Technical Support Document for Proposed Rule

National Emission Standards for Hazardous Air Pollutants
Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources

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1.0 Introduction

Pursuant to Clean Air Act section 112(c)(3)and (k)(3)(B), the EPA is developing national emission standards for hazardous air pollutants for the following area source categories: paint stripping, plastic parts and products (surface coating), and autobody refinishing. In developing this proposed rule, EPA analyzed these three listed source categories and found that it is both reasonable and technically feasible to regulate emissions from these three source categories by a single set of emission standards. The processes, emission points, emission characteristics, and emission controls for plastic parts and products surface coating and autobody refinishing are very similar. Additionally, paint stripping is often performed as part of the surface preparation for both plastic parts and autobody refinishing. By regulating within the scope of a single set of standards, the EPA is reducing the burden of complying with multiple standards on the sources performing both the paint stripping and subsequent coating.

This technical support document is composed of a series of memoranda and reports prepared by the EPA to document the findings of the regulatory development process for motor vehicle and mobile equipment refinishing and for other miscellaneous surface coating operations at area sources. These are generally separate documents for motor vehicle and mobile equipment refinishing operations and for other miscellaneous surface coating operations since many of the analyses were first performed while these were still being addressed by EPA as separate source categories using different sources of data and information. In the interest of efficiency and conservation of resources, the EPA has chosen to present this information as a collection of existing documents for these two source categories rather than generate an additional document containing a synthesis of the information.

The analyses conducted in relation to paint stripping operations are included in a separate technical support document.

Each section contains a technical memorandum documenting the analysis of collected data. Section 2.0 presents a summary of the automobile and mobile equipment refinishing process based on site visits to refinishing shops. (A similar summary was not prepared for miscellaneous surface coating operations since these were thoroughly documented for the NESHAP for major sources for miscellaneous metal parts and products surface coating [40 CFR part 63, subpart MMMM], and plastic parts and products surface coating [40 CFR part 63, subpart PPPP].) Sections 3.0 and 4.0 present the analyses of generally available control technology (GACT) for each of the two surface coating categories. Sections 5.0 and 6.0 present

estimates of the number of sources and the projected number of new sources. Section 6.0 also includes a list of known miscellaneous metal part and plastic part surface coating facilities for which EPA has data and estimates are area sources of HAP. Section 7.0 documents the development of model shops for motor vehicle and mobile equipment refinishing operations at area sources. (Model shops were not developed for other miscellaneous surface coating operations since subsequent analyses were based on survey data of actual shops.) Sections 8.0 and 9.0 provide estimates of baseline emissions and emission reductions. A single memo, included in section 10.0, documents the estimated cost impacts of the proposed rule for both motor vehicle and mobile equipment refinishing operations and the other miscellaneous surface coating operations.

2.0

Summary of the automobile and mobile equipment refinishing process based on site visits to refinishing shops

EASTERN RESEARCH GROUP, INC.

MEMORANDUM

To: Kim Teal, U.S. EPA/CCPG (C539-03)

From: Mike Heaney and Brian Palmer, Eastern Research Group, Inc.

Date: March 29, 2005

Subject: Summary of the automobile and mobile equipment refinishing process based on site visits to refinishing shops

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In the development of the area source rule for automobile and mobile equipment refinishing, EPA and ERG visited 18 facilities that were involved in this activity. Most of these were automobile collision repair and refinishing shops, but two were car restoration shops, three were mobile equipment repair shops, and one was a race car shop. This memo summarizes the observations and information collected during these visits and provides an overview of the materials, equipment, and techniques used in automobile and mobile equipment refinishing.

The same basic materials, equipment, and procedures are used for refinishing automobiles and mobile equipment in all shops, whether the job is to repair a spot, refinish a panel, or refinish an entire automobile. However, the procedures and equipment do vary in some ways from shop to shop depending on the vehicle and amount of refinishing being performed and type of finish applied. This memorandum describes the process of refinishing a vehicle after other work is completed to either repair collision damage or to restore or refurbish an older vehicle.

1.0 COATING PROCESS

Generally, the refinishing process involves cleaning the surface to ensure proper adhesion of the coating, the surface is primed and sealed, a topcoat is applied, and the spray equipment is cleaned.

Surface Preparation

The first step in the refinish process is preparing the surface. The surface that is being refinished is usually a mix of substrates. These substrates may include any or all of the following: the existing finish, bare metal, a flexible plastic (such as on a bumper or door fascia), body filler, or a factory applied primer on a metal or plastic replacement part. Generally, all surfaces have been sanded to create a smooth surface for refinishing and to obtain a good mechanical bond between the new finish and the substrate. Body filler has been used to fill dents and dings and has been sanded smooth to restore the original contours of the body.

At various stages in the repair and refinishing process, the surface is normally washed with detergent and water and allowed to dry. It is then cleaned with either solvent or a low-VOC waterborne solvent wipe to ensure removal of all remaining wax, grease, and other contaminants before any body filler or coatings are applied. Surface preparation products may contain toluene or xylene. This step is important to remove contamination and ensure proper adhesion of the coatings and is necessary even if the existing paint does not have to be removed or if the parts to be coated are new.

If an existing paint surface has no chips or cracks, it may be prepared by merely "scuff-sanding" the surface to promote adhesion, followed by a solvent wipe. If the existing finish has imperfections or surface corrosion, or the part has been damaged in an accident, the old finish may be sanded down to bare metal.

Salvaged parts with an existing finish will be treated similar to other parts on the vehicle being repaired. New replacement parts or re-manufactured parts are typically primed by the part manufacturer before they arrive at the shop. However, some shops will re-prime these parts so they can ensure they are using a primer compatible with the subsequent finishes and help protect the warranty they offer with their work.

In most coating operations, the areas of the vehicle that are not intended for painting are masked off using a variety of products to protect them from over-spray (the portion of the coating solids that does not adhere to the surface being sprayed). Some shops are using a waterborne soap-like material that can be sprayed over the whole car, except the repaired area, and is left in place during the entire collision repair. When the repair is completed, the sprayable masking material is washed off with water. During actual surface coating, the areas adjacent to the repaired area will be masked off using a masking tape and paper. The rest of the car will be covered with a large plastic or cloth sheet that may be reused, depending on the type of

operation. Masking the rest of the car also helps keep the spray booth clean of dirt that may come off the car while it is in the spray booth.

Primer Application for Bare Metal

When coatings are applied to bare metal, the surface is treated with a metal conditioner to etch the surface and prevent flash rusting. Metal conditioning is usually achieved using a spray applied "self-etching" primer, also called a wash primer. This coating etches and primes the surface. Self-etching primers are typically a two-part system containing zinc chromate and phosphoric acid. Coating suppliers have stated that currently available chromate-free self-etching primers provide less corrosion resistance. A less common, more difficult method is to treat bare metal by hand-apply phosphoric acid surface treatment followed by a conversion coating. Some bare metal primers can also be obtained and applied from hand-held aerosol cans. If a pretreatment wash primer is not needed, the surface is primed using a primer sealer to provide corrosion resistance and promote adhesion.

Nearly all primers are applied by spray application, either in a ventilated prep station or in a fully enclosed spray booth. For small areas and some types of specialty primers, the primer may be applied from a disposable hand-held aerosol can. Otherwise, they are mixed in the shop and sprayed from a gun.

If a vehicle is being completely restored, such as a vintage car, the body and frame are often completely disassembled in what is called a Aframe-off@ restoration. In these cases, all the paint is removed by abrasive blasting, usually by an outside vendor. The bare metal frame and body are then primed as soon as they return to the shop to prevent corrosion. If the body or frame needs welding during the restoration process, then a special weld-though primer may be used. A weld-through primer is more heat-resistant than normal bare-metal primers so that damage to the primer from welding is limited to a narrow band adjacent to the weld and less surface needs to be re-primed after the welding is completed. In many restorations, it may take several weeks or months to complete the restoration and the primer may be the only finish on the car during that period. The final finish is not applied until the restoration is nearly complete and the car is ready for final assembly.

In some frame-off restorations, the frame and other suspension parts are powder coated after abrasive blasting and this will be the final finish. Again, this is usually done by an outside vendor. Powder coating has the advantage that it provides a more durable finish at lower cost

than conventional painting and this makes it well suited to coating the frame and other parts under the car. However, the results are generally not as smooth and glossy as a painted finish so the process is limited to the frame and other parts that are not readily visible.

Adhesion Promoter Application

Many parts of newer cars are made from molded flexible plastic, including the bumper covers, door fascia, body side molding, and interior plastic panels. During a collision repair, these parts often need to be refinished to match the rest of the vehicle. To establish a good bond between the flexible plastic and subsequent layers of finish, a special adhesion promoter is used. If a plastic replacement part is obtained from an original equipment manufacturer or from an aftermarket supplier, it is usually coated with an adhesion promoter and primed at the factory. However, if a salvaged part is being used or an existing part just needs to be refinished to repair a scuffed surface, then the shop doing the repair may need to apply the adhesion promoter. These are typically a low-solids coating with powerful solvents that will penetrate the plastic to form a good bond with the plastic and subsequent finishes.

Primer Surfacer Application

If imperfections remain in the surface after bare-metal primer application, several coats of primer surfacer are applied. Primer surfacers are high-solids coatings that build film thickness so that a smooth surface can be created after sanding. They also help provide adhesion and corrosion resistance.

Primer surfacers are usually spray applied, but some shops have started using roll-on or brush-on primer surfacers for small repairs. This method can be cost-effective because of the time and material saved by not masking the rest of the car and because it can be applied anywhere in the shop because there is no over-spray. Roll-on and brush-on primer surfacers reduce emissions because the material is high-solids/low-VOC and the transfer efficiency of the application method approaches 100-percent. The only wasted primer is what remains on the disposable roller or brush after each job. Although these materials are a good alternative for small areas, they are not practical for areas larger than about half of a square foot because it is difficult to spread an even layer over a large area using a brush or roller. An uneven surface can be hard to sand and the ridges that were present in an uneven application (even if they were

sanded out) can swell up after subsequent coating and lead to an uneven surface in the final finish.[1]

Primer Sealer Application

If there are no surface imperfections, some shops apply only a primer sealer to provide more corrosion resistance, promote adhesion of subsequent coatings, and enhance the uniform appearance of the topcoat. Primer sealers prevent dulling of the topcoat caused by the penetration of topcoat solvents into the primer and primer surfacer coats. They also provide a homogenous substrate for the top coats. A primer sealer is applied over the whole area that will receive a topcoat. Since they are generally applied over a large area and are the last coat before the topcoats, primer sealers are usually applied in a spray booth.

Sealers may also be tinted to match the color of the topcoats to provide better coverage of the top coats and hiding of the primers. This is especially useful in some cases where metal-free coatings are more transparent than coatings that used lead- or chromate-containing pigments. One example observed during this project was the use of a yellow sealer in the painting of school buses. Many of the Aschool-bus yellow@ coatings formerly used lead-chromate pigments and now use organic pigments, but the organic pigments are less opaque than the lead-chromate pigments. A color-matched sealer is needed to get an even color in the topcoat and hide areas that were spot primed.

Topcoat Systems

Top coats used in automobile and mobile equipment refinishing fall into two main categories. In collision repair, most newer cars and light trucks are finished in a base coat/clear coat system using a colored base coat that is over laid with one or two layers of a clear coat. The clear coat protects the base coat and provides gloss. These systems are popular because of their deep, rich finish. The basecoat is typically about one-third and the clearcoat two-thirds of the total coating used.

In some cases, a three-stage system consisting of a colored basecoat, a semi-transparent midcoat, and a final clearcoat is used to get a pearlescent appearance. Pearlescent toners are added to the base coat or the midcoat and have flakes of mica on which are precipitated metals

[1]See www.i-car.com, about I-CAR, Current Events/ News, Advantage On-line, February 4, 2002 article about roll-on primer-surfacer.

such as trivalent chromium. The basecoat and midcoat account for about one-half of the coating volume and the clearcoat for one-half.

Most heavy duty trucks, mobile equipment, older cars (including antiques and classics) and older light trucks are refinished with a single stage topcoat. In a single stage topcoat, a single coating provides both the color and the gloss. A refinishing job using a single stage topcoat is generally less expensive than a refinishing job using a two stage system, both because of lower material costs and reduced labor. Single-stage systems are more frequently used in shops that primarily repaint whole cars, rather than perform collision repair work. The industry term for these shops is production painting shops.

Mixing Topcoat Colors

The majority of base coats and single stage topcoat colors are mixed from colored toners. The toners may be either a solid color or a metallic color. The sparkle of a metallic color comes from small flakes of aluminum, although some metallic colors also contain trivalent chromium.

In the past, the topcoat toners have included heavy metal pigments including lead, chromium, cadmium, and others. In recent years, however, most paint suppliers have begun removing the heavy metal pigments from the toners and substituted them with organic pigments. In some cases, the supplier will offer both a conventional and a metal-free version of a toner or other coating. New car and light truck manufacturers have also switched to metal-free topcoat colors, so differences in color match between the refinish coatings and the OEM finishes has been minimized. The differences will continue to decrease in importance as older vehicles with metal-pigmented topcoats are retired from the fleet.

Shops that use a narrow range of colors, such as a mobile equipment maintenance facility or a school bus garage, will usually order colors pre-mixed from their supplier. Small autobody repair shops and restorers will also generally order pre-mixed topcoats from local automotive paint distributors to match each automobile.

Most collision repair and production shops, on the other hand, mix their own colors from toners and binders using a mixing station. A mixing station typically consists of a computer or microfiche reader that contains the coating manufacturer's mixing instructions for each of several thousand colors and a digital scale for accurately measuring coatings. The mixing instructions are matched to a make and model of vehicle and a color code usually found on the vehicle. Shops that mix their own colors typically stock about 30 to 60 colored toners, from which almost

any original equipment manufacturer (OEM) color can be produced. The toners, mixing, instructions, and scale are usually located in a dedicated room adjacent to the paint booth.

The color formulas are determined by the coating supplier and specify how much of each toner (measured to the nearest 0.1 gram) is added to get a pre-determined volume of coating of a certain color. Precision formulation is critical because a deviation of even 0.1 gram may result in an unacceptable color match with the rest of the vehicle.

Although refinish coating formulations are developed for each OEM color, there is often variability in the shade color, which requires the painter to make adjustments to the formula. A few shops have recently begun using a digital color matching tool to measure the color of each section of the car and identify the formula for the closest match to that car. This tool is particularly helpful for older cars where the finish has faded. Because of the difficulty of matching certain colors, the painter must sometimes refinish more of the automobile rather than just the damaged portion. This, of course, increases coating usage.

Shops that mix their own coatings strive to mix as little as possible to complete a job, but always with a slight excess to ensure that enough is available to complete the job and enough to be within the precision limits of the mixing station. By minimizing the excess, the shop minimizes the cost of materials and the amount and cost of hazardous coating waste disposal.

Different mixing systems provide different flexibility to the user and can also facilitate recordkeeping. Some computer and all micro-fiche based mixing systems only provide information on how to mix specific colors and do not record any data for the user. Other mixing systems can print out a record of the coating that was mixed indicating the formula and amount of coating mixed. The simplest systems will usually only provide the formula to mix colors in pints or quarts.

The more sophisticated computer systems can also be used to mix intermediate coating volumes and not just pints or quarts, based on the painter=s judgement in how much is needed for a certain job. A painter could decide to mix only a few ounces for a small spot repair or a larger amount for a major refinishing. Some systems can also specify how a painter can correct if too much of one toner is added. These two features help eliminate waste paint and minimize coating costs.

The most sophisticated mixing systems will even hold the can of toner and control the actual pouring of toner into the mixing cup. As the toner amount reaches the specified weight, the pour is automatically adjusted to a thin stream and finally stopped at the precise amount.

The more sophisticated computer mixing systems that integrate an electronic balance and the computer can record how much material is mixed and can also automatically calculate and record the amount of VOC that are contained in the coatings. These can be used for all coatings and not just the colored coats, as long as everything that is applied is weighed on the scale and entered into the computer. This is a useful feature in areas subject to limits on daily or annual VOC emissions.

Waterborne Basecoats

Several companies have introduced waterborne, low-VOC base coats that can be used on spot repairs or complete paint jobs. Coating refinish suppliers generally believe that it is more feasible to develop a waterborne base coat and than a waterborne clear coat. This strategy preserves the durability of the clear coat to protect the base coat and underlying primers.

Shop conditions and equipment may need to be adjusted and some painter training is needed to use waterborne base coats. Waterborne base coats require larger volumes of warm, dry air for drying compared to solventborne base coats. Shops may need to increase the air flow rate and temperature in their spray booths to use waterborne coatings. For spot repairs, localized air blowers may be used to dry a base coat before the clear coat is applied. Guns used to apply waterborne base coats must be cleaned with water and alcohol. They cannot be cleaned in the same gun cleaner as solventborne coatings since solvents will cause the coating to harden instead of dissolve.

Topcoat Application

If a shop has a spray booth, nearly all top coat application is performed in the spray booth to prevent contamination of the final finish. If a sealer is being applied, it is also usually applied in the booth immediately before the top coat. Some less visible areas of the car, such as the underside of the hood and trunk lids and the door jambs, may be painted outside of the booth (a process known as jambing).

If a single stage topcoat is applied, two or three coats are applied and the paint is cured for 20 to 40 minutes while the vehicle is still in the booth.

With a two-stage system, two or three coats of basecoat are applied, the paint is cured for 20 to 40 minutes, two or three coats of clear coat are applied, and the clear coat is cured for an

additional 30 to 60 minutes. The application of three-stage systems is similar to that of two-stage systems with a drying period between the application of each stage.

If the shop has a heated spray booth, the temperature of the booth is increased to promote curing. Heating the booth also decreases the viscosity of the coating so that it flows more easily as it cures to create a smooth finish. At production shops, there is often a separate heated curing oven after the booth. The vehicle is moved to the curing oven to free up space in the booth for the next vehicle.

When only part of a vehicle has to be refinished, the colored base coat and clear coat need to be blended into the existing finish to help hide any difference in color. For example, if a front fender is refinished, the color will be blended with the adjacent door and the hood. To blend in the color, the door and hood would not be masked during spraying. The door and hood surfaces would have been sanded and then prepped to promote adhesion. The painter would spray the front fender with the base coat and then also spray the edges of the door and hood so there is a gradual transition between the new and existing paint. The painter would then apply a full layer of clear coat over all three panels (the fender, door, and hood). The clear coat is not feathered out in the middle of the door or hood panels because the thin edge of the clear coat layer would weather more easily and quickly become visible.

After the coating has cured, the vehicle is removed from the spraybooth and the masking materials are removed.

Vehicle finishes are generally not completely smooth and most exhibit different amounts of surface texture called Aorange peel,@ since it resembles the rippled skin of an orange. A skilled painter can adjust the viscosity of the coating and spray technique to achieve different amounts of texture. Often, the refinished area is lightly sanded and then buffed back to a gloss so that the texture of the refinished area matches the texture of the rest of the car.

2.0 COATING EQUIPMENT

Coating application equipment generally includes preparation stations, spray booths, spray guns, and spray gun cleaning equipment.

Preparation Stations

Preparation of the surface for repainting, including sanding and application of the primer, usually are done in open areas of the shops or a curtained-off Aprep station@ equipped with

ventilation to control sanding dust and coating over-spray. Ventilation of prep stations may include exhaust air filters along the building wall, in the floor, or in both the ceiling and floor. Some shops use wet sanding and wash down the floors to control sanding dust, either in place of or in addition to filters.

Priming is typically also done in a prep station, although many shops also prime inside a spray booth. This could be either the same spray booth as for applying top coat, or in a dedicated priming booth. Many prep stations are equipped with portable infrared heating units to facilitate drying during cool or humid shop conditions.

Applying top coat to the door jambs and the underside of hoods and trunk lids (also known as jambing) is typically done in the same area as priming, either in a prep station or a jambing or priming booth.

Spray Booths

Spray booths are clean, well-lit, and well-ventilated enclosures for coating operations. The primary purpose of the booth is to exhaust flammable vapors from the work area to avoid a fire or explosion hazard. They also minimize the presence of dust or paint over-spray that may settle on the coating while drying and mar the finish. Booths, especially those that are heated, also greatly reduce drying times. Because of their longer drying times, enamel, waterborne, and urethane coatings are best applied in a spray booth to minimize the possibility of dust adhering to the wet coating. Finally, spray booths also prevent the spread of paint over-spray to other parts of the shop.

A good spray booth is considered by most industry members to be very important to running a profitable collision repair and refinishing business by helping to ensure a good quality finish. Therefore, the majority of autobody and mobile equipment refinishers use spray booths, although it is difficult to determine the exact fraction of shops that have them. Even so, there are many small shops and hobbyists that do not use a booth. As the refinish industry continues to move toward slower-drying, high-solids paints, more shops that do not already have spray booths are likely to purchase them.

Small shops or hobbyists that do not use a permanent booth will sometimes construct a temporary enclosure from plastic sheeting. Alternatively, they may simply clean an area of the shop and wet down the floor and walls to control dust during the spraying operation.

Some shops have constructed their own permanent booths. The quality and safety of these home-made booths is probably highly variable. Some are probably as efficient and safe as manufactured booths, but many others are probably not. Safe booth construction and operation is governed by the Occupational Safety and Health Administration (OSHA) and by National, State, and local building, fire, and electrical codes.

Construction or installation of a permanent paint booth may also be subject to State and Federal regulations controlling the construction and operation of an air emission source. Some states do not regulate the construction and operation of a spray booth used for smaller operations if it meets certain criteria regarding the maximum amount of coating used per month or year.

After the vehicle enters the booth, all doors and openings to the booth are closed. Air is drawn into the booth through filters to assure a flow of clean air past the vehicle being painted. Filters on the air exhaust from the booth remove coating over-spray from the exhaust air. Filtration in a paint spray booth can be either dry filtration or wet filtration. Wet filtration is often called a water-wash filter system. Dry filters are the more common type for vehicle refinishing, although wet filtration is often used in production settings because it can handle a higher paint loading. However, wet-filtration booths are more costly to build and maintain. Both types of filters only remove coating solids; they do not reduce VOC emissions to the atmosphere.

Three types of spray booths are used in the refinish industry: crossdraft, downdraft, and semi-downdraft. In each type of design, spray booths can be operated either at positive or negative pressure relative to the air in the shop. Under negative pressure, air tends to be pulled into the booth; under positive pressure, air tends to be forced out of the booth. Some booths operate at a slightly positive pressure so that air is forced out of the booth and dirt from surrounding areas is not sucked into the booth. In some cases, fans are used at both the inlet and outlet of the booth to create a balanced air flow and little pressure difference relative to the rest of the shop.

In the crossdraft booth design, incoming air is pulled into the booth through filters located in the entrance door. The air travels along the length of the vehicle and then passes through particulate filters at the opposite end, where coating over-spray is removed. The air then exits through an exhaust stack, carrying with it any solvent vapors or other VOC's. Cross draft booth designs are generally the least expensive to purchase and install. A cross draft booth can be disassembled and moved if a shop has to relocate.

In a downdraft booth, the air is pulled in through filters in the roof, travels down over the top of the automobile, picks up coating solvent and over-spray, and passes into a grate-covered pit in the floor of the booth. Downdraft booths are considered state-of-the-art because they provide the cleanest drying/curing environment. Specifically, the air flow in downdraft booths is less turbulent, which minimizes the mixing of over-spray with air in the rest of the booth. In addition, air circulation is more uniformly concentrated around the automobile and solvent vapor and over-spray are quickly drawn down and away from the painter and the surface being painted. Downdraft designs are generally the most expensive to purchase and install because of the need for a pit in the floor of the shop. The use of a pit also makes it difficult to move a downdraft booth if a shop relocates.

The semi-downdraft spray booth is a compromise between cross-draft and downdraft designs. Air enters the booth through the ceiling and is discharged either through the back of the booth or through panels along the bottom of each side of the booth. It provides some of the advantages of a the improved flow of a down-draft booth, but does not require a pit in the shop floor.

In order to decrease the drying time after coating application, many shops with spray booths, particularly downdraft booths, heat the air entering the booth. Shops may use small, portable, infrared heating units to warm metal surfaces prior to coating application or to speed the drying time of the repair.

