8"	8'-0"	7'-6"	18'-8"	9'-0"	11'-2"	40	18000	30-4313	34"	7½	0	2750
PFF-18-8-T-LH												4	3150
FF-20-8-T												0	2750
PFF-20-8-T	19'-8"	8'-0"	7'-6"	20'-8"	9'-0"	11'-8"	44	20300	30-4412	42"	5	0	3150
PFF-20-8-T-LH												6	3690

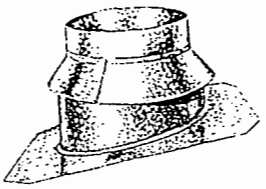
♦ See pages 2 through 4 for Notes to Spray Booths.

☐ COMPONENTS

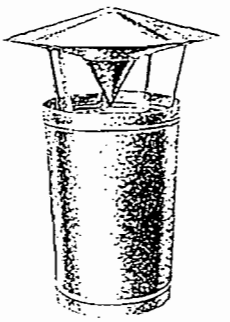


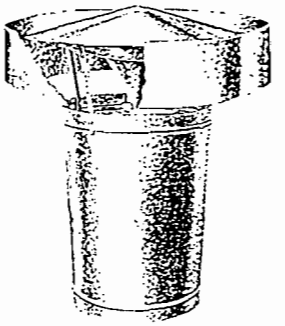
Flat type roof flange
Required on all vertical exhaust stacks passing through roof.

Flat type roof flange Model Number	Shpg. Wt.	Pitched roof flange Model Number	Shpg. Wt.	Dia.
29-807	70 Lbs.	29-808	75 Lbs.	12"
29-29	80 Lbs.	29-33	95 Lbs.	18"
29-30	100 Lbs.	29-34	115 Lbs.	24"
29-31	130 Lbs.	29-35	150 Lbs.	34"
29-32	145 Lbs.	29-36	205 Lbs.	42"
29-344	160 Lbs.	29-345	260 Lbs.	48"



Pitched roof flange
Be sure to specify pitch of roof.

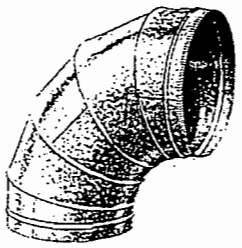




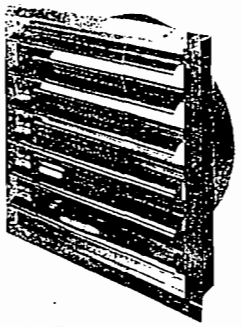
Weather canopy
Required for use with vertical exhaust stack on dry type and water wash booths where an offset elbow is used in vertical exhaust stack.

Weather canopy with rain guard
Required where weather canopy is exposed to hard driving rain and snow.

Weather canopy Model Number	Shpg. Wt.	Weather canopy with rain guard Model Number	Shpg. Wt.	Dia.
29-805	170 Lbs.	29-806	180 Lbs.	12"
29-37	190 Lbs.	29-41	210 Lbs.	18"
29-38	250 Lbs.	29-42	300 Lbs.	24"
29-39	400 Lbs.	29-43	475 Lbs.	34"
29-40	550 Lbs.	29-44	650 Lbs.	42"
29-342	650 Lbs.	29-343	800 Lbs.	48"



90° Elbow Model Number	Shpg. Wt.	45° Elbow Model Number	Shpg. Wt.	Dia.
29-803	50 Lbs.	29-802	40 Lbs.	12"
29-25	60 Lbs.	29-21	43 Lbs.	18"
29-26	70 Lbs.	29-22	48 Lbs.	24"
29-27	100 Lbs.	29-23	63 Lbs.	34"
29-28	125 Lbs.	29-24	75 Lbs.	42"
29-334	145 Lbs.	29-333	82 Lbs.	48"

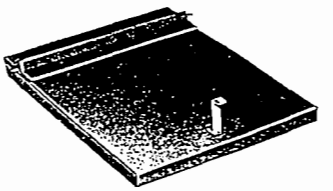


Automatic Shutter
For exhausting through side of building. Non-motorized louvers built into a square housing. Includes square to round transition.

Model Number	Size	Shpg. Wt.
29-811	12" x 12"	30 Lbs.
29-49	18" x 18"	40 Lbs.
29-50	24" x 24"	70 Lbs.
29-51	34" x 34"	150 Lbs.
29-52	42" x 42"	200 Lbs.
29-471	48" x 48"	260 Lbs.

Combination automatic damper and weather canopy

Model Number	Dia.	Shpg. Wt.
29-804	12"	125 Lbs.
29-93	18"	150 Lbs.
29-94	24"	200 Lbs.
29-95	34"	300 Lbs.
29-96	42"	400 Lbs.
29-341	48"	500 Lbs.



Manual dampers for use in a spray booth
Close off booth from exhaust fan. Chain operated.

Model▲ Number	Model■ Number	Duct Dia.	Shpg. Wt.
29-827		12"	25 Lbs.
29-9	29-13	18"	30 Lbs.
29-10	29-14	24"	35 Lbs.
29-11	29-15	34"	40 Lbs.
29-12	29-16	42"	45 Lbs.
29-339	29-340	48"	50 Lbs.

▲ for top mounted exhaust fan.
■ for back or side mounted exhaust fan.

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*** SCREEN-1.1 MODEL RUN ***
*** DRAFT VERSION XXXXX ***

L STAR RESORTS PAINT SPRAY BOOTH

MPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.5100
STACK HEIGHT (M)	=	8.20
STK INSIDE DIAM (M)	=	.86
STK EXIT VELOCITY (M/S)	=	9.40
STK GAS EXIT TEMP (K)	=	300.00
AMBIENT AIR TEMP (K)	=	293.00
RECEPTOR HEIGHT (M)	=	.00
IOPT (1=URB,2=RUR)	=	1
BUILDING HEIGHT (M)	=	6.70
MIN HORIZ BLDG DIM (M)	=	64.00
MAX HORIZ BLDG DIM (M)	=	131.10

→ TOTAL VOC EMISSION RATE ⇒ WORST CASE.

UOY. FLUX = .40 M**4/S**3; MOM. FLUX = 15.96 M**4/S**2.

** FULL METEOROLOGY ***

****
** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	0	.0	.0	.0	.0	.0	.0	NA
100.	220.0	4	2.0	2.0	640.0	14.3	15.7	13.8	SS
200.	93.92	4	1.0	1.0	320.0	32.5	31.6	28.1	NO
300.	86.78	5	1.0	1.0	5000.0	30.1	31.8	20.9	NO
400.	77.50	5	1.0	1.0	5000.0	30.1	41.3	26.1	NO
500.	64.70	5	1.0	1.0	5000.0	30.1	50.6	30.9	NO
600.	53.67	5	1.0	1.0	5000.0	30.1	59.6	35.4	NO
700.	44.97	5	1.0	1.0	5000.0	30.1	68.3	39.6	NO
800.	38.20	5	1.0	1.0	5000.0	30.1	76.8	43.6	NO
900.	32.91	5	1.0	1.0	5000.0	30.1	85.1	47.4	NO
1000.	28.72	5	1.0	1.0	5000.0	30.1	93.2	51.0	NO
1100.	25.35	5	1.0	1.0	5000.0	30.1	101.0	54.4	NO
1200.	22.60	5	1.0	1.0	5000.0	30.1	108.7	57.7	NO
1300.	20.32	5	1.0	1.0	5000.0	30.1	116.2	60.9	NO
1400.	18.42	5	1.0	1.0	5000.0	30.1	123.5	63.9	NO
1500.	16.81	5	1.0	1.0	5000.0	30.1	130.6	66.9	NO
1600.	15.43	5	1.0	1.0	5000.0	30.1	137.6	69.7	NO
1700.	14.24	5	1.0	1.0	5000.0	30.1	144.4	72.5	NO
1800.	13.20	5	1.0	1.0	5000.0	30.1	151.1	75.1	NO
1900.	12.29	5	1.0	1.0	5000.0	30.1	157.7	77.7	NO
2000.	11.49	5	1.0	1.0	5000.0	30.1	164.1	80.2	NO

AXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

56.	294.5	4	3.0	3.0	960.0	10.9	9.0	7.9	SS

01/29/90 MATERIAL SAFETY DATA SHEET

281-228

F P R AH CH 8.626 Lbs/Gal
Y N N Y Y
F14 Mixture liquid

MANUFACTURER:
MATTHEWS PAINT COMPANY
400 SOUTH MERCANTILE COURT
WHEELING, ILLINOIS 60090

EMERGENCY PHONE: (800) 424-930(
INFORMATION PHONE: (708) 537-920(

Acrylic Polyurethane

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER : 281-228
PRODUCT NAME : VOC-SATIN CLEAR

HMIS : H2F3R1P1
PREPARATION DATE: 01/01/89

CHEMICAL NAME : ORGANIC COATING CHEMICAL FAMILY : PAINT

SECTION II - HAZARDOUS INGREDIENTS

DESCRIPTION	CAS NUMBER	% (WGT)	TLV-TWA	PEL
REACTIVE MODIFIER	MIXTURE	10.76	100.00 PPM	100.00 PPM
TOLUOL	108-88-3	7.34	100.00 PPM	100.00 PPM
ALIPHATIC KETONE	78-93-3	5.21	200.00 PPM	200.00 PPM
BUTYL ACETATE	123-86-4	10.60	150.00 PPM	150.00 PPM
METHYL AMYL KETONE	110-43-0	10.89	50.00 PPM	100.00 PPM

RECEIVED
FEB 2 1990
ENVIRONMENTAL AFFAIRS

SECTION III - PHYSICAL DATA

BOILING RANGE : 175 TO 375 (deg F)
WEIGHT PER GALLON : 8.626
VOC : 2.951 (lb/gl)
APPEARANCE : CLEAR LIQUID
VAPOR DENSITY : HEAVIER THAN AIR
EVAPORATION RATE : SLOWER THAN ETHER
ODOR : TYPICAL SOLVENT ODOR
% VOLATILE VOLUME : 42.35
% NON-VOLATILE (WGT) : 65.54
% NON-VOLATILE (VOL) : 57.64

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATON: UN1263 PAINT FLAMMABLE LIQUID
FLASH POINT: 23 (deg F) TCC LEL: 1.10 UEL: 11.50

SPECIAL FIRE FIGHTING PROCEDURES: Foam, CO2N, or dry chemical. Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed container to prevent pressure build up, explosion, or possible auto ignition when exposed to extreme heat.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Should be stored in tightly closed containers away from heat, electrical equipment, sparks and open flame. Closed containers may explode when exposed to extreme heat. During emergency conditions, over-exposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SECTION V - REACTIVITY DATA

STABILITY : STABLE
CONDITIONS TO AVOID : Heat, sparks, open flame/fire and open containers.
MATERIALS TO AVOID : Stong oxidizing agents.
HAZARDOUS DECOMPOSITION PRODUCTS : Normal decomposition may yield oxides of carbon.
HAZARDOUS POLYMERIZATION : Will not occur.

NOTE: THIS PRODUCT CONTAINS A LIQUID CO-REACTANT THAT IS VOLATILE UNTIL A CHEMICAL REACTION HAS OCCURRED WITH A ANOTHER COMPONENT CONTACT MANUFACTURER FOR VOC COMPLIANCE TEST PROCEDURE

CONFIDENTIAL
TRADE SECRET

202

MANUFACTURER:
MATTHEWS PAINT COMPANY
400 SOUTH MERCANTILE COURT
WHEELING, ILLINOIS 60090

Acrythane

EMERGENCY PHONE:
1-800-424-9300

INFORMATION PHONE:
(312)/537-9200

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NUMBER : 202
PRODUCT NAME : NATURAL WHITE

HMIS : N2F3R1PI
PREPARATION DATE: 12/22/87

CHEMICAL NAME : ORGANIC COATING
CHEMICAL FAMILY : PAINT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT DESCRIPTION	CAS NUMBER	WEIGHT PERCENT	TLV	PEL
NAPTHA NIOSH PAGE 170(1)	64742-89-8	4.51	500.00 PPM	100.00 PPM
TOLUOL NIOSH PAGE 226(2)	108-88-3	7.47	100.00 PPM	100.00 PPM
ETHYL BENZENE NIOSH PAGE 118(2)	100-41-4	4.53	100.00 PPM	100.00 PPM
ISOBUTYL ACETATE NIOSH PAGE 142(3)	110-19-0	6.22	150.00 PPM	150.00 PPM
PROPYLENE GLYCOL M.E. ACETATE NO NIOSH REF.	108-65-6	18.66	N/EST.	N/EST.

