Air Quality Permitting
Statement of Basis

April 21, 2005

Permit to Construct No. P-040426

Kiefer Built, LLC, Gooding

Facility ID No. 047-00018

Prepared by:

Harbi Elshafei, Air Quality Permitting Analyst 3
AIR QUALITY DIVISION

FINAL

Table of Contents

Acronyms, Units, And Chemical Nomenclatures

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
HAPs	Hazardous Air Pollutants
IDAPA	*numbering designation for administrative rules in Idaho, promulgated in accordance with* the Idaho Administrative Procedures Act
lb/hr	pound per hour
Kiefer	Kiefer Built, LLC
MSDS	Material Safety Data Sheets
MMBtu/hr	million British thermal units per hour
NAAQs	National Ambient Air Quality Standard
NO_x	nitrogen oxides
O&M	Operation and maintenance
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
Rules	Rules for the Control of Air Pollution in Idaho
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	sulfur dioxide
TAP	*toxic air pollutant*
T/hr	tons per hour
T/yr	tons per year
$\mu g/m^3$	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this statement of basis is to satisfy the requirements of IDAPA 58.01.01.200, *Rules for the Control of Air Pollution in Idaho*, for issuing permits to construct.

2. FACILITY DESCRIPTION

Kiefer Built, LLC (Kiefer) proposes to construct two paint booths, portable steel and aluminum welding equipment, natural gas heaters, portable saws, grinders, and other metal working equipment.

Raw material is cut or formed into individual trailer parts. Using assembly fixtures, parts are welded or fastened together, with industrial fasteners, into subassemblies and major assemblies. Major assemblies, such as floor, walls, and gooseneck are welded or fastened together. Axles, jacks, and couplers are attached to the frame.

The entire substructure of the trailer is washed with a phosphoric acid solution, rinsed, and air-dried. Trailers are then primed and painted in either booth.

After the painting process is complete, the aluminum side sheets are applied, and the roof assembly is built and installed. The wiring harness is then installed in the trailer, and the trailer flooring and lining is cut and installed. Ancillary items (windows, doors, stall dividers, mangers, saddle racks, etc.) are installed last. The trailers are then washed and a final inspection is completed.

Emissions at the facility occur from cutting, welding, washing, and painting operations. Also, emissions can occur from several natural gas heaters that provide building heat, hot water, and hot air for the painting operation. The largest heater is 750,000 Btu/hr. The aggregate natural gas heaters at the facility have a capacity of less than 9.5 million British thermal units per hour (MMBtu/hr).

Fugitive emissions at the facility occur from vehicles driving on paved and unpaved roads.

The following trailers are produced at the Gooding facility:

Steel livestock trailers

Aluminum livestock trailers

Aluminum horse trailers

Aluminum living-quarters horse trailers

Steel-framed aluminum skinned horse trailers.

Steel-framed aluminum skinned living-quarters horse trailers.

3. FACILITY / AREA CLASSIFICATION

Kiefer is located at 1045 Agri-Lane, Gooding, Idaho. Gooding is located in Gooding County and is within Air Quality Control Region (AQCR) 63 and Universal Transverse Mercator (UTM) Zone 11. Gooding County is designated as unclassifiable for all criteria pollutants (PM_{10}, carbon monoxide [CO], oxides of nitrogen [NO_x], sulfur dioxide [SO_2], lead, and ozone).

The primary Standard Industrial Classification (SIC) code for the facility is 3715, *Truck Trailers*. The Aerometric Information Retrieval System (AIRS) facility classification for this facility is *synthetic minor* "SM," because enforceable operational limits curtail the facility's potential to emit below Tier I operating permit major source thresholds. The AIRS information provided in Section 8 of this statement of basis defines the classification for each regulated air pollutant at Kiefer.

The facility is not subject to Prevention of Significant Deterioration (PSD) requirements, because its potential to emit is less than all applicable PSD major source thresholds: the facility is not a designated facility, as defined in IDAPA 58.01.01.006.27; the facility is not major facility, as defined in IDAPA 58.01.01.205; and the facility is also not a Tier I source, as defined in IDAPA 58.01.01.006.102.

4. APPLICATION SCOPE

Kiefer submitted a PTC application for the emissions sources at their new facility, for which they have secured a lease on an existing building, located at 1045 Agri-Lane in Gooding, Idaho. Emissions sources include two paint booths, welding operations, natural gas-fired space heaters, and fugitive dust sources. Kiefer requested that DEQ issue them a permit to construct (PTC) for these sources that reasonably assures compliance with all applicable air quality standards.

4.1 Application Chronology

January 27, 2005	DEQ received an application from Kiefer 15-Day Pre-PTC application. The permit number assigned for this project was PTC No. P-040426. The PTC application fees and processing fees were included in the PTC application.
January 27, 2005	Kiefer requested to review a draft PTC No. P-040026 prior to the final issuance.
February 9 and 17, 2005	Kiefer submitted additional information to DEQ.
February 11, 2005	DEQ sent Kiefer a 15-Day Pre-PTC approval letter.
February 25, 2005	DEQ determined the P-040426 application complete.
March 18, 2005	DEQ provided an opportunity for public comment period on the PTC application, in accordance with IDAPA 58.01.01.209.01.c, from March 18, 2005 to April 18, 2005. There were no comments on the application and no requests for a public comment period on DEQ's proposed action
April 1, 2005	DEQ sent Twin Falls Regional Office a copy of draft PTC No. P-040426 for review.
April 13, 2005	DEQ sent Kiefer a copy of draft PTC No. P-040426 for review. The company submitted comments on April 20, 2005.

5. PERMIT ANALYSIS

This section of the statement of basis describes the regulatory requirements for this PTC action.

5.1 Equipment Listing

Paint Booths

Manufacturer: AFC Finishing Systems; each booth is 8' wide x 15' 4" high x 50' deep
Model No.: TSD5030

Maximum rated input capacity: Each booth has two spray guns; each gun is rated at 6.6 gallons /hr

Stack Exhaust Parameters

Each spray paint booth has a stack with the following parameters:

Height: 33 ft
Exit diameter: 3.5 ft
Exit gas volume: 24,000 acfm
Exit gas temperature: 140 °F

Fiberglass Filters

Manufacturer: AFC or alternative manufacturer
Model: NA
Efficiency: 97.00%

5.2 Emissions Inventory

Emissions estimates were provided by Stanley Environmental, Inc. of Oakdale Research Park in Coralville, Iowa and are included in the PTC application materials submitted to DEQ on January 27, 2005. Additional information was received by DEQ on February 9 and February 17, 2005.

Appendix A of this document contains the emissions estimates for particulate matter (PM), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}), carbon monoxide (CO), oxides of nitrogen (NO_x), sulfur dioxide (SO_2), and volatile organic compounds (VOC). These estimates are shown in Table 5.2.1. Table 5.2.1 shows no criteria air pollutant that is emitted in an amount that exceeds the major source threshold of 100 T/yr.

Toxic air pollutants (TAPs) and hazardous air pollutants (HAPs) emissions estimates that were provided by the facility are shown in Appendix A, and summarized in Table 5.2.2 and Table 5.2.3. Tables 5.2.2 and 5.2.3 show that emissions of any single HAP were estimated to be less than 10 T/yr. The tables also show emissions of two HAPs or more were estimated to be 7.25 T/yr, which is well below the major source threshold of 25 T/yr for a combination of two HAPs or more.

The PM_{10}, VOC, TAPs, and HAPs emissions estimates from the paint booths at the facility were obtained from data provided in the Material Safety Data Sheets (MSDS) provided by the painting manufacturers. Emissions of these pollutants are based on percent constituents, as listed in the product MSDSs provided in the application materials, and usage rates of the primers and painting. All the VOC and volatile TAPs and HAPs present in the primer and paint materials were assumed to be emitted from the paint booths' vents. The TAPs and HAPs emissions from the booths are based on the worst case content in the range that is reported in the MSDSs. All PM was considered PM_{10}, which is a conservative assumption. The PM and PM_{10} from the paint booths are controlled by fiberglass filters.