Spray Guns

Current practice in the refinish industry is to apply coatings with hand-held spray guns that use air pressure to atomize the coating. A key difference between the various types of guns available is their transfer efficiency. Simply defined, transfer efficiency is the ratio of the amount of coating solids deposited onto the surface of the coated part to the total amount of coating solids that exit the gun nozzle. Paint that is sprayed but not deposited onto the surface is referred to as "over-spray." Because coating over-spray releases the same relative amount of VOC from solvent as the coating that adheres to the vehicle, reducing over-spray reduces VOC emissions. By minimizing over-spray, potential emissions of paint solids, including heavy metals, are also reduced.

Less over-spray also benefits the refinisher. Solvent concentration in the booth is reduced, less time is spent applying coatings (because more reaches the substrate), and solvent

use for cleanup of over-spray is reduced. Additionally, a shop that uses high-transfer efficiency spray equipment uses less coating, and therefore will also realize a savings in coating costs. The transfer efficiency of spray guns vary dramatically depending on a number of factors, such as the shape of the surface being coated, type of gun, velocity of the aerosol, skill and diligence of the operator, and extraneous air movement within the spray booth.

Conventional Spray Guns. Conventional spray guns, also known as suction-feed, are becoming obsolete in the auto refinishing industry, although they are still commercially available. These guns employ a rapid flow of air through an air line and spray gun to create a vacuum which draws the coating from a cup mounted on the spray gun and forces it through the gun nozzle. Conventional spray guns operate in air pressure range of 30 to 90 pounds per square inch (psi). There are two types of conventional spray guns: syphon-feed and gravity-feed. In syphon-feed guns, the paint cup is attached below the spray gun, and the rapid flow of air through the gun creates a vacuum that siphons the coating out of the cup. Gravity-feed guns have the paint cup attached above the gun. These guns require less air pressure to move the coating through the gun and provide substantially better transfer efficiency than syphon-feed guns.

High-Volume, Low-Pressure Spray Guns. High-volume, low-pressure (HVLP) spray guns use large volumes of air at low pressure (10 psi or less) to atomize coatings. Because the atomized spray leaves the gun at a lower pressure and velocity than in conventional air spraying, HVLP guns minimize particle "bounce back." As a result, high transfer efficiency can be achieved, with 25 to 50 percent less over-spray than conventional guns. All the shops visited during this project were using only HVLP spray guns and industry sources have estimated that these types of guns are now used for over 90 percent of automobile and mobile equipment refinishing.

The air source in an HVLP spray system can be a turbine or conventional compressed air. Either system can be purchased to handle multiple spray guns. HVLP spray systems can be adjusted to apply high-, medium-, and low-solids coatings.

The painters that were consulted during this project all indicated that learning to use an HVLP spray gun took some time, but the benefits of lower coating consumption made up for the training required. No painters indicated that HVLP spray guns resulted in coating problems that could not be overcome or in reduced finish quality.

Low-Volume, Low-Pressure Spray Guns. Low-volume, low-pressure (LVLP) spray guns are quite similar to HVLP spray guns in that atomized coatings are released at lower pressure (9.5 to 10 psi) and lower velocity than conventional air spray guns. The transfer efficiency of LVLP spray guns is reportedly about the same as for HVLP spray guns. The primary difference is that LVLP guns use 45 to 60 percent less air for paint atomization. Consequently, energy costs for air compression are less than with HVLP guns.

Equipment Cleaning

Spray equipment can be cleaned manually or with any of several types of gun cleaning systems specifically designed for this purpose. Shops that do not have spray gun cleaning systems usually rinse the outside of the gun and cup, add solvent to the cup, and then spray the solvent into the air or into a drum set aside for spent solvent. None of the shops visited in this project used this technique and all had some sort of enclosed or automatic spray gun cleaner.

A typical enclosed gun cleaner consists of a basin similar to a sink in which the operator washes the outside of the gun under a solvent stream. The basin is covered with a lid when it is not in use. The gun cup is filled with solvent, the gun tip is placed into a canister attached to the basin, and suction draws the solvent from the cup through the gun. The operator then removes the cup, places the gun's suction stem under the clean solvent spigot, pulls the trigger, and pumps solvent through the gun. The solvent gravitates to the bottom of the basin and drains through a small hole to a reservoir that supplies solvent to the recirculation pump. The solvent is changed when it no longer cleans satisfactorily.

An automatic gun cleaner or washer consists of a basin with a tightly fitting lid and with cleaning solvent connections inside the basin. The spray gun is attached to the solvent connections, the lid is closed, and solvent is automatically pumped both through the gun and onto the exterior of the gun. The paint cup is also placed in the cleaner, where the interior and exterior are sprayed with solvent.

Many automatic gun cleaners are capable of cleaning two guns and cups per cleaning and are typically designed to clean other equipment such as paint stirrers and strainers. Often they also have a solvent spigot to manually rinse spray equipment. Cleaning solvent falls back into the cleaner's solvent reservoir for recirculation. Solvent is recirculated until it is too contaminated for further use. Some enclosed gun cleaners are equipped with a second solvent reservoir that contains virgin solvent that is used as a final rinse.

Waste solvents generated by spray equipment cleaning are disposed of by evaporation (via spraying into the air, or by placing in open drums), off-site recycling or disposal, or by on-site reclamation. No shops that were visited during this project disposed of solvent by evaporation. All either used an off-site disposal service or used on-site reclamation. Very often the same vendor for the gun cleaner also picks up spent solvent and provides clean solvent on a regular basis.

In-house recycling can be as simple as letting spent solvents settle and decanting the upper layer for reuse. This method, gravity separation, is used where the purity of the solvent is not critical and is employed in most cases where a site does not have on-site distillation equipment. The recovered solvent is usually used for the initial spray gun cleaning and a small amount of virgin solvent is used each time for a final rinse.

At least one site visited during this project had an automatic gun cleaner that was tied into a on-site distillation system. The distillation system accepted solvent from the gun cleaner and also waste paint. After work hours, the system was timed to heat the waste paint and solvent and distill the evaporated solvent so it could be used again the gun cleaner. The remaining solids from the waste paint and spent solvent were disposed of as hazardous waste. This system greatly reduced the amount of new solvent consumed by the shop and the amount of hazardous waste (and associated fees).

Care must be taken when a solvent reclaim unit is to be placed in use because solvents are combustible. In addition, some on-site reclaimers are not explosion-proof and may pose a hazard when operated near other non-explosion-proof electrical equipment. It is recommended that reclaim equipment be operated outdoors and away from spark-producing equipment, and that the power is turned off when the machine is being emptied.

The use of solvent for gun cleaning can reportedly be reduced by using Teflon7-lined paint cups, which makes paint removal easier. Some facilities use a plastic liner inside the paint cup to make cleanup easier and reduce solvent use. The paint-covered plastic liner is discarded after each use and the paint cup remains essentially free of paint.

3.0 RECORDKEEPING PRACTICES

Most of the shops visited in this project were in California and subject to local and regional air district regulations limiting VOC emissions. As a result, all had to keep records to demonstrate compliance with VOC content limits for each coating and with monthly limits on

the total amount of VOC emitted. Usually, one set of records was used to demonstrate both compliance requirements. As mentioned in section 1.7, some shops were able to use their computerized paint mixing system to help them record the amount of VOC in the coatings in each job.

To demonstrate compliance with VOC coating limits, most shops recorded the amount of material used for each job on a sheet provided by their coating supplier. The sheets also showed the maximum relative amount of coating, reducer, activator, etc., that can be used for each product to maintain compliance with specific VOC limits.

Often, the same sheets were also used to calculate total monthly VOC emissions since they showed the amount of coating used per job. Many shops used a service called Phone-In Record Keeping, Inc. (PIRK). The shop would fax in the VOC sheets that they completed for each job and PIRK would then calculate their monthly VOC emissions and deliver a monthly report to the shop. The VOC sheets and reports were typically kept in a binder provided by PIRK. The estimated cost for the PIRK service was about $80 per month.

3.0

Analysis of Generally Available Control Technology (GACT) for Motor Vehicle and Mobile Equipment Refinishing Operations at Area Sources Subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Miscellaneous Surface Coating Area Sources

MEMORANDUM

To: Docket EPA-HQ-OAR-2005-0526

From: Brian Palmer, Eastern Research Group, Inc. (ERG) and Warren Johnson, U.S. EPA, Sector Policies and Programs Division/Natural Resources and Commerce Group

Date: August 7, 2007

Subject: Analysis of Generally Available Control Technology (GACT) for Motor Vehicle and Mobile Equipment Refinishing Operations at Area Sources Subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Miscellaneous Surface Coating Area Sources

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The EPA visited over 20 motor vehicle and mobile equipment (MVME) refinishing operations and held about 10 meetings and conference calls with industry representatives, including trade association representatives and groups of refinishing shop owners. The EPA also met four times with representatives of State Small Business Assistance Programs. These visits and meetings were documented in memoranda that are included in the docket for the proposed rulemaking. The purpose of this memo is to summarize the information collected and present a recommendation for the determination of GACT for MVME refinishing operations.

For the MVME refinishing operations GACT is the use of spray booths and high-volume, low-pressure (HVLP) spray guns, along with painter training as a management practice, to reduce inorganic HAP emissions from surface coating operations. GACT also includes the use of enclosed spray gun washers to reduce emissions from paint spray gun cleaning operations.

The hazardous air pollutant (HAP) emissions from MVME refinishing operations come primarily from the spray application of coatings. Although most of the HAP are deposited as part of the paint film, some of the HAP becomes airborne in the paint overspray. The volume of coating deposited as part of the paint film as a fraction of the volume of paint sprayed is referred to as the transfer efficiency (for example, if 60 percent of the coating sprayed is deposited as paint film then the transfer efficiency is 60 percent).

Analysis of operations that involve the spray application of coatings has determined that GACT for these coating operations is a combination of: 1) confining all spray coating operations to a spray booth or equivalent ventilated and filtered enclosure, 2) using only spray equipment that is designed to achieve a high rate of transfer efficiency (HVLP or equivalent spray

technology), and 3) having the spray equipment operator trained and certified in the techniques needed to properly set up and operate high transfer efficiency spray equipment in order to optimize the transfer efficiency.

Based on the site visits, data review, and contacts with industry, we have determined that the standard practice among the majority of facilities in the MVME refinishing industry is to perform nearly all spray painting inside a spray booth or ventilated prep station enclosed by curtains. The only exceptions are priming small areas, or performing spot repairs with an air brush. At many facilities, all spray painting is performed in a spray booth or ventilated prep station to reduce contaminants that would compromise the final finish and to maintain a clean work area. In addition, it is standard practice to filter the exhaust from the booth or prep station to capture paint overspray so that it is not deposited on ventilation equipment or surrounding property. Therefore, based on the availability and cost-effectiveness, EPA has determined that a filtered spray booth or prep station is GACT for all MVME refinishing operations to control HAP emissions. It is important to note that filtered spray booths or prep stations are needed at almost all spray finishing operations in order to comply with OSHA standards for spray finishing operations (29 CFR 1910.94(c)).

At the majority of facilities that were visited, the spray booths were fitted with either fiberglass or polyester fiber filters on the spray booth and prep station exhaust. One facility had a water-wash spray booth filter and another had expanded polystyrene foam baffle filters. An EPA study entitled "Comparative Study of Spray Booth Filter System Efficiency", which is provided in the public docket for this rulemaking, determined that fiberglass and polyester fiber filters had superior performance, relative to other filter types, such as polystyrene foam and cardboard baffle filters, in controlling the heavy metals found in paint overspray. The information collected on filter efficiency is summarized in a separate memo for the docket.[1] Therefore, based on findings during the site visits, information provided by the industry on the most commonly used filters, and the EPA study on filter effectiveness and the cost-effectiveness EPA has determined that these fiberglass and polyester fiber filters represent GACT for controlling the heavy metals present in paint overspray.

[1] Memorandum To: Kim Teal, U.S. EPA, Sectors Policies and Programs Division/Natural Resources and Commerce Group (C539-03). From: Mike Heaney and Brian Palmer, Eastern Research Group, Inc. March 26, 2006. Review of Spray Booth Filter Information for the Area Source Motor Vehicle and Mobile Equipment Refinishing National Emission Standards for Hazardous Air Pollutants (NESHAP).

An alternative 98-percent filter efficiency could be provided for those sources that may not be using fiberglass or polyester fiber filters. We were not able to collect filter efficiency data on all types of filters used in spray booths, and the market may already provide for filters that are as equally efficient. The 98-percent filter efficiency alternative is based on a summary of filter efficiency data provided by filter vendors.[1] This limit would represent the performance level that separates the fiberglass and polyester fiber filters from baffle type filters. The baffle type filters were shown in the EPA study to have poor performance in controlling fine particulate that can contain heavy metals.

GACT includes spray equipment that is designed to achieve a high rate of transfer efficiency (HVLP or equivalent spray technology) in order to reduce the overall amount of coating required to complete each coating job. Reducing the amount of coating required for each job would directly lead to significant reductions in the overall emissions from these coating operations. Conventional high-pressure air-atomized spray guns have a typical transfer efficiency of about 30 percent. That means that for every gallon of coating sprayed, only 0.30 gallon reaches the part being coated. The remaining 0.70 gallon misses the part and either lands on the booth walls and floor or is pulled into the spray booth filters and exhaust system. To get one gallon on the part, a conventional spray gun needs to use 3 1/3 gallons of coating. HVLP and other types of high-efficiency spray guns use lower air pressures and achieve transfer efficiencies of about 50 percent, or greater, with appropriate operator training. To get one gallon on the part, a high efficiency spray gun needs to use only 2 gallons of coating. This increased transfer efficiency represents a 40 percent decrease in coating consumption and in resultant emissions compared to conventional spray guns.

For these reasons, all of the MVME refinishing operations visited by EPA had already switched to HVLP and other types of high efficiency spray guns. About half these sources were not required to do so by regulations and have switched in order to reduce coating costs through reduced consumption. Regulations for autobody refinishing in 10 States require the use of HVLP spray guns or their equivalent statewide, and they are required in ozone non-attainment areas in 12 States without a statewide requirement. Given the cost-effectiveness and the fact that HVLP or equivalent spray guns have been adopted at the facilities visited by EPA and they are required in many States and ozone non-attainment areas, these types of spray guns are GACT for spray-applied coatings.

Painter training has also been shown to have a significant effect on the amount of coating needed and the amount of overspray per job and is a management practice to reduce emissions. Requiring spray painters to be trained and certified would ensure that painters are skilled in the techniques needed to achieve a high rate of transfer efficiency. Data collected by Spray Technique Analysis and Research (STAR®) programs in various states have shown that painter training can have a significant effect on the amount of coating used and the transfer efficiency of the coating operation.

The training would include measures intended to increase transfer efficiency and reduce overspray and coating usage. The best known of these training programs is the STAR® program that originated at the University of Northern Iowa Waste Reduction Center and has now been adopted at 37 locations (primarily community colleges) throughout the United States.[2] Data from the STAR® program demonstrate that spray operator training can increase transfer efficiency for those using high efficiency spray equipment from an average of about 50 percent to 60 percent, or more, representing a 20 percent reduction in coating usage compared to untrained operators. This 20 percent reduction in coating usage would translate into a 20 percent reduction in emissions of organic HAP that are contained in those coatings. It would also reduce emissions of the heavy metals that are in the coatings. [3,4,5]

It is important to note that these "untrained" operators are not inexperienced painters. They often have many years of experience before they enter these training programs. However, they have not been specifically trained in how to best set up and operate high efficiency spray equipment and to optimize their technique to maximize transfer efficiency and minimize coating consumption.

About 3,500 painters have already completed STAR® training and at least one company operating multiple collision repair shops has established a STAR®-based in-house training

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[2] Spray Technique Analysis and Research (STAR) School summary. Provided by Sue Schauls, STAR Program Manager, Iowa Waste Reduction Center, July 21, 2006.

[3] www.iwrc.org/staruserqueries/avg_of_all_trainees.cfm Summary of IWRC STAR training program. The average reduction in gallons of coating used for 382 students trained in the Iowa Waste Reduction Center STAR program was 18.55 percent.

[4] http://www.arb.ca.gov/coatings/p2/results.htm Five California body shops had their painters complete a STAR® training program. Paint usage decreased 3 to 45 percent after training. The average decrease in usage was 22 percent.

[5] Final Report PennSTAR Project. Pennsylvania Spray Technique Analysis and Research. Pennsylvania College of Technology. May 2006.

program. Since many painters already attend regular training sponsored by coating companies and trade organizations, these training programs are GACT for MVME refinishing operations.

The proper training and certification for spray coating operators should be comparable to existing programs such as those offered by The Inter-Industry Conference on Auto Collision Repair (I-CAR) and the STAR®-based programs offered in various states. The essential elements of training and certification that would do the most to improve transfer efficiency and minimize emissions should include, at a minimum, include:

- coating material handling, including spills and clean up,
- substrate preparations that minimize over spray,
- proper equipment selection and set-up to optimize transfer efficiency,
- coating application and spray technique that minimizes over spray,
- spray equipment cleaning and maintenance, and
- operating and maintaining a spray booth.

EPA has determined that GACT also includes that all spray gun cleaning be done in enclosed spray gun washers, or the disassembled spray gun should be cleaned by hand without the atomizing cleaning solvent. Spraying of cleaning solvent through spray guns outside of an enclosed gun washer would be prohibited. All of the facilities visited by EPA had enclosed gun washers and other contacts with industry members indicate that this is standard practice among well-controlled facilities. Therefore, an enclosed spray gun cleaner or hand cleaning is GACT for these source categories to reduce emissions from spray gun cleaning.

4.0

Analysis of Generally Available Control Technology (GACT) for Miscellaneous Plastic Part and Metal Part Surface Coating Operations at Area Sources Subject to the National Emission Standards for Hazardous Air Pollutants for Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources

MEMORANDUM

To: Docket EPA-HQ-OAR-2005-0526

From: Brian Palmer, Eastern Research Group, Inc. (ERG) and Warren Johnson, U.S. EPA, Sector Policies and Programs Division/Natural Resources and Commerce Group

Date: August 7, 2007

Subject: Analysis of Generally Available Control Technology (GACT) for Miscellaneous Plastic Part and Metal Part Surface Coating Operations at Area Sources Subject to the National Emission Standards for Hazardous Air Pollutants for Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources

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The purpose of this memo is to summarize the data available on the use of filtered spray booths and high efficiency spray guns at area sources performing miscellaneous surface coating operations. Our analysis of these data indicate that the use of a filtered spray booth and high efficiency spray equipment, e.g., high-volume low-pressure (HVLP) spray guns, could be considered to represent GACT to reduce both inorganic and organic HAP emissions from these area source surface coating operations.

The analysis was completed in the MS Excel spreadsheet. The data for the GACT analysis was from the database developed to support the NESHAP for plastic parts and products surface coating operations at major sources (40 CFR 63, subpart PPPP). Data were available for surface coating operations that perform spray coating and these data indicated whether the spray operation was performed in a filtered enclosure, the type of filter, and what type of spray equipment was used. Similar data were not available from the database used to develop the NESHAP for miscellaneous metal parts and products surface coating operations at major sources (40 CFR 63, subpart MMMM). However, we believe that the plastic parts data are also representative of the area sources coating metal parts and products.

The plastic parts and products database includes data for 238 facilities that perform a total of 978 surface coating scenarios using spray equipment. These 238 facilities include 126 area sources representing 402 coating scenarios that use spray equipment (an average of 3.2 coating scenarios per area source). The attached spreadsheet includes only data for area sources. The total number of area sources is estimated to be 831, but not all of these perform spraying, and not all sources submitted data on their coating operations.

The control technologies considered to reduce inorganic HAP from spray coating operations are an enclosure, such as a spray booth, with filters fitted on the booth exhaust. The most common types of filters are dry filters, such as fiberglass or polyester fiber filters, or wet filters such as a water wash system spray booth. The dry filters are generally considered more efficient and reliable with lower maintenance than waterwash systems. Dry filters also do not create wastewater disposal issues. Dry filter systems can be more easily retrofitted to an existing spray coating operation without having to add water supply lines and drains. Waterwash systems are generally used in high-volume production settings to avoid having to frequently change filters.

At area sources, 303 of the 402 surface coating scenarios (75 percent) use dry filters to control overspray. An additional 52 coating scenarios (13 percent) use waterwash type spray booths to control overspray. Therefore, the use of a dry filter or waterwash filter could be considered generally available control technology to control overspray that may contain inorganic HAP from spray coating operations at area sources.

Organic HAP emissions can be reduced from spray coating operations by switching to more efficient spray gun types that reduce coating consumption by increasing the fraction of coating that reaches the part. The fraction of coating that reaches the part, instead of becoming overspray, is termed transfer efficiency. Conventional air atomized spray guns have a transfer efficiency of about 30 percent. High volume, low pressure (HVLP) spray guns, and other types of high efficiency spray guns, have transfer efficiencies that can exceed 50 percent. Therefore, switching to an HVLP spray gun could reduce the amount of coating needed for a certain job by 30 to 40 percent and this would have a similar reduction in organic HAP emissions.

The use of add-on controls to reduce organic HAP emissions, such as thermal oxidizers, is generally not feasible at area sources. Area source surface coating emissions are characterized by intermittent emissions with low organic concentrations and high flow rates. The high capital cost and operating cost of add-on controls would also put them out of the financial reach of most area source surface coating facilities.

Of the area source coating scenarios, 303 scenarios (75 percent) were using HVLP spray guns. This also represents 71 percent of the area source facilities. Only 25 area source facilities (20 percent of facilities) representing 75 coating scenarios reported using conventional high-pressure air-atomized spray guns. Three percent of area source facilities reported using

either electrostatic, air assisted airless, or airless spray technology; one percent did not specify the spray technology. Therefore, the use of HVLP spray technology could be considered generally available control technology to reduce organic HAP emissions by reducing coating consumption in spray coating operations at area sources.