SECTION III - PHYSICAL DATA

BOILING RANGE : 230 TO 302 (deg F)
EVAPORATION RATE: SLOWER THAN ETHER
WEIGHT PER GALLON: 10.442
VOC. : 4.355 (lb/gl)

VAPOR DENSITY : HEAVIER THAN AIR
% VOLATILE VOLUME : 57.452
% NON-VOLATILE (WGT) : 58.297
% NON-VOLATILE (VOL) : 42.548

APPEARANCE : WHITE LIQUID
ODOR : TYPICAL SOLVENT ODOR

CONFIDENTIAL
TRADE SECRET

#9806407- Gal
#98125720- 13oz
#9814928- qt

MATERIAL SAFETY DATA SHEET NPCA 1-84
FOR COATINGS, RESINS, AND RELATED MATERIALS
REPLACES NPCA 1-82

MANUFACTURER'S NAME WILLIAM ZINSSER & CO., INC.
39 Belmont Drive
Somerset, N.J. 08873

EMERGENCY TELEPHONE NO.
(201) 469-8100

DATE OF PREPARATION 1/8/86

INFORMATION TELEPHONE NO.
Same as above

Alcohol Primer

SECTION 1 - PRODUCT IDENTIFICATION

PRODUCT NUMBER

PRODUCT NAME 3-PURPOSE B-I-N PRIMER-SEALER

PRODUCT CLASS White Pigmented Shellac

SECTION 11 - HAZARDOUS INGREDIENTS

INGREDIENT	CAS No.	PERCENT	OCCUPATIONAL EXPOSURE LIMITS TLV	PEL	VAPOR PRESSURE mm Hg @ 68°F
Ethyl Alcohol	64-17-5	30-40	1000 ppm	1000 ppm	53
Isopropyl Alcohol	67-63-0	5-10	400 ppm	400 ppm	33
Methyl Alcohol	67-56-1	< 4	200 ppm	200 ppm	100
Aluminum Silicate	1332-58-7	10-20	10 mg/M^3 (as nuisance dust)	15 mg/M^3	None
Titanium Dioxide	1317-80-2	10-20	10 mg/M^3 (as nuisance dust)	15 mg/M^3	None

54%

SECTION 111 - PHYSICAL DATA

BOILING RANGE 173°F (Ethyl Alcohol) VAPOR DENSITY X HEAVIER LIGHTER THAN AIR
EVAPORATION RATE FASTER X SLOWER THAN ETHER % VOLATILE VOLUME 68
WT/GAL 9.94 lbs.

SARA Title III (Emergency Planning and Community Right to Know Act) - Section 313 Statement.

This product is used for home consumer, commercial and industrial applications. Regardless of the end user or the container size, the formulation remains the same.

Of the chemicals listed in Section 313, this product contains methyl alcohol and isopropyl alcohol. See Section 11 of this MSDS (Hazardous Ingredients) for the CAS numbers and composition data of these substances.

8010-624893

MATERIAL SAFETY DATA SHEET
COATINGS AND RESINS GROUP

SECTION I - PRODUCT INFORMATION

MANUFACTURER'S NAME: PPG INDUSTRIES INC.
PRODUCT SAFETY LOC.: 260 KAPPA DRIVE
PITTSBURGH, PA 15238
MSDS CONTACT: MANAGER, INDUSTRIAL HYGIENE AND PRODUCT SAFETY
(412) 963-5822
EMERGENCY TELEPHONE: (304) 843-1300

CODE/IDENTITY: DP40 (091185D)
TRADE NAME: EPOXY PRIMER
CHEMICAL FAMILY: EPOXY
DOT CLS: PAINT, FLAMMABLE LIQUID
DATE OF PREPARATION: 6/09/86
CUSTOMER PART #:

SECTION II - INGREDIENTS

INGREDIENTS	APPROX. % WT.	CAS NO.	EXPOSURE LIMITS ACGIH TLV	OSHA PEL	PPG IPEL
MAGNESIUM SILICATE	5	14807-96-6	NOT EST.	NOT EST.	NOT EST.
TITANIUM DIOXIDE	10	13463-67-7	10.00Mg/M3	15.00Mg/M3	10.00Mg/M
BARIUM SULFATE	10	7727-43-7	0.50Mg/M3	NOT EST.	0.50Mg/M
STRONTIUM CHROMATE * **	5	7789-06-2	0.05Mg/M3	0.10Mg/M3	0.05Mg/M
1-METHOXY-2-PROPANOL	5	107-98-2	100.00PPM	NOT EST.	100.00PPM
OXO-HEPTYL ACETATE	1	90438-79-2	NOT EST.	NOT EST.	NOT EST.
ISOBUTYL ACETATE VOC:	15	110-19-0	150.00PPM	150.00PPM	150.00PPM
ISOPROPYL ALCOHOL, ANHYDROUS	5	67-63-0	400.00PPM	400.00PPM	400.00PPM
METHYL ETHYL KETONE	15	78-93-3	200.00PPM	200.00PPM	200.00PPM
TOLUENE	5	108-88-3	100.00PPM	200.00PPM	100.00PPM
FILM FORMERS, RESINS, AND ADDITIVES	20	PROPRIETARY	NOT EST.	NOT EST.	NOT EST.

CARCINOGENIC ACCORDING TO CRITERIA ESTABLISHED BY: * = NTP ** = IARC @ = OSHA / = OTHER

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING RANGE : 78 - 200 DEG.C
VAPOR PRESSURE: 37.6 mmHg
VAPOR DENSITY : HEAVIER THAN AIR
% VOL/VOLUME : 70.00
EVAP RATE(BuOAc=100): 275

SOLUBILITY IN WATER: 13.4 %
WT/GAL (LBS): 10.41
pH: U/I
% SOLID BY WEIGHT: 52.7

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

DOT CATEGORY: FLAMMABLE
FLASHPOINT: 30 DEG. F PMCC FLAMMABLE LIMITS: LEL 1.7 UEL U/I

EXTINGUISHING MEDIA:

USE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CLASS B EXTINGUISHERS (CARBON DIOXIDE, DRY CHEMICAL, OR UNIVERSAL AQUEOUS FILM FORMING FOAM) DESIGNED TO EXTINGUISH NFPA CLASS IB FLAMMABLE LIQUID FIRES.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

KEEP CONTAINERS TIGHTLY CLOSED. ISOLATE FROM HEAT, ELECTRICAL EQUIPMENT, SPARKS, AND OPEN FLAMES. CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT. DO NOT APPLY ON HOT SURFACES. TOXIC GASES MAY FORM WHEN PRODUCT IS CONTACTED BY FLAME OR HOT SURFACES.

SPECIAL FIRE FIGHTING PROCEDURES:

WATER SPRAY MAY BE INEFFECTIVE. WATER SPRAY MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT PRESSURE BUILD-UP AND POSSIBLE AUTOIGNITION OR EXPLOSION WHEN EXPOSED TO EXTREME HEAT. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE. FIRE-FIGHTERS SHOULD WEAR SELF CONTAINED BREATHING APPARATUS.

SECTION V - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: NOT EXPECTED TO OCCUR

INCOMPATIBILITY (MATERIALS AND CONDITIONS TO AVOID):

AVOID CONTACT WITH STRONG ALKALIES, STRONG MINERAL ACIDS, OR STRONG OXIDIZING AGENTS.

HAZARDOUS DECOMPOSITION PRODUCTS:

MAY PRODUCE HAZARDOUS DECOMPOSITION PRODUCTS WHEN HEATED. WELDING, BRAZING, OR FLAME-CUTTING ON SURFACES COATED WITH THIS PRODUCT MAY PRODUCE FUMES INCLUDING: Carbon Monoxide, Hydrogen Chloride Chlorinated Products, chlorine, Oxides of Chromium

Continued on Back of Page

Professional Engineer Certification

1. Professional Engineer Name: Robert Beaver
   Registration Number: 32528

2. Professional Engineer Mailing Address:

   Organization/Firm: Walt Disney World Co.
   Street Address: P.O. Box 10,000
   City: Lake Buena Vista State: FL Zip Code: 32830-1000

3. Professional Engineer Telephone Numbers:
   Telephone: (407) 828- 1584 Fax: (407) 934- 7927

4. Professional Engineer Statement:

   I, the undersigned, hereby certify, except as particularly noted herein, that:*

   (1) To the best of my knowledge, there is reasonable assurance (a) that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; or (b) for any application for a Title V source air operation permit, that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application;

   (2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application; and

   (3) For any application for an air construction permit for one or more proposed new or modified emissions units, the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

   _____ _____
   Signature Date

   (seal)

* Attach any exception to certification statement.

Central Shops Spray Booth Emissions Limits

NSACSB E.U.

E.U. ID	Description	Permitted VOC Limit, tpy
-007 (NSA-1)	NSA Paint Spray Booth (PSB) #1	2.82
-008 (NSA-2)	NSA PSB #2	5.65
-009 (NSA-3)	NSA PSB #3	5.65
-010 (NSA-5)	NSA Staff Shop PSB #1	0.08
-011 (NSA-6)	NSA Staff Shop PSB #2	0.63
-012 (NSA-7)	NSA Water Wash Plastisol PSB #1; includes a natural gas fired curing oven	0.53
-013 (NSA-4)	NSA Metalizing PSB*	2.54
-017 (NSA-11)	NSA Character Head Spray Box	0.94
-019 (NSA-12)	NSA Artist's Preparation Shop PSB	1.02
-025 (NSA-14)	NSA Paint Shop PSB #6	2.20
-027 (NSA-15)	NSA Central Shop Paint Mixing Stations (7)	1.19
Total VOC tpy		**23.25**

-014 (NSA-8)	NSA Lofting Building PSB	**15.00**

NSACSBA E.U.

-015 (NSA-9)	NSA Paint Shop PSB #4	2.19
-016 (NSA-10)	NSA Paint Shop PSB #5	2.19
Total VOC tpy		**4.38**

*will become unregulated- transfer the allocated VOC limit to the E.U.

Epcot Spray Booths

E.U. ID	Description	Permitted VOC Limit, tpy
068 (EP-1)	Maintenance PSB	11.40
069 (EP-2)	Display PSB	0.06
070 (EP-3)	Marina PSB	0.93
Total VOC tpy		12.39

PICO Building E.U. Allocation

068 (EP-1)	Maintenance PSB	6.00
069 (EP-2)	Display PSB	1.00
Total VOC tpy		7.00

Marina Spray Booth Allocation remaining from 12.39 tpy
= (12.39 - 7.00) tpy = 5.39 tpy

070 (EP-3)	Marina PSB	5.39

Drainage Yard Spray Booth
Data from TABLE I in construction permit application

Material	pound VOC/yr	VOC TPY
MEK	541	0.27
Propylene Glycol	790	0.40
Butyl Acetate	166	0.08
MIBK	83	0.04
MAK	42	0.02
Xylene	1062	0.53
Acrylonitrile	11.3	0.01
Total VOC tpy	2695.30	1.35

Professional Engineer Certification

1. Professional Engineer Name: Robert Beaver
   Registration Number: 32528

2. Professional Engineer Mailing Address:

   Organization/Firm: Walt Disney World Co.
   Street Address: P.O. Box 10,000
   City: Lake Buena Vista State: FL Zip Code: 32830-1000

3. Professional Engineer Telephone Numbers:
   Telephone: (407) 828- 1584 Fax: (407) 934- 7927

4. Professional Engineer Statement:

   I, the undersigned, hereby certify, except as particularly noted herein, that:*

   (1) To the best of my knowledge, there is reasonable assurance (a) that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; or (b) for any application for a Title V source air operation permit, that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application;

   (2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application; and

   (3) For any application for an air construction permit for one or more proposed new or modified emissions units, the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

   _____ _____
   Signature Date

   (seal)

* Attach any exception to certification statement.