Emissions from natural gas heating units at the facility were obtained from emission factors described in U.S. EPA's *Compilation of Air Pollutant Emission Factors*, AP-42, Section 1.4, Natural Gas Combustion, 3/98. Each of the space heaters is fairly small in size, and, even in aggregate, the units have a heat input capacity of only 9.5 MMBtu/hr. These are small sources of air pollutant emissions, even if operated continuously.

Emissions estimates of PM and PM_{10} from welding operations are shown in Table 5.2.1. The TAPs and HAPs emissions from the welding operations are shown in Table 5.2.3. The HAPs and TAPs emissions from welding operations are not of great significance in comparison to emissions from the paint spray booths. Welding emissions were based on maximum welding rod usage of the gas metal arc welding (GMAW) process. The PM_{10} and HAPs emissions factor for the welding operations were obtained from emission factors described in U.S. EPA's *Compilation of Air Pollutant Emission Factors*, AP-42, Section 12.19, Electric Arc Welding, 1/1995. There are eight steel and six aluminum welding stations on-site.

The emissions estimates presented in Table 5.2.1 of this document provided the basis for the PM_{10} and VOC that are incorporated in the permit. They also provided the basis for the PM_{10} ,CO, SO_2, and NO_2 National Ambient Air Quality Standards (NAAQS) analysis – see Appendix B.

Detailed emissions estimates are included in Appendix A. It should be noted that the point source information contained in Table 5.2.1 was used to determine the processing fee assessed in accordance with IDAPA 58.01.01.225.

Table 5.2.1 POTENTIAL EMISSIONS FROM THE PAINT BOOTHS, PAINT KITCHEN, NATURAL GAS-FIRED HEATERS, AND WELDING OPERATIONS

Source Description	PM[a]		PM_{10}[b]		CO[c]		NO_x[d]		SO_2[e]		VOC[f]		Pb[g]	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Paint booths and paint kitchen stacks	2.73	5.68	2.73	5.68	--	--	--	--	--	--	27.51	57.22	--	--
Aggregated natural gas-gas fired heaters located inside booths	0.03	0.062	0.03	0.062	0.33	0.69	0.392	0.82	0.002	0.005	0.022	.045	--	--
Aggregated natural gas-fired space heaters	0.04	0.08	0.04	0.08	0.45	0.94	0.54	1.12	0.003	0.006	0.03	0.06	--	--
Welding operations	0.364	0.76	0.364	0.76	--	--	--	--	--	--	--	--	--	--
Total	3.16	5.58	3.16	5.68	0.78	1.63	0.93	1.94	0.005	0.11	27.56	57.33		

[a] Particulate matter
[b] Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
[c] Carbon monoxide
[d] Nitrogen oxides
[e] Sulfur dioxide
[f] Volatile organic compound
[g] Lead

Table 5.2.2 TOXIC AND HAZARDOUS AIR POLLUTANTS EMISSIONS FROM PAINT BOOTHS

TAP/HAP	lb/hr	T/yr	T/yr (HAP)
Acetone	3.791	7.885	
Aluminum	0.018	0.038	
n-Butyl acetate	2.752	5.723	
n-Butyl alcohol	3.198	6.652	
Calcium carbonate	0.066	0.136	
Carbon black	0.002	0.004	
Cumene	0.000	0.001	
Ethyl benzene (HAP)	0.217	0.451	0.451
Ethyl acetate	3.075	6.395	
2-butoxyethyl acetate	1.146	2.385	
Heptane	2.457	5.111	
sec-Hexyl acetate	0.423	0.880	
Ethylene glycol methyl ether acetate	0.008	0.017	
Methyl alcohol (HAP)	0.471	0.980	0.980
Methyl ethyl ketone (HAP)	0.639	1.329	1.329
Methyl amyl ketone	4.809	10.002	
Methyl isoamyl ketone	0.471	0.980	
Methyl isobutyl ketone (HAP)	0.022	0.046	0.046
Styrene (HAP)	0.007	0.014	0.014
Toluene (HAP)	1.099	2.287	2.287
Xylene (HAP)	1.016	2.113	2.113
1,2,4-trimethyl benzene	0.877	1.825	
1-methoxy-2-proanol acetate	1.630	3.391	
Silica-amorphous	0.003	0.007	
1,6-hexamethylene diisocyanate (HAP)	0.002	0.004	0.004
VM & P naphtha	1.768	3.677	
Isopropyl alcohol	2.761	5.743	
Naphthalene	0.00	0.00	
Kaolin Clay	0.065	0.136	
Stoddard solvent	0.335	0.697	
Aggregated HAPs			7.20

Table 5.2.3 TOXIC AND HAZARDOUS AIR POLLUTANTS EMISSIONS FROM WELDING OPERATIONS

TAP/HAP	lb/hr	T/yr
Chromium II, III (HAP)	7.00E-05	1.46E-04
Cobalt (HAP)	7.00E-05	1.46E-04
Manganese (HAP)	2.23E-02	4.63E-02
Nickel (HAP)	7.00E-05	1.46E-04
Aggregated HAPs		4.67E-02

The emissions estimate for 1,6-hexamethylene diisocyanate, which is a TAP, is based on a limited usage rate of 461 gallons per year of DuPont 193S, which contains 1,6-hexamethylene diisocyanate. Estimated emissions of 0.002 lb/hr and 0.004 T/yr for this TAP are presented in Table 5.2.2.

Kiefer has accepted a throughput limit of 461 gallons per year on DuPont 193S, and this throughput limit is included in this PTC. This limit will cap the emissions of 1,6-hexamethylene diisocyanate at 0.002 lb/hr and 0.004 T/yr, which is equal to the screening emissions levels (EL) specified in IDAPA 58.01.01.585.

5.3 Modeling

Refer to the modeling review memorandum contained in Appendix B of this statement of basis for a discussion of the air dispersion analysis conducted for this project. Based on the modeling review memorandum, DEQ has determined that emissions of PM_{10}, CO, and NOx from the facility have been successfully demonstrated to not cause or significantly contribute to violations of NAAQs.

5.4 Regulatory Review

This PTC is subject to the following permitting requirements:

IDAPA 58.01.01.201..... Permit to Construct Required

Kiefer proposes to construct a stationary source that does not qualify for a PTC exemption in any of Sections 220 through 223 of the Rules. Therefore, a PTC is required.

IDAPA 58.01.01.203..... Permit Requirements for New and Modified Stationary Sources

All PTC applications are required to demonstrate compliance with the terms of IDAPA 58.01.01.203. This section of the Rules requires that Kiefer demonstrate that emissions from the new paint booths, welding operations, and combustion sources will comply with all applicable emissions standards, and will not cause or significantly contribute to a violation of any ambient air quality standard.

IDAPA 58.01.01.205..... Permit Requirements for New Major Facilities or Major Modifications in Attainment or Unclassifiable Areas

This facility does not emit or have the potential to emit any regulated PSD pollutant at major source threshold levels. Therefore, PSD permitting requirements do not apply.

IDAPA 58.01.01.209.01.c.....Opportunity for Public Comment

This PTC is subject to the provisions of IDAPA 58.01.01.209.01.c. An opportunity for public comment on the PTC application was provided, in accordance with IDAPA 58.01.01.209.01.c, during which time, no comments on the proposed action were received.

IDAPA 58.01.01.210..... Demonstration of Preconstruction Compliance with Toxic Standards

The TAPs emissions resulting from the paint booths and the welding operations were estimated. Appendix A of this document contains all TAPs emissions from the paint booths and the welding operations. All TAPs emissions from the paint booths and welding operations were demonstrated to meet the requirements specified in IDAPA 58.01.01.210. Refer to the modeling review memorandum in Appendix B of this document.

IDAPA 58.01.01.212..... Obligation to Comply

Receipt of this PTC does not relieve Kiefer from the responsibility to comply with all federal, state, and local rules and regulations.

IDAPA 58.01.01.225..... Permit to Construct Processing Fees

The combined emissions increase from this project is subject to the fee provisions of IDAPA 58.01.01.225, and Kiefer was assessed a PTC processing fee of $5,000.00 for an increase in emissions of 67.59 T/yr. The processing fee was paid on January 27, 2005.