FTN	Facility_name	FTN Count	Area Source Count	Area Source Scenarios	ScenarioName_new	SprayBooth	Spray Gun Technology	Spay Gun Abbr	HVLP at Area Source Scenarios	HVLP at Area Source	Conv Spray At Area Source Facilities	Enclosure	Vent	Overspray Control	Filter Abbr	Dry Filter at Area Source Scenarios	Water Wash Filters At Area Source Scenarios	HVLP and Filter at Area Source Scenarios	Unique Area Source FTN with HVLP and Dry Filters
ACS0001	Mitsubishi Motor MFG of America, INC	1	1	1	ACS0001 - Fascia	Downdraft w/ water curtain	Electrostatic Spray	ES				Fully enclosed	CD001	Water curtain	Water		1		
ASC013	Subaru-Isuzu Automotive Inc.	1	1	1	ASC013 - Plastic Bumpers	Multiple station	Electrostatic Spray	ES				N/A	Exhaust stacks	Wet eliminator	Water		1		
MMPP-2154	Delphi Interior & Lighting Systems, Vadalia Ops			1	MMP2154 - CK Truck Prime Line	Primer booth	Conventional Air Spray	Conv				Fully enclosed	Building interior	Dry filters	Filter	1			
MMPP-2154	Delphi Interior & Lighting Systems, Vadalia Ops			1	MMP2154 - CK Truck Top Coat Line	Top coat booth	Conventional Air Spray	Conv				Fully enclosed	Building interior	Dry filters	Filter	1			
MMPP-2154	Delphi Interior & Lighting Systems, Vadalia Ops			1	MMP2154 - I/P Surlyn Cladding	G-car Booth	Conventional Air Spray	Conv				3/4 Enclosed	Building interior	Dry Filters	Filter	1			
MMPP-2154	Delphi Interior & Lighting Systems, Vadalia Ops			1	MMP2154 - I/P Surlyn Cladding	KSP Door Booth	Conventional Air Spray	Conv				3/4 Enclosed	Building interior	Dry Filters	Filter	1			
MMPP-2154	Delphi Interior & Lighting Systems, Vadalia Ops			1	MMP2154 - I/P Surlyn Cladding	Module 1 Booth	Conventional Air Spray	Conv				3/4 Enclosed	Building interior	Dry Filters	Filter	1			
MMPP-2154	Delphi Interior & Lighting Systems, Vadalia Ops			1	MMP2154 - I/P Surlyn Cladding	W-car Booth A	Conventional Air Spray	Conv				3/4 Enclosed	Building interior	Dry Filters	Filter	1			
MMPP-2154	Delphi Interior & Lighting Systems, Vadalia Ops	1	1	1	MMP2154 - I/P Surlyn Cladding	W-car Booth B	Conventional Air Spray	Conv			1	3/4 Enclosed	Building interior	Dry Filters	Filter	1			
PPP111A	MSX International Special Vehicles - Mt. Elliot	1	1	1	PPP111A - Windshield frame coating scenario	Spray Booth	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Building interior	Filters	Filter	1		1	1
PPP111B	MSX International Special Vehicles - Lynch Rd			1	PPP111B - Prowler Coating Scenario	Basecoat Booth	Conventional Air Spray	Conv				Fully enclosed	Building interior	filters	Filter	1			
PPP111B	MSX International Special Vehicles - Lynch Rd			1	PPP111B - Prowler Coating Scenario	Clearcoat Booth	Electrostatic Spray	ES				Fully enclosed	Building interior	filters	Filter	1			
PPP111B	MSX International Special Vehicles - Lynch Rd	1	1	1	PPP111B - Prowler Coating Scenario	Prime Booth	Electrostatic Spray	ES				Fully enclosed	Building interior	filters	Filter	1			
PPP111C	MSX International Special Vehicles - Purks			1	PPP111C - Interior Trim Refinish	Down Draft Booth	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	filter/waterwash	Filter	1		1	
PPP111C	MSX International Special Vehicles - Purks	1	1	1	PPP111C - Vehicle Refinish	Down Draft Booth	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Building interior	filter/waterwash	Filter	1		1	1
PPP111W	MSX International - Mandoline	1	1	1	PPP111W - Prototype Coating Scenario	Spray Booth	Conventional Air Spray/HVLP	Conv			1	Fully enclosed	Building interior	Filters	Filter	1			
PPP111X	MSX International Design Fab Center	1	1	1	PPP111X - Prototype Coating Scenario	Spray Booth	Conventional Air Spray	Conv			1	Fully enclosed	Building interior	Filters	Filter	1			
PPP114A	ADAC Plastics Inc. - Saranac			1	PPP114A - Saranac 2 Booth Paint Line	1st booth	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Filters	Filter	1		1	
PPP114A	ADAC Plastics Inc. - Saranac	1	1	1	PPP114A - Saranac 2 Booth Paint Line	2nd booth	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Building interior	Filters	Filter	1		1	1
PPP114B	ADAC Plastics Inc. - Grand Rapids			1	PPP114B - Paint Booth #1	Automatic booth	Conventional Air Spray	Conv				3/4 Enclosed	Building interior	Dry filters	Filter	1			
PPP114B	ADAC Plastics Inc. - Grand Rapids			1	PPP114B - Paint Booth #10	Rotary	Conventional Air Spray	Conv				3/4 Enclosed	Building interior	ry filters	Filter	1			
PPP114B	ADAC Plastics Inc. - Grand Rapids			1	PPP114B - Paint Booth #9	Stroker	Conventional Air Spray	Conv				3/4 Enclosed	Building interior	Dry filters	Filter	1			
PPP114B	ADAC Plastics Inc. - Grand Rapids			1	PPP114B - Paint Booth #3	Hand booth	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	ry filters	Filter	1		1	
PPP114B	ADAC Plastics Inc. - Grand Rapids			1	PPP114B - Paint Booth #4	Hand booth	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	ry filters	Filter	1		1	
PPP114B	ADAC Plastics Inc. - Grand Rapids			1	PPP114B - Paint Booth #5	Hand booth	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	ry filters	Filter	1		1	
PPP114B	ADAC Plastics Inc. - Grand Rapids			1	PPP114B - Paint Booth #6	Stroker	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Dry filters	Filter	1		1	
PPP114B	ADAC Plastics Inc. - Grand Rapids			1	PPP114B - Paint Booth #7	Rotary booth	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Dry filters	Filter	1		1	
PPP114B	ADAC Plastics Inc. - Grand Rapids			1	PPP114B - Paint Booth #8	Rotary booth	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	ry filters	Filter	1		1	
PPP114B	ADAC Plastics Inc. - Grand Rapids	1	1	1	PPP114B - Panit booth #2	Automatic booth	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Building interior	Dry filters	Filter	1		1	1
PPP114C	ADAC Plastics, Inc. - Muskegon			1	PPP114C - Clear Coat	Clear booth #1	High-volume low-pressure spray	HVLP	1			Enclosed	Control device	Dry filters	Filter	1		1	
PPP114C	ADAC Plastics, Inc. - Muskegon			1	PPP114C - Clear Coat	Clear booth #2	High-volume low-pressure spray	HVLP	1			Enclosed	Control device	Dry filters	Filter	1		1	
PPP114C	ADAC Plastics, Inc. - Muskegon			1	PPP114C - Clear Coat	Clear booth #3	High-volume low-pressure spray	HVLP	1			Enclosed	Control device	Dry filters	Filter	1		1	
PPP114C	ADAC Plastics, Inc. - Muskegon			1	PPP114C - Color Coat	Color booth #1	High-volume low-pressure spray	HVLP	1			Enclosed	Control device	Dry filters	Filter	1		1	
PPP114C	ADAC Plastics, Inc. - Muskegon			1	PPP114C - Color Coat	Color booth #2	High-volume low-pressure spray	HVLP	1			Enclosed	Control device	Dry filters	Filter	1		1	
PPP114C	ADAC Plastics, Inc. - Muskegon			1	PPP114C - Color Coat	Color booth #3	High-volume low-pressure spray	HVLP	1			Enclosed	Control device	Dry filters	Filter	1		1	
PPP114C	ADAC Plastics, Inc. - Muskegon			1	PPP114C - Prime Booth	1st booth	High-volume low-pressure spray	HVLP	1			Enclosed	Control device	Dry filters	Filter	1		1	
PPP114C	ADAC Plastics, Inc. - Muskegon	1	1	1	PPP114C - Prime Booth	2nd booth	High-volume low-pressure spray	HVLP	1	1		Enclosed	Control device	Dry filters	Filter	1		1	1
PPP115A	Prince Corp. Lakewood MFG			1	PPP115A - C/K Inline Painting	Booths 1-3	High-volume low-pressure spray	HVLP	1			65%, Hooded	Atmosphere	Dry Fabric	Filter	1		1	
PPP115A	Prince Corp. Lakewood MFG			1	PPP115A - Central Gluing		High-volume low-pressure spray	HVLP	1			3/4, Hooder	Atmosphere	Dry Fabric	Filter	1		1	
PPP115A	Prince Corp. Lakewood MFG			1	PPP115A - Central Paint	Booths 1-5	High-volume low-pressure spray	HVLP	1			3/4, Hooded	Atmosphere	Dry Fabric	Filter	1		1	
PPP115A	Prince Corp. Lakewood MFG	1	1	1	PPP115A - Vac Wrap Spray Glue	Booths 1-4	High-volume low-pressure spray	HVLP	1	1		3/4, Hooded	Atmosphere	Dry Fabric	Filter	1		1	1
PPP115B	Prince Corp. - Maplewood Facility			1	PPP115B - Glue Spray Booths	Booths 1 & 2	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filters	Filter	1		1	
PPP115B	Prince Corp. - Maplewood Facility	1	1	1	PPP115B - Paint Spray Booths	Booths 1-8	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Atmosphere	Dry filters	Filter	1		1	1
PPP115C	Prince Corp. - Southview Campus			1	PPP115C - B-Van Base	Booth 4	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP115C	Prince Corp. - Southview Campus			1	PPP115C - B-Van Components	Booth 4	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry Fabric	Filter	1		1	
PPP115C	Prince Corp. - Southview Campus			1	PPP115C - Console/ Console Parts/ DPTrim	Booth 1-3	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP115C	Prince Corp. - Southview Campus			1	PPP115C - Ivory Door Skins	Booth B	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry Fabric	Filter	1		1	
PPP115C	Prince Corp. - Southview Campus	1	1	1	PPP115C - Visor Components	Booth 5 & 6	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Atmosphere	Dry Fabric	Filter	1		1	1

FTN	Facility_name	FTN Count	Area Source Count	Area Source Scenarios	ScenarioName_new	SprayBooth	Spray Gun Technology	Spay Gun Abbr	HVLP at Area Source Scenarios	HVLP at Area Source	Conv Spray At Area Source Facilities	Enclosure	Vent	Overspray Control	Filter Abbr	Dry Filter at Area Source Scenarios	Water Wash Filters At Area Source Scenarios	HVLP and Filter at Area Source Scenarios	Unique Area Source FTN with HVLP and Dry Filters
PPP115C	Prince Corp. - Southview Campus			1	PPP115C - Spray Gluing	Booths 1-3	High-volume low-pressure spray	HVLP	1			No enclosure	Building interior	NA					
PPP117A	Lescoa - Middleville Plant			1	PPP117A - Spray Adhesive Scenario	Glue Booth	Conventional Air Spray	Conv				3/4 Enclosed	Atmosphere	Dry filters	Filter	1			
PPP117A	Lescoa - Middleville Plant			1	PPP117A - Clean Room Scenario	Clean Room Booth	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry Filters	Filter	1		1	
PPP117A	Lescoa - Middleville Plant			1	PPP117A - Conveyor Line Scenario	Booth L1	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry Filters	Filter	1		1	
PPP117A	Lescoa - Middleville Plant			1	PPP117A - Manual Booth Scenario	Booth 3B1	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry Filters	Filter	1		1	
PPP117A	Lescoa - Middleville Plant	1	1	1	PPP117A - Vinyl Coating Scenario	CAD Booth	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Building interior/Atmosphere	Dry filters	Filter	1		1	1
PPP117C	Lescoa - Plant # 7			1	PPP117C - Overhead Conveyor Scenario	7-3	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry Filters	Filter	1		1	
PPP117C	Lescoa - Plant # 7			1	PPP117C - Chain on Edge Scenario	C-1	High-volume low-pressure spray	HVLP	1			Fully enclosed	CD000001	Water wash	Water		1		
PPP117C	Lescoa - Plant # 7			1	PPP117C - Chain on Edge Scenario	C-2	High-volume low-pressure spray	HVLP	1			Fully enclosed	CD000001	Water wash	Water		1		
PPP117C	Lescoa - Plant # 7			1	PPP117C - Chain on Edge Scenario	C-3	High-volume low-pressure spray	HVLP	1			Fully enclosed	CD000001	Water wash	Water		1		
PPP117C	Lescoa - Plant # 7			1	PPP117C - Rack Conveyor Scenario	7-1	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Waterwash	Water		1		
PPP117C	Lescoa - Plant # 7			1	PPP117C - Rack Conveyor Scenario	7-2	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Waterwash	Water		1		
PPP117C	Lescoa - Plant # 7			1	PPP117C - Rack Conveyor Scenario	7-4	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Waterwash	Water		1		
PPP117C	Lescoa - Plant # 7			1	PPP117C - Rack Conveyor Scenario	7-5	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Waterwash	Water		1		
PPP117C	Lescoa - Plant # 7	1	1	1	PPP117C - Rack Conveyor Scenario	7-6	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Atmosphere	Waterwash	Water		1		
PPP118E	Magna International - Brighton Interior Systems			1	PPP118E - GMT - 800 Fabrication Process	N/A	Conventional Air Spray	Conv				No enclosure	Atmosphere	Dry filter	Filter	1			
PPP118E	Magna International - Brighton Interior Systems			1	PPP118E - SSS<Paint Booth	Booth 1	Conventional Air Spray	Conv				Fully enclosed	Control device	Dry filter	Filter	1			
PPP118E	Magna International - Brighton Interior Systems			1	PPP118E - SSS<Paint Booth	Booth 2	Conventional Air Spray	Conv				Fully enclosed	Control device	Dry filter	Filter	1			
PPP118E	Magna International - Brighton Interior Systems	1	1	1	PPP118E - SSS<Paint Booth	Booth 3	Conventional Air Spray	Conv			1	Fully enclosed	Control device	Dry filter	Filter	1			
PPP123	H. A. Parts Products of Indiana Company	1	1	1	PPP123 - Spray Paint Application	E-Booth	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Hooded	Filters/waterwash	Filter	1		1	1
PPP126A	Leon Plastics, Inc.			1	PPP126A - Finish Room	North line booth #1	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP126A	Leon Plastics, Inc.			1	PPP126A - Finish Room	North line booth #2	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP126A	Leon Plastics, Inc.			1	PPP126A - Finish Room	Off line booth	High-volume low-pressure spray	HVLP	1			1/2 hooded	Building interior	Dry filter	Filter	1		1	
PPP126A	Leon Plastics, Inc.			1	PPP126A - Finish Room	South line booth #1	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP126A	Leon Plastics, Inc.			1	PPP126A - Finish Room	South line booth #2	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP126A	Leon Plastics, Inc.			1	PPP126A - Robotic Line	Enclosed booth #1	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Dry filter	Filter	1		1	
PPP126A	Leon Plastics, Inc.	1	1	1	PPP126A - Robotic Line	Enclosed booth #2	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Building interior	Dry filter	Filter	1		1	1
PPP130	Cooper Automotive Co.	1	1	1	PPP130 - Base Coat and Aluminize Plastic Reflector	Base coat spray	Conventional Air Spray	Conv			1	3/4 Enclosed	Building interior	Dry filter	Filter	1			
PPP131A	Vaungarde, Inc. - Bradley			1	PPP131A - Rim Clearcoating	Blu-Surf	High-volume low-pressure spray	HVLP	1			Fully enclosed	Atmosphere						
PPP131A	Vaungarde, Inc. - Bradley			1	PPP131A - RIM Topcoating-A	Blu-Surf	High-volume low-pressure spray	HVLP	1			Fully enclosed	Atmosphere						
PPP131A	Vaungarde, Inc. - Bradley			1	PPP131A - Rim Topcoating-B	Blu-Surf	High-volume low-pressure spray	HVLP	1			Fully enclosed	Atmosphere						
PPP131A	Vaungarde, Inc. - Bradley	1	1	1	PPP131A - Urethane Part Coating Scenario-Prime	Blu-Surf	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Atmosphere						
PPP131B	Vaungarde, Inc. - Chestnut			1	PPP131B - Plastic Auto Clearcoat	Double Booth (3)	High-volume low-pressure spray	HVLP	1			Fully enclosed	Atmosphere	Filter, training	Filter	1		1	
PPP131B	Vaungarde, Inc. - Chestnut			1	PPP131B - Plastic Auto Prime	Double Booth (3)	High-volume low-pressure spray	HVLP	1			Fully enclosed	Atmosphere	Filter, training	Filter	1		1	
PPP131B	Vaungarde, Inc. - Chestnut			1	PPP131B - Plastic Auto Prime-B	Double Booth (3)	High-volume low-pressure spray	HVLP	1			Fully enclosed	Atmosphere	Filter, training	Filter	1		1	
PPP131B	Vaungarde, Inc. - Chestnut			1	PPP131B - Plastic Auto Topcoat-A	Double Booth (3)	High-volume low-pressure spray	HVLP	1			Fully enclosed	Atmosphere	Filter, training	Filter	1		1	
PPP131B	Vaungarde, Inc. - Chestnut			1	PPP131B - Plastic Auto Topcoat-B	Double Booth (3)	High-volume low-pressure spray	HVLP	1			Fully enclosed	Atmosphere	Filter, training	Filter	1		1	
PPP131B	Vaungarde, Inc. - Chestnut			1	PPP131B - Plastic Auto Topcoat-C	Double Booth (3)	High-volume low-pressure spray	HVLP	1			Fully enclosed	Atmosphere	Filter, training	Filter	1		1	
PPP131B	Vaungarde, Inc. - Chestnut			1	PPP131B - Plastic Auto Topcoat-D	Double Booth (3)	High-volume low-pressure spray	HVLP	1			Fully enclosed	Atmosphere	Filter, training	Filter	1		1	
PPP131B	Vaungarde, Inc. - Chestnut	1	1	1	PPP131B - Plastic Auto Topcoat-E	Double Booth (3)	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Atmosphere	Filter, training	Filter	1		1	1
PPP134	Grand Rapids Plastics, Inc.	1	1	1	PPP134 - Painting Parts	Single spray booth	Conventional Air Spray	Conv			1	1/2 enclosed	Building interior	Filters	Filter	1			
PPP137E	U.T. Automotive - Alma Molding Plant			1	PPP137E - Dry Paint Booth Application	PB001	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter Training (6 2'x2' filters)	Filter	1		1	
PPP137E	U.T. Automotive - Alma Molding Plant			1	PPP137E - Dry Paint Booth Application	PB002	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter Training (6 2'x2' filters)	Filter	1		1	
PPP137E	U.T. Automotive - Alma Molding Plant			1	PPP137E - Dry Paint Booth Application	PB003	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter Training (6 2'x2' filters)	Filter	1		1	
PPP137E	U.T. Automotive - Alma Molding Plant			1	PPP137E - Dry Paint Booth Application	PB004	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter Training (6 2'x2' filters)	Filter	1		1	

FTN	Facility name	FTN Count	Area Source Count	Area Source Scenarios	ScenarioName new	SprayBooth	Spray Gun Technology	Spay Gun Abbr	HVLP at Area Source Scenarios	HVLP at Area Source	Conv Spray At Area Source Facilities	Enclosure	Vent	Overspray Control	Filter Abbr	Dry Filter at Area Source Scenarios	Water Wash Filters At Area Source Scenarios	HVLP and Filter at Area Source Scenarios	Unique Area Source FTN with HVLP and Dry Filters
PPP137E	U.T. Automotive - Alma Molding Plant			1	PPP137E - Dry Paint Booth Application	PB005	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter Training (6 2'x2' filters)	Filter	1		1	
PPP137E	U.T. Automotive - Alma Molding Plant			1	PPP137E - Dry Paint Booth Application	PB010	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter Training (6 2'x2' filters)	Filter	1		1	
PPP137E	U.T. Automotive - Alma Molding Plant	1	1	1	PPP137E - Dry Paint Booth Application	PB011	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Building interior	Dry filter Training (6 2'x2' filters)	Filter	1		1	1
PPP138G	Textron Automotive Company - Port Huron Operations			1	PPP138G - Bolster Ahesive Line	Adhesive Booth B-1	High-volume low-pressure spray	HVLP	1			Fully enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP138G	Textron Automotive Company - Port Huron Operations			1	PPP138G - Bolster Ahesive Line	Adhesive Booth B-3	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP138G	Textron Automotive Company - Port Huron Operations			1	PPP138G - Paint Line	Paint Booth C-1	High-volume low-pressure spray	HVLP	1			Fully enclosed	Atmosphere	Dry filters	Filter	1		1	
PPP138G	Textron Automotive Company - Port Huron Operations	1	1	1	PPP138G - Vac-form Adhesive	Adhesive Booth A-1	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	1
PPP144A	Collins & Aikman Plastics, Inc - Homer Plant			1	PPP144A - F-Car Bolster Hot Melt Application	x-y table	Air-assisted airless spray	AAAS				No enclosure	Building interior	Op. Training					
PPP144A	Collins & Aikman Plastics, Inc - Homer Plant			1	PPP144A - GMT 430 Armrest (Left & Right)	Glue booth	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Filter/Training	Filter	1		1	
PPP144A	Collins & Aikman Plastics, Inc - Homer Plant	1	1	1	PPP144A - G-Van Map Compartment Paint Line	G-Van spray booth	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Atmosphere	Filters/training	Filter	1		1	1
PPP144B	Collins & Aikman Plastics, Inc - Manchester Plant			1	PPP144B - Ford Defroster Grill	System 4 booth	High-volume low-pressure spray	HVLP	1			Fully enclosed	Atmosphere	Filter/training	Filter	1		1	
PPP144B	Collins & Aikman Plastics, Inc - Manchester Plant			1	PPP144B - K-Special Glue Line	System 3 booth	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Filters/training	Filter	1		1	
PPP144B	Collins & Aikman Plastics, Inc - Manchester Plant			1	PPP144B - K-Special Paint Line	System 1 Booth A (see Form J)	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Filters/training	Filter	1		1	
PPP144B	Collins & Aikman Plastics, Inc - Manchester Plant			1	PPP144B - K-Special Paint Line	System 1 Booth B (see Form J)	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Filters/training	Filter	1		1	
PPP144B	Collins & Aikman Plastics, Inc - Manchester Plant			1	PPP144B - K-Special Small Parts Line	System 2 Backup	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Filters/training	Filter	1		1	
PPP144B	Collins & Aikman Plastics, Inc - Manchester Plant			1	PPP144B - K-Special Small Parts Line	System 2 Booth	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Filters/training	Filter	1		1	
PPP144B	Collins & Aikman Plastics, Inc - Manchester Plant	1	1	1	PPP144B - ZJ Door Panel	ZJ Spray booth	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Atmosphere	Filters/training	Filter	1		1	1
PPP144C	Collins & Aikman Plastics, Inc. - St. Joseph			1	PPP144C - Solvent Base Coating, Booth 1-A	Chain on edge 1-A	Conventional Air Spray	Conv				Fully enclosed	Atmosphere	Dry filter/training	Filter	1			
PPP144C	Collins & Aikman Plastics, Inc. - St. Joseph			1	PPP144C - Solvent Base Coating, Booth 2-B	Booth 2-B	Conventional Air Spray	Conv				3/4 Enclosed	Atmosphere	Dry filter/training	Filter	1			
PPP144C	Collins & Aikman Plastics, Inc. - St. Joseph			1	PPP144C - Solvent Base Coating, Booth 3-D	Booth 3-D	Conventional Air Spray	Conv				3/4 Enclosed	Atmosphere	Dry filter/training	Filter	1			
PPP144C	Collins & Aikman Plastics, Inc. - St. Joseph			1	PPP144C - Solvent Base Coating, Booth 5-E-F	Booth 5-E-F	Conventional Air Spray	Conv				3/4 Enclosed	Atmosphere	Dry filter/training	Filter	1			
PPP144C	Collins & Aikman Plastics, Inc. - St. Joseph			1	PPP144C - Solvent Coating, Booth 9-C	Booth 9-C	Conventional Air Spray	Conv				3/4 Enclosed	Atmosphere	Dry filter/training	Filter	1			
PPP144C	Collins & Aikman Plastics, Inc. - St. Joseph			1	PPP144C - Waterborne Coating, Booth 2-B	Booth 2-B	Conventional Air Spray	Conv				3/4 Enclosed	Atmosphere	Dry filter/training	Filter	1			
PPP144C	Collins & Aikman Plastics, Inc. - St. Joseph			1	PPP144C - Waterborne Coating, Booth 3-D	Booth 3-D	Conventional Air Spray	Conv				3/4 Enclosed	Atmosphere	Dry filter/training	Filter	1			
PPP144C	Collins & Aikman Plastics, Inc. - St. Joseph	1	1	1	PPP144C - Waterborne Coating, Booth 9-C	Booth 9-C	Conventional Air Spray	Conv			1	3/4 Enclosed	Atmosphere	Dry filter/training	Filter	1			
PPP144D	Collins & Aikman Plastics, Inc. - Williamston, Noble Rd			1	PPP144D - K-Special Bolster	Bolster Spray Booth	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Filters/Training	Filter	1		1	
PPP144D	Collins & Aikman Plastics, Inc. - Williamston, Noble Rd	1	1	1	PPP144D - K-Special Map Pocket	Map Pocket Spray Booth	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Atmosphere	Filters/Training	Filter	1		1	1
PPP145	Atlantic Automotive Components	1	1	1	PPP145 - Painted Plastic Parts	Booth 1	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Building interior	Water Wash	Water		1		
PPP149	Grand Haven Plastics, Inc.			1	PPP149 - Waterborne (Single coat) System	Booth 1 thru 6	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Filters	Filter	1		1	
PPP149	Grand Haven Plastics, Inc.	1	1	1	PPP149 - Waterborne (Single coat) System	Booth 7 (recip)	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Atmosphere	Filters	Filter	1		1	1
PPP151	GHSP - Hart	1	1	1	PPP151 - Water-based Paint Application	Thermoplastic	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Control device	2 Dry filters	Filter	1		1	1
PPP151	GHSP - Hart			1	PPP151 - Water-based Paint Application	Binks Paint Booth	High-volume low-pressure spray	HVLP	1			Fully enclosed	Control device	Dry filter	Filter	1		1	
PPP153	Marathon Ashland Petroleum LLC - Findlay, OH Garage	1	1	1	PPP153 - Truck/Trailer Body Painting	Paint Booth	Conventional Air Spray	Conv			1	Fully enclosed	Building interior	Paper filters	Filter	1			
PPP209B	Pitney Bowes - Milford	1	1	1	PPP209B - Coating of copier covers	Binks Booth	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Control device	Dry filter	Filter	1		1	1
PPP209C	Pitney Bowes - Newton	1	1	1	PPP209C - - Aerosol Spray Can Application	single booth exists for coating of parts	Conventional Air Spray	Conv			1	3/4 Enclosed	Building interior	Dry filter overspray control	Filter	1			
PPP248	Hitemco			1	PPP248 - Copper Coating	Waterwash exhaust	Arc Spray (zinc arc)					3/4 Enclosed	CD000001	Waterwash	Water		1		
PPP248	Hitemco	1	1	1	PPP248 - Zinc Coating	Zinc Booth (Water Wash Exhaust)	Arc Spray (zinc arc)					3/4 Enclosed	CD000001	Waterwash	Water		1		
PPP305D	Hasbro, Inc.			1	PPP305D - ABS Coating	Sample dept. booth #1	Conventional Air Spray	Conv				Hooded	Building interior	Dry filter	Filter	1			
PPP305D	Hasbro, Inc.			1	PPP305D - ABS Coating	Sample dept. booth #2	Conventional Air Spray	Conv				Hooded	Building interior	Dry filter	Filter	1			
PPP305D	Hasbro, Inc.			1	PPP305D - ABS Coating	Sample dept. booth #3	Conventional Air Spray	Conv				Hooded	Building interior	Dry filter	Filter	1			
PPP305D	Hasbro, Inc.			1	PPP305D - Polypropylene Coating	Sample dept. booth #1	Conventional Air Spray	Conv				Hooded	Building interior	Dry filter	Filter	1			
PPP305D	Hasbro, Inc.			1	PPP305D - Polypropylene Coating	Sample dept. booth #2	Conventional Air Spray	Conv				Hooded	Building interior	Dry filter	Filter	1			
PPP305D	Hasbro, Inc.			1	PPP305D - Polypropylene Coating	Sample dept. booth #3	Conventional Air Spray	Conv				Hooded	Building interior	Dry filter	Filter	1			
PPP305D	Hasbro, Inc.			1	PPP305D - Styrene Coating	Sample dept. booth #1	Conventional Air Spray	Conv				Hooded	Building interior	Dry filter	Filter	1			
PPP305D	Hasbro, Inc.			1	PPP305D - Styrene Coating	Sample dept. booth #2	Conventional Air Spray	Conv				Hooded	Building interior	Dry filter	Filter	1			
PPP305D	Hasbro, Inc.			1	PPP305D - Styrene Coating	Sample dept. booth #3	Conventional Air Spray	Conv				Hooded	Building interior	Dry filter	Filter	1			
PPP305D	Hasbro, Inc.			1	PPP305D - Vinyl Coating	Sample dept. booth #1	Conventional Air Spray	Conv				Hooded	Building interior	Dry filter	Filter	1			
PPP305D	Hasbro, Inc.			1	PPP305D - Vinyl Coating	Sample dept. booth #2	Conventional Air Spray	Conv				Hooded	Building interior	Dry filter	Filter	1			
PPP305D	Hasbro, Inc.	1	1	1	PPP305D - Vinyl Coating	Sample dept. booth #3	Conventional Air Spray	Conv			1	Hooded	Building interior	Dry filter	Filter	1			
PPP305E	Hasbro, Inc. - Hasbro Games	1	1	1	PPP305E - - Sample Painting	Small Vented Booth	Conventional Air Spray	Conv			1	3/4 Enclosed	Atmosphere	Dry filters	Filter	1			
PPP306	Regal Finishing, Inc.			1	PPP306 - Drapery Decorative Coating	Booth #2	High-volume low-pressure spray	HVLP	1			1/2 Enclosed	Building interior	Water Curtain	Water		1		