ATTACHMENT K

DISNEY'S ANIMAL KINGDOM UNREGULATED AND EXEMPT EMISSIONS UNITS- LIST OF UNITS AND EMISSIONS CALCULATIONS

Animal Kingdom Unregulated Emissions Units Emissions Calculation Worksheet

Animal Kingdom Unregulated Emissions Units

Pollutant →							CO		NO_x		PM/PM_{10}		SO_2		TOC			
Control Factors (CF) →							0%		0%		0%		0%		0%			
Uncontrolled Pollutant Emission Factors (UPEF) (SCC 1-03-006-03, 0.3-10 MMBtu/hr) →							21 lb/MM ft³		100 lb/MM ft³		11.9 lb/MM ft³		0.6 lb/MM ft³		5.8 lb/MM ft³			
No.	Source No.	Emission Unit Info. Section	Location	Heat Input, MMBtu/hr	Manufacturer	Use	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	Hourly fuel usage, ft³/hr[c]	Annual fuel usage, MMft³/yr[d]
U-1	DAKU-1	9	Tusker House	0.990	Lochinvar	HWG	0.021	0.091	0.099	0.434	0.012	0.052	0.001	0.003	0.006	0.025	990	8.67
U-2	DAKU-2	10	Safari Cantina	0.760	Rite	SHHWG	0.016	0.070	0.076	0.333	0.009	0.040	0.000	0.002	0.004	0.019	760	6.66
U-3	DAKU-3	11	Restaurantosaurus	0.745	Lochinvar	HWG	0.016	0.069	0.075	0.326	0.009	0.039	0.000	0.002	0.004	0.019	745	6.53
U-4	DAKU-4	11	Restaurantosaurus	0.745	Lochinvar	HWG	0.016	0.069	0.075	0.326	0.009	0.039	0.000	0.002	0.004	0.019	745	6.53
U-5	DAKU-5	11	Safari Cantina	0.745	Lochinvar	HWG	0.016	0.069	0.075	0.326	0.009	0.039	0.000	0.002	0.004	0.019	745	6.53
U-6	DAKU-6	12	Tree of Life	0.675	Teledyne-Laars	SHHWG	0.014	0.062	0.068	0.296	0.008	0.035	0.000	0.002	0.004	0.017	675	5.91
U-7	DAKU-7	13	Safari Fare	0.645	Lochinvar	HWG	0.014	0.059	0.065	0.283	0.008	0.034	0.000	0.002	0.004	0.016	645	5.65
U-8	DAKU-8	13	Safari Fare	0.645	Lochinvar	HWG	0.014	0.059	0.065	0.283	0.008	0.034	0.000	0.002	0.004	0.016	645	5.65
U-9	DAKU-9	14	African Support Bldg #20 (Gorilla)	0.600	Teledyne-Laars	SHHWG	0.013	0.055	0.060	0.263	0.007	0.031	0.000	0.002	0.003	0.015	600	5.26
U-10	DAKU-10	14	African Support Bldg #26 (Quarantine)	0.600	Teledyne-Laars	SHHWG	0.013	0.055	0.060	0.263	0.007	0.031	0.000	0.002	0.003	0.015	600	5.26
U-11	DAKU-11	14	Build Block #3	0.600	Teledyne-Laars	SHHWG	0.013	0.055	0.060	0.263	0.007	0.031	0.000	0.002	0.003	0.015	600	5.26
U-12	DAKU-12	15	Emporium	0.480	Rite	SHHWG	0.010	0.044	0.048	0.210	0.006	0.025	0.000	0.001	0.003	0.012	480	4.20
U-13	DAKU-13	16	Build #28 Forage Warehouse	0.400	A.O. Smith	HWG	0.008	0.037	0.040	0.175	0.005	0.021	0.000	0.001	0.002	0.010	400	3.50
U-14	DAKU-14	16	Build #28 Forage Warehouse	0.400	A.O. Smith	HWG	0.008	0.037	0.040	0.175	0.005	0.021	0.000	0.001	0.002	0.010	400	3.50
U-15	DAKU-15	17	African Support Bldg #11 (Baboon)	0.400	Teledyne-Laars	SHHWG	0.008	0.037	0.040	0.175	0.005	0.021	0.000	0.001	0.002	0.010	400	3.50
U-16	DAKU-16	17	Main Entrance Block #2	0.400	Teledyne-Laars	SHHWG	0.008	0.037	0.040	0.175	0.005	0.021	0.000	0.001	0.002	0.010	400	3.50
U-17	DAKU-17	18	Theater in the Wild	0.300	A.O. Smith	HWG	0.006	0.028	0.030	0.131	0.004	0.016	0.000	0.001	0.002	0.008	300	2.63
U-18	DAKU-18	18	Africa Marketplace	0.300	Ajax	SHHWG	0.006	0.028	0.030	0.131	0.004	0.016	0.000	0.001	0.002	0.008	300	2.63
Totals							0.219	0.959	1.043	4.568	0.124	0.544	0.006	0.027	0.060	0.265	10430	91.37

Pollutant →							CO		NO_x		PM/PM_{10}		SO_2		TOC			
Control Factors (CF) →							0%		0%		0%		0%		0%			
Uncontrolled Pollutant Emission Factors (UPEF) (No SCC, <0.3 MMBtu/hr) →							40 lb/MM ft³		94 lb/MM ft³		11.2 lb/MM ft³		0.6 lb/MM ft³		11.0 lb/MM ft³			
No.	Source No.	Emission Unit Info. Section	Location	Heat Input, MMBtu/hr	Manufacturer	Use	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	Hourly fuel usage, ft³/hr[c]	Annual fuel usage, MMft³/yr[d]
U-19	DAKU-19	19	Main Entrance Block #1	0.250	Teledyne-Laars	SHHWG	0.010	0.044	0.024	0.103	0.003	0.012	0.000	0.001	0.003	0.012	250	2.19
U-20	DAKU-20	20	African Support Bldg #29 (Necropsy)	0.200	Carrier	SHHWG	0.008	0.035	0.019	0.082	0.002	0.010	0.000	0.001	0.002	0.010	200	1.75

Animal Kingdom Unregulated Emissions Units Emissions Calculation Worksheet

U-21	DAKU-21	21	Conservation Station	0.200	Lochinvar	HWG	0.008	0.035	0.019	0.082	0.002	0.010	0.000	0.001	0.002	0.010	200	1.75
U-22	DAKU-22	21	Marina Maintenance	0.200	Lochinvar	HWG	0.008	0.035	0.019	0.082	0.002	0.010	0.000	0.001	0.002	0.010	200	1.75
U-23	DAKU-23	21	Safari Fare	0.200	Lochinvar	HWG	0.008	0.035	0.019	0.082	0.002	0.010	0.000	0.001	0.002	0.010	200	1.75
U-24	DAKU-24	21	Train Maintenance	0.200	Lochinvar	HWG	0.008	0.035	0.019	0.082	0.002	0.010	0.000	0.001	0.002	0.010	200	1.75
U-25	DAKU-25	21	Vehicle Maintenance	0.200	Lochinvar	HWG	0.008	0.035	0.019	0.082	0.002	0.010	0.000	0.001	0.002	0.010	200	1.75
U-26	DAKU-26	22	Build #28 Forage Warehouse	0.194	Carrier	SHHWG	0.008	0.034	0.018	0.080	0.002	0.009	0.000	0.001	0.002	0.009	194	1.70
U-27	DAKU-27	22	Theater in the Wild	0.194	Carrier	SHHWG	0.008	0.034	0.018	0.080	0.002	0.009	0.000	0.001	0.002	0.009	194	1.70
U-28	DAKU-28	23	African Support Bldg #14 (Elephant)	0.175	Teledyne-Laars	SLH	0.007	0.031	0.016	0.072	0.002	0.009	0.000	0.000	0.002	0.008	175	1.53
U-29	DAKU-29	24	Vehicle Maintenance	0.150	Teledyne-Laars	SHHWG	0.006	0.026	0.014	0.062	0.002	0.007	0.000	0.000	0.002	0.007	150	1.31
U-30	DAKU-30	25	Chester & Hester	0.148	Carrier	SHHWG	0.006	0.026	0.014	0.061	0.002	0.007	0.000	0.000	0.002	0.007	148	1.30
U-31	DAKU-31	26	African Support Bldg #04 (Black Rhino)	0.125	Teledyne-Laars	SLH	0.005	0.022	0.012	0.051	0.001	0.006	0.000	0.000	0.001	0.006	125	1.10
U-32	DAKU-32	26	African Support Bldg #05 (Hippo)	0.125	Teledyne-Laars	SLH	0.005	0.022	0.012	0.051	0.001	0.006	0.000	0.000	0.001	0.006	125	1.10
U-33	DAKU-33	26	African Support Bldg #06 (Hippo)	0.125	Teledyne-Laars	SLH	0.005	0.022	0.012	0.051	0.001	0.006	0.000	0.000	0.001	0.006	125	1.10
U-34	DAKU-34	26	African Support Bldg #16 (White Rhino)	0.125	Teledyne-Laars	SLH	0.005	0.022	0.012	0.051	0.001	0.006	0.000	0.000	0.001	0.006	125	1.10
U-35	DAKU-35	27	Open Air Shop #2	0.125	Teledyne-Laars	SHHWG	0.005	0.022	0.012	0.051	0.001	0.006	0.000	0.000	0.001	0.006	125	1.10
U-36	DAKU-36	29	Area Restrooms	0.088	Lochinvar	HWG	0.004	0.015	0.008	0.036	0.001	0.004	0.000	0.000	0.001	0.004	88	0.77
U-37	DAKU-37	31	Main Entrance Block #2	0.075	Lochinvar	HWG	0.003	0.013	0.007	0.031	0.001	0.004	0.000	0.000	0.001	0.004	75	0.66
U-38	DAKU-38	31	Open Air Shop #2	0.075	Lochinvar	HWG	0.003	0.013	0.007	0.031	0.001	0.004	0.000	0.000	0.001	0.004	75	0.66
U-39	DAKU-39	32	African Support Bldg #21 (Colobus)	0.074	Carrier	SHHWG	0.003	0.013	0.007	0.030	0.001	0.004	0.000	0.000	0.001	0.004	74	0.65
U-40	DAKU-40	33	Africa Marketplace	0.060	Carrier	SHHWG	0.002	0.011	0.006	0.025	0.001	0.003	0.000	0.000	0.001	0.003	60	0.53
U-41	DAKU-41	34	African Support Bldg #26 (Quarantine)	0.050	A.O. Smith	HWG	0.002	0.009	0.005	0.021	0.001	0.002	0.000	0.000	0.001	0.002	50	0.44
U-42	DAKU-42	36	Main Entrance Block #1	0.050	Lochinvar	HWG	0.002	0.009	0.005	0.021	0.001	0.002	0.000	0.000	0.001	0.002	50	0.44
Totals							0.136	0.597	0.320	1.403	0.038	0.167	0.002	0.009	0.037	0.164	3408	29.85

Boiler/Water heater Operating Hours = 24 hr/day x 7 days/wk x 52 wk/yr = 8760 hrs/yr

Natural Gas Heat Value = 1000 Btu/ft³

Example calculations:

[a] Annual Emissions: Heat Input (MMBtu/hr) x Operating hours (8760 hr/yr) x gas heat value (ft³/1000 Btu) x UPEF (lb/MMft³) x (100- CF) (%) x 1 ton/2000 lb = tpy

[b] Hourly Emissions: Heat Input (MMBtu/hr) x gas heat value (ft³/1000 Btu) x UPEF (lb/MMft³) x (100- CF) (%)= lb/hr

[c] Hourly fuel usage: Heat Input (MMBtu/hr) x 10^6 Btu/MMBtu x gas heat value (ft³/1000 Btu) = ft³/hr

[d] Annual Fuel Usage: Heat Input (MMBtu/hr) x Operating hours (8760 hr/yr) x gas heat value (ft³/1000 Btu) = MMft³/yr

11-24-98

Actually:

DAKU-1 thru DAKU-51

Animal Kingdom Exempt Emissions Units Emissions Calculation Worksheet

Animal Kingdom Exempt Units

Pollutant →							CO		NO_x		PM/PM_{10}		SO_2		TOC			
Control Factors (CF) →							0%		0%		0%		0%		0%			
Uncontrolled Pollutant Emission Factors (UPEF) (No SCC, <0.3 MMBtu/hr) →							40 lb/MM ft³		94 lb/MM ft³		11.2 lb/MM ft³		0.6 lb/MM ft³		11.0 lb/MM ft³			
No.	Source No.	Emission Unit Info. Section	Location	Heat Input, MMBtu/hr	Manufacturer	Use	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	Hourly fuel usage, ft³/hr[c]	Annual fuel usage, MMft³/yr[d]
E-1	DAKE-1	28	Vehicle Maintenance	0.100	Detroit Rad. Co.	Rad. Heat	0.004	0.018	0.009	0.041	0.001	0.005	0.000	0.000	0.001	0.005	100	0.88
E-2	DAKE-2	28	Vehicle Maintenance	0.100	Detroit Rad. Co.	Rad. Heat	0.004	0.018	0.009	0.041	0.001	0.005	0.000	0.000	0.001	0.005	100	0.88
E-3	DAKE-3	28	Vehicle Maintenance	0.100	Detroit Rad. Co.	Rad. Heat	0.004	0.018	0.009	0.041	0.001	0.005	0.000	0.000	0.001	0.005	100	0.88
E-4	DAKE-4	28	Vehicle Maintenance	0.100	Detroit Rad. Co.	Rad. Heat	0.004	0.018	0.009	0.041	0.001	0.005	0.000	0.000	0.001	0.005	100	0.88
E-5	DAKE-5	28	Vehicle Maintenance	0.100	Detroit Rad. Co.	Rad. Heat	0.004	0.018	0.009	0.041	0.001	0.005	0.000	0.000	0.001	0.005	100	0.88
E-6	DAKE-6	28	Vehicle Maintenance	0.100	Detroit Rad. Co.	Rad. Heat	0.004	0.018	0.009	0.041	0.001	0.005	0.000	0.000	0.001	0.005	100	0.88
E-7	DAKE-7	28	Vehicle Maintenance	0.100	Detroit Rad. Co.	Rad. Heat	0.004	0.018	0.009	0.041	0.001	0.005	0.000	0.000	0.001	0.005	100	0.88
E-8	DAKE-8	28	Vehicle Maintenance	0.100	Detroit Rad. Co.	Rad. Heat	0.004	0.018	0.009	0.041	0.001	0.005	0.000	0.000	0.001	0.005	100	0.88
E-9	DAKE-9	28	Vehicle Maintenance	0.100	Detroit Rad. Co.	Rad. Heat	0.004	0.018	0.009	0.041	0.001	0.005	0.000	0.000	0.001	0.005	100	0.88
E-10	DAKE-10	28	Vehicle Maintenance	0.100	Detroit Rad. Co.	Rad. Heat	0.004	0.018	0.009	0.041	0.001	0.005	0.000	0.000	0.001	0.005	100	0.88
E-11	DAKE-11	30	Train Maintenance	0.075	Detroit Rad. Co.	Rad. Heat	0.003	0.013	0.007	0.031	0.001	0.004	0.000	0.000	0.001	0.004	75	0.66
E-12	DAKE-12	30	Train Maintenance	0.075	Detroit Rad. Co.	Rad. Heat	0.003	0.013	0.007	0.031	0.001	0.004	0.000	0.000	0.001	0.004	75	0.66
E-13	DAKE-13	30	Train Maintenance	0.075	Detroit Rad. Co.	Rad. Heat	0.003	0.013	0.007	0.031	0.001	0.004	0.000	0.000	0.001	0.004	75	0.66
E-14	DAKE-14	35	Marina Maintenance	0.050	Detroit Rad. Co.	Rad. Heat	0.002	0.009	0.005	0.021	0.001	0.002	0.000	0.000	0.001	0.002	50	0.44
E-15	DAKE-15	35	Marina Maintenance	0.050	Detroit Rad. Co.	Rad. Heat	0.002	0.009	0.005	0.021	0.001	0.002	0.000	0.000	0.001	0.002	50	0.44
E-16	DAKE-16	35	Marina Maintenance	0.050	Detroit Rad. Co.	Rad. Heat	0.002	0.009	0.005	0.021	0.001	0.002	0.000	0.000	0.001	0.002	50	0.44
E-17	DAKE-17	35	Marina Maintenance	0.050	Detroit Rad. Co.	Rad. Heat	0.002	0.009	0.005	0.021	0.001	0.002	0.000	0.000	0.001	0.002	50	0.44
E-18	DAKE-18	35	Marina Maintenance	0.050	Detroit Rad. Co.	Rad. Heat	0.002	0.009	0.005	0.021	0.001	0.002	0.000	0.000	0.001	0.002	50	0.44
E-19	DAKE-19	35	Marina Maintenance	0.050	Detroit Rad. Co.	Rad. Heat	0.002	0.009	0.005	0.021	0.001	0.002	0.000	0.000	0.001	0.002	50	0.44
E-20	DAKE-20	35	Marina Maintenance	0.050	Detroit Rad. Co.	Rad. Heat	0.002	0.009	0.005	0.021	0.001	0.002	0.000	0.000	0.001	0.002	50	0.44
E-21	DAKE-21	35	Marina Maintenance	0.050	Detroit Rad. Co.	Rad. Heat	0.002	0.009	0.005	0.021	0.001	0.002	0.000	0.000	0.001	0.002	50	0.44
E-22	DAKE-22	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-23	DAKE-23	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-24	DAKE-24	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-25	DAKE-25	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-26	DAKE-26	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-27	DAKE-27	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-28	DAKE-28	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-29	DAKE-29	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-30	DAKE-30	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-31	DAKE-31	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-32	DAKE-32	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-33	DAKE-33	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-34	DAKE-34	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-35	DAKE-35	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-36	DAKE-36	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39

Animal Kingdom Exempt Emissions Units Emissions Calculation Worksheet

E-37	DAKE-37	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-38	DAKE-38	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-39	DAKE-39	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-40	DAKE-40	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-41	DAKE-41	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-42	DAKE-42	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-43	DAKE-43	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-44	DAKE-44	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-45	DAKE-45	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-46	DAKE-46	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-47	DAKE-47	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-48	DAKE-48	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-49	DAKE-49	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-50	DAKE-50	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-51	DAKE-51	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-52	DAKE-52	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
E-53	DAKE-53	37	Train Maintenance	0.045	Detroit Rad. Co.	Rad. Heat	0.002	0.008	0.004	0.019	0.001	0.002	0.000	0.000	0.000	0.002	45	0.39
Totals							0.123	0.537	0.288	1.262	0.034	0.150	0.002	0.008	0.034	0.148	3065	26.85

Boiler/Water heater Operating Hours =	24 hr/day x	7 days/wk x	52 wk/yr =	8760 hrs/yr
Natural Gas Heat Value =				1000 Btu/ft³

Example calculations:

[a] Annual Emissions: Heat Input (MMBtu/hr) x Operating hours (8760 hr/yr) x gas heat value (ft³/1000 Btu) x UPEF (lb/MMft³) x (100- CF) (%) x 1 ton/2000 lb = tpy

[b] Hourly Emissions: Heat Input (MMBtu/hr) x gas heat value (ft³/1000 Btu) x UPEF (lb/MMft³) x (100- CF) (%)= lb/hr

[c] Hourly fuel usage: Heat Input (MMBtu/hr) x 10^6 Btu/MMBtu x gas heat value (ft³/1000 Btu) = ft³/hr

[d] Annual Fuel Usage: Heat Input (MMBtu/hr) x Operating hours (8760 hr/yr) x gas heat value (ft³/1000 Btu) = MMft³/yr

ATTACHMENT L

DISNEY'S ALL-STAR RESORT (PHASE 3) UNREGULATED EMISSIONS UNITS-LIST OF UNITS AND EMISSIONS CALCULATIONS

Attachment L

All Star Phase 3 Natural Gas Hot Water Generators Emissions Calculation Worksheet

Pollutant →							CO		NO_x		PM/PM_{10}		SO_2		TOC			
Control Factors (CF) →							0%		0%		0%		0%		0%			
Uncontrolled Pollutant Emission Factors (UPEF) (SCC 1-03-006-03, 0.3-10 MMBtu/hr) →							21 lb/MM ft³		100 lb/MM ft³		11.9 lb/MM ft³		0.6 lb/MM ft³		5.8 lb/MM ft³			
No.	Source No.	Model	Location	Heat Input, MMBtu/hr	Manufacturer	Use	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	lb/hr[b]	tpy[a]	Hourly fuel usage, ft³/hr[c]	Annual fuel usage, MMft³/yr[d]
1	AS3-1	PFN1000PM	Motel 101 1	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
2	AS3-2	PFN1000PM	Motel 101 1	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
3	AS3-3	PFN1000PM	Mighty Motel 3	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
4	AS3-4	PFN1000PM	Mighty Motel 3	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
5	AS3-5	PFN1000PM	Mighty Motel 2	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
6	AS3-6	PFN1000PM	Mighty Motel 2	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
7	AS3-7	PFN1000PM	Motel 101 4	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
8	AS3-8	PFN1000PM	Motel 101 4	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
9	AS3-9	PFN1000PM	Sorcer's Hideaway 5	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
10	AS3-10	PFN1000PM	Sorcer's Hideaway 5	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
11	AS3-11	PFN1000PM	Drive-Inn 6	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
12	AS3-12	PFN1000PM	Drive-Inn 6	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
13	AS3-13	PFN1000PM	Drive-Inn 7	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
14	AS3-14	PFN1000PM	Drive-Inn 7	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
15	AS3-15	PFN1000PM	Sorcer's Hideaway 8	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
16	AS3-16	PFN1000PM	Sorcer's Hideaway 8	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
17	AS3-17	PFN1000PM	Toy Story 9	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
18	AS3-18	PFN1000PM	Toy Story 9	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
19	AS3-19	PFN1000PM	Toy Story 10	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
20	AS3-20	PFN1000PM	Toy Story 10	1.000	Lochinvar	HWG	0.021	0.092	0.100	0.438	0.012	0.052	0.001	0.003	0.006	0.025	1000	8.76
21	AS3-21	P-4001	Fantasia Pool Bldg	4.000	RayPak	Pool	0.084	0.368	0.400	1.752	0.048	0.208	0.002	0.011	0.023	0.102	4000	35.04
22	AS3-22	P-2100	Mighty Ducks Pool	2.100	RayPak	Pool	0.044	0.193	0.210	0.920	0.025	0.109	0.001	0.006	0.012	0.053	2100	18.40
23	AS3-23	BR-185	Fantasia Wading Pool	0.181	RayPak	Pool	0.004	0.017	0.018	0.079	0.002	0.009	0.000	0.000	0.001	0.005	181	1.59
24	AS3-24	PFN 0500PM	Commercial Bldg	0.500	Lochinvar	HWG	0.011	0.046	0.050	0.219	0.006	0.026	0.000	0.001	0.003	0.013	500	4.38
25	AS3-25	PFN 0500PM	Commercial Bldg	0.500	Lochinvar	HWG	0.011	0.046	0.050	0.219	0.006	0.026	0.000	0.001	0.003	0.013	500	4.38
26	AS3-26	CNA726-080-DF9	Commercial Bldg	0.725	Lochinvar	HWG	0.015	0.067	0.073	0.318	0.009	0.038	0.000	0.002	0.004	0.018	725	6.35
27	AS3-27	AB250	Commercial Bldg	2.500	Bryan	SHHWG	0.053	0.230	0.250	1.095	0.030	0.130	0.002	0.007	0.015	0.064	2500	21.90
Totals							0.6	2.8	3.1	13.4	0.4	1.6	0.0	0.1	0.2	0.8	30506	267.23

Boiler/Water heater Operating Hours = 24 hr/day x 7 days/wk x 52 wk/yr = 8760 hrs/yr

Natural Gas Heat Value = 1000 Btu/ft³

Example calculations:

[a] Annual Emissions: Heat Input (MMBtu/hr) x Operating hours (8760 hr/yr) x gas heat value (ft³/1000 Btu) x UPEF (lb/MMft³) x (100- CF) (%) x 1 ton/2000 lb = tpy

[b] Hourly Emissions: Heat Input (MMBtu/hr) x gas heat value (ft³/1000 Btu) x UPEF (lb/MMft³) x (100- CF) (%)= lb/hr

[c] Hourly fuel usage: Heat Input (MMBtu/hr) x 10^6 Btu/MMBtu x gas heat value (ft³/1000 Btu) = ft³/hr

[d] Annual Fuel Usage: Heat Input (MMBtu/hr) x Operating hours (8760 hr/yr) x gas heat value (ft³/1000 Btu) = MMft³/yr