IDAPA 58.01.01.577..... Ambient Air Quality Standards for Specific Air Pollutants

Ambient air quality modeling predicts this facility will not cause or contribute to a violation of any applicable ambient air quality standard. The modeling analysis is presented in Appendix B.

IDAPA 58.01.01.625..... Visible Emissions Limitation

Emissions from all stationary point sources in the state of Idaho are required to comply with the opacity standards of IDAPA 58.01.01.625-626, unless exempted under Section 625.01. The paint booths stacks at the facility are subject to this standard.

IDAPA 58.01.01.650..... Rules for the Control of Fugitive Dust

All stationary sources are required to comply with the fugitive dust prevention requirements of IDAPA 58.01.01.650-651.

40 CFR 60 ..... New Source Performance Standard

The facility is not currently subject to the terms and provisions of any New Source Performance Standard.

40 CFR 63 ..... National Emission Standards for Hazardous Air Pollutants and Maximum Achievable Control Technology

The facility is not currently subject to any National Emission Standard for Hazardous Air Pollutants or Maximum Achievable Control Technology requirements at this time.

6. PERMIT CONDITIONS

This section lists the permit conditions required to demonstrate compliance with emissions and ambient air quality standards.

Permit Condition 2.3 limits the opacity from any point of emission to no more than 20% opacity, as required by IDAPA 58.01.01.625.

Permit Condition 2.4 limits PM_{10} emissions from the paint booths and the paint kitchen stacks to 43.68 lbs/day and 5.68 T/yr in order to demonstrate compliance with NAAQS. In addition, it limits the VOC emissions from the paint booths and the paint kitchen to 57.22 T/yr. The VOC is the pollutant emitted in the greatest quantity and is limited to establish the facility's potential to emit.

Emissions of PM_{10} are directly related to the following: solids content of the paint material (primer or paint), spray gun application rate, the number of spray guns within a spray booth, the number of spray booths, the type of surface being painted (this determines the amount of overspray), and the control efficiency of the filters on the spray booths.

Kiefer used a value of 97% control efficiency to calculate PM and PM_{10} emissions from the exhaust vents, which are controlled by fiberglass filters. Regular inspection of the filters is required to determine when the loading capacity of the filter is reached and filter replacement is needed to ensure performance at this level of efficiency.

Pressure drop across the filter is the typical monitoring parameter used to examine operational efficiency of the exhaust filtration system. Increased pressure drop across the filter, to a point where saturation has occurred and particulate control efficiency is reduced below the stated efficiency, indicates that the filter must be replaced. The filter manufacturer's specifications and recommendations should be followed to assure proper control of particulate matter emissions.

Emissions of HAPs and VOCs are directly related to the HAP and VOC content in the paints and primers, sprayer application rate, the number of guns operating within each spray booth, the number of spray booths, and the duration of the paint spraying process.

Permit Condition 2.5 limits the total amount of primer and painting mixture sprayed in the paint booths and the paint kitchen to 105 gallons/day and 27,393 gallons per year. The gallons/day limits is to protect the NAAQS. This limit and Permit Condition 2.11 establish the facility's potential to emit.

Permit Condition 2.5 (3rd bullet) restricts the usage of DuPont 193S to 461 gallons/yr. This restriction was necessary to limit the emissions of 1,6-hexamethylene diisocynate, which is a TAP, to meet the screening emissions levels (EL) for that pollutant set by IDAPA 58.01.01.585.

The primer and painting throughput limit is applied to both paint booths. The VOCs and HAPs/TAPs emissions depend on paint and primer formulations. Information used by the permittee should be obtained from up-to-date MSDSs provided by the material manufacturer.

Permit Condition 2.7 requires the permittee to develop an operations and maintenance (O&M) manual for the paint booth nos. 1 and 2 fiberglass filter systems.

Permit Condition 2.11 requires the permittee to monitor and record the amount of primer and painting mixture used in the paint booths, and the amount of DuPont 193S used, to demonstrate compliance with Permit Condition 2.5. Permit Condition 2.12 requires the permittee to monitor the pressure drop across the fiberglass filter system stacks once per day, when operating, to make sure the filters are operating according to the manufacturer's recommended pressure drop operating range.

7. PUBLIC COMMENT

An opportunity for public comment period was provided in accordance with IDAPA 58.01.01.209.01.c from March 18 through April 18, 2005. No request for a public comment period was received.

8. AIRS INFORMATION

Table 8.1 AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	B							U
NO_x	B							U
CO	B							U
PM_{10}	B							U
PT (Particulate)	B							U
VOC	SM						SM	U
THAP (Total HAPs)	B							A
			APPLICABLE SUBPART					

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, or each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

9. FEES

Kiefer paid the $1,000 application fee as required in IDAPA 58.01.01.224 on January 27, 2005.

In accordance with IDAPA 58.01.01.225, a processing fee of $5,000.00 is required because the increase in emissions from the facility is between 10 and 100 T/yr. The processing fee was paid on January 27, 2005. Kiefer is not a major facility as defined in IDAPA 58.01.01.008.10. Therefore, registration fees are not applicable in accordance with IDAPA 58.01.01.387.

Table 9.1 PTC Processing Fee Summary

Emissions Inventory	
Pollutant	**Annual Emissions Increase (T/yr)**
PM_{10}	3.71
CO	1.63
NO_X	1.94
SO_2	0.11
VOC	57.33
Total:	**64.72**
PTC Fee	$5,000.00
Fees paid to date	$5,000..00
Fee Due	**$0.00**

10. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommends that Kiefer Built, LLC in Gooding be issued a final PTC No. P-040426 for the new facility. An opportunity for public comment on the air quality aspects of the proposed permit to construct was provided in accordance with IDAPA 58.01.01.209.01.c.

HE/sd Permit No. P-040426

G:\Air Quality\Stationary Source\SS Ltd\PTC\Kiefer P-040426\Final\P-040426 Final SB.DOC

APPENDIX A

Kiefer Built, LLC, Gooding

Emissions Inventory

P-040426

January 27, 2005 submittal

Toxic Comparison for Painting Operation

Annual Emission of VOC & HAP:

	VOC based on requested limit	Antimony Pentoxide (1314-60-9) based on requested limit	Ethyl Benzene (100-41-4) based on requested limit	Ethylene Glycol Monobutyl Ether Acetate (112-07-2) based on requested limit	Methanol (67-56-1) based on requested limit	Methyl Isobutyl Ketone (108-10-1) based on requested limit	Styrene (100-42-5) based on requested limit	Toluene (108-88-3) based on requested limit	Xylene (1330-20-7) based on requested limit	Cumene (98-82-8) based on requested limit	Methyl Ethyl Ketone (78-93-3) based on requested limit	Phosphoric Acid (7664-38-2) Based on OSHA Standard	Total HAP based on requested limit
lbs/hr	27.51	0.01	0.18	1.15	0.47	0.02	0.01	1.10	1.04	0.00	0.56	0.0011	
From IDAPA 58.01.01 585 (lbs/hr)		0.033	29	*no value*	17.3	13.7	6.67	25	29	16.3	39.3	0.067	
Major Source Comparison													
Facility tons/yr	67.22	0.02	0.38	2.38	0.98	0.05	0.01	2.29	2.16	0.00	1.16	0.002	9.42
Major Source Threshold Values (tons)	100	10	10	10	10	10	10	10	10	10	10		25

Note. Toxics resulting from operation of the air preheaters are insignificant.