FTN	Facility_name	FTN Count	Area Source Count	Area Source Scenarios	ScenarioName_new	SprayBooth	Spray Gun Technology	Spay Gun Abbr	HVLP at Area Source Scenarios	HVLP at Area Source	Conv Spray At Area Source Facilities	Enclosure	Vent	Overspray Control	Filter Abbr	Dry Filter at Area Source Scenarios	Water Wash Filters At Area Source Scenarios	HVLP and Filter at Area Source Scenarios	Unique Area Source FTN with HVLP and Dry Filters
PPP306	Regal Finishing, Inc.			1	PPP306 - Drapery Decorative Coating	Booth #4	High-volume low-pressure spray	HVLP	1			1/2 Enclosed	Building interior	Water Curtain	Water		1		
PPP306	Regal Finishing, Inc.			1	PPP306 - Drapery Decorative Coating	Booth #8	High-volume low-pressure spray	HVLP	1			1/2 Enclosed	Building interior	Water Curtain	Water		1		
PPP306	Regal Finishing, Inc.			1	PPP306 - High Heat 300-325 F	Booth #2	High-volume low-pressure spray	HVLP	1			1/2 enclosed	Builiding interior	Water Curtain	Water		1		
PPP306	Regal Finishing, Inc.			1	PPP306 - High Heat 300-325 F	Booth #4	High-volume low-pressure spray	HVLP	1			1/2 enclosed	Builiding interior	Water Curtain	Water		1		
PPP306	Regal Finishing, Inc.			1	PPP306 - High Heat 300-325 F	Booth #8	High-volume low-pressure spray	HVLP	1			1/2 enclosed	Builiding interior	Water Curtain	Water		1		
PPP306	Regal Finishing, Inc.			1	PPP306 - Low Heat 150-165 F	Ring Machine 1	High-volume low-pressure spray	HVLP	1			1/2 Enclosure	Building interior	Water Curtain	Water		1		
PPP306	Regal Finishing, Inc.			1	PPP306 - Low Heat 150-165 F	Ring Machine 2	High-volume low-pressure spray	HVLP	1			1/2 Enclosure	Building interior	Water Curtain	Water		1		
PPP306	Regal Finishing, Inc.			1	PPP306 - Low Heat 150-165 F	Small Ring Machine	High-volume low-pressure spray	HVLP	1			1/2 Enclosure	Building interior	Water Curtain	Water		1		
PPP306	Regal Finishing, Inc.			1	PPP306 - Medium Heat 200-250 F	Booth #2	High-volume low-pressure spray	HVLP	1			1/2 enclosed	Building interior	Water Curtain	Water		1		
PPP306	Regal Finishing, Inc.			1	PPP306 - Medium Heat 200-250 F	Booth #4	High-volume low-pressure spray	HVLP	1			1/2 enclosed	Building interior	Water Curtain	Water		1		
PPP306	Regal Finishing, Inc.			1	PPP306 - Medium Heat 200-250 F	Booth #8	High-volume low-pressure spray	HVLP	1			1/2 enclosed	Building interior	Water Curtain	Water		1		
PPP306	Regal Finishing, Inc.			1	PPP306 - Spindle Top Coat	Spindle Top Coat 1	High-volume low-pressure spray	HVLP	1			1/2 enclosed	Building interior	Water Curtain	Water		1		
PPP306	Regal Finishing, Inc.	1	1	1	PPP306 - Spindle Top Coat 2	Spindle Top Coat 2	High-volume low-pressure spray	HVLP	1	1		1/2 enclosed	Building interior	Water Curtain	Water		1		
PPP307A	Hackney & Sons Inc.			1	PPP307A - Paint Coating Scenario	Cross ventilation filter booth	Conventional Air Spray	Conv				Fully enclosed	Building interior	Dry filters	Filter	1			
PPP307A	Hackney & Sons Inc.	1	1	1	PPP307A - Thermoset Part Drying	Cross ventilation filter booth	Conventional Air Spray	Conv			1	Fully enclosed	Building interior	Dry filters	Filter	1			
PPP307D	Hackney & Sons Inc.			1	PPP307D - Paint Coating Scenario	Cross ventilation filter booth	Conventional Air Spray	Conv				Fully enclosed	Building interior	Dry filters	Filter	1			
PPP307D	Hackney & Sons Inc.	1	1	1	PPP307D - Thermoset Part Drying	Cross ventilation filter booth	Conventional Air Spray	Conv			1	Fully enclosed	Building interior	Dry filters	Filter	1			
PPP313	Design House, Inc.	1	1	1	PPP313 - Painting Plastic Shutters	Enclosed booth	Conventional Air Spray	Conv			1	Fully enclosed	Building interior	Dry filter	Filter	1			
PPP316	Central Coating Company, Inc			1	PPP316 - E.M.I./R.F.I. Coating	Manual spray booth	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP316	Central Coating Company, Inc	1	1	1	PPP316 - Plastic Parts Coating - Polane T & Polane T Plus	Manual spray booth	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Building interior	Dry filter	Filter	1		1	1
PPP319	Document Technologies	1	1	1	PPP319 - Plastic Coating	Binks 8' x 7' #BFA-8-7-T-B	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	7000 cfm	Andrea Filter					
PPP328	Nero Plastics Inc.			1	PPP328 - DuPont Prime System	Prime Booth	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Dry filter	Filter	1		1	
PPP328	Nero Plastics Inc.			1	PPP328 - Polane Prime System	Prime booth	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Dry filters	Filter	1		1	
PPP328	Nero Plastics Inc.			1	PPP328 - PPG Prime System	Prime Booth	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Dry filter	Filter	1		1	
PPP328	Nero Plastics Inc.	1	1	1	PPP328 - Sprayfill Prime System	Prime	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Building interior	Dry filters	Filter	1		1	1
PPP333A	Summit Polymers, Inc. - Kalamazoo			1	PPP333A - Glue Application (Flocking)	Flocking Glue Booth	High-volume low-pressure spray	HVLP	1			Fully enclosed	B (atmosphere)	Dry filter	Filter	1		1	
PPP333A	Summit Polymers, Inc. - Kalamazoo			1	PPP333A - Solvent Based Paint - 1	JBI	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP333A	Summit Polymers, Inc. - Kalamazoo			1	PPP333A - Solvent Based Paint - 1	Prince	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP333A	Summit Polymers, Inc. - Kalamazoo			1	PPP333A - Solvent Based Paint - 1	Rodgers	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP333A	Summit Polymers, Inc. - Kalamazoo			1	PPP333A - Solvent Based Paint - 1	Sepanski	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP333A	Summit Polymers, Inc. - Kalamazoo			1	PPP333A - Solvent Based Paint - 2	JBI	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP333A	Summit Polymers, Inc. - Kalamazoo			1	PPP333A - Solvent Based Paint - 2	Prince	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP333A	Summit Polymers, Inc. - Kalamazoo			1	PPP333A - Solvent Based Paint - 2	Rodgers	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP333A	Summit Polymers, Inc. - Kalamazoo			1	PPP333A - Solvent Based Paint - 2	Sepanski	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP333A	Summit Polymers, Inc. - Kalamazoo			1	PPP333A - Waterborne Coatings	Rodgers	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP333A	Summit Polymers, Inc. - Kalamazoo	1	1	1	PPP333A - Waterborne Coatings	Sepanski	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	1
PPP333B	Summit Polymers, Inc. - Valley Plant			1	PPP333B - Solvent Baseed Painting	Small Paint Booth	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry Filter	Filter	1		1	
PPP333B	Summit Polymers, Inc. - Valley Plant	1	1	1	PPP333B - Waterbase Coating	Small Paint Booth	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Atmosphere	Dry Filter	Filter	1		1	1
PPP333C	Summit Polymers, Inc. - Syntech Plant			1	PPP333C - Painting Parts w/ HVLP (all parts in Facility)	A & B booth	High-volume low-pressure spray	HVLP	1			5/6 enclosed	Building interior	Dry filters	Filter	1		1	
PPP333C	Summit Polymers, Inc. - Syntech Plant			1	PPP333C - Painting Parts w/ HVLP (all parts in Facility)	Aerostat booth	High-volume low-pressure spray	HVLP	1			5/6 enclosed	Building interior	Dry filters	Filter	1		1	
PPP333C	Summit Polymers, Inc. - Syntech Plant			1	PPP333C - Painting Parts w/ HVLP (all parts in Facility)	Ashtray booth	High-volume low-pressure spray	HVLP	1			5/6 enclosed	Building interior	Dry filters	Filter	1		1	
PPP333C	Summit Polymers, Inc. - Syntech Plant			1	PPP333C - Painting Parts w/ HVLP (all parts in Facility)	Fil 74 booth	High-volume low-pressure spray	HVLP	1			5/6 enclosed	Building interior	Dry filters	Filter	1		1	
PPP333C	Summit Polymers, Inc. - Syntech Plant			1	PPP333C - Painting Parts w/ HVLP (all parts in Facility)	Lid C booth	High-volume low-pressure spray	HVLP	1			5/6 enclosed	Building interior	Dry filters	Filter	1		1	
PPP333C	Summit Polymers, Inc. - Syntech Plant			1	PPP333C - Painting Parts w/ HVLP (all parts in Facility)	VX booth	High-volume low-pressure spray	HVLP	1			5/6 enclosed	Building interior	Dry filters	Filter	1		1	
PPP333C	Summit Polymers, Inc. - Syntech Plant	1	1	1	PPP333C - Painting Parts w/ HVLP (all parts in Facility)	WIN 88 Arolos	High-volume low-pressure spray	HVLP	1	1		5/6 enclosed	Building interior	Dry filters	Filter	1		1	1

FTN	Facility_name	FTN Count	Area Source Count	Area Source Scenarios	ScenarioName_new	SprayBooth	Spray Gun Technology	Spay Gun Abbr	HVLP at Area Source Scenarios	HVLP at Area Source	Conv Spray At Area Source Facilities	Enclosure	Vent	Overspray Control	Filter Abbr	Dry Filter at Area Source Scenarios	Water Wash Filters At Area Source Scenarios	HVLP and Filter at Area Source Scenarios	Unique Area Source FTN with HVLP and Dry Filters
PPP333E	Summit Polymers, Inc. - East Plant			1	PPP333E - Soft Touch Painting	Paint line	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP333E	Summit Polymers, Inc. - East Plant	1	1	1	PPP333E - Water Based Painting	Paint line	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	1
PPP333F	Summit Polymers, Inc. - Columbia Plant			1	PPP333F - Paint Lines	Paint booth #1	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP333F	Summit Polymers, Inc. - Columbia Plant			1	PPP333F - Paint Lines	Paint booth #2	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	
PPP333F	Summit Polymers, Inc. - Columbia Plant	1	1	1	PPP333F - Paint Lines	Paint booth #3	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Atmosphere	Dry filter	Filter	1		1	1
PPP342	American Mannequins Inc.			1	PPP342 - Mannequin Coating Scenario	Booth 1	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP342	American Mannequins Inc.	1	1	1	PPP342 - Mannequin Coating Scenario	Booth 2	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Building interior	Dry filter	Filter	1		1	1
PPP356	Metro Plastics Technologies, Inc.	1	1	1	PPP356 - Upspray	Upspray	Air-assisted airless spray	AAAS				Fully enclosed	Building interior	Dry Filter	Filter	1			
PPP384	Jones Performance Products Inc.			1	PPP384 - Black Paint Booth	#105 Black paint spray booth	Airless Spray	Airless				1/2 enclosed	Building interior	Dry filters	Filter	1			
PPP384	Jones Performance Products Inc.	1	1	1	PPP384 - Touch up Area	No booth, done on shop floor	Conventional Air Spray	Conv			1	No enclosure	Atmosphere	NA					
PPP389C	GI Plastek Limited Partnership, Dec-Rite Div.			1	PPP389C - - -Automated - Thermoplastic	Spray Booth (CD-006)	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Filter (Particulate)	Filter	1		1	
PPP389C	GI Plastek Limited Partnership, Dec-Rite Div.			1	PPP389C - Automated - Lead Insert	Unique Booth (CD-006)	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	CD006	Filters	Filter	1		1	
PPP389C	GI Plastek Limited Partnership, Dec-Rite Div.			1	PPP389C - Manual - Thermoplastic	Main Booth 001	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Particulate Filter	Filter	1		1	
PPP389C	GI Plastek Limited Partnership, Dec-Rite Div.			1	PPP389C - Manual - Thermoplastic	Main Booth 002	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Particulate Filter	Filter	1		1	
PPP389C	GI Plastek Limited Partnership, Dec-Rite Div.			1	PPP389C - Manual - Thermoplastic	Main Booth 004	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Particulate Filter	Filter	1		1	
PPP389C	GI Plastek Limited Partnership, Dec-Rite Div.			1	PPP389C - Manual - Thermoset	Spray Booth (CD-003)	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Particulate Filter	Filter	1		1	
PPP389C	GI Plastek Limited Partnership, Dec-Rite Div.	1	1	1	PPP389C - Manual - Thermoset	Spray Booth (CD-004)	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Atmosphere	Particulate Filter	Filter	1		1	1
PPP394	Plasti - Paint Inc	1	1	1	PPP394 - Plastic Paint Process	Booth 1-4	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Building interior	Filters	Filter	1		1	1
PPP415	S R of Arkansas			1	PPP415 - Black Out	Spray Booth SN 32	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I	Spray Booth SN 1	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I	Spray Booth SN 2	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I	Spray Booth SN 3	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I	Spray Booth SN 4	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I	Spray Booth SN 41	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I	Spray Booth SN 5	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I	Spray Booth SN 6	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I	Spray Booth SN 7	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I Automatic Line	Automatic Paint Machine SN 10	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I Automatic Line	Automatic Paint Machine SN 11	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I Automatic Line	Automatic Paint Machine SN 12	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I Automatic Line	Automatic Paint Machine SN 13	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I Automatic Line	Automatic Paint Machine SN 14	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I Automatic Line	Automatic Paint Machine SN 9	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I-Body Color	Spray Booth SN 43	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I-Body Color	Spray Booth SN 44	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Paint I-Body Color	Spray Booth SN 8	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP415	S R of Arkansas			1	PPP415 - Black Out	Spray Booth SN 26	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Water wash	Water		1		
PPP415	S R of Arkansas			1	PPP415 - Black Out	Spray Booth SN 29	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Water wash	Water		1		
PPP415	S R of Arkansas			1	PPP415 - Black Out	Spray Booth SN 30	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Water wash	Water		1		
PPP415	S R of Arkansas			1	PPP415 - Black Out	Spray Booth SN 31	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Water wash	Water		1		
PPP415	S R of Arkansas			1	PPP415 - Body Color Clearcoat	Spray Booth SN 28	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Water wash	Water		1		
PPP415	S R of Arkansas			1	PPP415 - Body Color Clearcoat	Spray Booth SN 39	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Water wash	Water		1		
PPP415	S R of Arkansas			1	PPP415 - Body Color Clearcoat	Spray Booth SN 42	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Water wash	Water		1		
PPP415	S R of Arkansas			1	PPP415 - Paint I-Body Color	Spray Booth SN 25	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Water wash	Water		1		
PPP415	S R of Arkansas	1	1	1	PPP415 - Prepbooth	Spray Booth SN 46	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Building interior	Water wash	Water		1		
PPP415	S R of Arkansas			1	PPP415 - Body Color Basecoat	Spray Booth SN 27	HVLP/Electrostatic spray/Electrodeposition	HVLP	1			Fully enclosed	Building interior	Water wash	Water		1		

FTN	Facility_name	FTN Count	Area Source Count	Area Source Scenarios	ScenarioName_new	SprayBooth	Spray Gun Technology	Spay Gun Abbr	HVLP at Area Source Scenarios	HVLP at Area Source	Conv Spray At Area Source Facilities	Enclosure	Vent	Overspray Control	Filter Abbr	Dry Filter at Area Source Scenarios	Water Wash Filters At Area Source Scenarios	HVLP and Filter at Area Source Scenarios	Unique Area Source FTN with HVLP and Dry Filters
PPP415	S R of Arkansas			1	PPP415 - Body Color Basecoat	Spray Booth SN 37	HVLP/Electrostatic spray/Electrodeposition	HVLP	1			Fully enclosed	Building interior	Water wash	Water		1		
PPP415	S R of Arkansas			1	PPP415 - Body Color Basecoat	Spray Booth SN 47	HVLP/Electrostatic spray/Electrodeposition	HVLP	1			Fully enclosed	Building interior	Water wash	Water		1		
PPP415	S R of Arkansas			1	PPP415 - Body Color Basecoat	Spray Booth SN 48	HVLP/Electrostatic spray/Electrodeposition	HVLP	1			Fully enclosed	Building interior	Water wash	Water		1		
PPP418	Risdon AMS	1	1	1	PPP418 - Cosmetic Caps Coating Line In Vacuum Metalizing op	Waterwash spray booth	Electrostatic Spray	ES				3/4 Enclosed	Building interior	Waterwash baffles	Water		1		
PPP441	DeKalb Molded Plastics Company	1	1	1	PPP441 - #5 - Adhesives	Spray Booth #11	Air-assisted airless spray	AAAS				3/4 Enclosed	Building interior	Dry Filters	Filter	1			
PPP441	DeKalb Molded Plastics Company			1	PPP441 - #5 - Adhesives	Open	Air-assisted airless spray	AAAS				Open	N/A	N/A					
PPP441	DeKalb Molded Plastics Company			1	PPP441 - #1 - Primer, Top Coat	Spray Booth (1-11)	Conventional Air Spray	Conv				3/4 Enclosed	Building interior	Dry Filters	Filter	1			
PPP441	DeKalb Molded Plastics Company			1	PPP441 - #2 - Primer, Color, Texture	Spray Booth (1-11)	Conventional Air Spray	Conv				3/4 Enclosed	Building interior	Dry Filters	Filter	1			
PPP441	DeKalb Molded Plastics Company			1	PPP441 - #3- Color Only	Spray Booth (1-11)	Conventional Air Spray	Conv				3/4 Enclosed	Building interior	Dry Filters	Filter	1			
PPP447D	Worthington Custom Plastics, Inc. - St. Mathews			1	PPP447D - Paint Coating	Dry booths	Conventional Air Spray	Conv				1/2 enclosed	Atmosphere	Dry filter	Filter	1			
PPP447D	Worthington Custom Plastics, Inc. - St. Mathews	1	1	1	PPP447D - Paint Coating	Mainline	Conventional Air Spray	Conv			1	Fully enclosed	Atmosphere	Waterwash	Water		1		
PPP449	Menasha Corporation - Montec Plastics			1	PPP449 - Cabletron	Binks	Conventional Air Spray	Conv				3/4 Enclosed	Atmosphere	Dry filter	Filter	1			
PPP449	Menasha Corporation - Montec Plastics			1	PPP449 - Schneider	Binks	Conventional Air Spray	Conv				3/4 Enclosed	Atmosphere	Dry filter	Filter	1			
PPP449	Menasha Corporation - Montec Plastics			1	PPP449 - United Electric (Beige)	Binks	Conventional Air Spray	Conv				3/4 Enclosed	Atmosphere	Dry filter	Filter	1			
PPP449	Menasha Corporation - Montec Plastics	1	1	1	PPP449 - United Electric (Black)	Binks	Conventional Air Spray	Conv			1	3/4 Enclosed	Atmosphere	Dry filter	Filter	1			
PPP453	K C Industries, Inc.	1	1	1	PPP453 - Plastic Parts Coating	2 Manual Binks Booths	High-volume low-pressure spray	HVLP	1	1		1/4 Enclosed	Building interior	Dry Filters	Filter	1		1	1
PPP459B	Spensor Industries, Inc.			1	PPP459B - Painting of plastic in Batch Booths 1,2,3& Cont. 4	B1 is a Batch	Unspecified spray application					3/4 Enclosed	Atmosphere	Filters	Filter	1			
PPP459B	Spensor Industries, Inc.			1	PPP459B - Painting of plastic in Batch Booths 1,2,3& Cont. 4	B2 is a Batch	Unspecified spray application					3/4 Enclosed	Atmosphere	Filters	Filter	1			
PPP459B	Spensor Industries, Inc.			1	PPP459B - Painting of plastic in Batch Booths 1,2,3& Cont. 4	B3 is a Batch	Unspecified spray application					3/4 Enclosed	Atmosphere	Filters	Filter	1			
PPP459B	Spensor Industries, Inc.	1	1	1	PPP459B - Painting of plastic in Batch Booths 1,2,3& Cont. 4	B4 is continuous	Unspecified spray application					Fully enclosed	Atmosphere	Filters	Filter	1			
PPP479	Midwest Plastic Engineering, Inc.			1	PPP479 - Plastic Part Painting and Coating	Booth #1	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Outside	Filters	Filter	1		1	
PPP479	Midwest Plastic Engineering, Inc.			1	PPP479 - Plastic Part Painting and Coating	Booth #2	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Outside	Filters	Filter	1		1	
PPP479	Midwest Plastic Engineering, Inc.			1	PPP479 - Plastic Part Painting and Coating	Booth #3	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Outside	Filters	Filter	1		1	
PPP479	Midwest Plastic Engineering, Inc.	1	1	1	PPP479 - Plastic Part Painting and Coating	Booth #4	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Outside	Filters	Filter	1		1	1
PPP488A	Mack Molding Company - Inman			1	PPP488A - Four Step Painting With Shielding - Scenario #5	Booths #1,2,3	High-volume low-pressure spray	HVLP	1			1/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488A	Mack Molding Company - Inman			1	PPP488A - Four Step Painting With Shielding - Scenario #5	Booths #8,9,10	High-volume low-pressure spray	HVLP	1			1/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488A	Mack Molding Company - Inman			1	PPP488A - One Step Solvent Base - Scenario #2	Booth #11	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Filters	Filter	1		1	
PPP488A	Mack Molding Company - Inman			1	PPP488A - One Step Water Base - Scenario #1	Booth 2	High-volume low-pressure spray	HVLP	1			1/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488A	Mack Molding Company - Inman			1	PPP488A - One Step Water Base - Scenario #1	Booth 7	High-volume low-pressure spray	HVLP	1			1/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488A	Mack Molding Company - Inman			1	PPP488A - One Step Water Base - Scenario #1	Booths 4 & 6	High-volume low-pressure spray	HVLP	1			1/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488A	Mack Molding Company - Inman			1	PPP488A - One Step Water Base - Scenario #1	Booths 4,6,7	High-volume low-pressure spray	HVLP	1			1/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488A	Mack Molding Company - Inman			1	PPP488A - One Step Water Base - Scenario #1	Booth 11	High-volume low-pressure spray	HVLP	1			Enclosed	Building interior	Filters	Filter	1		1	
PPP488A	Mack Molding Company - Inman			1	PPP488A - Shielding Only on Raw Part - Scenario #7	Booths 8,9,10	High-volume low-pressure spray	HVLP	1			1/4 Enclosed	Building interior	Filter	Filter	1		1	
PPP488A	Mack Molding Company - Inman			1	PPP488A - Three Step Solvent/Waterborne - Scenario #4	Booths #1,2,3	High-volume low-pressure spray	HVLP	1			1/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488A	Mack Molding Company - Inman			1	PPP488A - Two Step Solvent - Scenario #3	Booth #1 & 3	High-volume low-pressure spray	HVLP	1			1/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488A	Mack Molding Company - Inman			1	PPP488A - Two Step Solvent - Scenario #3	Booth #12	High-volume low-pressure spray	HVLP	1			1/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488A	Mack Molding Company - Inman			1	PPP488A - Two Step Water Base - Scenario #6	Booths #4,5, & 6	High-volume low-pressure spray	HVLP	1			1/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488A	Mack Molding Company - Inman	1	1	1	PPP488A - Two Step Water Base - Scenario #6	Booths #6 & 7	High-volume low-pressure spray	HVLP	1	1		1/4 Enclosed	Building interior	Filters	Filter	1		1	1
PPP488B	Mack Molding Company - Statesville			1	PPP488B - -REI Shielding Coat	Booth 9	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488B	Mack Molding Company - Statesville			1	PPP488B - Base Coat Step	Booth # 5-8	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488B	Mack Molding Company - Statesville			1	PPP488B - Base Coat Texture Coat Step	Booth 9-11	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488B	Mack Molding Company - Statesville			1	PPP488B - Color Coat Step	Booth #5-8	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488B	Mack Molding Company - Statesville			1	PPP488B - Thermoplastic Part Coating (Base + Texture Coat)	Booths #1-4	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488B	Mack Molding Company - Statesville			1	PPP488B - Top Coat Step	Booth 5-8	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Filters	Filter	1		1	
PPP488B	Mack Molding Company - Statesville	1	1	1	PPP488B - Top Coat Step	Booth 9-11	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Building interior	Filters	Filter	1		1	1
PPP514	Mastermold, LLC			1	PPP514 - Thermoset Coating Scenario - Prime Coat / Top Coat	Main booth	Conventional Air Spray	Conv				Fully enclosed	Building interior	Filters - Dry	Filter	1			
PPP514	Mastermold, LLC			1	PPP514 - Thermoset Coating Scenario - Prime Coat / Top Coat	Main booth	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Filters - Dry	Filter	1		1	