ATTACHMENT M

LIST OF WALT DISNEY WORLD RESORT COMPLEX EMERGENCY GENERATORS

Attachment M

Walt Disney World Resort Complex Stand-By/Emergency Generator Inventory

Number	Entity	Location	Description	Manufacturer	Model	Power Rating, HP	Power Rating, KW	Fuel Type	Fuel Usage Rate, gph	Nat. Gas Usage Rate, ft3h	LPG Usage Rate, ft3h
1	WDW	All-Star	Sports E.G.	Caterpillar	3208	299	N/A	D	14.8	N/A	N/A
2	WDW	All-Star	Music E.G.	Caterpillar	3208	263	N/A	D	13.8	N/A	N/A
3	WDW	All-Star	Movies E.G.	Onan	DGFC	317	200	D	14.2	N/A	N/A
4	WDW	Blizzard Beach	E.G.	Caterpillar	94A04751S	263	N/A	D	13.5	N/A	N/A
5	WDW	Boardwalk	E.G. 1	Caterpillar	3412	749	N/A	D	40.3	N/A	N/A
6	WDW	Boardwalk	E.G. 2	Caterpillar	3306B	377	N/A	D	19.5	N/A	N/A
7	WDW	Boardwalk	E.G. 3	Caterpillar	CD060	96	N/A	D	5.3	N/A	N/A
8	WDW	Bonnet Creek	E.G. EMG-001-BC	Generac	91A03181-S	N/A	20	NG	N/A	329	N/A
9	WDW	Car Care Center	E.G.	Caterpillar	3208	195	N/A	D	12.8	N/A	N/A
10	WDW	Caribbean Beach	E.G.	Cummins/ Kohler	4B-3.9	66	N/A	D	4	N/A	N/A
11	WDW	Casting Building	E.G.	Cummins/ Kohler	50R0ZJ	100	N/A	D	7	N/A	N/A
12	WDW	Contemporary	E.G. 2	Cummins	200 0DFP-4XR/98490	355	N/A	D	40	N/A	N/A
13	WDW	Contemporary	E.G. 1	Detroit Diesel	8V92TA	643	N/A	D	33	N/A	N/A
14	WDW	Contemporary	E.G. 3	Kohler	150R0ZJ71	186	N/A	D	10	N/A	N/A
15	WDW	Coronado Springs	Conv. Center E.G.	Kohler	500ROZD	830	N/A	D	45	N/A	N/A
16	WDW	Coronado Springs	Lift Station E.G.	Kohler	80ROZJ	150	N/A	D	9	N/A	N/A
17	WDW	Corporate Tooling Warehouse	Fire Pump EMG-002-WH	Caterpillar	3306B	231	N/A	D	13.8	N/A	N/A
18	WDW	Corporate Tooling Warehouse	Fire Pump EMG-001-WH	Caterpillar	3306B	141	N/A	D	10.5	N/A	N/A
19	WDW	DC-6	E.G. EMG-001-VA	Caterpillar	3208	224	N/A	D	13.1	N/A	N/A
20	WDW	Disney Institute	Bldg A E.G.	Cummins/Onan	250 DFAC	380	N/A	D	20	N/A	N/A
21	WDW	Disney Institute	Bldg F E.G.	McGraw Edison	15 OJC-4P/26331AB	31	N/A	NG	2	N/A	N/A
22	WDW	Disney Village Resort	E.G. EMG-14A-ER	Cummins	4B-3.9	66	N/A	D	4	N/A	N/A
23	WDW	Disney Village Resort	E.G. EMG-052-EE	Onan	15.OJC-4P/26331AB	31	N/A	NG	2	N/A	N/A
24	WDW	Empress Lilly	E.G. EMG-001-K	Onan	15.OJC-18R/7AA	31	N/A	D	2	N/A	N/A
25	WDW	Epcot	Land E.G. 1	Caterpillar	3208	195	N/A	D	12.8	N/A	N/A
26	WDW	Epcot	Land E.G. 2	Caterpillar	3208	155	N/A	D	12.4	N/A	N/A
27	WDW	Epcot	France E.G.	Cummins	NT-855-64	216	N/A	D	10	N/A	N/A
28	WDW	Epcot	Gateway E.G.	Onan	6BT	135	N/A	D	8	N/A	N/A
29	RC	Fire Station LBV	E.G.	John Deere	6076TF010	211	125	D	9.5	N/A	N/A
30	RC	Lift Sta #28	E.G.	Allis-Chalmers	6138 LT	685	N/A	D	32	N/A	N/A
31	RC	Lift Sta #28	E.G.	Caterpillar	3406B	416	275	D	21.1	N/A	N/A
32	RC	Lift Sta. #1	E.G.	Caterpillar	D 346	550	375	D	29	N/A	N/A
33	RC	Lift Sta. #1	Emerg. Pump	Ford	SSD-681	129	N/A	D	7.5	N/A	N/A
34	RC	Lift Sta. #28	Emerg. Pump	Detroit Diesel	10437100	143	N/A	D	8.6	N/A	N/A
35	RC	Lift Sta. #29	Emerg. Pump	Murphy Diesel	D302-2	20	N/A	D	1.2	N/A	N/A
36	RC	Lift Sta. #30	Emerg. Pump	Murphy Diesel	D302-2	20	N/A	D	1.2	N/A	N/A
37	RC	Lift Sta. #35	Emerg. Pump	Ford	BSD-444-6007-ZZ	72	N/A	D	4.2	N/A	N/A
38	RC	Lift Sta. #36	E.G.	Caterpillar	3208	269	200	D	13.8	N/A	N/A

Attachment M

Walt Disney World Resort Complex Stand-By/Emergency Generator Inventory

Number	Entity	Location	Description	Manufacturer	Model	Power Rating, HP	Power Rating, KW	Fuel Type	Fuel Usage Rate, gph	Nat. Gas Usage Rate, ft3h	LPG Usage Rate, ft3h
39	RC	Lift Sta. #41	E.G.	Onan	L4223D 17103900	N/A	20	D	3	N/A	N/A
40	RC	Lift Sta. #47	E.G.	Caterpillar	3114	119	56	D	6.2	N/A	N/A
41	RC	Lift Sta. #5	Emerg. Pump	Ford	SSD-681	129	N/A	D	7.5	N/A	N/A
42	RC	Lift Sta. #55	E.G.	Cummins	KTA 19G3	685	N/A	D	32	N/A	N/A
43	RC	Lift Sta. #56	E.G.	John Deere	6059TF001	166	100	D	7.7	N/A	N/A
44	RC	Lift Sta. #6	Emerg. Pump	Ford	SSD-437	63	N/A	D	3.8	N/A	N/A
45	RC	Lift Sta. #60	E.G.	Caterpillar	3406	449	300	D	23	N/A	N/A
46	RC	Lift Sta. #7	E.G.	Caterpillar	3412	355	500	D	40.3	N/A	N/A
47	RC	Lift Sta. #8	Emerg. Pump	Detroit Diesel	10337100	103	N/A	D	6.5	N/A	N/A
48	WDW	Magic Kingdom	E.G.	Allis-Chalmers	N/A	N/A	125	D	10	N/A	N/A
49	WDW	Magic Kingdom	E.G.	Ringhaver	N/A	N/A	370	D	30	N/A	N/A
50	RC	Magic Kingdom	E.G.	Kohler	20RH82	N/A	20	NG	3	N/A	N/A
51	WDW	Magic Kingdom	E.G.- Tunnel Entrance	N/A	N/A	N/A	N/A	N/A	5	N/A	N/A
52	WDW	Magic Kingdom	E.G.- Skyway	N/A	N/A	N/A	N/A	N/A	5	N/A	N/A
53	RC	Mobile Portable	E.G. 1	Detroit Diesel	10437316	226	150	D	12.1	N/A	N/A
54	RC	Mobile Portable	Emerg. Pump	Ford	BSD-4441-6005-E	72	N/A	D	4.2	N/A	N/A
55	RC	Mobile Portable	E.G.	Perkins	LJ 33478	86	50	D	3.7	N/A	N/A
56	WDW	Pleasure Island	E.G. EMG-000-I	Cummins	200D4L	33	N/A	D	2	N/A	N/A
57	WDW	Polynesian	Tangaroa Terrace E.G.	Onan	12.5 RJC	17	13	NG	1	N/A	N/A
58	WDW	Polynesian	Bldg 11 (Pago Pago) E.G.	Onan		25	15	NG	2	N/A	N/A
59	WDW	Port/Dixie	E.G. 1	Caterpillar	3406	449	N/A	D	22.7	N/A	N/A
60	WDW	Port/Dixie	E.G. 2	Kohler	60RZ272	126	N/A	NG	N/A	N/A	N/A
61	WDW	Port/Dixie	E.G. 3	Kohler	60RZ282	165	N/A	NG	13	N/A	N/A
62	WDW	Port/Dixie	E.G. 4	Caterpillar	M/SR4	445	N/A	NG	23	3714	N/A
63	RC	Pump Sta. B	E.G.	Caterpillar	3412 DI	749	500	D	40.3	N/A	N/A
64	RC	Pump Sta. C	E.G.	Cummins	VTA-1710-G	800	500	D	48	N/A	N/A
65	RC	RCID Lab-SSA	E.G.	Kohler	30RZ281	66	33	D	4.8	N/A	N/A
66	WDW	Sports Complex	E.G.-SC1	Kohler	300R0ZD		300	D	25	N/A	N/A
67	WDW	Sports Complex	E.G.-SC2	Onan	50DGCA	86	50	D	4	N/A	N/A
68	WDW	Studio	E.G. G-7	Caterpillar	3406	519	N/A	D	26.6	N/A	N/A
69	WDW	Studio	E.G. G-8	Caterpillar	3406	449	N/A	D	22.7	N/A	N/A
70	WDW	Studio	E.G. G-4	Caterpillar	3406	416	N/A	D	19.8	N/A	N/A
71	WDW	Studio	E.G. G-2	Caterpillar	3306	306	N/A	D	14.9	N/A	N/A
72	WDW	Studio	E.G. G-1-A	Caterpillar	3306B	306	N/A	D	14.9	N/A	N/A
73	WDW	Studio	E.G. G-3	Caterpillar	3306B	306	N/A	D	14.9	N/A	N/A
74	WDW	Studio	E.G. G-1	Caterpillar	3208	230	N/A	D	13.2	N/A	N/A
75	WDW	Studio	E.G. G-5	Caterpillar	3208	230	N/A	D	13.2	N/A	N/A
76	WDW	Studio	E.G. G-6	Caterpillar	3208	230	N/A	D	13.2	N/A	N/A
77	WDW	Sun Bank	E.G. EMG-001-K0	Allis-Chalmers	11000-MK11		125	D	10	N/A	N/A
78	WDW	Team Disney	E.G. EMG-001-AB	Cummins	KTA38651	950	N/A	D	48	N/A	N/A
79	WDW	Team Disney	E.G. EMG-002-AB	Cummins	KTA38651	950	N/A	D	48	N/A	N/A
80	WDW	Team Disney	Fire Pump EMG-003-AB	Cummins	6BTA-5.9	244	N/A	D	16	N/A	N/A
81	WDW	TTC	E.G.	Onan	3010DDA-15R		20	D	3	N/A	N/A
82	WDW	Typhoon Lagoon	E.G. #4 (near filters)	Caterpillar	3406B	449	N/A	D	22.7	N/A	N/A
83	WDW	Typhoon Lagoon	E.G. #5 (near maint. area)	Caterpillar	3406B	449	N/A	D	22.7	N/A	N/A