Paint Booth PM10 Calcs

Booths 1 & 2
Particulate (each booth)

Gun Ratings	0.220	gallons/min	Max
Gun Ratings	13.2	gallons/hr	Max (6.6 gallons/hr/gun)
solids content	7.1	lbs/gal	Not to exceed
transfer efficiency	52.00%	per cent	Conservative Assumption
Control Efficiency	97.00%	per cent	From Mfgr's Spec.
Solids sprayed	93.72	lbs/hr	
Overespray	44.9856	lbs/hr	
after control	1.350	lbs/hr	
Operating Hours	4160	hrs/yr	
after control	2.807101	tons/yr	

Heaters in Booths 1 & 2

Heating Unit		each booth
Makeup unit	2	MMBtu/hr
	2	MMBtu/hr
	2	MMBtu/hr

0.001961 MMCF natural gas @ 1020 Btu/cu ft

AP-42	1.4-1		lb/hr	ton/yr 8760 hr	ton/yr 4160 hr
NOx	100	lb/MMCF	0.1961	0.86	0.407843
CO	84	lb/MMCF	0.1647	0.72	0.342568
PM10	7.6	lb/MMCF	0.0149	0.07	0.030996
SO2	0.6	lb/MMCF	0.0012	0.01	0.002447
VOC	5.5	lb/MMCF	0.0108	0.05	0.022431

Combined Emission rate from Heater and Paint usage (per booth)

	NO_x	CO	PM_{10}	SO_2	VOC
lbs/hr	0.196	0.165	1.364	0.001	13.765
tons/yr (4160 hrs)	0.406	0.343	2.838	0.002	28.631

Combined Emission rate from two booths

	NO_x	CO	PM_{10}	SO_2	VOC
lbs/hr	0.392	0.329	2.729	0.002	27.530
tons/yr (4160 hrs)	0.816	0.686	5.676	0.005	57.262

Steel Trailer Wash Bay

Washing in preparation for painting consists of spraying a very dilute solution of either of two products which contain phosphoric acid (7664-38-2) along with surfactants and other ingredients. This is conducted in a wash bay that is approximately 12 ft wide by 50 ft long. Phosphoric Acid has a Vapor Pressure of 0.03 mm Hg at 70 degrees f, and when present in dilute aqueous solution is practically non volitile. Therefore little if any evaporates. To estimate the maximum emission of Phosphoric Acid from the operation, the following Assumptions are made:

Air Exchange in area =	0.5 cfm/sq ft	(locker room guideline)
H3PO4 conc. =	1 mg/m3	OSHA Standard
H3PO4 EL =	0.067 lb/hr	

Calculations:	Length (ft)	Width (ft)	Area (sq ft)			
	50	12	600			
			300	cfm	509.70319	mg/hr
			0.5	cfm/sq ft	0.5097032	g/hr
			18000	cf/hr	0.0011237	lb/hr
			35.31467	cu ft/cu m		
			509.70319	cu m/hr	0.067 lb/hr	Page 145 IDAPA 58.01.01 585
			1	mg/cu m		
			509.70319	mg/hr		

Welding
Particulate & HAP

ER4043	3/8 in	aluminium	For PM10 calc. assume all is ER70S	
	.035 in	aluminium	For HAP, 27 lbs/hr is ER70S	
L-50	.045 in	ER70S		
	.035 in	ER70S	291,200	lbs/yr
Rated at	70	lbs/hr Max	4160	hrs/yr
	35	lbs/hr Avg		

AP-42, Table 12-19--1

GMAW		lbs/hr	tons/year
3-09-052-54	5.2 lbs/ Fume/1000 lbs consumed	0.364	0.75712

AP-42, Table 12-19--2 (note difference in units in Heading of 3rd Column)

Rated at	26 lbs/hr Max		
	0.001 lbs Cr/1000 lbs consumed	0.000026	5.41E-05
	0.001 lbs Co/1000 lbs consumed	0.000026	5.41E-05
	0.318 lbs Mn/1000 lbs consumed	0.008268	0.017197
	0.001 lbs Ni/1000 lbs consumed	0.000026	5.41E-05

Toxics Comparison

	Cr	Co	Mn	Ni
lbs/hr	0.000026	0.000026	0.008268	0.000026
From IDAPA 58.01.01 585 (lbs/hr)	0.033	0.0033	0.333	0.000027

Requested Limit:			
Overall wire usage	70 lbs/hr	291,200	lbs/yr
Steel wire usage	26 lbs/hr	108,160	lbs/yr

Paint Kitchen

Note: All emissions from handling the various paints, primers, thinners & other additives are accounted for in the calculation for the paint booths. However, the activities in this area of the plant will allow some loss of VOC and VHAP. Activities consist of opening containers, transfering from one container to another, mixing of components and cleaning of equipment used in painting. To estimate losses from this area, we compare the air flows from the vent fan that exhausts from the paint kitchen to the air flows utilized in the two paint booths.

Paint booth air flow	24000 cfm
two booths	2
total	48000 cfm
Paint Kitchen exhaust vent airflow	50 cfm
percentage of pollutants lost from kitchen	0.104%
VOC ffrom paint usage =	57.22 tons
VOC from Paint Kitchen	0.060 tons

Insignificant Heating Units
All Criteria Pollutants
Heating Units (All less than 50 MMBtu/hr)

5.5 MMBtu/hr Assume all other small sources no more than the equivelant amount

0.005392 MMCF natural gas @ 1020 Btu/cu ft

AP-42 1.4-1

			lb/hr	lb/yr (8760 hr basis)
NOx	100	lb/MMCF	0.54	2.36
CO	84	lb/MMCF	0.45	1.98
PM10	7.6	lb/MMCF	0.04	0.16
SO2	0.6	lb/MMCF	0	0.01
VOC	5.5	lb/MMCF	0.03	0.13

Overall Criteria Pollutant Emission Summary

		NO_x	CO	PM_{10}	SO_2	VOC
Paint Booths	(tons/yr)	0.816	0.685	5.676	0.005	57.282
Welding	(tons/yr)			0.75712		
Paint Kitchen	(tons/yr)	Already counted in Paint Booths				
Heaters	(tons/yr)	2.36	1.98	0.18	0.01	0.13
Total	(tons/yr)	3.176	2.665	6.613	0.015	57.392

Overall HAP Emission Summary

		Antimony Pentoxide (1314-60-9)	Ethylbenzene (100-41-4)	Ethylene Glycol Monobutyl Ether Acetate (112-07-2)	Methanol (67-56-1)	Methyl Isobutyl Ketone (108-10-1)	Styrene (100-42-5)	Toluene (108-88-3)	Xylene (1330-20-7)	Cumene (98-82-8)	Methyl Ethyl Ketone (78-93-3)	Chromium (7440-47-3)	Cobalt (7440-48-4)	Manganese (7439-96-5)	Nickel (7440 02-0)	Total HAP
Paint Booths	(tons/yr)	0.02	0.36	2.39	0.98	0.05	0.01	2.29	2.16	0.00	1.16					9.42
Welding	(tons/yr)											0.00005408	0.00005408	0.0171974	0.00005408	0.02
Paint Kitchen	(tons/yr)	Already counted in Paint Booths														
Heaters	(tons/yr)	Insignificant														
Total	(tons/yr)	0.016	0.377	2.396	0.980	0.046	0.014	2.287	2.158	0.001	1.155	0.000	0.000	0.017	0.000	9.437

february 7/2005 submission

Usage: 2003 Iowa Actual Usage (gallons)	2004 Iowa Actual Usage (gallons)	2004 Projected Iowa Usage (gallons)	Max Annual Iowa Usage (gallons)	Basis for Requested Idaho Limit (gallons)	Group (paint or primer)	Product ID: Prod Type	Mfg's ID	Den (lb/gal)	VOC (lb/gal)
	5	5.5	5.5	13.8	paint		507H	8.88	4.40
1030	1083	1181.5	1181.5	2953.8	paint	Activator	1936	9.02	2.30
	4	4.4	4.4	10.9	paint	Paint	333-67632	11.53	3.36
	30	32.7	32.7	81.8	paint	Paint	333-67640	8.49	3.37
2	7	7.6	7.6	19.1	paint	Additive	3096	7.89	5.80
2200	2703	2948.7	2948.7	7371.8	paint	Solvent	38025	8.65	5.40
4	5	5.5	5.5	13.8	paint	Additive	3896	8.14	8.12
4	0	0.0	4.0	10.0	paint	Paint	501H	8.22	3.90
12	0	0.0	12.0	30.0	paint	Paint	516H	14.85	3.30
4	2	2.2	4.0	10.0	paint	Paint	522H	9.31	4.80
108	16	17.5	108.0	270.0	paint	Paint	569H	8.68	3.90
4	4	4.4	4.4	10.8	paint	Additive	577H	8.08	5.30
2		0.0	2.0	5.0	paint	Paint	590H-LH	9.19	4.80
417	14	15.3	417.0	1042.5	paint	Reducer	85958	6.49	6.49
18	23	25.1	25.1	62.7	paint	Accelerator	89696	8.16	7.80
530	635	692.7	692.7	1731.8	paint	Paint	969P28272	8.31	3.77
1540	1475	1609.1	1609.1	4022.7	paint	Paint	B6686HN	8.56	3.82
	30	32.7	32.7	81.8	paint	Paint	N0001HN	8.38	3.99
87	326	355.6	355.6	889.1	paint	Paint	N0006HN	11.43	3.61
400	340	370.9	400.0	1000.0	paint	Paint	N0947HN	8.55	3.85
5	5	5.5	5.5	13.8	primer	Filler	22908	13.47	2.10
	12	13.1	13.1	32.7	primer	Solvent	39198	6.61	6.60
1603	1818	1983.3	1983.3	4958.2	primer	Primer	828P30020	12.16	3.49
865	405	441.8	865.0	2162.5	primer	Activator	8295	7.35	4.50
	218	237.8	237.8	594.5	primer	Activator	FGP28303	7.82	3.52
Sum Paint Group (total paint)				19631.1					
Sum Primer Group (total primer)				7761.6					
Total usage limit requested				27392.73					