FTN	Facility_name	FTN Count	Area Source Count	Area Source Scenarios	ScenarioName_new	SprayBooth	Spray Gun Technology	Spay Gun Abbr	HVLP at Area Source Scenarios	HVLP at Area Source	Conv Spray At Area Source Facilities	Enclosure	Vent	Overspray Control	Filter Abbr	Dry Filter at Area Source Scenarios	Water Wash Filters At Area Source Scenarios	HVLP and Filter at Area Source Scenarios	Unique Area Source FTN with HVLP and Dry Filters
PPP514	Mastermold, LLC			1	PPP514 - Thermoset Coating Scenario - Topcoat Texture	Main booth	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Filters - Dry	Filter	1		1	
PPP514	Mastermold, LLC	1	1	1	PPP514 - Thermoset Coating Scenario (Double Prime Coat)	Main booth	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Building interior	Filters - Dry	Filter	1		1	1
PPP524	London Industries, Inc.			1	PPP524 - Isuyu Carpet	9 x 6 ft booth and fixture	Unspecified spray application					Yes	Yes	N/A					
PPP524	London Industries, Inc.	1	1	1	PPP524 - Paint Line	9 ft / 6 ft Booth and Fixture	Unspecified spray application					Yes	Yes	N/A					
PPP528A	Walman Optical - Baltimore	1	1	1	PPP528A - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528B	Walman Optical - Bemidji	1	1	1	PPP528B - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528C	Walman Optical - Billings	1	1	1	PPP528C - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528D	Walman Optical - Denver	1	1	1	PPP528D - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528E	Ultra Coatings	1	1	1	PPP528E - Thermoset Coating Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000						
PPP528F	Walman Optical - Duluth	1	1	1	PPP528F - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528G	Walman Optical - Evansville	1	1	1	PPP528G - UV Cure Scenario	Spin Coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls					
PPP528H	Walman Optical - Fargo	1	1	1	PPP528H - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528I	Walman Optical - Fort Wayne	1	1	1	PPP528I - UV Cure Scenario_	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528J	Walman Optical - Great Falls	1	1	1	PPP528J - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528K	Walman Optical - Green Bay	1	1	1	PPP528K - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528L	Walman Optical - Kent	1	1	1	PPP528L - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528M	Walman Optical - Las Vegas	1	1	1	PPP528M - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528N	Walman Optical - Minot	1	1	1	PPP528N - UV Cure Scenario	Spin Coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls					
PPP528O	Walman Optical - Missoula	1	1	1	PPP528O - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528P	Walman Optical - Montgomery	1	1	1	PPP528P - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528Q	Walman Optical - Norfolk	1	1	1	PPP528Q - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528R	Walman Optical - Omaha	1	1	1	PPP528R - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528S	Walman Optical - Rock Island	1	1	1	PPP528S - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	cd 2000	Overspray collected on chamber walls					
PPP528T	Walman Optical - Sioux Falls	1	1	1	PPP528T - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528U	Walman Optical - Springfield	1	1	1	PPP528U - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528V	Walman Optical - York	1	1	1	PPP528V - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528W	Acurex	1	1	1	PPP528W - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP528X	Walman Optical - Duluth	1	1	1	PPP528X - UV Cure Scenario	Spin coater	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD2000	Overspray collected on chamber walls.					
PPP540	Moonlight Industries Inc.	1	1	1	PPP540 - Plastic Part Coating Scenario	Booth 1-11	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Building interior	Dry filters	Filter	1		1	1
PPP546	Nu-Coat Industries, Inc.			1	PPP546 - Metal Coating (Primrt / Solvent - Based)	Automotive booth	Unspecified spray application					14' x 28' JBI automotive spray booth	34" diam fan/roof vent	Spun glass filter	Filter	1			
PPP546	Nu-Coat Industries, Inc.			1	PPP546 - Plastic Coating (Solvent)	Automotive booth	Unspecified spray application					14' x 28' JBI automotive spray booth	34" diam fan/roof vent	Spun glass filter	Filter	1			
PPP546	Nu-Coat Industries, Inc.			1	PPP546 - Primer / Water Borne	Automotive booth	Unspecified spray application					14' x 28' JBI automotive spray booth	34" diam fan/roof vent	Spun glass filter	Filter	1			
PPP546	Nu-Coat Industries, Inc.	1	1	1	PPP546 - Single Component Water - Borne	Automotive booth	Unspecified spray application					14' x 28' JBI automotive spray booth	34" diam fan/roof vent	Spun glass filter	Filter	1			
PPP548	Continental Plastics Company			1	PPP548 - - Knee Bolster Coating Scenario	Spray booty # 3	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filters	Filter	1		1	
PPP548	Continental Plastics Company			1	PPP548 - - Knee Bolster Coating Scenario	Spray booty # 4	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filters	Filter	1		1	
PPP548	Continental Plastics Company			1	PPP548 - - Remote Bezel & Arm Rest Scenario	Spray booty # 1 & 2	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filters	Filter	1		1	
PPP548	Continental Plastics Company			1	PPP548 - - Remote Bezel & Arm Rest Scenario	Spray booty # 2 & 3	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filters	Filter	1		1	
PPP548	Continental Plastics Company			1	PPP548 - - Remote Bezel & Arm Rest Scenario	Spray booty # 4 & 5	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filters	Filter	1		1	
PPP548	Continental Plastics Company			1	PPP548 - Glove Box Coating Scenario	Spray booty # 1	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filters	Filter	1		1	
PPP548	Continental Plastics Company	1	1	1	PPP548 - Glove Box Coating Scenario	Spray booty # 2	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Building interior	Dry filters	Filter	1		1	1
PPP571	Advanced Fiber Products, Inc.	1	1	1	PPP571 - Spray Coating Scenario	Spray Booth	Conventional Air Spray	Conv			1	3/4 Hooded	Building interior	Filters	Filter	1			
PPP583	Plastech			1	PPP583 - Spray Paint Booths #12,#13,#14 & #15	Filter Booth #12	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry Filters	Filter	1		1	
PPP583	Plastech			1	PPP583 - Spray Paint Booths #12,#13,#14 & #15	Filter Booth #13	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry Filters	Filter	1		1	
PPP583	Plastech			1	PPP583 - Spray Paint Booths #12,#13,#14 & #15	Filter Booth #14	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry Filters	Filter	1		1	

FTN	Facility_name	FTN Count	Area Source Count	Area Source Scenarios	ScenarioName_new	SprayBooth	Spray Gun Technology	Spay Gun Abbr	HVLP at Area Source Scenarios	HVLP at Area Source	Conv Spray At Area Source Facilities	Enclosure	Vent	Overspray Control	Filter Abbr	Dry Filter at Area Source Scenarios	Water Wash Filters At Area Source Scenarios	HVLP and Filter at Area Source Scenarios	Unique Area Source FTN with HVLP and Dry Filters
PPP583	Plastech			1	PPP583 - Spray Paint Booths #12,#13,#14 & #15	Filter Booth #15	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry Filters	Filter	1		1	
PPP583	Plastech			1	PPP583 - Spray Paint Booths #16, #17, #18 & #19	Filter Booth #16	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry Filter	Filter	1		1	
PPP583	Plastech			1	PPP583 - Spray Paint Booths #16, #17, #18 & #19	Filter Booth #17	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry Filter	Filter	1		1	
PPP583	Plastech			1	PPP583 - Spray Paint Booths #16, #17, #18 & #19	Filter Booth #18	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry Filter	Filter	1		1	
PPP583	Plastech	1	1	1	PPP583 - Spray Paint Booths #16, #17, #18 & #19	Filter Booth #19	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Building interior	Dry Filter	Filter	1		1	1
PPP594	Consolidated Coating Company			1	PPP594 - Thermoset Part Coating Scenario	Conveyor Booths 2,3,11,12	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Filters	Filter	1		1	
PPP594	Consolidated Coating Company			1	PPP594 - Thermoset Part Coating Scenario	Conveyor Booths 4&5	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Filters	Filter	1		1	
PPP594	Consolidated Coating Company			1	PPP594 - Thermoset Part Coating Scenario	Conveyor Booths 6&7	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Atmosphere	Filters	Filter	1		1	
PPP594	Consolidated Coating Company	1	1	1	PPP594 - Thermoset Part Coating Scenario	Conveyor Booths 8,9,10	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Atmosphere	Filters	Filter	1		1	1
PPP595	Krueger International Inc. - Manitowoc			1	PPP595 - General Coating	Spray Booth 1	Conventional Air Spray/HVLP	Conv				3/4 Enclosed	CD001	Filters	Filter	1			
PPP595	Krueger International Inc. - Manitowoc			1	PPP595 - General Coating	Spray Booth 2	Conventional Air Spray/HVLP	Conv				3/4 Enclosed	CD002	Filters	Filter	1			
PPP595	Krueger International Inc. - Manitowoc	1	1	1	PPP595 - General Coating	Spray Booth 3	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	CD003	Filters	Filter	1		1	1
PPP597	C & D Aerospace Inc.	1	1	1	PPP597 - Thermoset Part Coating	14'x12.6x8h	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Atmosphere	Inlet filters & outlest filters (32 - 20"x20"x2")	Filter	1		1	1
PPP634	Conformance Coatings & Prototype, Inc.			1	PPP634 - Automotive Interior Trim	Opened Face	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry Filters	Filter	1		1	
PPP634	Conformance Coatings & Prototype, Inc.			1	PPP634 - Automotive Interior Trim	Opened Face	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry Filters	Filter	1		1	
PPP634	Conformance Coatings & Prototype, Inc.			1	PPP634 - Automotive Interior Trim	Opened Feaced	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry Filters	Filter	1		1	
PPP634	Conformance Coatings & Prototype, Inc.			1	PPP634 - EMI-Sheilding	Open Faced	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry Filter	Filter	1		1	
PPP634	Conformance Coatings & Prototype, Inc.			1	PPP634 - Lens	Opened Face	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry Filter	Filter	1		1	
PPP634	Conformance Coatings & Prototype, Inc.	1	1	1	PPP634 - Non-Automotive Applications	Opened Faced	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Building interior	Dry filter	Filter	1		1	1
PPP634	Conformance Coatings & Prototype, Inc.			1	PPP634 - Full Gloss Paint Systems	Clean Room	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Waterwash	Water		1		
PPP636	JSJ Plastics, Inc. (formerly Michigan Plastics Products Company)			1	PPP636 - Line #1	3/4 enclosed	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP636	JSJ Plastics, Inc. (formerly Michigan Plastics Products Company)			1	PPP636 - Line #2	3/4 enclosed	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filter	Filter	1		1	
PPP636	JSJ Plastics, Inc. (formerly Michigan Plastics Products Company)			1	PPP636 - Line #3	Line #3	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Dry filter	Filter	1		1	
PPP636	JSJ Plastics, Inc. (formerly Michigan Plastics Products Company)			1	PPP636 - Line #4	Line #4	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry Filter	Filter	1		1	
PPP636	JSJ Plastics, Inc. (formerly Michigan Plastics Products Company)			1	PPP636 - Line #5A	Line #5A	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Dry filter	Filter	1		1	
PPP636	JSJ Plastics, Inc. (formerly Michigan Plastics Products Company)	1	1	1	PPP636 - Line #5B (Color Coat)	Line #5B	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Building interior	Dry filter	Filter	1		1	1
PPP637A	Rexam Cosmetic Packaging, Inc.			1	PPP637A - Sprayed UV Topcoat	Booth 2	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	Building interior	Dry filters	Filter	1		1	
PPP637A	Rexam Cosmetic Packaging, Inc.	1	1	1	PPP637A - Sprayed UV Topcoat	Booth 3	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Building interior	Dry filters	Filter	1		1	1
PPP637B	Rexam Cosmetic Packaging, Inc.	1	1	1	PPP637B - Sprayed UV Topcoat	Booth 1	Electrostatic Spray	ES				3/4 Enclosed	Building interior	Dry filters	Filter	1			
PPP642	Maracle Industrial Finishing Co., Inc.			1	PPP642 - Auto Line Coating Scenario	Base Coat Booth #1 and/or	Conventional Air Spray	Conv				3/4 Enclosed	Atmosphere	Waterwash	Water		1		
PPP642	Maracle Industrial Finishing Co., Inc.			1	PPP642 - Auto Line Coating Scenario	Texture Booth #2	Conventional Air Spray	Conv				3/4 Enclosed	Atmosphere	Waterwash	Water		1		
PPP642	Maracle Industrial Finishing Co., Inc.			1	PPP642 - Batch Line Coating Scenario	4'X8' Spray Booth	Conventional Air Spray/HVLP	Conv				3/4 Enclosed	Atmosphere	Waterwash	Water		1		
PPP642	Maracle Industrial Finishing Co., Inc.	1	1	1	PPP642 - Batch Line Coating Scenario	8'X10' Spray Booth	Conventional Air Spray/HVLP	Conv			1	3/4 Enclosed	Atmosphere	Waterwash	Water		1		
PPP645A	Applied Coating Technology, Inc.			1	PPP645A - Conductive Coating	Batch Booth	Conventional Air Spray/HVLP	Conv				3/4 Enclosed	Building interior	Dry filters	Filter	1			
PPP645A	Applied Coating Technology, Inc.	1	1	1	PPP645A - Top Coat Plastic Parts	Line Booth	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	B	Waterwash	Water		1		
PPP645B	Applied Coating Technology Inc.	1	1	1	PPP645B - Top Coat Plastic Parts	Line booth	Conventional Air Spray	Conv			1	3/4 Enclosed	Building interior	Waterwash	Water		1		
PPP671A	Spectrum Cubic - McConnell	1	1	1	PPP671A - Clearcoat Line	2 automatic spray booths	Conventional Air Spray	Conv			1	Fully enclosed	Control device	Waterwash	Water		1		
PPP677	Diversified Coatings, Inc.	1	1	1	PPP677 - Misc. EM1/RF1	Peviliss booth	High-volume low-pressure spray	HVLP	1	1		100%	Exterior	Proclean filters	Filter	1		1	1
PPP680	A & K Finishing, Inc. - Plant 2	1	1	1	PPP680 - Water Based Plastic Part Coating	Coating Booths	Conventional Air Spray/HVLP	Conv			1	3/4 Enclosed	B	Dry Fabric Filters	Filter	1			
PPP680	A & K Finishing, Inc. - Plant 2			1	PPP680 - Solvent Based Plastic Part Coating	Coating Booths	High-volume low-pressure spray	HVLP	1			3/4 Enclosed	B	Dry Fabric Filters	Filter	1		1	
PPP680A	A & K Finishing, Inc. - Plant 1	1	1	1	PPP680A - Solvent Based Plastic Part Coating	Coating Booths	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	B	Dry Fabric Filters	Filter	1		1	1
PPP683A	Spalding Sports Worldwide - Chicopee	1	1	1	PPP683A - Golf Ball Painting	Binks water wash	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Building interior	Water wash	Water		1		
PPP683B	Spalding Sports Worldwide - Gloversville	1	1	1	PPP683B - Golf Ball Painting	Binks water wash	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Building interior	Water wash	Water		1		
PPP684	Perfect Plastics Industries, Inc.			1	PPP684 - Primer Coat	#1 - Auto Conveyance	High-volume low-pressure spray	HVLP	1			Fully enclosed	B	Dry filter	Filter	1		1	
PPP684	Perfect Plastics Industries, Inc.	1	1	1	PPP684 - Primer Coat	#2 - Manual	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	B	Dry filter	Filter	1		1	1
PPP687	G. S. Industries of Bassett, Inc.			1	PPP687 - Polystyrene part coating	1/4 Enclosed	Conventional Air Spray	Conv				1/4 Enclosed	B	Dry filters	Filter	1			
PPP687	G. S. Industries of Bassett, Inc.	1	1	1	PPP687 - Silver coating on polystyrene frames	1/4 Enclosed	Conventional Air Spray	Conv			1	1/4 Enclosed	B	Water catch containers					
RPC162	San Juan Pools of Oklahoma, Inc.			1	RPC162 - Swimming Pool Manufacturing Scenario	Spray on gelcoat	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	Operator training					

FTN	Facility_name	FTN Count	Area Source Count	Area Source Scenarios	ScenarioName_new	SprayBooth	Spray Gun Technology	Spay Gun Abbr	HVLP at Area Source Scenarios	HVLP at Area Source	Conv Spray At Area Source Facilities	Enclosure	Vent	Overspray Control	Filter Abbr	Dry Filter at Area Source Scenarios	Water Wash Filters At Area Source Scenarios	HVLP and Filter at Area Source Scenarios	Unique Area Source FTN with HVLP and Dry Filters
RPC162	San Juan Pools of Oklahoma, Inc.			1	RPC162 - Swimming Pool Manufacturing Scenario	Spray on polyester resin w/ mat and woven roving	High-volume low-pressure spray	HVLP	1			fully enclosed	Building interior	Operator training					
RPC162	San Juan Pools of Oklahoma, Inc.	1	1	1	RPC162 - Swimming Pool Manufacturing Scenario	Spray on vinyl ester resin w/mat	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Building interior	Operator training					
RPC170B	TPI Composites, Inc. - Portsmouth Facility	1	1	1	RPC170B - Spray booth	70' DOWNDRAFT	Air-assisted airless spray	AAAS				Fully enclosed	Building interior	Dry filters	Filter	1			
RPC180	Fibertech Incorporated	1	1	1	RPC180 - Standard Gel Coat Process	Gel coat booths	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	Building interior	Dry filter	Filter	1		1	1
RPC212	Sabre Yachts			1	RPC212 - Boot Top Application (Activator)	Completion area	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	N/A					
RPC212	Sabre Yachts			1	RPC212 - Boot Top Application (Thinner)	Completion area	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	N/A					
RPC212	Sabre Yachts			1	RPC212 - Mold Coating	Booth #1	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	N/A					
RPC212	Sabre Yachts	1	1	1	RPC212 - Mold Coating	Booth #2	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Building interior	N/A					
RPC212A	Sabre Yachts			1	RPC212A - Boot Top Application (Activator)	Completion area	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	N/A					
RPC212A	Sabre Yachts			1	RPC212A - Boot Top Application (Thinner)	Completion area	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	N/A					
RPC212A	Sabre Yachts			1	RPC212A - Mold Coating	Booth #1	High-volume low-pressure spray	HVLP	1			Fully enclosed	Building interior	N/A					
RPC212A	Sabre Yachts	1	1	1	RPC212A - Mold Coating	Booth #2	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Building interior	N/A					
RPC217	Hot Box	1	1	1	RPC217 - Gel Coat Spraying	Square with open end	Conventional Air Spray	Conv			1	Booth Itself	Exhaust fan with filter bank	Tip Pressure					
RPC228A	Glasstite West			1	RPC228A - Fiberglass topper	Backup Gelcoat Booth	High-volume low-pressure spray	HVLP	1			Fully enclosed	CD5	Wall Filter	Filter	1		1	
RPC228A	Glasstite West			1	RPC228A - Fiberglass topper	Basecoat Booth #1	High-volume low-pressure spray	HVLP	1			Fully enclosed	CD6	Wall Filter	Filter	1		1	
RPC228A	Glasstite West			1	RPC228A - Fiberglass topper	Basecoat Booth #2	High-volume low-pressure spray	HVLP	1			Fully enclosed	CD7	Wall Filter	Filter	1		1	
RPC228A	Glasstite West			1	RPC228A - Fiberglass topper	Clearcoat Booth #1	High-volume low-pressure spray	HVLP	1			Fully enclosed	CD8	Wall Filter	Filter	1		1	
RPC228A	Glasstite West			1	RPC228A - Fiberglass topper	Clearcoat Booth #2	High-volume low-pressure spray	HVLP	1			Fully enclosed	CD9	Wall Filter	Filter	1		1	
RPC228A	Glasstite West			1	RPC228A - Fiberglass topper	Gelcoat Booth	High-volume low-pressure spray	HVLP	1			Fully enclosed	CD1	Wall Filter	Filter	1		1	
RPC228A	Glasstite West			1	RPC228A - Fiberglass topper	HAF Resin Booth #1	High-volume low-pressure spray	HVLP	1			Fully enclosed	CD3	Wall Filter	Filter	1		1	
RPC228A	Glasstite West			1	RPC228A - Fiberglass topper	HAF Resin Booth #2	High-volume low-pressure spray	HVLP	1			Fully enclosed	CD4	Wall Filter	Filter	1		1	
RPC228A	Glasstite West	1	1	1	RPC228A - Fiberglass topper	Skin Resin Booth	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	CD2	Wall Filter	Filter	1		1	1
RPC271	Hy-Tec Fiberglass Inc.	1	1	1	RPC271 - Fiberglass boom paint scenario	Paint Booth Zone #5 "FESOP"	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Building interior	Filters	Filter	1		1	1
RPC331	Mckenzie Sports Products, Inc.			1	RPC331 - Target Painting Process	Booth #B 01- B 04	Conventional Air Spray	Conv				3/4 Enclosed	Building interior	Dry Filters	Filter	1			
RPC331	Mckenzie Sports Products, Inc.	1	1	1	RPC331 - Target Painting Process	Booth #B 01-B04	Conventional Air Spray	Conv			1	3/4 Enclosed	Building interior	Dry filters	Filter	1			
RPC348	GatorGrate	1	1	1	RPC348 - Painting	Paint Booth	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Control device	Dry Filter	Filter	1		1	1
RPC361	ACCRA Industries, Inc.	1	1	1	RPC361 - Air Assist Spray Gel Coat	Gel Coat Booth	High-volume low-pressure spray	HVLP	1	1		3/4 Enclosed	control device- O2	Dry Filter w/ Operator Training	Filter	1		1	1
RPC404	Peterson Products	1	1	1	RPC404 - Thermoset reinforced plastic coating scenario	Urethane Spray Booth	High-volume low-pressure spray	HVLP	1	1		Fully enclosed	Control device	dry fabric filters	Filter	1		1	1
		126	126	402					303	89	25					302	52	222	53

5.0

Estimating the Number of Automotive Refinishing Shops and the Projected Number of New Shops

EASTERN RESEARCH GROUP, INC.