Attachment M

Walt Disney World Resort Complex Stand-By/Emergency Generator Inventory

Number	Entity	Location	Description	Manufacturer	Model	Power Rating, HP	Power Rating, KW	Fuel Type	Fuel Usage Rate, gph	Nat. Gas Usage Rate, ft3h	LPG Usage Rate, ft3h
84	WDW	Typhoon Lagoon	E.G. #3 (Leaning Palms)	Cummins	6BT-5.9	166	N/A	D	8	N/A	N/A
85	WDW	Typhoon Lagoon	E.G. #1(Singapore Sal's)	Cummins	6BT-5.9	135	N/A	D	8	N/A	N/A
86	WDW	Typhoon Lagoon	E.G. #2 (Typhoon Tilly's)	Cummins	4B-3.9	66	N/A	D	4	N/A	N/A
87	WDW	Vacation Club	E.G. EMG-002-DV	Kohler	10RZ82N	17	N/A	NG	1	N/A	N/A
88	WDW	Vacation Club	E.G. EMG-001-DV	Ford	CSG-6491-6005	49	N/A	NG	3	N/A	N/A
89	WDW	Walk-In Clinic	E.G. EMG-001-KR	White	2383	N/A	35	D	4	N/A	N/A
90	RC	Well #16	E.G.	Caterpillar	3406B	587	460	D	29	N/A	N/A
91	RC	Well #17	E.G.	Caterpillar	3406B	587	400	D	29	N/A	N/A
92	RC	Well #2	E.G.	Cummins	KTA-1150-G	685	350	D	32	N/A	N/A
93	RC	Well #5	Emerg. Fire Pump	Caterpillar	3208	150	N/A	D	8.5	N/A	N/A
94	RC	Wells 9 & 10	E.G.	Caterpillar	3208	299	200	D	14.8	N/A	N/A
95	WDW	Wilderness Lodge	E.G.	Caterpillar	3508	1199	N/A	D	60.5	N/A	N/A
96	RC	WWTP #1	E.G. 1	Detroit Diesel	71237406	750	500	D	38.2	N/A	N/A
97	RC	WWTP #2	E.G. 1	Detroit Diesel	81237416	947	600	D	48	N/A	N/A
98	RC	WWTP #3	E.G. 1	Detroit Diesel	08VF 154871	643	400	D	33.4	N/A	N/A
99	RC	WWTP #4	E.G. 1	Detroit Diesel	10437316	226	150	D	12.1	N/A	N/A
100	WDW	Yacht & Beach	Chiller Room E.G.	Caterpillar	5N-8670-SR 4	890	N/A	D	44.9	N/A	N/A
101	WDW	Yacht & Beach	Convention Center E.G.	Caterpillar	3116D1	192	N/A	D	9.8	N/A	N/A
102	WDW	Yacht & Beach	Pool Gazebo E.G.	Winco	520000-410	120	N/A	LPG		N/A	N/A
103	WDW	Animal Kingdom	Conservation Station	Kohler	N/A	423	N/A	D	11.1	N/A	N/A
104	WDW	Animal Kingdom	Countdown to Extinction	Kohler	N/A	423	N/A	D	11.1	N/A	N/A
105	WDW	Animal Kingdom	Parking Lot	Kohler	N/A	330	N/A	D	19.2	N/A	N/A
106	WDW	Animal Kingdom	Safari Village restrooms	Kohler	N/A	330	N/A	D	11.1	N/A	N/A
107	WDW	Animal Kingdom	Village First Aid	Kohler	N/A	330	N/A	D	11.1	N/A	N/A
108	WDW	Animal Kingdom	BOH Cast Bldg	Kohler	N/A	300	N/A	D	11.1	N/A	N/A
109	WDW	Animal Kingdom	Asia restrooms	Kohler	N/A	250	N/A	D	16.1	N/A	N/A
110	WDW	Animal Kingdom	Building Block #1	Kohler	N/A	250	N/A	D	16.1	N/A	N/A
111	WDW	Animal Kingdom	Chester & Hester	Kohler	N/A	250	N/A	D	11.1	N/A	N/A
112	WDW	Animal Kingdom	Guitar Pond	Kohler	N/A	250	N/A	D	16.1	N/A	N/A
113	WDW	Animal Kingdom	Tusker House	Kohler	N/A	250	N/A	D	19.2	N/A	N/A
114	WDW	Animal Kingdom	Restaurantosaurus	Kohler	N/A	250	N/A	D	11.1	N/A	N/A
115	WDW	Animal Kingdom	Theater in the Wild	Kohler	N/A	250	N/A	D	7.4	N/A	N/A
116	WDW	Animal Kingdom	BOH Maint. Bldg	Kohler	N/A	166	N/A	D	8	N/A	N/A
117	WDW	Animal Kingdom	BOH Wardrobe Bldg	Kohler	N/A	N/A	N/A	D	13.7	N/A	N/A
118	WDW	Admin Area- Alarms	DC6 E.G.	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A

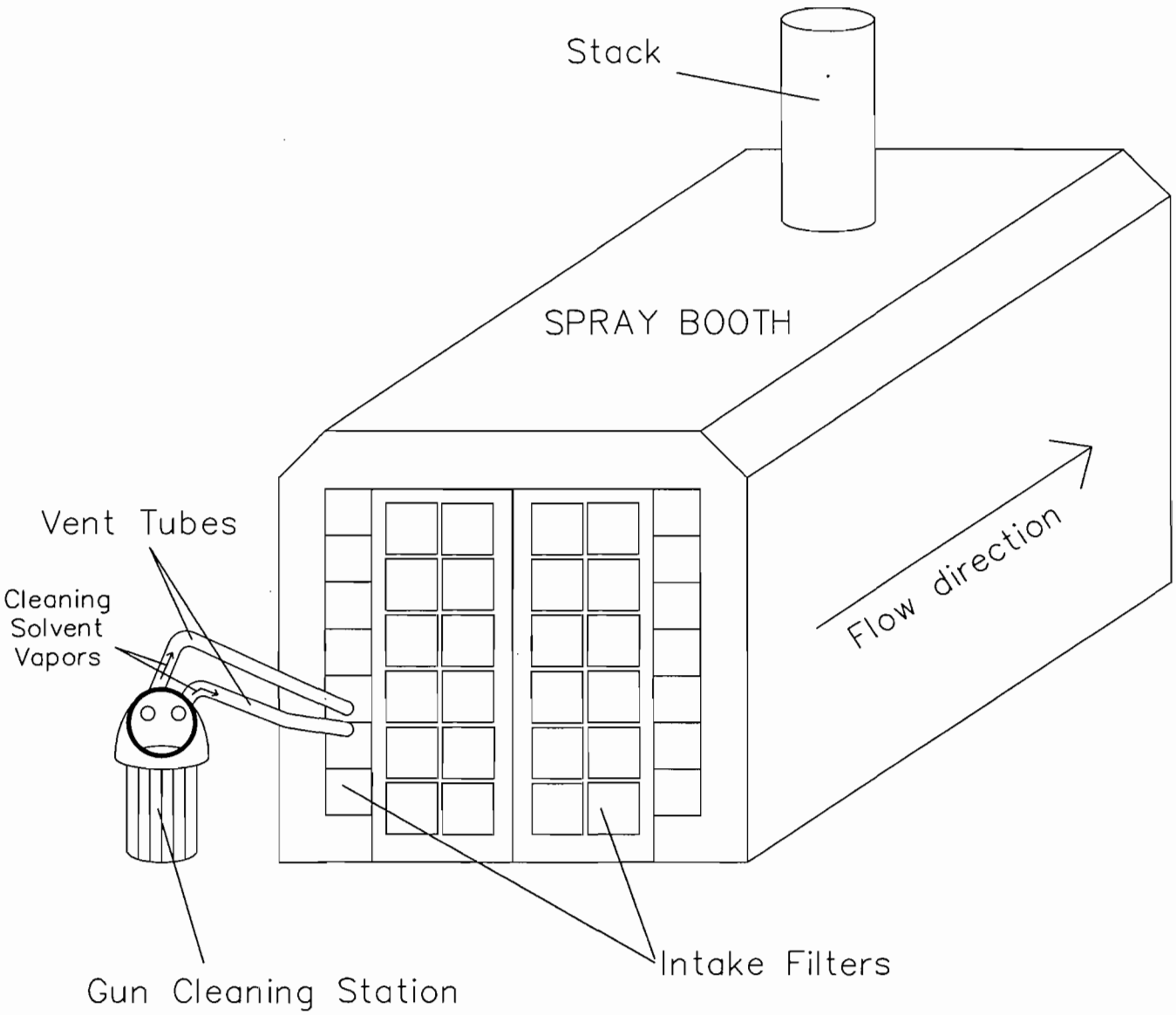
Total hourly fuel usage: 1823 gal/hr

Average hours per year 12 hours

Total fuel usage per year: 21870 gal/yr

ATTACHMENT N

PAINT GUN CLEANER RECONFIGURATION



ATTACHMENT N
PROCESS CONFIGURATION DIAGRAM
TYPICAL SPRAY BOOTH GUN CLEANING
SYSTEM CONFIGURATION

Walt Disney World Co.

safety-kleen®

ESTIMATED SOLVENT EMISSIONS
SAFETY-KLEEN PAINT GUN CLEANER MODEL 1107
vs.
CLEANING PAINT GUN MANUALLY

Cleaning Manually

Individuals not equipped with a paint gun cleaner usually rinse the outside of the spray gun with solvent, fill the gun cup with solvent, and then spray the solvent through the gun into a container of spent solvent. An assumption of approximately 10 ounces of solvent is used cleaning the gun manually with 80% of the solvent evaporating to the atmosphere.* An additional 10 ounces of solvent is used as a final rinse when paint color change occurs.

The emissions from manually cleaning the gun are estimated as follows:

$E_{mc} = N_{gc} \times 10 / 128 \times d \times 0.8$

Where:
- E_{mc} = Total emissions from manual cleaning (pounds per year)
- N_{gc} = Number of manual gun cleanings performed per year (assume 8 per day, 5 days per week, 52 weeks per year = 2,080 per year)
- 10 = Estimated ounces of solvent used per cleaning (20 ounces for color change)
- 128 = Ounces per gallon
- d = Typical density of cleaning solvent (7.1 lbs./gal.)
- 0.8 = Estimated percentage of solvent that evaporates during cleaning

Therefore: $E_{mc} = 2{,}080 \times (10 \text{ or } 20) / 128 \times 7.1 \times 0.8$

E_{mc} = 923 lbs. per year = Estimated annual emissions from cleaning gun manually

E_{mc} = 1,846 lbs. per year = Estimated annual emissions with frequent paint color changes

Model 1107 Paint Gun Cleaner

Emissions from Model 1107 consist of "active" and "passive" types. "Active" emissions occur during cleaning only. "Passive" emissions occur at all times, i.e., due to fugitive solvent evaporation to the atmosphere. Active emissions are approximately 0.03 pounds (14.3 grams) per cleaning use. Passive emissions are approximately 0.001 pounds (0.32 grams) per hour.**

The emissions from Model 1107 are estimated as follows:

$E_{1107} = (N_{gc} \times .03) + (8760 \times .001)$

Where:
- E_{1107} = Total emissions from Model 1107 (pounds per year)
- N_{gc} = Number of gun cleanings performed per year (assumed 8 per day, 5 days per week, 52 weeks per year = 2,080 per year)
- 8760 = Numbers of hours per year passive emissions occur (24 hrs./day 365 days/yr.)
- .001 = Passive emissions (pounds per hour)
- .03 = Active emissions (pounds per cleaning)

Therefore: $E_{1107} = (2080 \times .03) + (8760 \times .001)$

E_{1107} = 71 lbs. per year = Estimated annual emissions from Model 1107

Conclusion

The use of Model 1107 Paint Gun Cleaner vs. cleaning paint gun manually results in an estimated emissions reduction of **92% or 852 lbs. per year *(96% or 1,775lbs. with color changes).***

* Based on "Alternative Control Techniques Document: Automobile Refinishing" (EPA 453/R-94-031, April 1994)

** Based on ENSR Consulting and Engineering Study dated, March 2, 1990

10-31-97

safety-kleen.

V.O.C Comparison

Safety-Kleen's Equipment Cleaner
vs.
Conventional Cleaning without Gun Cleaner

	Safety-Kleen's Model 1107	No Gun Cleaner
V.O.C Emissions	71.29 lbs. per year (1)	1428 lbs.per year (2)

(1) Based on 8 cleanings per day as measured by independent test labs.

(2) 25 gallons of cleaning solvent, 70% sprayed into air.
(25 gals x 6.8 lbs. per gallon x 70% x 12 mos. = 1,428 lbs. per year.)

1000 NORTH RANDALL ROAD ELGIN, ILLINOIS 60123-7857 PHONE 708/697-8460 FAX 708/468-850

safety-kleen

GUN CLEANING STATION TECHNICAL INFORMATION

(INDEPENDENT LABORATORY TEST RESULTS)

VOC

(VOLATILE ORGANIC COMPOUNDS)

APPROX. 121.6 GRAMS EMMITTED PER DAY (.28 LBS)

APPROX. 622 GRAMS PER WEEK (1.37 LBS)

APPROX. 32,365 GRAMS PER YEAR (71.29 LBS)

APPROX. 14.3 GRAMS OF SOLVENT PER CLEANING CYCLE

(BASED ON 8 CLEANINGS PER DAY)

AIRFLOW OUT THE STACK AT 85# PSI 90 C.F.M.