Hazardous Air Pollutants

Mfg's ID	Antimony Pentoxide (1314-60-9)	Ethylbenzene (100-41-4)	Ethylene Glycol Monobutyl Ether Acetate (112-07-2)	Methanol (67-56-1)	Methyl Isobutyl Ketone (108-10-1)	Styrene (100-42-5)	Toluene (108-88-3)	Xylene (1330-20-7)	Cumene (98-82-8)	Methyl Ethyl Ketone (78-93-3)
507H	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.00%	3.00%	0.00%	0.00%
1936	0.00%	0.00%	4.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
333-67632	0.00%	0.40%	8.00%	0.00%	0.00%	0.00%	1.00%	2.00%	0.00%	0.00%
333-67640	0.00%	0.60%	6.00%	0.00%	0.00%	0.00%	2.00%	2.00%	0.00%	0.00%
3096	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.00%	1.00%	0.00%
38025	0.00%	0.00%	0.00%	4.00%	0.00%	0.00%	8.00%	0.00%	0.00%	0.00%
3896	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
501H	0.00%	0.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
516H	0.00%	0.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
522H	0.00%	1.10%	0.00%	0.00%	0.00%	0.00%	0.00%	5.00%	0.00%	0.00%
569H	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
577H	0.00%	0.10%	12.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.00%
590H-LH	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.00%	0.00%	0.00%
85958	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	27.00%
89696	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
969P28272	0.00%	0.80%	2.00%	0.00%	0.00%	0.00%	0.00%	3.00%	0.00%	0.00%
B6686HN	0.00%	0.30%	2.50%	0.00%	0.00%	0.00%	0.00%	1.00%	0.00%	1.00%
N0001HN	0.00%	0.70%	0.00%	0.00%	0.00%	0.00%	0.00%	3.00%	0.00%	1.00%
N0006HN	0.00%	0.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
N0947HN	0.00%	0.40%	7.00%	0.00%	0.00%	0.00%	0.00%	2.00%	0.00%	0.00%
22908	0.00%	0.00%	0.00%	0.00%	0.00%	15.00%	0.00%	0.00%	0.00%	0.00%
39198	0.00%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
828P30020	0.00%	0.40%	0.00%	0.00%	0.00%	0.00%	0.00%	2.00%	0.00%	0.00%
8295	0.04%	0.30%	0.00%	0.00%	0.00%	0.00%	4.00%	4.00%	0.00%	3.00%
FGP28303	0.00%	7.10%	0.00%	0.00%	2.00%	0.00%	0.00%	30.00%	0.00%	0.00%

Mfg's ID	VOC: VOC (lbs/yr) based on requested limit	Hazardous Air Pollutants: Antimony Pentoxide (lbs/yr) based on requested limit	Ethyl Benzene (lbs/yr) based on requested limit	EGMBEA (lbs/yr) based on requested limit	Methanol (lbs/yr) based on requested limit	Methyl Isobutyl Ketone (lbs/yr) based on requested limit	Styrene (lbs/yr) based on requested limit	Toluene (lbs/yr) based on requested limit	Xylene (lbs/yr) based on requested limit	Cumene (lbs/yr) based on requested limit	Methyl Ethyl Ketone (lbs/yr) based on requested limit	Total HAP: Total HAP (lbs/yr) based on requested limit
507H	60.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	3.51	0.00	0.00	4.68
1936	6793.39	0.00	0.00	1065.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1065.67
333-67632	36.61	0.00	0.50	10.06	0.00	0.00	0.00	1.26	2.52	0.00	0.00	14.34
333-67640	275.35	0.00	4.17	41.66	0.00	0.00	0.00	13.89	13.89	0.00	0.00	73.63
3096	110.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.94	1.47	0.00	4.40
38025	39807.82	0.00	0.00	0.00	1980.90	0.00	0.00	3921.81	0.00	0.00	0.00	5902.71
3896	110.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
501H	39.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
516H	99.00	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89
522H	48.00	0.00	1.02	0.00	0.00	0.00	0.00	0.00	4.66	0.00	0.00	5.68
569H	1053.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
577H	57.82	0.00	0.09	10.58	0.00	0.00	0.00	0.00	0.00	0.00	2.64	13.31
590H-LH	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30	0.00	0.00	2.30
85958	6765.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1826.77	1826.77
89696	489.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
969P28272	6528.75	0.00	115.13	287.83	0.00	0.00	0.00	0.00	431.74	0.00	0.00	834.70
B6686HN	15366.79	0.00	103.56	862.86	0.00	0.00	0.00	0.00	346.15	0.00	346.15	1658.72
N0001HN	326.36	0.00	4.80	0.00	0.00	0.00	0.00	0.00	20.57	0.00	6.86	32.22
N0006HN	3209.24	0.00	20.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.32
N0947HN	3845.79	0.00	34.20	598.50	0.00	0.00	0.00	0.00	171.00	0.00	0.00	803.70
22908	28.84	0.00	0.00	0.00	0.00	0.00	27.85	0.00	0.00	0.00	0.00	27.85
39198	212.73	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
828P30020	17314.00	0.00	241.86	0.00	0.00	0.00	0.00	0.00	1207.81	0.00	0.00	1449.67
8295	9731.25	6.04	47.68	0.00	0.00	0.00	0.00	635.78	635.78	0.00	476.83	1802.16
FGP28303	2092.21	0.00	330.10	0.00	0.00	92.99	0.00	0.00	1394.80	0.00	0.00	1817.89
Sum (lb/yr)	114435.17	6.04	904.40	2877.16	1980.90	92.99	27.85	4573.90	4236.66	1.47	2659.25	17339.36
Sum (tpy)	57.22	0.00	0.45	1.44	0.99	0.05	0.01	2.29	2.12	0.00	1.33	8.67
hrs/yr	4160.000	4160.000	4160.000	4160.000	4160.000	4160.000	4160.000	4160.000	4160.000	4160.000	4160.000	4160.000
lbs/hr tot	27.509	0.001	0.217	0.692	0.471	0.022	0.007	1.099	1.018	0.000	0.639	4.168
lbs/hr/booth	13.754	0.001	0.109	0.346	0.238	0.011	0.003	0.550	0.509	0.000	0.320	2.084
tpy/booth	28.609	0.002	0.226	0.719	0.480	0.023	0.007	1.143	1.059	0.000	0.665	4.335

Notes & Assumptions:

1. Paints & solvents are representative of those used at Kiefer Built, LLC facility in Kanawha Iowa and are those expected to be used in the Gooding, Idaho facility.

2. 2004 Data was compiled through the end of November. It was adjusted by multiplying the usage to date by 12/11 to estimate a complete year's usage.
3. The Kanawha, Iowa facility currently operates 8 hrs/day, 5 days/week, and 52 weeks/year. Maximum Usage at the Iowa facility is multiplied by 2.5 to anticipate 16 hr, 5 day, 52 week operation at the Idaho facility
4. VOC content & VHAP content was taken from the MSDS supplied by DuPont.
5. Lb/hr estimates and tons/yr estimates are derived from the sum of the individual component uses at the "Most Optimalic Use" amounts and based on a 4160 hr year.
6. 100 % of VHAP contained in product used is emitted.