MEMORANDUM

TO: Kim Teal, U.S. EPA, Sectors Policies and Programs Division/Natural Resources and Commerce Group

FROM: Brian Palmer, Eastern Research Group, Inc. (ERG)

DATE: February 22, 2006

SUBJECT: Estimating the number of automotive refinishing shops and the projected number of new shops.

This memo describes how we estimated the total number of automotive refinishing shops and the number of new shops that could be expected in a 5-year period after promulgation of the area source rule for automotive and mobile equipment refinishing operations. The basic approach for estimating the number of new shops is to divide the total number of shops by the average age of shops to obtain the average number of new shops per year. This approach assumes a constant number of shops (this is supported by U.S. Census data), and a constant turnover rate between new and old shops per year, and assumes this trend will continue in the future.

Body Shop Business (www.bodyshopbusiness.com) does an annual survey of the industry. For the years 1996 to 2002 they included a shop owner profile that reported the average number of years a shop owner has owned their business. We assumed that this is the average age of each shop as a "source" under the definition of a source in the Clean Air Act. This assumption does not account for shops that may have changed locations without changing ownership (these would be considered new sources), or shops that change ownership without changing location (these would be considered existing sources), but we assumed that these tend to cancel each other out and do not affect the actual number of new shops.

The average number of years that each shop owner owned a business was reported as follows (the years represent the year of the survey data, which was reported in the next calendar year):

1996: 20.9 years
1997: 22 years
1998: 21.5 years.
1999: more than 19 years
2000: 23.9 years
2001: 22.5 years
2002: 24.9 years

Assuming that we count the response for 1999 to be 19 years, the average age of a shop for these seven years was 22.1 years.

The 1998 and 2000 Body Shop Business Industry Profile reported that the data were collected through surveys conducted by Babcox Research, a division of Babcox Publications, and executed via a nationwide mail program to 6,000 body shops. The survey consisted of six two-page questionnaires (each questionnaire addressed a different topic), and each questionnaire was sent to a subsample of 1,000 BodyShop Business magazine readers. Readers were chosen through a systematic sampling procedure in which every "nth" name was selected from a BodyShop Business subscription list. The sample was adjusted to provide geographic representation. Surveys were mailed in February or March, and Babcox Research received 1,237 completed questionnaires in 1998 (a 21.2 percent return rate), and 946 completed questionnaires in 2000 (a 15.9 return rate). This information was not included for other survey years.

The 2002 U.S. Census reported that 35,200 businesses reported under the heading NAICS 811121, “Automotive body, paint, and interior repair and maintenance.” This is comparable to the numbers reported in 1997 (35,569 businesses) and 1992 (35,043 businesses), indicating that the number of shops is relatively constant, in spite of other variables that could affect the number of shops (cars on the road, miles driven, consolidation of smaller shops, etc.).

At www.lycos.com, we searched in the Yellow Page listings for “auto body shops.” The site returned 72,961 listings under “Auto Body Repair & Painting,” which is twice the number provided by the census. The U.S. Census data may under-represent automotive refinishing shops since they may be included under a larger service center, such as a dealership. We expect that the actual number may be in between these two values. Some industry associations may be able to give us more accurate figures.

If we divide the current number of listings, by the average age of each business, then we will have the average number of new shops per year:

35,200 shops ÷ 22.1 years = 1,593 new shops per year according to the 2002 census.

72,961 shops ÷ 22.1 years = 3,301 new shops per year according to the Yellow Pages at www.lycos.com.

Using these numbers, we estimate that the number of new shops in the 5-year period after promulgation would be 7,965 from the U.S. Census data and 16,505 from the Yellow Pages data.

Table 1 summarizes the 1992, 1997, and 2002 U.S. Census data for SIC 7532, "Top, Body, And Upholstery Repair Shops and Paint Shops," and NAICS 811121, "Automotive Body, Paint, And Interior Repair And Maintenance."

Table 1. Summary of U.S. Census Data for Automotive Body, Paint, And Interior Repair And Maintenance

Year	1992	1997	2002
Number of establishments	35,043	35,569	35,200
Receipts/Revenue ($1,000)	$12,262,486	$17,755,296	$22,405,337
Annual Payroll ($1,000)	$3,444,504	$5,172,206	$6,880,027
Paid Employees	165,894	205,172	220,393

6.0

Estimating the Number of Miscellaneous Surface Coating Area Sources for Which EPA Has Data

EASTERN RESEARCH GROUP, INC.

MEMORANDUM

TO: Kim Teal, U.S. EPA, Sectors Policies and Programs Division/Natural Resources and Commerce Group

FROM: Brian Palmer, Eastern Research Group, Inc. (ERG)

DATE: July 19, 2006

SUBJECT: Estimating the Number of Miscellaneous Surface Coating Area Sources for Which EPA Has Data.

This memo describes how we estimated the number of miscellaneous surface coating area sources for which EPA has data. The estimated number of shops is based on the number of area source surface coating shops in the merged database from the plastic parts and products and miscellaneous metal parts and products major source surface coating rules (40 CFR 63, subparts MMMM and PPPP). We estimate that there are 831 miscellaneous surface coating area sources for which we have data. The attached spreadsheet lists those area sources and provides information about each source.

The merged database had 1360 unique facility identification numbers (FACID). Some FACIDs are repeated in the facility information table of the database, Form A, because multiple rows of data were entered for some shops with a separate row for each product or coating line in the shop.

Form A also listed the Title V major source status of each facility when they completed the survey in 1995 or 1996. For each facility, we also estimated their total HAP consumption, when coating data were provided in their survey response. Some facilities did not provide coating data, because they knew at the time that they were not major sources for HAP and would not be subject to either of the major source rules. We grouped facilities by their reported Title V status and total HAP consumption. Based on their Title V status and their HAP consumption, we predicted whether or not they would be an area source potentially subject to the area source rule. Table 1 summarizes the number of sources in each Title V status and HAP consumption category and our estimate of the total number of area sources.

Table 1 also summarizes the rules we used in deciding whether to group a facility as an area source or major source.

It is important to note that 512 of the 831 sources we estimated are area sources did not report their major source status and did not report any data; we assumed that these did not report data because they were not major sources and were instead area sources. We also assumed that 37 sources that reported their Title V status as "unknown" and did not report any data were area sources. The lack of data for these sources introduces some uncertainty into our estimate of the number of area sources. The best way to resolve this would be to perform a line-by-line analysis of Form A (the facility information form) of the merged data to see if there are any comments that could shed light on the facilities major source status and why they did not provide any data.

It is also important to note that reported Title V major source status at the time the survey was completed may have been based on criteria pollutant emissions and not on HAP emissions. Some sources may have declared they were major sources based on criteria pollutants, but may not exceed the major source threshold for HAP. About 20 percent of facilities that reported they were a major source for Title V did not provide data. These two factors also introduce some uncertainty that could be resolved only through a line-by-line review of the comments included in Form A.

We have data for 236 facilities that we estimated are area sources. An additional 46 facilities reported that they were "minor or area sources," or "synthetic minor sources," but did not provide any data, for a total of 282 facilities.

We have data for 430 facilities that we estimated are major sources. No data are available for 99 facilities that declared they were major sources.

Reported Title V Status	HAP Consumption	Area or Major Sources?	Number
Total Number of Unique FACID in Merged Database			1360
Blank	<25 tpy	Area	19
Blank or CBI	No data	Area	512
Minor or Area Source	<25 tpy	Area	79
Minor or Area Source	No data	Area	28
Synthetic Minor Source	<25 tpy	Area	66
Synthetic Minor Source	No data	Area	18
Unknown	<25 tpy	Area	72
Unknown	No data	Area	37
Total number of Area Sources			831

Reported Title V Status	HAP Consumption	Area or Major Sources?	Number
Blank	>25	Major	11
Major Source	>0	Major	401
Major Source	No data	Major	99
Minor or Area Source; Synthetic Minor Source, Unknown	>25 tpy	Major	18
Total Number of Major Sources			529

FACID	Facility_name	Street	City	State	Zip	Reported Title V Status	Title_V_basis	Estimated Total HAP (TPY) (from "Facility Data Analysis, 5-3-05.xls")	Facility_Description	Product
ACS0001	Mitsubishi Motor MFG of America, INC	US Route 150	Normal	IL	61761				Facility under August 1986 BACT determination	Fascia and Plastic Bumpers for automobiles
ASC013	Subaru-Isuzu Automotive Inc.	5500 State Road 38 East, PO Box 5689	Lafayette	IN	47903					
ASC14	General Motors - Doravile		Doraville							
MMPP-0004	E/M Engineered Coating Solutions	16470 East 13 Mile Road	Roseville	MI	48066	Minor or area source	State of Michigan Air Permit that limits facility emissions below Title V status.		3 steel and cinder block buildings totaling 28,000 square feet used for the application of Engineered Specification Coatings	Paints, Varnishes, Lacquers & Enamels
MMPP-0049	Metal Finishing Company Inc.	1423 South McLean Boulevard	Wichita	KS	67213	Minor or area source	Total HAP and VOC emissions, as well as single HAP emissions	22.39	Job shop providing a variety of coatings for corrosion resistance and appearance enhancement for the metal parts manufacturing industry. Electroplating and surface finishing.	Farm machinery and equipment
MMPP-0060	Yale Security	100 Yale Avenue	Lenior City	TN	37771	Minor or area source	Actual and Potential emissions less than thresholds		Manufacurer of locks	door locks
MMPP-0083	Skyline Woodland	1720 East Beamer Street	Woodland	CA	95776	Synthetic minor source			Manufactured home assembly	Manufactured homes
MMPP-0119	Rawson-Koenig, Inc.	2301 Central Parkway	Houston	TX	77092	Unknown		6.45	Various forms of bulk sheet metal are cut, punched, formed, assembled, and painted in the production of pickup tool boxes, light to medium duty service/utility truck beds and smaller truck equipment accessories.	Truck-Utility Bodies
MMPP-0175	PACCAR Winch Division (aka Braden Carco Gearmatic)	800 East Dallas St, P.O. Box 547	Broken Arrow	OK	74012	Minor or area source	Oaklahoma Air Quality Permit.	3.82	Heavy duty winches are manufactured at this facility and can be distinguished from other miscellaneous metal parts surface coating operations in the following areas: color is customer specified, weather resistant coatings, salt water protective coatings,	Winches
MMPP-0244	Dukane Corp	2900 Dukane Drive	St. Charles	IL	60174	Synthetic minor source	Emissions have potental to exceed the major threshold - hours of operation limitation in permit.	1.09	Manufacturer of electrical and electronic equipment process including metal forming, metal finishing and painting, printed circuit coard soldering and assembly	Audio Visual Equipment
MMPP-0282	Nucor Building Systems	West SC Highway #3, 200 Whetstone Rd (PO Box 1006)	Swansea	SC	29160	Synthetic minor source	Internal data collection(Potential to emit VOC)	-	Metal building systems sales, engineering and fabrication. (Production of roll-formed and built-up steel building components, which are subsequently painted)	Metal Building Systems
MMPP-0286	Emerson Electric Company	1315 North 13th Street	Rogers	AR	72756	Synthetic minor source		12.05	Manufacturer of fractional horsepower electrical motors and components used for fractional electrical motors.	Electrical Motors
MMPP-0349	Dearborn Mid-West Conveyor Co.	2601 Mid-West Drive	Kansas City	KS	66111	Unknown		9.20	Metal fabrication manufacture of conveyor systems.	Conveyor Systems
MMPP-0468	Alabama Tank, Inc.	P.O. Box 760 - 85 3 Mile Rd.	Atmore	AL	36504	Unknown	NA		Non-Pressure Vessel Storage Tank Manufacturer.	Underground Storage Tanks
MMPP-0474	Chemtrom fire Systems	184-B E. Meadowlake Parkway	Swainsboro	GA	30401	Unknown			UNKNOWN	UNKNOWN
MMPP-0483	CP Louisiana, Inc.	6000 Jefferson Highway	Jefferson	LA	70123	Minor or area source	Under 25 tons of HAPs and Under 100 tons of total VOCs	17.73	Manufacturer of 55 gallon steel drums	55-gallon steel drums
MMPP-0503	Modine Manufacturing Company	1140 Northpoint Blvd.	Blythewood	SC	290168873	Minor or area source	Potential emissions are less than threshold values.	-	Manufacturer of aluminum oil coolers for the automotive industry. This facility uses a HAP-free powder painting process. However, some touch-up paint is done with aerosol cans.	Oil Coolers
MMPP-0504	Modine Manufacturing Company	1221 Magnolia Avenue	Buena Vista	VA	24416	Minor or area source	Actual and potential emissions of all criteria pollutants and HAPs are below the applicable thresholds	-	Heat transfer equipment manufacturing with a powder paint surface coating operation. There are no HAP emissions for this operation.	Space heaters
MMPP-0508	Modine Manufacturing Company	1401 Industrial Street	Emporia	KS	66801	Synthetic minor source	PTE HAP emissions	-	Manufacturing facility producing copper/brass radiators.	Radiators
MMPP-0511	Suburban Manufacturing Co.	676 Broadway Street	Dayton	TN	37321	Synthetic minor source	Emissions inventory-based.	19.82	PTAC units and RV components (water heaters, various furnaces, cooktops, and ovens)	RV Components
MMPP-0563	Nylint Corporation	1800 16th Avenue	Rockford	IL	61104	Minor or area source	VOC per air permit	2.27	manufactures steel toy trucks	Games, toys, child vehicles
MMPP-0578	Carolina Steel Fabrication, Greensboro Plant	1451 South Elm-Eugene St	Greensboro	NC	27420	Minor or area source	Air emissions inventory.	2.68	manufacture of structural steel components	Structural steel components
MMPP-0599	Monaco Coach Corporation	65906 State Rd. 19	Wakarusa	IN	46573	Synthetic minor source	usage of chaulks, sealants, painting and solvents.	6.78	travel trailer MANUFACTURING FACILITY INCLUDING CHASSIS CONSTRUCTION, VEHICLE ASSEMBLY AND PAINT	travel trailers
MMPP-0601	Rexnord Corporation - Link Belt Bearing Division	7601 Rockville Rd	Indianapolis	IN	46214	Minor or area source	Minor Source		Bearing Manufacturer - operations include grinding, drilling, machining, heat treatment, painting, stamping, & assembly.	Ball & Roller Bearings
MMPP-0606	Pee Dee Tank Company Inc.	1333 N. Douglas Street	Florence	SC	29503	Unknown			Steet tank manufacturing - 150 gal - 20,000 gallons. Rolling of steel sheets, welding, sand blasting, painting, coating.	Fuel storage tanks
MMPP-0609	Modine Manufacturing Company	239 Factory St	LaPorte	IN	46350	Synthetic minor source	Paint VOCs	2.12	Manufacturer of heat transfer equipment for heavy duty industrial and automotive applications. Process uses copper, brass, steels, solder and paint in production quantities.	Heat transfer equipment
MMPP-0638	EQUIMETER, INC. (PLANT 1)	805 LIBERTY BOULEVARD	DUBOIS	PA	15801	Minor or area source		-	MANUFACTURER OF GAS METERS, REGULATORS AND RELATED PRODUCTS.	NATURAL GAS METERS
MMPP-0641	Munster Steel Company, Inc.	9505 Calumet Ave.	Munster	IN	46321	Unknown	Particulate matter, VOC's	1.80	Structural steel fabrication: flame or mechanically cut steel, abrasive blasting, and spray coating.	Structural Steel
MMPP-0657	Chief Industries, Inc. - Custom Products Division	1808 Raymond Road	Grand Island	NE	688022078	Minor or area source	coating operations	10.69	Fabricates steel doors, windows and furniture for the corrections facility industry.	METAL FURNITURE
MMPP-0658	Dexter Axle Division - Plant 12	3075 E. Pearl St.	Fremont	IN	46737	Synthetic minor source	Glycol Ethers	-	Trailer and utility axle manufacturers. Primary process - welding assembly & painting.	Utility Axles
MMPP-0669	Union Pacific Railroad - Centennial Yard	3250 Kimzey Street	Fort Worth	TX	76107	Minor or area source		0.21	Diesel engine service center, railcar maintenance shop, railroad switchyard	Maintenance of Way Equiptment
MMPP-0670	Union Pacific Railroad - System Signal Shop	601 South Marshall Street	Sedalia	MO	65301	Minor or area source	True minor source based on emission inventory	0.21	Repair and overhaul railroad equipment	Repair Railroad Equipment
MMPP-0710	ABB Power T&D Company, Inc.	300 N. Curry Pike, PO Box 341	Bloomington	IN	47404	Minor or area source	All emissions below Title V requirements	0.96	Manufacture of circuit breakers, reclosers, oil insturment transformers and arresters for electrical distribution and substation protection.	Switchgear and switchboard apparatus

FACID	Facility_name	Street	City	State	Zip	Reported Title V Status	Title_V_basis	Estimated Total HAP (TPY) (from "Facility Data Analysis, 5-3-05.xls")	Facility_Description	Product
MMPP-0744	Modine Manufacturing Company	615 Bierley Road	Pemberville	OH	43450	Synthetic minor source	PTE calculation, limitation on regulated chemical emissions; Facility is a non-Title V source because it has a federally enforceable State Operating Permit (FESOP) for operations with air emissions	1.54	Manufacture of products using shearing, forming, cleaning, welding, brazing, soldering, assembly, testing, painting, and packaging operations.	Truck radiators
MMPP-0785	Broderson Manufacturing Corporation	14741 W. 106th Street	Lenexa	KS	66215	Unknown		2.11	Manufacturer of mobile hydraulic cranes.	Mobile hydraulic cranes
MMPP-0789	TRT Heating Products Inc.	604 Liberty Lane	West Kingston	RI	02892	Minor or area source	Painting VOC HAP's content	3.44	Manufacturing facility producing unit & baseboard heaters.	Heaters
MMPP-0821	Hytek Finishes Company	8127 South 216th St	Kent	WA	98032	Synthetic minor source	Mass balance analyses	13.45	JOB SHOP-- Metal finishes.	Ski Tops
MMPP-0943	Jayco Inc.	903 South Main	Middleburry	IN	46540	Synthetic minor source	Mass balance chemical emission calculations - 234 TPY potential to emit VOC		24 buildings assembling recreational vehicles	Recreational Vehicles
MMPP-0974	Modine Manufacturing Company	3300 W. Seventh Street	Joplin	MO	64801	Minor or area source	Actual and potential emissions of all criteria pollutants and HAP's are below applicable thresholds. Facility has state operating permits that limit process emissions.		Manufacture of products using machining, shearing, forming, welding, brazing, assembly, testing, cleaning, painting and packageing operation.	Truck Oil Coolers
MMPP-0976	Modine Manufacturing Company-Knoxville TN	5050 S. National Drive	Knoxville	TN	37914	Minor or area source	NA	-	Manufacture of aluminum oil coolers for off-highway applications (see comments).	Aluminum Oil Coolers
MMPP-1019	Modine Manufacturing Company	600 Water Street	Logansport	IN	46947	Minor or area source	No VOC or HAP emissions are over regulatory levels.		Heat transfer equipment manufacturer with a non-HAP powder paint surface coating operation.	Oil Coolers
MMPP-1021	Modine Aftermarket Holdings, Inc.	6309 South Central Avenue	Los Angeles	CA	90001	Minor or area source	Potential is lower than threshold values.	-	Manufacturer of vehicular radiator cores. This facility paints only a few units per month with a non-HAP containing coating.	Radiator Cores
MMPP-1042	Chicago Blower Corporation	1675 Glen Ellyn Road	Glendale Hgts.	IL	60139	Unknown		-	Manufactures industrial blowers	Industrial fans
MMPP-1052	Delong's, Inc.	301 Dix Rd.	Jefferson City	MO	65109	Minor or area source	State basic potential emissions from blasting, painting, plant heat less than 100 TPY. Calculations.	3.83	Fabricates structural steel and miscelaneous metal parts	Fabricated Structural Metal
MMPP-1059	Modine Aftermarket Holdings, Inc.	7391 N.W. 78th Street	Medley	FL	33166	Minor or area source	Potential is lower than threshold	0.04	Manufacturer of vehicular radiator cores. Certain customers require that these cores be painted.	Radiator Cores
MMPP-1061	Modine Aftermarket Holdings, Inc.	2777 North Highway 59	Merced	CA	95348	Minor or area source	Potential is lower than threshold values.	0.23	Manufacturer of vehicular radiator cores. Only a small portion of these products require painting.	Radiator Cores and Completes
MMPP-1062	Modine Manufacturing Company	400 College Avenue	Pemberville	OH	43450	Synthetic minor source	Not classified as a title V facility. Facility has a Federally Enforceable State Operating Permit (FESOP) for operations with air emissions.		Manufacture of products using machining shearing, forming, welding, assembly, testing, cleaning, painting and creating operations.	Industrial Oil Coolers & Radiators
MMPP-1068	Modine Manufacturing Company	822 Industrial Drive	Trenton	MO	64683	Synthetic minor source	VOC & HAP emissions from painting.	6.41	Manufacturing facility producing copper/brass and aluminum radiators.	Radiators
MMPP-1097	DANIEL MEASUREMENT AND CONTROL, INC.	9720 OLD KATY ROAD	HOUSTON	TX	77055	Minor or area source	The facility is not a major source of any criteria pollutants, and therefore, not subject to Title V.	15.72	Manufacturer of fluid meters and counting devices.	Fluid meters and counting devices
MMPP-1107	Vulcraft-Utah, Division of Nucor Corporation	1875 West Highway 13 South	Brigham	UT	84302	Unknown	Emission inventory and current approval order. Fugitive emissions question will resolve status.	-	Manufacturing of K-series, LH/DLH/SIS series, steel joist and related parts.	Steel Joist
MMPP-1163	SMI Joist Nevada	2121 Trento Lane	Fallon	NV	89406	Minor or area source	VOC emissions>100 tons/yr (includes fugitive emissions)	1.07	Fabricator of steel span joists for commercial and industrial buildings. Joists are engineered structural members used to support roof decking.	Steel Span Joists
MMPP-1234	Winnebago Industries Inc.	605 West Crystal Lake Road	Forest City	IA	50436	Minor or area source	Potential to emit >100 ton/yr regulated pollutants, potential to emit >25 ton/yr combination of HAPs		Vertically integrated motor home manufacturing facility that includes vacuum forming and rotocasting of plastics, aluminum extrusion, cabinet making, and surface coating of steel, plastics, aluminum, and wood.	Motor Homes
MMPP-1237	John W. Hancock, Jr., Inc.	2535 Duiguids Lane	Salem	VA	24153	Synthetic minor source	Permit limits for VOC and HAPs	3.02	Mfg. Open web steel joist and rack systems	Joist and rack systems
MMPP-1272	SMI Owen Steel	2105 South Beltline	Columbia	SC	29201	Minor or area source	VOC emissions <100 tons, HAP emissions <10/25 tons thresholds	8.83	Structural steel fabrication facility	Structural Steel
MMPP-1273	Windsor Door - Little Rock Plant	5800 Scott Hamilton Drive	Little Rock	AR	72209	Unknown		3.15	Roll form and assemble overhead doors and components.	Metal Forming & Assembly
MMPP-1275	American Buildings Co - Eufaula Plant	820 State Docks Road	Eufaula	AL	36027	Unknown			Metal buildings systems manufacturer.	Metal Buildings Pdts
MMPP-1277	American Buildings Co - LaCrosse Plant	501 Golden Eagle Drive	LaCrosse	VA	23950	Unknown			Metal buildings systems manufacturer.	Metal Buildings Products
MMPP-1282	Kewanee Boiler Manufacturing Co., Inc	101 Franklin Street	Kewanee	IL	61443	Minor or area source	Annual air emissions.		Manufacturer of commercial and industrial boilers.	Boilers