(C.F.M. = CUBIC FEET PER MINUTE)

UL & FM APPROVED

(UL = UNDERWRITERS LAB / FM = FACTORY MUTUAL)

600 CENTRAL PARK DRIVE
SANFORD, FLORIDA 32771
PHONE: 407 321-6080
FAX: 407 321-0065

SAFETY KLEEN CORP

Fax

To: Rich Bumar **From:** George Nicely

Fax: **Pages:** 16

Phone: **Date:** 4-14-98

Re: MSDS for Gun Cleaner **CC:**

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Comments:** [Click here and type comments]

LOW-VAPOR-PRESSURE LACQUER THINNER
MATERIAL SAFETY DATA SHEET FOR USA AND CANADA

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

				OSHA PEL		ACGIH TLV			
WT%	NAME	SYNONYM	CAS NO.	TWA	STEL	TWA	STEL	LD[a]	LC
0-20**	Butyl acetate, iso-	Methyl propyl acetate, 2-	110-19-0	N.Av.	N.Av.	150 ppm	N.Av.	13400	8000[e] ppm/4hours
15-20	Butyl acetate, N-	Butyl ethanoate	123-86-4	150 ppm	N.Av.	150[j] ppm	200[j] ppm	10768	2000[b] ppm/4hours
11-20	*Methyl isobutyl ketone	Hexone	108-10-1	100 ppm	N.Av.	50 ppm	75 ppm	2080	23300[d] mg/m^3
10-30	*Toluene	Methylbenzene	108-88-3	200 ppm	500[c] ppm	50 ppm (skin)	N.Av.	636	49000[b] mg/m^3/ 4 hours
10-13	*Methyl ethyl ketone	Butanone, 2-	78-93-3	200 ppm	N.Av.	200 ppm	300 ppm	2737	23500[b] mg/m^3/ 8 hours
5-10	Propyl alcohol, iso-	Isopropanol	67-63-0	400 ppm	N.Av.	400 ppm	500 ppm	5045	16000[e] ppm/ 4 hours
5-10	Propyl acetate, iso-	Acetoxypropane, 2-	108-21-4	N.Av.	N.Av.	250 ppm	310 ppm	3000	50000[b] mg/m^3/ 8 hours
5-7	Ethyl 3-ethoxypropionate	Ethyl beta-ethoxy propionate	763-69-9	50[f] ppm	100[f] ppm	N.Av.	N.Av.	>5000	>1000[b] ppm/ 6 hours
5-7	Propylene glycol methyl ether acetate	Methoxy-2-propanol acetate, 1-	108-65-6	100[h] ppm	150[f] ppm	N.Av.	N.Av.	8532	4345[b] ppm/ 6 hours
4-8**	*Xylene	Dimethylbenzene	1330-20-7	100 ppm	N.Av.	100 ppm	150 ppm	4300	5000[b] ppm/ 4 hours
1-2	*Ethylbenzene	Phenylethane	100-41-4	100 ppm	N.Av.	100 ppm	125 ppm	3500	4000[a] ppm/ 4 hours
0-5**	Acetone	Dimethyl ketone	67-64-1	1000 ppm	N.Av.	750 ppm	1000 ppm	5800	50100[b] mg/m^3/ 8 hours
0-5**	*Methyl alcohol	Methanol	67-56-1	200 ppm	N.Av.	200 ppm (skin)	250 ppm	5628	64000[b] ppm/ 4 hours

LOW-VAPOR-PRESSURE LACQUER THINNER

MATERIAL SAFETY DATA SHEET FOR USA AND CANADA

safety-kleen.

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: LOW-VAPOR-PRESSURE LACQUER THINNER

SYNONYMS: None.

PRODUCT PART NUMBER: 6864

PRODUCT USE: For cleaning coating equipment.
If this product is used in combination with other chemicals, refer to the Material Safety Data Sheets for those chemicals.

24-HOUR EMERGENCY TELEPHONES

These numbers are for emergency use only. If you desire non-emergency information about this product, please call a telephone number listed below.	MEDICAL:	TRANSPORTATION (SPILL):
	1-800-752-7869 (USA) Extension 2	1-800-468-1760 (USA)
	1-312-942-5969 (CANADA)	1-613-996-6666 (CANADA)

MANUFACTURER/SUPPLIER: Safety-Kleen Corp.
1000 North Randall Road
Elgin, IL, 60123-7857 USA
1-800-669-5740

TECHNICAL INFORMATION: 1-800-669-5740 Extension 7500

MSDS FORM NUMBER: 82509 **ISSUE:** April 11, 1997

ORIGINAL ISSUE: November 5, 1992 **SUPERSEDES:** May 31, 1996

PREPARED BY: Product MSDS Coordinator **APPROVED BY:** MSDS Task Force

LOW-VAPOR-PRESSURE LACQUER THINNER
MATERIAL SAFETY DATA SHEET FOR USA AND CANADA

				OSHA PEL		ACGIH TLV			
WT%	NAME	SYNONYM	CAS NO.	TWA	STEL	TWA	STEL	LD[a]	LC
0-5**	Heptane, N-	Heptane	142-82-5	500 ppm	N.Av.	400 ppm	500 ppm	N.Av.	103000[b] mg/m^3/ 4 hours
0-5**	*Hexane, N-	*Hexane	110-54-3	500 ppm	N.Av.	50 ppm	N.Av.	28710	120000[i] mg/m^3
0-5**	Ethyl acetate	Acetic acid ethyl ester	141-78-6	400 ppm	N.Av.	400 ppm	N.Av.	5620	45000[d] mg/m^3/ 2 hours
0-5**	Ethyl alcohol	Ethanol	64-17-5	1000 ppm	N.Av.	1000 ppm	N.Av.	7060	20000[b] ppm/ 10 hours
0-5**	VM & P Naphtha	Naphtha, V.M. and P.	8032-32-4	N.Av.	N.Av.	300 ppm	N.Av.	N.Av.	3400[b] ppm/ 4 hours
0-5**	Light aliphatic solvent naphtha (petroleum)	Solvent naphtha, petroleum, light aliphatic	64742-89-8	N.Av.	N.Av.	300[g] ppm	N.Av.	>5000	>73680[b] ppm/ 4 hours
0-1**	*1,1,1-Trichloroethane	Methyl chloroform	71-55-6	350 ppm	N.Av.	350 ppm	450 ppm	9600	18000[b] ppm/ 4 hours
0-1**	*Methylene chloride	Dichloromethane	75-09-2	25 ppm	125 ppm	50 ppm	N.Av.	1600	88000[b] mg/m^3/ 30 minutes
0-1**	*Perchloroethylene	Tetrachloroethylene	127-18-4	100 ppm	300[m] ppm	25 ppm	100 ppm	2629	34200[b] mg/m^3/ 8 hours

N.Av. = Not Available
* See **SECTION 15: SARA TITLE III**
**Even though the concentration range does not fall under the ranges prescribed by WHMIS, this is the actual range which varies with each batch of the product.

[a]Oral-Rat LD50 (mg/kg)
[b]Inhalation-Rat LC50
[c]10 minutes for an 8 hour shift
[d]Inhalation-Mouse LC50
[e]Inhalation-Rat LCLo
[f]Manufacturer recommended.
[g]Based on VM & P Naphtha
[h]AIHA recommended
[i]Inhalation-Mouse LCLO
[j]Notice of Intended Changes: 20 ppm TWA; STEL N.Av.
[m]5 minutes in any 3 hours for an 8 hour shift

See 29 CFR 1910.1000(d) and ACGIH *Threshold Limit Values for Chemical Substances* and *Physical Agents Biological Exposure Indices* booklet (Appendix C) for the determination of exposure limits for mixtures. Consult an industrial hygienist or similar professional to confirm that the calculated exposure limits are appropriate.

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING!

APPEARANCE
Clear and colorless liquid with solvent odor.

IMMEDIATE HAZARDS
Vapors may ignite explosively.
Flammable liquid and vapor.
May cause respiratory tract, eye, and skin irritation.
Harmful if absorbed through skin.

DELAYED HAZARDS
Suspect cancer hazard. Contains material (maximum 1 WT%) which may cause cancer. Risk of cancer depends on duration and level of exposure.
Based on experimental data, this product is a possible birth defect hazard.
Contains material which may cause cardiac, liver, kidney, brain, and central nervous system damage.

POTENTIAL HEALTH EFFECTS

INHALATION (BREATHING): High vapor or mist concentrations may be harmful if inhaled. High concentrations of vapor or mist may irritate the respiratory tract (nose, throat, and lungs). High concentrations of vapor or mist may cause nausea and vomiting. High concentrations of vapor and mist may cause headaches, dizziness, incoordination, numbness, irregular heartbeat, drowsiness, and other central nervous system effects. High concentrations of vapor or mist may cause liver or kidney damage. Massive acute exposure may result in rapid central nervous system depression, sudden collapse, deep coma, and death.

EYES: Direct contact with material or exposure to vapors may cause severe irritation, tearing, redness, swelling, burns, and eye damage.

SKIN: Direct contact with material or exposure to vapors may cause irritation, leading to dermatitis or blistering. Toluene and methyl alcohol may be absorbed through the skin and cause harm as noted under **INHALATION (BREATHING).**

INGESTION (SWALLOWING): This material may be harmful or fatal if swallowed. May cause throat irritation, nausea, vomiting, diarrhea, and central nervous system effects as noted under **INHALATION (BREATHING).** Breathing material into the lungs during ingestion or vomiting may cause lung injury and possible death.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Individuals with pre-existing cardiovascular, liver, kidney, lung, central nervous system, or skin disorders may have increased susceptibility to the effects of exposure.

CHRONIC: Prolonged or repeated eye contact may cause conjunctivitis. Prolonged or repeated skin contact may cause drying, cracking, dermatitis, erythmia, and blistering. Prolonged or repeated inhalation may cause cardiac, liver, and kidney damage. Reports have associated repeated or prolonged occupational overexposure to these types of solvents with permanent brain and central nervous system damage.

CANCER INFORMATION: This material contains methylene chloride and perchloroethylene which may cause cancer. Risk of cancer depends on duration and level of exposure. For complete discussion, see **SECTION 11: CARCINOGENICITY**.

Also see **SECTION 15: CALIFORNIA.**

SECTION 4: FIRST AID MEASURES

INHALATION: (BREATHING) Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Someone should stay with victim. Get medical attention if breathing difficulty persists.

EYES: For direct contact, immediately flush eyes with plenty of water, holding eyelids apart, for 15 minutes. If irritation or redness from exposure to vapor or mist develops, move away from exposure into fresh air. Get medical attention if irritation or pain persists.

SKIN: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. Get medical attention if irritation or pain persists.

INGESTION: (SWALLOWING) Immediately get medical attention. Do NOT induce vomiting. If spontaneous vomiting occurs, keep head below hips to avoid breathing material into the lungs.

NOTE TO PHYSICIANS: No specific antidote available. Treat symptomatically and supportively. Do not administer Adrenaline (epinephrine) or similar drugs following material overexposure. Increased sensitivity of the heart to such drugs may be caused by overexposure to material. Administration of gastric lavage, if warranted, should be performed by qualified medical personnel. Call medical emergency telephone number (see **SECTION 1**) for additional information.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT: less than 70°F (21°C) Tag Closed Cup

FLAMMABLE LIMITS IN AIR: **LOWER:** 1 VOL% (based on a similar product)
UPPER: 13 VOL% (based on a similar product)

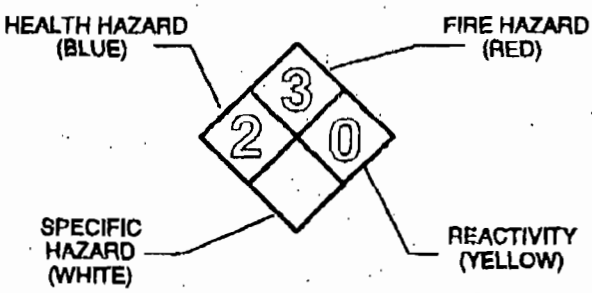
AUTOIGNITION TEMPERATURE: Not available.

HAZARDOUS COMBUSTION PRODUCTS: Burning may produce phosgene, chlorides, chloroacetylenes, formaldehyde, methanol, peracetic acid, and carbon monoxide.

CONDITIONS OF FLAMMABILITY: Heat, sparks, or flame.

EXTINGUISHING MEDIA: Carbon dioxide, alcohol-resistant foam, dry chemical, water spray.

NFPA 704 HAZARD IDENTIFICATION: This information is intended solely for the use by individuals trained in this system.