Sample Calculation:

Basis for Requested Idaho Limit X VOC (lb/gal) = Lbs VOC from this product emitted (annually)
Basis for Requested Idaho Limit X Density X % HAP contained in product = lbs HAP emitted (annually)
Summation of the individual products used = total VOC & HAP emitted from the process.

	Paint usage based on Iowa Plant experience & extrapolated to Idaho Permit Limit	Acetone	Aluminum	n-Butyl acetate	n-Butyl alcohol	Calcium Carbonate	Carbon black	Cumene	Ethylbenzene	Ethyl Acetate	2-Butoxyethyl aceta	Heptane	sec-Hexyl Acetate	Ethylene Glycol Methyl Ether Acetate	Methyl Alcohol	Methyl Ethyl Ketone	Methyl Amyl Ketone	Methyl Isoamyl Ketone	Methyl Isobutyl Ketone	Styrene	Toluene	Xylene	1,2,4-Trimethylbenzene	1-methoxy-2propanol acetate (80)	Silica - amorphous	1,6-Hexamethylene diisocyanate	VM & P Naphtha	Isopropyl alcohol	Naphthalene	Kaolin Clay	Stoddard solvent
		67-64-1	7429-90-5	123-86-4	71-36-3	13765-19-0 (sic)	1333-86-4	98-82-8	100-41-4	141-78-6	112-07-2	142-82-5	108-84-9	110-49-6	67-56-1	78-93-3	110-43-0	110-12-3	108-10-1	100-42-5	108-88-3	1330-20-7	95-63-6	108-65-6	N/A	822-06-0	8032-32-4	67-63-0	91-20-3	1332-58-7	8052-41-3
EL (lb/hr)	lbs	119	0.667	47.300	10.900	0.667	0.230	16.300	29.000	93.300	8.330	108.000	20.000	1.600	17.300	39.300	15.700	16.000	13.700	6.670	25.000	29.000	8.200	34.000	0.667	0.002	91.300	65.300	3.330	0.133	35.000
807H	117			15.000%													15.000%				1.000%		2.000%	26.000%							
1936	28,841			15.000%						15.000%	4.000%															0.200%					
333-67632	126	4.000%	1.385%						0.400%	4.000%	8.000%						15.000%				1.000%	2.000%		15.000%	4.000%						
333-67640	604	4.000%					2.000%		0.800%	15.000%	6.000%						26.000%				2.000%	2.000%									
3088	147			58.000%				1.000%														2.000%	7.000%								
30828	40,822	26.000%			17.000%							11.000%			4.000%			4.000%			8.000%		3.000%				15.000%	15.000%			
3086	111																														
581H	82			37.000%			0.600%		0.200%								26.000%														
516H	446		1.385%	15.000%													15.000%							15.000%	4.000%						
522H	93		25.000%	15.000%	2.000%																		5.000%	26.000%							15.000%
[illegible]H	2,814			4.000%													15.000%							37.000%							
577H	88			37.000%					0.100%	28.000%	12.000%					3.000%	4.000%						2.000%								
[illegible]H-LH	46		24.000%	15.000%	2.000%																		2.000%	26.000%							
[illegible]	6,708				7.000%							37.000%	26.000%			27.000%															
[illegible]	6,763																														
966-P-28272	14,388	4.000%		26.000%	1.000%		1.000%		0.800%	4.000%	2.000%	4.000%					15.000%					3.000%									
[illegible]HN	34,015		6.000%	4.000%	2.000%				0.300%	15.000%	7.000%	4.000%				1.000%	15.000%					1.000%	1.000%	4.000%							4.000%
N6601HN	605			15.000%			1.500%		0.700%	15.000%	5.000%	4.000%		5.000%		1.000%	15.000%					3.000%									
N6606HN	16,162			15.000%					0.200%	15.000%	3.000%						15.000%							15.000%	4.000%						
N6647HN	5,559		5.000%	4.000%	2.000%		0.200%		0.400%	15.000%	7.000%	4.000%					15.000%					2.000%		4.000%							
22906	183					15.000%	2.000%													15.000%					4.000%						
30196	213								0.200%														1.000%						0.100%		
626P30020	66,301	4.000%			4.000%	15.000%			0.400%								15.000%					2.000%	3.000%	4.000%						15.000%	
6266	15,904				5.000%				0.300%							3.000%					4.000%	4.000%						26.000%			
FGP28303	4,649				6.000%				7.100%										2.000%			30.000%									
Total lbs. TAP/yr		15770	2541	11447	13306	9086	276	1	903	12791	4700	10221	1700	34	1981	2608	20006	1981	93	27	4574	4220	3000	6782	437	53	7363	11486	0.21	9659	13[illegible]
Hours/yr		4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	4160	41[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
tons/yr		7.886	1.270	5.723	6.652	4.543	0.138	0.001	0.451	6.396	2.396	5.111	0.890	0.017	0.980	1.329	10.002	0.980	0.046	0.014	2.287	2.113	1.825	3.391	0.218	0.027	3.677	5.743	0.000	4.529	[illegible]
Control efficiency			97.00%			0.970	97.00%																		97.00%					97.00%	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
tons/yr after control		7.886	0.038	5.723	6.652	0.136	0.004	0.001	0.451	6.396	2.396	5.111	0.890	0.017	0.980	1.329	10.002	0.980	0.046	0.014	2.287	2.113	1.825	3.391	0.007	0.027	3.677	5.743	0.000	0.136	[illegible]
EL - (lb/hr) ac		115.209	0.649	44.548	6.602	0.601	0.226	16.300	28.783	90.225	7.194	106.543	19.577	1.582	16.829	38.001	10.001	15.529	13.678	6.603	23.901	27.984	7.323	22.376	0.004	[redacted]	89.532	62.530	3.330	0.000	34.6[illegible]
Title V threshold								10	10		10			10	10	10			10	10	10	10		10		10	10	10	10		
tons/yr								0.00	0.45		2.38			0.02	0.98	1.33			0.06	0.01	2.29	2.11		3.39		0.03	3.68	5.74	0.00		
lb/hr/booth bc		1.90	0.31	1.38	1.60	1.09	0.03	0.0002	0.11	1.54	0.57	1.23	0.21	0.00	0.24	0.32	2.40	0.24	0.01	0.003	0.55	0.51	0.44	0.82	0.052	0.01	0.88	1.38	0.00003	1.09	0.1[illegible]
tpy/booth bc		3.94	0.64	2.86	3.33	2.27	0.07	0.0004	0.23	3.20	1.19	2.56	0.44	0.01	0.49	0.66	5.00	0.49	0.02	0.007	1.14	1.06	0.91	1.78	0.109	0.01	1.84	2.87	0.00005	2.26	0.[illegible]
lb/hr/booth ac		1.90	0.01	1.38	1.60	0.033	0.001	0.0002	0.11	1.54	0.57	1.23	0.21	0.00	0.24	0.32	2.40	0.24	0.01	0.003	0.55	0.51	0.44	0.82	0.0016	0.01	0.88	1.38	0.00003	0.03	0.1[illegible]
tpy/booth ac		3.94	0.02	2.86	3.33	0.068	0.002	0.0004	0.23	3.20	1.19	2.56	0.44	0.01	0.49	0.66	5.00	0.49	0.02	0.007	1.14	1.06	0.91	1.78	0.0033	0.01	1.84	2.87	0.00005	0.07	0.[illegible]