FACID	Facility_name	Street	City	State	Zip	Reported Title V Status	Title_V_basis	Estimated Total HAP (TPY) (from "Facility Data Analysis, 5-3-05.xls")	Facility_Description	Product
MMPP-1289	Nucor Building Systems	305 Industrial Parkway	Waterloo	IN	46793	Synthetic minor source	IDEM permitting Process: Potential to emit VOC exceeds 100TPY.	5.43	Metal building systems sales, engineering and fabrication.	Metal Building Systems
MMPP-1310	American Buildings Co - El Paso Plant	Rt 24 E	El Paso	IL	61738	Unknown			Metal buildings systems manufacturer.	Metal Buildings Parts
MMPP-1313	American Buildings Co. - Carson City Plant	2401Conestoga Drive	Carson City	NV	89706	Unknown			Metal buildings systems manufacturer.	Metal Buildings Pdts.
MMPP-1352	E/M Engineered Coating Solutions	One John Downey Drive	New Britain	CT	06051	Minor or area source	State of Connecticuy Consent Order that limits facility emmisions below Title V Status.	5.71	39,000 sq/ft Cinder Block & Steel Building, used for the Application of Engineered Specification Coatings.	Paints, Vanishes, Enamels
MMPP-1353	Alliant Techsystems--TCAAP Operations	Twin Cities Army Ammunition Plant-Building 502	New Brighton	MN	55112	Synthetic minor source	Mass balance & EPA emission factors.	1.99	Manufacture finished metal piece parts, including surface coating, for defense products.	Metal Parts & Units
MMPP-1366	Cummins Engine Co, Inc	4500 Leeds Ave	Charleston	SC	29405	Unknown	This site is permitted under both Title V and Conditional Major Permits. The Title V is for diesel engine test facility.	0.48	Manufactures combustion engines and parts	Combustion engines and parts
MMPP-1441	Coleman Powermate Compressors	118 West Rock St.	Springfield	MN	56087	Minor or area source	NA	13.50	Manufacture air compressors.	Air & Gas Compressors
MMPP-1477	Custom Pipe Coating, Inc.	7177 Cavalcade	Houston	TX	77028	Unknown	>10 tons/yr VOC in nonattainment county	13.18	The operation cleans and coats steel pipe	Steel Pipe
MMPP-1490	FARR Company	3501 Airport Road	Jonesboro	AR	72403	Unknown	VOC / HAP emissions.		Air filtration system manufacturer.	Air Filtration Equiptment
MMPP-1494	Accessory Controls and Equipment Corporation	805 Bloomfield Avenue	Windsor	CT	060952322	Minor or area source	Emission limitations in connecticut general surface coating permit are below major source thresholds.	1.16	Manufacturing business-ground support equipment and accessories for aircraft.	Air Conditioning and Industrial Refridgeration Eqi
MMPP-1495	Berenfield Containers, Inc. Mason Plant	1229/1234 Castle Drive	Mason	OH	45040	Synthetic minor source	Moderate attainment area with federally enforceable Ohio EPA permit # 14-83-09-0257.	23.70	Two buildings used for manufacturing steel drums. One plant manufactures 55 gal drums by air assisted spray. It also roller coats drum shells-find ends for the small drum and drum ends for itself.	Steel Shipping Containers
MMPP-1502	Flex-O-Lite, Inc.	2025 Hitzert Court	Fenton	MO	63026	Synthetic minor source	Potential to Emit VOC's		Pavement reflective tape manufacturing facility (painted aluminum foil 0.003" thick).	Pavement-marking tape
MMPP-1522	Eugene Welding Company	2420 Wills Street	Marysville	MI	48040	Unknown		13.41	Manufacturer of steel tubing and storage rack systems.	Steel Tubing
MMPP-1538	Southern Post - Utah	920 W. 600 North	Brigham City	UT	84302	Minor or area source		3.57	Steel fence post manufacturing and painting facility.	Steel Fence Post
MMPP-1606	Copperweld Bimetallics Metallon Division	690 Narragansett Park Dr.	Pawtucket	RI	02861	Minor or area source	Engineering Estimates - State of Rhode Island determined that Metallon is not a major source.		Mechanical cladding and roll coating of metals to produce metal composites with unique mechanical, physical, chemical and electrical properties to meet requirements of customers.	Clad Metals
MMPP-1652	Copperweld Miami Division	9054 N. County Rd. 25-A	Piqua	OH	45356	Unknown			Facility Manufactures low carbon welded steel tubing- processes include welding, drawing, cleaning, cutting and stenciling.	Welded steel tubing
MMPP-1654	Copperweld Chicago Division	7401 S. Linder Ave.	Chicago	IL	60638	Unknown	Smaller source lifetime State Operating permit.		CCD is a Manufacturer of Welded Steel Structural Tubing.	Welded steel tubing
MMPP-1661	McElroy Manufacturing, Inc.	833 N. Fulton	Tulsa	OK	74115	Minor or area source	Emission inventory		Provider of fusion equipment for polyolefin pipe and fittings, also fin tube machines. Standard metal working techniques are used.	Pipe fusion equipment
MMPP-1860	Canam Steel Corporation	555 North Yearling Road	Columbus	OH	43213	Unknown		2.73	Facility produces fabricated steel. The products vary in size and can be up to several tons.	Joists, Girders and Bridging
MMPP-1900	Canam Steel Corporation	2002 Morgan Road	Sunnyside	WA	98944	Unknown		-	Facility produces fabricated steel. The products vary in size and can be up to several tons.	Joists, Girders and Bridging
MMPP-1901	Canam Steel Corporation	140 South 30th Street, P.O. Box 5057	Lafayette	IN	479035057	Unknown		0.33	Facility produces fabricated steel. The products vary in size and can be up to several tons.	Joists, Girders and Bridging
MMPP-1903	Canam Steel Corporation	2000 Main Street	Washington	MO	63090	Unknown		0.33	Facility produces fabricated steel. The products vary in size and can be up to several tons.	Joists, Girders and Bridging
MMPP-1905	Briggs & Stratton Poplar Bluff Missouri Plant	Route 11 Box 20	Poplar Bluff	MO	63901	Synthetic minor source	Permit limitations, emission calculations and material balance	1.85	Facility manufactures air-cooled engines and engine components. Operatons at the facility include painting, machining, die cast, stamping, assembly and plating.	Engines and engine components
MMPP-1909	Briggs & Stratton Statesboro Georgia Plant	7251 Zell Miller Parkway	Statesboro	GA	30458	Minor or area source	permit limitations, emission calculations, and material balance	7.90	manufactures air-cooled engines and engine components. Operations at the facility include painting, machining, die cast, stamping, and assembly.	Engine and engine components
MMPP-2055	DaimlerChrysler Sterling Stamping	35777 Van Dyke	Sterling Heights	MI	48084	Minor or area source	All pollutants are below major source status.	-	Steel is formed into various sizes for utilization in autombiles. Some assembly (welding and adhesives) takes place.	Automotive Parts
MMPP-2099	Ford Motor Co. - Buffalo Stamping Plant	3663 Lake Shore Road	Buffalo	NY	14219	Minor or area source	Emission cap by rule (6NYCRR Part 201-7.3(e)	1.58	metal stamping operations with some subassembly work	Auto parts stamping
MMPP-2102	Ford Motor Co. Dearborn Stamping Plant	3001 Miller Road	Dearborn	MI		Minor or area source	Engineering Evaluation.	-	Two million square foot facility located within Rouge Complex. Manufacturing of stamping and subassembly parts for various assembly plants.	Metal Stampings
MMPP-2106	Ford Motor Co. Walton Hills Stamping Plant	7845 Northfield Road	Walton Hills	OH	44146	Minor or area source	Title V emission inventory initial engineering study 1995, and 1997 review.	0.22	Automotive stamping plant performing sub-assembly of some components requiring sealants.	Automotive Stampings
MMPP-2107	Ford Motor Co. Woodhaven Stamping Plant	20900 West Road	Woodhaven	MI	48183	Minor or area source	Inventory of regulated air pollutant emissions and regulatory review.	-	Automotive stampings, automotive body sub assembly involving resistance welding and application of sealers.	Automotive Stampings
MMPP-2113	DaimlerChrysler Detroit Axle	6700 Lynch Road	Detroit	MI	48234	Synthetic minor source	FESOP for NOx	4.49	The primary activity at the Detroit Axle Plant is manufacturing of automotive axles. The facility is a supplier and producer of gears, brake systems, and sway bars.	Automotive Products

FACID	Facility_name	Street	City	State	Zip	Reported Title V Status	Title_V_basis	Estimated Total HAP (TPY) (from "Facility Data Analysis, 5-3-05.xls")	Facility_Description	Product
MMPP-2118	Daimler Chrysler Mound Road Engine	20300 Mound Road	Detroit	MI	48234	Synthetic minor source	FESOP for NOx		Manufacture Automotive V6, V8, and V10 Engines.	Internal Combustion Engines
MMPP-2120	Daimler Chrysler Toledo Machining	8000 Chrysler Drive	Perrysburg	OH	43551	Synthetic minor source	Limit natural gas usage to keep NOx emissions below 100 tons per year.	-	Manufacture Steering Column and Transmission Parts	Steering Column Tubes
MMPP-2121	Daimler Chrysler Twinsburg Stamping Plant	2000 East Aurora Road	Twinsburg	OH	44087	Synthetic minor source	FESOP for NOx and VOC	-	Stamp metal automotive parts, assemble doors and liftgate for Minivans, sport utility vehicle and automobiles.	Automotive Parts
MMPP-2125	New Venture Gear - Syracuse	6600 New Venture Gear Dr.	East Syracuse	NY	13057	Synthetic minor source	FESOP for NOx	0.00	Manufactures manual transmissions, transaxles, transfer cases, differential cases and gear sets.	Automotive Parts
MMPP-2154	Delphi Interior & Lighting Systems, Vadalia Ops	250 Northwoods Boulevard	Vandalia	OH	45377	Synthetic minor source	Permit Limitations	5.46	Manufacturer of miscellaneous parts and subassemblies for automotive and light-duty truck applications.	Auto. Parts and Products
MMPP-2158	Delphi Automotive Systems, Kettering II Plant	4991 Hempstead Station Drive	Kettering	OH	45429	Minor or area source	Less than Title V major source thresholds	3.38	Assembly and finishing of automotive struts	Struts
MMPP-2172	GM Powertrain Fredericksburg Components	11032 Tidewater Trail	Fredericksburg	VA	22408	Minor or area source	Emission inventory determined that plant is a Title V - Minor source.		Manufacturer of Automotive Transmission Components	Transmission Torque Converter Clutch
MMPP-2182	Canam Steel Corporation	50 Eastman Street	Easton	MA	02334124 5	Minor or area source	PTE well below thresholds	0.18	Facility produces structural steel. The products vary in size and shape.	Structural Steel Parts
MMPP-2183	Amtrol, Inc. (KY)	3200 Bullardtreet	Paducah	KY	42003	Minor or area source	Kentucky DEP Permit S-95-015.	0.05	Manufactures non-refillable pressurized metal tanks. Process operations include pressing, punch, welding, brazing, cleaning, coating, finishing, and packaging.	Metal Tanks
MMPP-2192	Risdon Corporation	60 Electric Avenue	Thomaston	CT	06787	Synthetic minor source	Synthetic minor perit application filed with the State		Manufacturing of cosmetic spray pumps and caps for fragrence industry	Metal Cosmetic Closures
MMPP-2200	Therma-Tru Corporation HMF Division	306 Old Dairy Road	Wilmington	NC	28405	Unknown	Air emissions inventory - not title V.	1.10	Hollow metal door manufacturing; metal door frame manufacturing.	Metal Door Frames
MMPP-2203	Therma-Tru Corporation	18515 North Dixie Highway	Bowling Green	OH	43402	Unknown	de minimus based on AEI	0.09	Hollow metal door manufacturing.	Metal Doors
MMPP-2204	Tectron Division of Allied Tube & Conduit	650 Heritage Road, P.O. Box 5007	De Pere	WI	54115	Unknown	Facility is exempt based upon MTE < 10 tons		Convert steel coil to steel tubing. Two rolling mills. Three cutting machines. One mill coats periodically with clear coat lacquer.	Steel Tubing
MMPP-2205	A-G Safety Sales and Service of Alabama	35580 Highway 59	Stapleton	AL	36578	Unknown			Factory owned relief valve sales and service center	valves
MMPP-2207	Babcock & Wilcox Company	East 1/2 Mile Street, P.O. Box 1297	West Point	MS	39773	Synthetic minor source	Emissions survey for VOC, particulate matter (PM), SO2, NOx, CO, TRS, LEAD, CFCs/HCFCs, HAPs (VOC/non-VOC).	19.97	Onshore facility - fabrication of structural steel and tubing.	Structural Steel and Tubing Fabrication
MMPP-2208	Diamond Power International	2600 East Main Street, P.O. Box 415	Lancaster	OH	44130	Synthetic minor source	Xylene, Toluene, and total hazardous air pollutants.Application to be submitted in early 1999.	4.76	Manufacturer of boiler cleaning equipment	Water Gauges
MMPP-2210	J. B. Smith Manufacturing Company	6618 Navigation Blvd	Houston	TX	77001	Unknown		0.67	A 1.7 acre facility, employing 75 people that manufactures pipe nipples	Swages
MMPP-2211	S-B Power Tool Company	250 Bolton Sullivan Drive	Herber Springs	AR	72543	Synthetic minor source	Styrene varnish of motor armatures & fields.		156000 sqft power tool manufacturing plant	Power Tools
MMPP-2213	Morin Actuator	110 Commerce Drive	Pelham	AL	35124	Unknown			Machining and assembly for pneumatic/hydraulic valve actuators	Valve actuators
MMPP-2215	Grinnell Corporation	10210 Statesville Road	Cleveland	NC	27013	Unknown		0.11	Machining, assembly, and testing of various water meters and fir protection valves and devices.	water meters
MMPP-2217	Ansul Fire Technology Center	Pierce Avenue	Marinette	WI	54143	Synthetic minor source	Throughput	16.33	Manufacture wheeled and stationary pressure tanks for fire control units	Pressure Tanks
MMPP-2221	ABB Power T&D Company Inc.	201 Hickman Drive	Sanford	FL	32771820 1	Unknown		1.68	Manufacture low and medium voltage switchgear with the following processes, painting, plating, epoxy coating and plastisol dip.	Low & Medium Voltage Switchgear
MMPP-2223	A-G Safety, Sales and Service of Texas	2303 Decker Drive	Baytown	TX	77520	Minor or area source	Emit less than 3 tons per year: small quantity generator.	1.78	Sales & service company that assembles & repair pressure relief valves.	Sales & Service of Pressure Relief Valves
MMPP-2224	Allied Tube & Conduit	2525 N. 27th Ave.	Phoenix	AZ	85009	Synthetic minor source	Maricopa County Air Permit #97-0297.	10.66	Manufacturer of welding metal, sprinkler, fence and mechanical tubular products.	Metal Pipe Products
MMPP-2225	Yarway Corporation	480 Norristown Rd.	Blue Bell	PA	18914	Unknown			Machine shop using turning, grinding, and welding operations	Valves
MMPP-2226	Grinnell Corporation- Flow Control Division	2870 Old Jackson Road	Henderson	TN	38340	Minor or area source		0.18	Manufacturer of threaded, stamped, and fabricated metal products.	Pipe Nipples
MMPP-2229	ABB Power T&D Company	2300 Mechanicsville Rd.	Florence	SC	29501	Unknown			150000 sqft. Facility with a machine shop, weld, paint, plate & assembly operations producing low & medium volt circuit breakers.	Circuit Breakers
MMPP-2232	Kendall Sheridan	5439 State Route 40	Argyle	NY	12809	Minor or area source			Manufacturing facility of plastic surgical medical tubing and devices.	Plastic Surgical Medical Tubing
MMPP-2233	Henry Pratt Company	401 South Highland Ave	Aurora	IL	60506	Minor or area source	Annual Emissions under 25 tons.	11.73	136,000 sq. ft. facility on 6.7 acres land in industrial zone in an urban area.	Butterfly Valves
MMPP-2234	Henry Pratt Company	900 South Depot Ave	Dixon	IL	61021	Minor or area source	Annual Emissions - under 25 tons.	11.29	160,000 sq. ft. facility on 7 acres of land in an industrial zone in a rural community.	Rectangular Valves
MMPP-2235	Crosby Valve, Inc. (Anderson Greenwood/Crosby)	43 Kendrick St.	Wrentham	MA	02093	Unknown		1.03	Machining and assembly of materials to make valves and testing of completed valve.	Valves
MMPP-2237	Alliant Techsystems LAP Facility	29745 Alliant Drive, Gate 4	Wilmington	IL	60481	Unknown		0.51	Load, assemble and package medium caliber amunition.	Light Weight 30mm Ammunition
MMPP-2240	Tyco Value Added Systems	15 Tyco Drive	Stafford Springs	CT	06076	Minor or area source	Potential VOC emissions are less than 50 tpy.	0.15	Contract Mfg. - Printed circuit assembly and heatsink fabrication.	Heatsink
MMPP-2242	Johnstown America Corporation	Route 403, West Taylor Township	Johnstown	PA	15906	Synthetic minor source	VOC Emissions from painting of railroad cars.		Railroad freight car maufacturer	Railraod Freight Cars
MMPP-2252	Nelson Division - Mineral Point	856 Fair Street, P.O. Box 172	Mineral Point	WI	53565	Synthetic minor source		3.28	Muffler manufacture.	Mufflers

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MMPP-2253	Nelson Division - Wautoma	431 Division Street, P.O. Box 680	Wautoma	WI	54615	Synthetic minor source		5.39	Muffler manufacturer.	Mufflers
MMPP-2257	Mueller Company - Cleveland	620 Industrial Boulevard	Cleveland	TN	37311	Synthetic minor source	Mostly exempt processes.	0.47	Manufacturer of stainless steel pipe products	Service Clamps & Tapping Sleeves
MMPP-2260	Pines Trailer a Division of Great Dane Limited Par	1925 Harbor Front Road	Greenville	MS	38701	Synthetic minor source	Not Applicable	17.00	Manufacturer of Truck Trailers	Tuck Trailers
MMPP-2272	Rockwell Automation - Dodge	330 East Tenth Street	Columbus	IN	46131	Minor or area source	Engineer calculations & material mass balances	2.88	Manufacturer of gear reducers	Gear Reducers
MMPP-2273	Rockwell Automation - Reeves	1225 7th Street	Columbus	IN		Unknown				Speed Reducers
MMPP-2275	Rockwell Automation - Athens	195 Collin Industrial Blvd.	Athens	GA	30613	Synthetic minor source	Mass Balance	5.53	Assemble Electric Motors.	Electric Motors
MMPP-2276	Rockwell Automation - Bogart	200 Whitehead Rd.	Bogart	GA		Unknown	Calculations (Exempt)		Assemble Electric Motors.	Electric Motors
MMPP-2277	Rockwell Automation - Madison	2855 Michigan Road	Madison	IN	47250	Unknown			Electric Motor Manufacturing.	Electric Motors
MMPP-2278	Rockwell Automation - Euclid Facility	24703 Euclid Ave.	Cleveland	OH	44117	Minor or area source		6.20	Manufacturer of Drive Systems.	Drive Systems
MMPP-2290	RV Products Division	3050 N. St. Francis	Wichita	KS	67219	Unknown			Manufacturing facility for room R.V. airconditioning.	R.V. Air Conditioners
MMPP-2291	Paxton and Vierling Steel Company	5th and Avenue H	Carter Lake	IA	68101	Unknown	Paxton and Vierling Steel Co. has submitted a Voluntary Operating Permit, but has not received comments or instruction from the Iowa Department of Natural Resources.	6.41	PVS fabricates steel.	Trucks, Trailers
MMPP-2293	Cives Steel Company, Northern Division	8 Church Street	Gouverneur	NY	13642	Unknown	See comment sheet	3.73	Steel fabrication shop that cuts, welds, bends, shears, punches, grinds, blasts, and paints structural steel for industrial and commercial structures.	Fabricated structural steel
MMPP-2295	Tenneco Automotive - Monroe	1601 Highway 498 North	Paragould	AR	72450	Minor or area source	Mass balance calculations		SIC 3714 manufacture of transportation equipment - specifically, motor vehicle parts and accessories	Strut
MMPP-2296	The Pullman Company	503 Weatherhead Street	Angola	IN	46703	Synthetic minor source	Potential emissions are below Title V threshold levels	19.48	Rubber to metal suspension component manufacturer	Torque rods/track bars
MMPP-2297	Tenneco Automotive - Monroe Anderson	416 A.M. Ellison Road	Anderson	SC	29621	Unknown	Less than 3 gallons of paint used in booth per year		Manufactures proto-type of shocks and struts. Machine rebuild and design - R&D	Struts
MMPP-2298	Tenneco Automotive Engineering Center	3901 Willis Road	Grass Lake	MI	49240	Unknown	Due to extreme low volume of paint use Title V not applicable to this facility		Engineering center that designs, manufactures and tests automobile exhaust prototypes	Tail pipe assemblies
MMPP-2302	Walker Manufacturing Company	3160 Abbott Lane	Harrisburg	VA	22801	Synthetic minor source	Emissions inventory and operational hours.		Automotive Exhaust Systems Manufacturer.	Mufflers & Pipes
MMPP-2309	North American Transformer	1200 Piper Drive	Milpitas	CA	95035	Minor or area source	Air Survey done in 1995.	0.12	Power Transformer Manufacturer.	Power Transformers
MMPP-2310	E/M Engineered Coating Solutions	2172 Old Highway 8	New Brighton	MN	55112	Minor or area source	State of Michigan Air Permit that limits facility emmisions below Title V Status.	12.38	50,000 sq/ft Concrete & Steel Building used for the Application of Engineered Specification Coatings.	Paints, Vanishes, Enamels
MMPP-2312	E/M Engineered Coating Solutions	6525 Midway Road	Fort Worth	TX	761175386	Minor or area source	State of Texas Air Permit that limits facility emmisions below Title V Status.	5.09	3 Concrete & Steel Buildings totaling 42,800 sq/ft, used for the Application of Engineered Specification Coatings.	Paints, Vanishes, Enamels
MMPP-2313	E/M Engineered Coating Solutions	900 Calcon Hook Road	Sharon Hill	PA	19079	Minor or area source	State of Pennsylvania Air Permit that limits facility emmisions below Title V Status.	3.50	30,000 sq/ft Cinder Block & Steel Building, used for the Application of Engineered Specification Coatings.	Paints, Vanishes, Enamels
MMPP-2316	E/M Engineered Coating Solutions	875 Maude Avenue	Mountain View	CA	94043	Unknown	Not Applicable.	1.77	Application of solid film lubricants and conformal coatings to industrial parts.	Semi-Conductor Manufacturing Equipment
MMPP-2318	Crispaire Division of Airxcel, Inc.	2002 Hoover Street	Cordele	GA	31015	Synthetic minor source	Engineering Studies	2.74	Manufacturer of HVAC Equipment	HVAC Equipment
MMPP-2319	Crispaire Division of Airxcel, Inc.	2385 Saturn Court NW	Norcross	GA	30092	Unknown		0.32	Manufacturer of HVAC Equipment	HVAC Equipment
MMPP-2320	Regal Ware, Inc.	1100 Redmond Road	Jacksonville	AR	72076	Minor or area source	Minor Source. Emit less than 100 tons of VOC.		Aluminum cookware maufacturers	Metal Stamping
MMPP-2323	HighSteel Structures, Inc.	3501 W. Fourth Street	Williamsport	PA	17701	Synthetic minor source	VOC emissions less than 50 tpy, no single HAP in excess of 10 tpy. Company decision.	8.88	Production facility with fabrication paint, maintenance and office areas. Outside parking and storage areas.	Structural steel bridge
MMPP-2332	The Vendo Company	7209 North Ingram Avenue	Fresno	CA	93650	Minor or area source	No major source of pollutants.	1.06	see comments	Automatic Vending Machines
PPP101	Springs Transit	1210 S. Hancock	Colorado Springs	CO	80903					
PPP102	Mitsubishi Motor MFG. Of America, Inc.	100 N. Mitsubishi Motorway	Normal	IL	61761				Auto assembly plant that does plastic parts coating within this facility.	
PPP106	New United Motor Manufacturing, Inc. (NUMMI)	45500 Fremont Blvd.	Fremont	CA	94538				Automobile and light-duty truck assembly plant. Processes include metal stamping, welding, assembly, coating and plastic molding. Ancillary processes include wastewater pretreatment.	
PPP109	Wheeled Coach	1619 E. Essex Rd	Hutchinson	KS	67501					
PPP111A	MSX International Special Vehicles - Mt. Elliot	9500 Mt Elliot	Detroit	MI	48211	Minor or area source	Permit Limitations	15.34	Fabrication of specialty cars, show car maintenance, misc. piecework.	Windshield frame
PPP111AA	MSX International Special Vehicles - 275 Rex	275 Rex Blvd.	Auburn Hills	MI	48326					
PPP111B	MSX International Special Vehicles - Lynch Rd	6334 Lynch Road	Detriot	MI	48234	Minor or area source	Permit Limitations	0.69	Prowler Painting	Hood Sides
PPP111BB	MSX International Engineering	521 First ST	Benicia	CA	94510					
PPP111C	MSX International Special Vehicles - Purks	4400 Purks	Auburn Hills	MI	48326	Minor or area source	Permit Limitations	1.98	Prepping of vehicles; Painting of vehicles and misc. parts.	Vehicle refinish