FIRE FIGHTING INSTRUCTIONS: Keep storage containers cool with water spray. Positive-pressure, self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing may provide limited protection. Fully-encapsulating suits should be worn for maximum protection.

FIRE AND EXPLOSION HAZARDS: This product forms combustible or explosive mixtures with air or oxygen. Decomposition and combustion products may be toxic. "Empty" containers may retain residue and can be dangerous. Heated containers may rupture, explode, or be thrown into the air. Vapors can travel to ignition source and flash back. Vapors will spread along the ground and collect in low or confined areas. Vapor explosion hazard indoors, outdoors, or in sewers. Run-off to sewer may create fire or explosion hazard. Not sensitive to mechanical impact. Material may be sensitive to static discharge, which could result in fire or explosion.

EMERGENCY RESPONSE GUIDE NUMBER: 127
Reference *North American Emergency Response Guidebook*

SECTION 6: ACCIDENTAL RELEASE MEASURES

Remove all ignition sources. Do not touch or walk through spilled material. Wear protective equipment specified in **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**. Stop leak if you can do it without risk. Ventilate area and avoid breathing vapor or mist. A vapor suppressing foam may be used to reduce vapors. Contain away from surface waters and sewers. Contain as a liquid for possible recovery or sorb with compatible sorbent material and shovel with a clean, non-sparking tool into closable container for disposal.

Additionally, for large spills: isolate hazard area and deny entry. Dike far ahead of liquid spill for collection and later disposal.

SECTION 7: HANDLING AND STORAGE

HANDLING: Keep away from heat, sparks, or flame. Where explosive mixtures may be present, equipment safe for such locations should be used. Use clean, non-sparking tools and explosion-proof equipment. When transferring material, metal containers, including trucks and tank cars, should be grounded and bonded. Avoid contact with eyes, skin, clothing, and shoes. Use in well-ventilated area. Do not breath vapor or mist.

SHIPPING AND STORING: Keep container tightly closed when not in use and during transport. Store container in a cool (below 140°F (60°C)) place. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose containers to heat, flame, sparks, static electricity, or other sources of ignition; containers may explode and cause injury or death. Empty product containers may retain product residue and can be dangerous. See **SECTION 14: TRANSPORT INFORMATION** for Packing Group information.

PERSONAL HYGIENE: Use good personal hygiene. Wash thoroughly with soap and water after handling, and before eating, drinking, or using tobacco products. Clean contaminated clothing, shoes, and protective equipment before reuse. Discard contaminated clothing, shoes, or protective equipment if they cannot be thoroughly cleaned.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide general ventilation needed to maintain concentration of vapor or mist below applicable exposure limits. Where adequate general ventilation is unavailable, use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Where explosive mixtures may be present, equipment safe for such locations should be used.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: Use NIOSH/MSHA-approved respiratory protective equipment when concentration of vapor or mist exceeds applicable exposure limit. A self-contained breathing apparatus (SCBA) and full protective equipment are required for large spills or fire emergencies. Selection and use of respiratory protective equipment should be in accordance in the USA with OSHA General Industry Standard 29 CFR 1910.134; or in Canada with CSA Standard Z94.4-M1982.

EYE PROTECTION: Where eye contact is likely, wear chemical goggles; use of contact lenses is not recommended.

SKIN PROTECTION:	Where skin contact is likely, wear polyethylene/ethylene vinyl alcohol, Teflon®, or equivalent gloves; use of natural rubber or equivalent gloves is not recommended.
OTHER PROTECTIVE EQUIPMENT:	Where spills and splashes are likely, wear appropriate chemical-resistant faceshield, boots, apron, whole body suits, or other protective clothing. Clean water should be available in work areas for flushing the eyes and skin.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE, APPEARANCE AND ODOR:	Liquid, clear and colorless, solvent odor.
ODOR THRESHOLD:	Not available.
SPECIFIC GRAVITY:	0.8 to 0.9 (water = 1)
DENSITY:	6.7 to 7.5 lb/US gal (800 to 900 g/l)
VAPOR DENSITY:	3.5 to 3.6 (air = 1)
VAPOR PRESSURE:	less than 30 mm Hg at 68°F (20°C) less than 60 mm Hg at 100°F (38°C)
BOILING POINT:	133° to 329°F (56° to 165°C)
FREEZING/MELTING POINT:	-179° to -54° F (-117° to -48° C)
pH:	Not applicable.
EVAPORATION RATE:	3.7 (butyl acetate = 1) (based on a similar product)
SOLUBILITY IN WATER:	Slight.
MOLECULAR WEIGHT:	Not available.

SECTION 10: STABILITY AND REACTIVITY

STABILITY:	Stable under normal temperatures and pressures. Avoid heat, sparks, or flame.
INCOMPATIBILITY:	Avoid acids, alkalies, oxidizing agents, metals, and halogens.
REACTIVITY:	Polymerization is not known to occur under normal temperatures and pressures. Not reactive with water.
HAZARDOUS DECOMPOSITION PRODUCTS:	None under normal temperatures and pressures. See also **SECTION 5: HAZARDOUS COMBUSTION PRODUCTS.**

SECTION 11: TOXICOLOGICAL INFORMATION

SENSITIZATION: Based on best current information, there is no known human sensitization associated with this material.

CARCINOGENICITY: IARC classifies chemicals by their carcinogenic risk, including agents that are known, probable, or possible carcinogens. NTP classifies chemicals as either known carcinogens, or for which there is a limited evidence of carcinogenicity in humans or sufficient evidence of carcinogenicity in experimental animals. ACGIH recognizes several categories of carcinogens, including confirmed human carcinogens and suspected human carcinogens.

Methylene chloride and perchloroethylene are listed by IARC as possible carcinogens. Methylene chloride and perchloroethylene are classified by NTP as having limited evidence of carcinogenicity in humans or sufficient evidence of carcinogenicity in experimental animals. Methylene chloride is recognized by ACGIH as a suspected human carcinogen.

Also see **SECTION 3: CANCER INFORMATION** and **SECTION 15: CALIFORNIA.**

REPRODUCTIVE TOXICITY: Xylene has demonstrated human effects of reproductive toxicity. Toluene, methyl ethyl ketone, isopropyl alcohol, methyl alcohol, hexane, ethyl alcohol, perchloroethylene, 1,1,1-trichloroethane, and methylene chloride have demonstrated experimental effects of reproductive toxicity.

Based on best current information, the other components listed in **SECTION 2** are not reproductive toxins.

Also see **SECTION 15: CALIFORNIA.**

TERATOGENICITY: Toluene, xylene, ethylbenzene, ethyl alcohol, methyl ethyl ketone, N-butyl acetate, isopropyl alcohol, methyl alcohol, hexane, perchloroethylene, and 1,1,1-trichloroethane have demonstrated experimental effects of teratogenicity.

Based on best current information, the other components listed in **SECTION 2** are not a teratogens.

MUTAGENICITY: Perchloroethylene has demonstrated human effects of mutagenicity. Toluene, xylene, ethylbenzene, ethyl alcohol, isopropyl alcohol, methyl alcohol, hexane, ethyl acetate, 1,1,1-trichloroethane, and methylene chloride have demonstrated experimental effects of mutagenicity.

Based on best current information, the other components listed in **SECTION 2** are not mutagens.

TOXICOLOGICALLY SYNERGISTIC PRODUCT(S): Based on best current information, there are no known toxicologically synergistic products associated with this material.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY: Not available.

OCTANOL/WATER PARTITION COEFFICIENT: Not available.

VOLATILE ORGANIC COMPOUNDS: 95 to 100 WT%; 6.4 to 7.5 lb/US gal; 760 to 900 g/l
Photochemically reactive as per 40 CFR Part 51.100(s).

SECTION 13: DISPOSAL CONSIDERATIONS

DISPOSAL: Dispose in accordance with federal, state, provincial, and local regulations. Regulations may also apply to empty containers. The responsibility for proper waste disposal lies with the owner of the waste. Contact Safety-Kleen regarding recycling or proper disposal.

USEPA WASTE CODES: D001, D035, D039
This information applies to the material as supplied to the user. Processing, use, or contamination will make this information inappropriate, inaccurate, or incomplete.

SECTION 14: TRANSPORT INFORMATION

DOT: PAINT RELATED MATERIAL, 3, UN1263, PGII

TDG: Paint Related Material, Class 3, UN1263, PGII

SECTION 15: REGULATORY INFORMATION

USA REGULATIONS

SARA SECTIONS 311 AND 312: Material poses the following physical and health hazards as defined in 40 CFR Part 370 and is subject to the requirements of sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act of 1986:

Immediate (Acute) Health Hazard
Delayed (Chronic) Health Hazard
Fire Hazard

SARA SECTION 313: Asterisked components in **SECTION 2** are subject to the requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

TSCA: All the components of this product are listed on the TSCA Inventory.

LOW-VAPOR-PRESSURE LACQUER THINNER MATERIAL SAFETY DATA SHEET FOR USA AND CANADA

CALIFORNIA: This product contains a detectable amounts of benzene CAS 71-43-2, methylene chloride CAS 75-09-2, and perchloroethylene CAS 127-18-4. These materials are listed by the State of California as known carcinogens.

This product contains a detectable amount of toluene CAS 108-88-3. This material is listed by the State of California as known to cause reproductive toxicity.

CANADIAN REGULATIONS

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS: B2, D1A, D2A, D2B

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): All the components of this product are listed on the Canadian Domestic Substances List.

SECTION 16: OTHER INFORMATION

REVISION INFORMATION: Revised **SECTION 1** revision dates; **SECTION 2** OSHA exposure limits for methylene chloride; **SECTION 5: FIRE AND EXPLOSION HAZARDS** and **EMERGENCY RESPONSE GUIDE NUMBER;** and **SECTION 6.**

LABEL/OTHER INFORMATION: This product is UL classified.

South Coast
AIR QUALITY MANAGEMENT DISTRICT
21865 E. Copley Drive, Diamond Bar, CA 91765-4182 (909) 396-2000

May 26, 1993

John Paul Kusz
Product Development Manager
Safety Kleen
777 Big Timber Road
Elgin, Illinois 60123

Dear Mr. Kusz:

I have reviewed your letter of April 29, 1993, with our Messrs. Fred Lettice and Abid Latif regarding compliance of your Model 1107 Paint Gun and Equipment Cleaner with our District Rule 1171 – Solvent Cleaning Operations.

We agree that this equipment is a remote reservoir cold cleaner as defined by District Rule 1171(b)(24). As a remote reservoir cold cleaner, we also agree that it satisfies District Rule 1171(c)(2)(E) as an acceptable cleaning device or method that must be used pursuant to the design and operating provisions of District Rule 1171(c)(3). Further, we believe that the design of the Model 1107 complies with District Rule 1171(c)(3)(A) requirements for prevention of the escape of solvent vapors. Therefore, we conclude that the design of this equipment meets District Rule 1171 requirements.

Our only remaining concern is the operation of this equipment as set forth in Sections (B), (C), (D) and (E) of Rule 1171(c)(3). We would hope that Safety Kleen will make every effort to inform their customers that compliance with District Rule 1171 also includes their proper operation of this equipment.

I hope this letter addresses your concerns. If you would like to discuss this further, please call me at 909/396-2577.

Very truly yours,

David E. Schwien
Manager of Aerospace, Chemical,
Electronics and Rubber Operations
Stationary Source Compliance

DES:eg

cc: F. Lettice
M. Mills
A. Latif
M. Liu
D. Vasquez

ATTACHMENT O

PROFESSIONAL ENGINEER CERTIFICATION

Professional Engineer Certification

1. Professional Engineer Name: Robert Beaver
   Registration Number: 32528

2. Professional Engineer Mailing Address:

   Organization/Firm: Walt Disney World Co.
   Street Address: P.O. Box 10,000
   City: Lake Buena Vista State: FL Zip Code: 32830-1000

3. Professional Engineer Telephone Numbers:
   Telephone: (407) 828- 1584 Fax: (407) 934- 7927

4. Professional Engineer Statement:

   I, the undersigned, hereby certify, except as particularly noted herein, that:*

   (1) To the best of my knowledge, there is reasonable assurance (a) that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; or (b) for any application for a Title V source air operation permit, that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application;

   (2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application; and

   (3) For any application for an air construction permit for one or more proposed new or modified emissions units, the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

Signature August 3, 1998
Date

(seal)

* Attach any exception to certification statement.