Welding & other sources:
EL from 585, 586

EL from 585, 586 (lbs/hr)	0.667	0.033	0.667	0.067	0.000027
	Al	Cr	H3PO4	Mn	Ni
Total lbs. TAP	951.000	0.108	4.67	34.4	0.108
Hours/yr	4160	4160	4160	4160	4160
lbs/hr	0.229	0.00003	0.0011	0.008269	0.000026
Aluminum from welding & Painting (lb/hr)	0.2471				
Title V threshold	10.000	10		10	10
tons/yr	0.48	0.0001		0.0172	0.0001

		n-Butyl acetate	
	Paint usage based on Iowa Plant experience & extrapolated to Idaho Permit Limit	123-86-4	usage X % in product (lbs)
EL (lb/hr)	lbs	47.300	47.300
		per cent by wt	lbs/year
507H	117	15.000%	17.50
193S	26,641	15.000%	3,996.22
333-67632	126		-
333-67640	694		-
359S	147	59.000%	86.66
3602S	49,022		-
389S	111		-
501H	82	37.000%	30.41
516H	446	15.000%	66.83
522H	93	15.000%	13.97
569H	2,614	4.000%	104.54
577H	88	37.000%	32.59
590H-LH	46	15.000%	6.89
8595S	8,766		-
8989S	6,763		-
966-P-29272	14,390	26.000%	3,741.29
B9866HN	34,515	4.000%	1,380.59
N0001HN	685	15.000%	102.82
N0006HN	10,162	15.000%	1,524.36
N6847HN	8,550	4.000%	342.00
			-
2290S	183		-
3919S	213		-
825P30020	80,391		-
828S	15,894		-
FGP28303	4,649		-
Total lbs. Butyl Acetate/yr		11447	11,446.67
Hours/yr		4160	4160
tons/yr		5.723	5.723
Control efficiency			
lb/hr after control		2.752	2.752
tons/yr after control		5.723	5.723
Title V threshold		N/A	
tons/yr			
lb/hr/booth bc		1.38	
tpy/booth bc		2.86	
lb/hr/booth ac		1.38	
tpy/booth ac		2.86	

		1,6-Hexamethylene diisocyanate		
	Paint usage based on Iowa Plant experience & extrapolated to Idaho Permit Limit	822-06-0	Density (lbs/gal)	Limit Request (gal/yr)
EL (lb/hr)	lbs	0.002		
507H	117			
193S	4,160	0.200%	9.02	461.15
333-67632	128			
333-67640	694			
359S	147			
3602S	49,022			
389S	111			
501H	82			
516H	446			
522H	93			
569H	2,614			
577H	88			
590H-LH	46			
8595S	6,766			
8989S	6,763			
966-P-29272	14,390			
B9866HN	34,515			
N0001HN	685			
N0006HN	10,162			
N6847HN	8,550			
2290S	163			
3919S	213			
825P30020	60,391			
826S	15,894			
FGP28303	4,649			
Total lbs. TAP/yr		8		
Hours/yr		4160		
tons/yr		0.004		
Control efficiency				
lb/hr after control		0.002		
tons/yr after control		0.004		
Title V threshold		10		
tons/yr		0.00		
lb/hr/booth bc		0.00		
tpy/booth bc		0.00		
lb/hr/booth ac		0.00		
tpy/booth ac		0.00		

APPENDIX B

Kiefer Built, LLC, Gooding

Modeling Analysis

P-040426

MEMORANDUM

DATE: April 11, 2005

TO: Harbi Elshafei, Air Quality Permitting Analyst, Air Quality Division

FROM: Kevin Schilling, Air Modeling Coordinator – Stationary Sources, Air Quality Division

PROJECT NUMBER: P-040426

SUBJECT: Modeling review for Kiefer Built, LLC, Permit to Construct application for a proposed painting facility in Gooding, Idaho

---

1.0 SUMMARY

Keifer Built, LLC (Keifer) proposed to construct and operate a painting facility in Gooding, Idaho. Air quality analyses involving atmospheric dispersion modeling of emissions associated with the proposed facility were submitted in support of a Permit to Construct (PTC) application. The analyses were submitted to demonstrate that the facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02). Stanley Environmental, Inc. (Stanley Env.), Keifer's consultant, conducted the ambient air quality analyses.

A technical review of the submitted air quality analyses was conduced by DEQ. The submitted modeling analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed that predicted pollutant concentrations from emissions associated with the proposed modification were below applicable air quality standards. Impacts of Toxic Air Pollutants (TAPs) were all below allowable increments of IDAPA 58.01.01.585 and 586. Table 1 presents key assumptions and results that should be considered in the development of the permit.

Table 1. KEY RESULTS / ASSUMPTIONS FROM MODELING ANALYSES	
Result / Assumption	**Explanation/Consideration**
Modeled impacts well below applicable standards.	Additional permit provisions are not necessary to ensure compliance with NAAQS.

2.0 BACKGROUND INFORMATION

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance.

2.1.1 Area Classification

The Keifer facility is located in Gooding County, designated as attainment or unclassifiable area for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), lead (Pb), ozone (O_3), and particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}). There are no Class I areas within 10 kilometers of the facility.

2.1.2 Significant and Full Impact Analyses

If estimated maximum pollutant impacts to ambient air from the emissions sources associated with the proposed facility exceed the *significant contribution levels* (SCLs) of IDAPA 58.01.01.006.91, then a full impact analysis is necessary to demonstrate compliance with IDAPA 58.01.01.203.02. A full impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location. The resulting maximum pollutant concentrations in ambient air are then compared to the National Ambient Air Quality Standards (NAAQS) listed in Table 2. Table 2 also lists SCLs and specifies the modeled value that must be used for comparison to the NAAQS.

Table 2. APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Contribution Levels[a] ($\mu g/m^3$)[b]	Regulatory Limit[c] ($\mu g/m^3$)	Modeled Value Used[d]
PM_{10}[e]	Annual	1.0	50[f]	Maximum 1st highest[g]
	24-hour	5.0	150[h]	Maximum 6th highest[i]
Carbon monoxide (CO)	8-hour	500	10,000[j]	Maximum 2nd highest[g]
	1-hour	2,000	40,000[j]	Maximum 2nd highest[g]
Sulfur Dioxide (SO_2)	Annual	1.0	80[f]	Maximum 1st highest[g]
	24-hour	5	365[j]	Maximum 2nd highest[g]
	3-hour	25	1,300[j]	Maximum 2nd highest[g]
Nitrogen Dioxide (NO_2)	Annual	1.0	100[f]	Maximum 1st highest[g]
Lead (Pb)	Quarterly	NA	1.5[h]	Maximum 1st highest[g]

a. IDAPA 58.01.01.006.91
b. Micrograms per cubic meter
c. IDAPA 58.01.01.577 for criteria pollutants
d. The maximum 1st highest modeled value is always used for significant impact analysis
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
f. Never expected to be exceeded in any calendar year
g. Concentration at any modeled receptor
h. Never expected to be exceeded more than once in any calendar year
i. Concentration at any modeled receptor when using five years of meteorological data
j. Not to be exceeded more than once per year

2.1.3 Toxic Air Pollutant Impact Analysis

Toxic Air Pollutant (TAP) requirements for PTCs are specified in IDAPA 58.01.01.210. If the emissions increase associated with a new source or modification exceeds screening emission levels (ELs) of IDAPA 58.01.01.585 and IDAPA 58.01.01.586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of IDAPA 58.01.01.585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of IDAPA 58.01.01.586, then compliance with TAP requirements has been demonstrated.

2.2 Background Concentrations

Background concentrations were revised for all areas of Idaho by DEQ in March 2003[1]. Background concentrations in areas where no monitoring data are available were based on monitoring data from areas with similar population density, meteorology, and emissions sources. Background concentrations for small town/suburban areas were used for the Keifer facility. Table 3 lists the small town/suburban default background concentrations.

1 Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

Table 3. DEFAULT BACKGROUND CONCENTRATIONS FOR SMALL TOWN/SUBURBAN AREAS		
Pollutant	**Averaging Period**	**Background Concentration ($\mu g/m^3$)[a]**
PM_{10}[b]	24-hour	81
	Annual	27
Carbon monoxide (CO)	1-hour	10,200
	8-hour	3,400
Sulfur dioxide (SO_2)	3-hour	34
	24-hour	26
	Annual	8
Nitrogen dioxide (NO_2)	Annual	32
Lead (Pb)	Quarterly	0.03

a. Micrograms per cubic meter
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

3.0 MODELING IMPACT ASSESSMENT

3.1 Modeling Methodology

Table 4 provides a summary of the modeling parameters used for the Stanley Env. modeling analyses.

Table 4. MODELING PARAMETERS		
Parameter	**Description/Values**	**Documentation/Additional Description**
Model	ISCST3	Version 02035
Meteorological data	Boise Surface and Upper Air Data	1987 - 1991
Model options	Regulatory Default	
Land use	Rural	Population density in area is not sufficient for urban classification and there is a large fraction of unimproved land within three kilometers of the facility
Terrain	Simple and Complex	Elevation data from digital elevation model (DEM) files
Building downwash	Considered	Downwash effects were considered for the single building at the facility.
Receptor grid	Grid 1	10-meter spacing along boundary
	Grid 2	50-meter spacing in a 3 X 3 kilometer grid centered on the source.
Facility location (UTM)[a]	Easting	688 kilometers
	Northing	4,757 kilometers

a. Universal Transverse Mercator

3.1.1 Modeling Approach and Review

The emissions from the paint booth stacks, welding operations, and space heaters were modeled to evaluate compliance with PTC regulations. Because of the relatively small magnitude of emissions associated with proposed emissions at the Keifer facility, DEQ did not conduct an independent assessment of the analyses by rerunning the models.

3.1.2 Modeling protocol

An email modeling protocol was submitted to DEQ prior to the application. DEQ provided written protocol approval via email.

3.1.3 Model Selection

The most recent version of ISCST3 was used by Stanley Env. for the analyses. DEQ determined use of this model is reasonably appropriate for the facility.

3.1.4 Land Use Classification

Well over 50 percent of the landuse of the surrounding area is rural. Therefore, rural dispersion coefficients were used in the modeling analyses.

3.1.5 Meteorological Data

Stanley Env. used 1987 through 1991 surface and upper air meteorological data collected from Boise airport by the National Weather Service. These data are available from EPA.

3.1.6 Simple and Complex Terrain

The modeling analyses submitted by Stanley Env. considered elevated terrain. Elevations of receptors, buildings, and emissions sources were calculated from United States Geological Survey (USGS) 7.5 minute Digital Elevation Model (DEM) files.

3.1.7 Facility Layout and Ambient Air Boundary

Stanley Env. submitted a facility plot plan indicating the facility property boundary and receptor locations. The property boundary will be posted to restrict access, thereby satisfying the requirements for an ambient air boundary.

3.1.8 Building Downwash

The downwash algorithm within ISCST3 was used to evaluate effects of building downwash.

3.1.9 Receptor Network

Stanley Env. used 10-meter receptor spacing along the facility ambient air boundary, then 50-meter spacing for a 3.0- by 3.0-kilometer grid centered on the facility. DEQ determined this receptor network was adequate to reasonably resolve the maximum-modeled concentrations.

3.2 Emission Rates

Stanley Env. modeled the emission associated with painting, welding, and space heating at the Keifer facility. Annual modeled emissions were based on hourly emissions for 8,760 hr/yr. Table 5 provides criteria pollutant emission rates used in the modeling analyses. Emissions of SO_2 were below the modeling threshold of 0.2 lb/hr and all TAP emissions were below emission screening levels (ELs).

Table 5. POLLUTANT EMISSIONS RATES USED FOR MODELING					
Emission Source	Source ID	Location (UTM)[a]	Rate Used for Modeling (lb/hr)[b]		
			PM_{10}[c]	NOx[d]	CO[e]
Prime Booth Stack	Keifer 1	E687718 N4757332	1.365	0.200	0.160
Paint Booth Stack	Keifer 2	E687695 N4757330	1.365	0.200	0.160
Welding Area 1	Weld1	E687713 N4757312	0.1912	0.1210	0.1017
Welding Area 2	Weld2	E687669 N4757308	0.1912	0.1210	0.1017
Space Heaters 1	Heat1	E687668 N4757256	0.0056	0.0743	0.0624
Space Heaters 2	Heat2	E687628 N4757253	0.0056	0.0743	0.0624
Space Heaters 3	Heat3	E687585 N4757249	0.0056	0.0743	0.0624
Space Heaters 4	Heat4	E687549 N4757246	0.0056	0.0743	0.0624

a. Universal Transverse Mercator
b. Pounds per hour
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
d. Oxides of nitrogen
e. Carbon monoxide

3.3 Emission Release Parameters

Table 6 provides emissions release parameters used in the modeling analyses, including stack height, stack diameter, exhaust temperature, and exhaust velocity.

Table 6. EMISSION RELEASE PARAMETERS					
Release Point	Source Type	Stack Height (m)[a]	Modeled Diameter (m)	Stack Gas Temp. (K)[b]	Stack Gas Flow Velocity (m/sec)[c]
Keifer 1	Point	10.06	1.07	300	12.67
Keifer 2	Point	10.06	1.07	300	12.67
Volume Sources	Source Type	Release Height (m)	σ_{y0} (m)[d]		σ_{z0} (m)[e]
Weld1	Volume	3.5	7.01		12.48
Weld2	Volume	3.5	7.01		12.48
Heat1	Volume	3.5	3.26		8.51
Heat2	Volume	3.5	3.26		8.51
Heat3	Volume	3.5	3.26		8.51
Heat4	Volume	3.5	3.26		8.51

a. Meters
b. Kelvin
c. Meters per second
d. Initial vertical dispersion coefficient
e. Initial horizontal dispersion coefficient

3.4 Results

3.4.1 Significant Impact Analysis

This section describes dispersion modeling results for PM_{10}, NO_2, and CO. Table 7 summarizes the results from the Stanley Env. analyses. Maximum modeled values for PM_{10} and NO_2 are above SCLs; therefore, background concentrations were considered along with facility impacts to evaluate compliance with NAAQS. A full impact analysis was conducted for CO even though impacts were below SCLs.

Table 7. RESULTS OF SIGNIFICANT IMPACT ANALYSES				
Pollutant	Averaging Period	Maximum Modeled Concentration ($\mu g/m^3$)[a]	Significant Contribution Level ($\mu g/m^3$)	Full Impact Analysis Required
PM_{10}[b]	24-Hour	56.5[c]	5.0	Yes
	Annual	20.1	1.0	Yes
NO_2[d]	Annual	9.0	1.0	Yes
CO[e]	1-Hour	144.2[c]	2,000	No
	8-Hour	37.5[c]	500	No

a. Micrograms per cubic meter
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
c. The maximum 2nd high was used rather than the maximum 1st high for the Significant Impact Analysis
d. Nitrogen dioxide
e. Carbon monoxide

3.4.2 Full Impact Analyses

Table 8 provides results from the full impact analyses. The full impact analyses involved adding a background concentration to modeled impacts, then comparing the result to NAAQS.

Table 8. FULL IMPACT ANALYSES							
Pollutant	Averaging Period	Year/ Scenario	Maximum Modeled Concentration ($\mu g/m^3$)[a]	Background Concentration ($\mu g/m^3$)	Total Ambient Concentration ($\mu g/m^3$)	NAAQS[b] ($\mu g/m^3$)	Percent of NAAQS
PM_{10}[c]	24-hour	1988	56.5[d]	81	137.5	150	92
	Annual	1991	20.1[e]	27	47.1	50	94
NO_2[f]	Annual	1989	9.0[e]	32	41.0	100	41
CO[g]	1-Hour	1990	144.2[d]	10,200	10,344	40,000	26
	8-Hour	1988	37.5[d]	3,400	3,438	10,000	34

a. Micrograms per cubic meter
b. National ambient air quality standards
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
d. Maximum 2nd high concentration from modeling five years of meteorological data
e. Maximum 1st high concentration from modeling five years of meteorological data
f. Nitrogen dioxide
g. Carbon monoxide

4.0 CONCLUSIONS

Dispersion modeling of maximum allowable emissions from the proposed facility, conducted by the applicant, demonstrated to the satisfaction of DEQ that the proposed facility will not cause or significantly contribute to a violation of any ambient air quality standard.

KS/sd P-040426
G:\Air Quality\Stationary Source\SS Ltd\Modeling\modeling memos\Keifer- P-040426\KeiferModeling.doc