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PPP111CC	MSX International Staffing Services/Recruitment	22792 Centre Drive Suite 290	Lake Forest	CA	92630					
PPP111D	MSX International Special Vehicles - California	1343 E. Wilshire Ave	Santa Ana	CA	92705					
PPP111E	MSX International Engineering & Engineering Illustration Services	255 Rex Blvd.	Auburn Hills	MI	48326					
PPP111F	MSX International Marketing Services	1426 Pacific Drive	Auburn Hills	MI	48326					
PPP111G	MSX International Diversified Document Solutions	12801 Prospect Street	Dearborne	MI	48126					
PPP111H	MSX International Engineering Services	14661 Rotunda	Dearborne	MI	48120					
PPP111I	MSX International - Newman	22731 Newman	Dearborne	MI	48124					
PPP111J	MSX International - Garrison	19855 W. Outer Dr. Stes. 300 & 500	Dearborne	MI	48124					
PPP111K	MSX International Technical & Engineering Illustration Services	5361 Gateway Blvd	Flint	MI	48507					
PPP111L	MSX International Enterprise Imaging	1464 John A. Papalas Dr	Lincoln Park	MI	48146					
PPP111M	MSX International Accessory Services & Engineering Services	1120 John A. Papalas Dr	Lincoln Park	MI	48146					
PPP111N	MSX International Engineering Services - Avis	32201 N. Avis	Madison Heights	MI	48071					
PPP111O	MSX International - Tech Row	999 Tech Row	Madison Heights	MI	48071					
PPP111P	MSX International - D.E.C.S	1765 Star Batt	Rochester Hills	MI	48309					
PPP111Q	MSX International - Southfield	28333 Telegraph, Stes. 115, 301, 400	Southfield	MI	48034					
PPP111R	MSX International Training Services	12220 E. 13 Mile Road	Warren	MI	48093					
PPP111S	MSX International Special Vehicles - St Louis	11425 Moog Drive	St Louis	MO	63146					
PPP111T	MSX International Staffing Services	336 W. Passiac Street	Rochelle Park	NJ	07662					
PPP111U	MSX International Staffing Services	2636 NW 26th Ave, Ste. 206	Portland	OR	97204					
PPP111V	MSX International Staffing Services	1605 Beech St,. Ste. B	El Paso	TX	79925					
PPP111W	MSX International - Mandoline	1100 E. Mandoline	Madison Heights	MI	48071	Minor or area source	Permit Limitations	0.18	Automobile prototype, design, and modeling	Prototypes
PPP111X	MSX International Design Fab Center	30031 Stephenson Hwy	Madison Heights	MI	48071	Minor or area source	Permit Limitations	1.31	Prototype fabrication of motor vehicles	Prototypes
PPP112	Tower Automotive Products Co..	3533 N. 27th St	Milwaukee	WI	53216					
PPP114A	ADAC Plastics, Inc.							2.01		
PPP114A	ADAC Plastics Inc. - Saranac	6138 Riverside Dr	Saranac	MI	48881	Minor or area source	Potential Emissions	2.01	This facility molds, paints and assembles Cowl panels (leaf screens) then ships to Ford for assembly. They are molded out of 2 different plastics then only painted black using a waterborne paint.	Cowl panels
PPP114B	ADAC Plastics Inc. - Grand Rapids							10.59		
PPP114C	ADAC Plastics, Inc. - Muskegon	2050 Port City Blvd.	Muskegon	MI	49442			15.33	This facility molds, paints and assembles interior and exterior door handles and arm rest control panels. They are then shipped to various customers for assemble on vehicles.	Door handles
PPP115A	Prince Corp. Lakewood MFG	205 Douglas Ave.	Holland	MI	49424		Not Applicable	4.44	Assembly and manufacturing - interior automobile components	Interior Automotive Components
PPP115B	Prince Corp. - Maplewood Facility	88 48th Street	Holland	MI	49423		Not Applicable	2.06	Automotive components-Interior automotive plastic part manufacturing	Interior automotive components
PPP115C	Prince Corp. - Southview Campus	1600 S. Washington Ave	Holland	MI	49423		Potential Emissions	3.75	Automotive components MFG-Interior Automotive Parts.	Interior automotive components
PPP115D	Prince Corp. - Beechwood Facility	205 Douglas Ave.	Holland	MI	49424				Interior automotive components - non-plastic.	
PPP115E	Prince Corp. - Cottonwood Facility	1650 S. Washington St.	Holland	MI	49423				Automotive components mfg. - interior automotive parts.	
PPP115F	Prince Corp. - Interior Technology	1776 Airport Ct	Holland	MI	49423				Non- plastic headliner manufacturing for the automotive industry.	
PPP115G	Prince Corp. - Meadow Brook Facility	70 W. 48th St.	Holland	MI	49423				Interior automotive components - non-plastic.	
PPP115H	Prince Corp. - Technical Campus	915 E. 32nd St.	Holland	MI	49423				Product development of interior automotive components.	
PPP116	Morton International	2910 Waterview Dr	Rochester Hills	MI	48309				This is a marketing, sales and technical lab facility for a coatings manufacture, Morton Int. No production of plastic parts is done at this location.	
PPP117A	Lescoa - Middleville Plant	900 E. Main St.	Middleville	MI	49333	Synthetic minor source	Permit Limitations	3.10	We coat and assemble ash trays, glove boxes and other misc. interior trim pieces for automotive assembly plants.	Tail Lamp Housings
PPP117C	Lescoa - Plant # 7	3225 32nd St. S.E.	Kentwood	Mi	49512	Synthetic minor source	Permit Limitations	3.20	This facility molds, paints and assembles interior trim components for automobile assembly plants.	Shift Bezels
PPP118E	Magna International - Brighton Interior Systems	100 Brighton Interior Drive	Brighton	MI	48116	Unknown		0.64	Brighton Interior Systems produces interior door panels for vehicles by casting & press operations.	Vinyl door inserts
PPP120	Lyntex Manufacturing Co	4385 Garfield St.	Ubly	MI	48475					
PPP121	Key Plastics, Inc. - Howell Division (Libralter Plastics Inc.)	1301 McPherson Park Dr.	Howell	MI	48843					
PPP122A	Seibert Oxidermo - Romulus	16255 Wahrman Road	Romulus	MI	48174				The Seibert Romulus site produces conductive primers and industrial coatings for the Automotive Industries and related markets.	
PPP122B	Seibert Oxidermo - Detroit	6455 Strong Avenue	Detroit	MI	48211				The Soubrette Detroit site produces only water based paint products for the Automotive Industries and related markets.	
PPP123	H. A. Parts Products of Indiana Company	2200 St Rd 240 East	Greencastle	IN	46135	Unknown		-	We paint grilles, and other exterior parts for auto assembly plants.	Side protector
PPP126A	Leon Plastics, Inc.							22.18		
PPP126A	Leon Plastics, Inc.	4901 Clay Ave. S.W.	Grand Rapids	MI	495483074	Unknown		22.18	We paint rigid plastic as well as soft padded fe\lexible vinyl automotive interior trim.	Knee bolsters

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PPP126B	Leon Plastics, Inc.									
PPP128	Pilkington Libby Owens-Ford Co.	11700 T.C. Clinton Rd.	Clinton	MI	49236				Add components to auto glass. No product is coated per definition given. Corp. verified by talking with Bruce Moore.	
PPP130	Cooper Automotive Co.	400 East 2nd St.	Boyertown	PA	19512	Synthetic minor source	Potential Emissions	3.24	Manufacture glass (and plastic) sealed beam headlamps.	Plastic headlamp reflector
PPP131A	Vaungarde, Inc. - Bradley	1000 Bradley St	Owosso	MI	48867	Minor or area source		3.52	Reaction injection molding and painting for auto industry.	Spoilers
PPP131B	Vaungarde, Inc. - Chestnut	630 Chestnut	Owosso	MI	48867	Synthetic minor source	Actual Emissions	6.69	Topcoating of plastic parts for automobile, agricultural and recreational industries.	Fenders
PPP134	Grand Rapids Plastics, Inc.	4050 Roger B. Chaffee	Grand Rapids	MI	49518	Minor or area source	Potential Emissions		GRP uses conventional air spray (one gun) and an air booth to apply solvent based paints to plastic parts for the automotive, household appliance, and office furniture industries.	Refrigerator Grill
PPP137E	U.T. Automotive - Alma Molding Plant	1965 Williams Road	Alma	MI	48801	Minor or area source	Potential Emissions		Facility injection molds numerous automotive trim parts for various OEMs. Only a small fraction of these parts are painted/coated.	Plastic injection molded trim
PPP138G	Textron Automotive Company - Port Huron Operations	2100 Dove St	Port Huron	MI	48060	Synthetic minor source	Potential Emissions	0.73	Manufacturer & finisher of interior automotive door trim.	Interior door trim
PPP141	Purolator Products Company									
PPP144A	Collins & Aikman Plastics, Inc - Homer Plant	300 Elm Street	Homer	MI	49245	Synthetic minor source		0.03	The facility manufactures automobile interior plastic trim parts, such as armrests and interior panels.	G-van Map Cpmpartment
PPP144B	Collins & Aikman Plastics, Inc - Manchester Plant	500 West Madison Street	Manchester	MI	48158	Synthetic minor source		7.84	This facility manufactures automobile interior plastic trim parts, such as armrests and interior panels.	ZJ Door Panel
PPP144C	Collins & Aikman Plastics, Inc. - St. Joseph	211 Kerth Street	St. Joseph	MI	49085	Minor or area source		21.88	Injecting plastic molding of interior automotive plastic parts.	5385
PPP144D	Collins & Aikman Plastics, Inc. - Williamston, Noble Rd	1560 Noble Road	Williamstown	MI	48895	Minor or area source		0.01	The facility manufactures automobile interior plastic trim parts, such as armrests and interior panels.	K-Special Bolster
PPP144E	Collins & Aikman Plastics, Inc. - Williamston, Progress Ct	845 Progress Court	Williamstown	MI	48895					
PPP145	Atlantic Automotive Components	1285 N. Crystal Ave	Benton Harbor	MI	49022	Minor or area source	Potential Emissions	-	Coating of plastic parts for interior of automobiles.	Plastic Steering Cover
PPP148	Newcor Rubber and Plastics Group	1825 S. Woodward Ave. Suite 245	Bloomfield Hills	MI	483020574					
PPP149	Grand Haven Plastics, Inc.	1425 Aerial View Dr.	Grand Haven	MI	49417	Minor or area source		6.75	G.H.P is an injection molder and finisher of thermoplastic parts offering spray painting (water borne), assembly, pad printing, hot stamping and sonic welding.	Sun visor components
PPP150	American Commercial Vehicles	1100 N. Elm St	Orrville	OH	44667					
PPP151	GHSP - Hart	1500 Industrial Drive	Hart	MI	49420	Synthetic minor source	Permit Limitations	0.33	Two types of plastic parts manufactured at the facility are robotically or hand-spray painted before use in either on-site or off-site assembly processes. Pad painting/printing on some of the parts is also performed.	Lenses
PPP153	Marathon Ashland Petroleum LLC - Findlay, OH Garage	1500 Lima Ave	Findlay	OH	45840		Permit Limitations		Automotive Painting (I.e., body parts, fiberglass)	Truck/trailer Body Parts
PPP154	Schien Body & Equipment Co.	North University	Carlinville	IL	62626				We own a dump Trailer Manufacturing Co. known as Schein Equipment Inc. Address RR#2 Box 232 Carlinville, IL 62626. We do not do any plastic coating of any kind. Owner John Schein (217)854-2513. Schein Body and Equipment Co closed down in 1992.	
PPP201	IBM Rochester	3605 Highway 52 N	Rochester	MN	55901					
PPP203A	Unisys Corporation - Blue Bell, PA	Township Line & Union Meeting Rds.	Bluebell	PA	19424				UNISYS no longer manufactures at the Bluebell location. This facility is the world headquarters and houses administrative and corporate functions.	
PPP203B	Unisys Corporation - Roseville, MN	2276 Highcrest Rd.	Roseville	MN	55113				Computer engineering and software development.	
PPP203C	Unisys Corporation - Bldg C Salt Lake City, UT	420 N. 2200 W.	Salt Lake City	UT	84116				We are just an office site. No manufacturing is conducted here anymore.	
PPP203D	Unisys Corporation - San Diego	10850 Vin Frontera	San Diego	CA	92127					
PPP206	Group Technologies, Inc.	10901 Malcolm McKinley Dr.	Tampa	FL	33612				Group Technologies, Inc. designs and assembles printed circuit card assemblies. Per conversation w/ Bruce Moore this activity is not categorized as coating of plastic parts or products.	
PPP207	Technicon Industries, Inc.	4412 Republic Ct.	Concord	NC	28027				Flame laminators.	
PPP209B	Pitney Bowes - Milford	105 Woodmont Rd	Milford	CT		Minor or area source	Potential Emissions	0.12	Spray painting of copier compounds for appearance.	Photocopier covers
PPP209C	Pitney Bowes - Newton	Edmund Road	Newton	CT		Synthetic minor source	Potential Emissions	0.08	Spray painting of weighing scale platens and covers, for remanufactured product.	platten
PPP209D	Pitney Bowes - Danbury	34 Executive Drive	Danbury	CT		Minor or area source	Potential Emissions			meter covers
PPP215	Compaq Computer Corporation	20555 State Highway	Houston	TX	77070					
PPP216	Ovation Instruments, Inc.	37 Greenwoods Road	New Hartford	CT	06057				Ovation Instruments is a manufacture of musical instruments and it is not in the business machine parts subcategory of the plastic parts and products surface coating industry.	
PPP225	Motorola, Inc. - Corporate Offices	1303 E. Algonquin Rd.	Schaumberg	IL	60196					
PPP237	Drake Communication Products Inc.	33 Comac Loop	Ronkonkoma	NY	11779					
PPP242	Kewaunee Scientific Corporation	2700 West Front Street	Statesville	NC	28677				Manufacture laboratory (wood and metal) furniture and fume hoods. No plastic parts.	
PPP244	Ionedge Corporation	513,B, N. Link Lane	Fort Collins	CO	80524					
PPP245	O'Sullivan Corporation	1944 Valley Avenue	Winchester	VA	22601				O'Sullivan owns and operates a polyvinyl chloride (PVC) (unsupported film) calendering facility. Once the PVC is made it can be coated, printed or laminated on a continuous web	
PPP246	Pinnacle Technologies	16153 Common Road	Roseville	MI	48066				This facility is a prototype plastic tooling manufacturer. No production of parts is done at this facility.	
PPP248	Hitemco	160 Old Bethpage	Not Reported	NY	11084	Minor or area source	Permit Limitations	-	Not Reported	Transducer blocks

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PPP250A	Lucent Technologies, Inc. - Denport West	1200 W. 120th Avenue	Westminster	CO	80234				The manufacturing and repair of BCS products including Enterprise Communication Office Platforms (ECOP), Call Centers, Message Management & Response (Octel Messaging), Small Business Systems (Merlin), and Misc. Wireless, & Data Networking Products, Wareho	
PPP250AA	Lucent Technologies, Inc. - Little Rock Repair and Distribution Center	7400 Scott Hamilton Drive	Little Rock	AR	72209				Sort used telecommunication equipment and repair specific BCS product lines. Distribute refurbished product to customers. Also operate a telephone call center (National Parts Service Center) which provides overnight delivery of product to business custome	
PPP250B	Lucent Technologies, Inc. - Power Systems	3000 Skyland Drive	Plano	TX	75149				Epoxy coating of large power transformers done by dipping transformers into tank of epoxy resin followed by curing in oven. No. VOC's present in Epoxy Resin.	
PPP250BB	Lucent Technologies, Inc. - Charlotte Global Provisioning Center	6701A Northpark BLVD.	Charlotte	NC	28216				This facility conducts repair of network type equipment including circuit boards. It also conducts screening activities to find good units and circuit boards from a number of unknown quality units that have been purchased from service providers. The good	
PPP250C	Lucent Technologies, Inc. - Columbus Works	6200 East Broad Street	Columbus	OH	43213				Manufactures wireless switches for the telecommunication industry	
PPP250CC	Lucent Technologies, Inc. - Concord Technology Center	300 Baker Avenue	Concord	MA	01742216 8				Sales, Marketing, Design, Development, Assembly and Test of Data Networking Systems LAN and Wan Networking products	
PPP250D	Lucent Technologies, Inc. - AG Communication Systems	333 East First Street	Genoa	IL	60135					
PPP250DD	Lucent Technologies, Inc. - Cirent Semiconductor	9333 South John PKWY.	Orlando	FL	32819				Semiconductor Manufacture- Wafer Fabrication	
PPP250E	Lucent Technologies, Inc. - Denport South	2929 Blaird Road	Shreveport	LA	71118382 3				Facility manufactures business phones and PBX switches, mostly through assembly of parts.	
PPP250F	Lucent Technologies, Inc. - Red Hills Bell Lab	480 Red Hill Road	Middletown	NJ	07748				Facility estimated R & D Annual HAP Emission Rates previously submitted to the EPA	
PPP250G	Lucent Technologies, Inc. - Murray Hill Bell Labs	600/700 Mountain Ave.	Murray Hill	NJ	07974				Facility estimated R & D Annual HAP Emission Rates previously submitted to the EPA	
PPP250H	Lucent Technologies, Inc. - Network Software Center	2600 Warrenville Rd.	Lisle	IL	60532				Facility estimated R & D Annual HAP Emission Rates previously submitted to the EPA	
PPP250I	Lucent Technologies, Inc. - Crawford Hill Bell Labs	791 Holdel-Keyport Road	Middletown	NJ	07748				Facility estimated R & D Annual HAP Emission Rates previously submitted to the EPA	
PPP250J	Lucent Technologies, Inc. - Holmdel Bell Labs	101 Crawfords Corner Rd.	Holmdel	NJ	07733				Facility estimated R & D Annual HAP Emission Rates previously submitted to the EPA	
PPP250K	Lucent Technologies, Inc. - Engineering Research Center	Carter Road(Route 56)	Princeton	NJ	08542				R & D facility	
PPP250L	Lucent Technologies, Inc. - Chester Bell Labs	50 North Road	Chester	NJ	07930				Facility estimated R & D Annual HAP Emission Rates previously Submitted to the USEPA.	
PPP250M	Lucent Technologies, Inc. - Whippany Bell Labs	67 Whippany Road	Whippany	NJ	07981				Facility estimated R & D Annual HAP Emission Rates previously Submitted to the USEPA.	
PPP250N	Lucent Technologies, Inc. - Indian Hill Main	2000 N.Naperville Road	Naperville	NJ	60566				Facility estimated R & D Annual HAP Emission Rates previously Submitted to the USEPA.	
PPP250O	Lucent Technologies, Inc. - Omaha Works	120th and I Street	Omaha NE						The Omaha Works is part of the Network Systems business unit of lucent Technologies and is located in Omaha, Nebraska on a 340 acre site. The facility is engaged in manufacturing of telecommunications, data communication, video and audio system equipment.	
PPP250P	Lucent Technologies, Inc. - Reading Facility	2525 N. 12th Street	Reading	PA	19612				Facility Manufactures Semiconductors, optoelectronic components, and related devices (SIC Code 3674) for the Information Management Industry	
PPP250Q	Lucent Technologies, Inc. - Atlanta Works	2000 Northeast Expwy.	Norcross	GA	30071				Manufacture of optical glass fiber and fiber optic cable. Fiber is produced by depositing silica vapor onto pure glass tube then drawing the softened glass down to the required fiber diameter. Fiber optic cable is manufactured by coloring the glass fibers	
PPP250R	Lucent Technologies, Inc. - Merrimack Valley Works	1600 Osgood St.	N.Andover	MA	01845				Merrimack Valley designs, manufactures, markets and customer supports transmission systems.	
PPP250S	Lucent Technologies, Inc. - Litespec Optical Fiber L.L.C.	76 Alexander Drive	RTP	NC	27709				Manufactures fiber optic cables telecommunication industries	
PPP250T	Lucent Technologies, Inc. - Fitel Lucent Technologies	201 Adamson Industrial Blvd.	Carrollton	GA	30117938 2				This facility manufactures loose tube fiber optic cable. The glass fiber is manufactured at other locations.	
PPP250U	Lucent Technologies, Inc. - Mount Olive Product Realization Center	450 Clark Drive, International Trade Center	Mount Olive	NJ	07828				Assemble wireless telephone infrastructure equipment. Manufacture circuit packs for the wireless equipment.	
PPP250V	Lucent Technologies, Inc. -	555 Union Blvd.	Allentown	PA	18103122				Manufactures silicon wafers and semiconductor chip	
PPP250W	Lucent Technologies, Inc. -	7725 West Reno Avenue	Oklahoma City	OK	73127				Manufactures and assembles telecommunication	
PPP250X	Lucent Technologies, Inc. - Phoenix Global Provisioning Center	3750 W. Indian School Road	Phoenix	AZ	85019				This location manufactures end of life cycle equipment that has been transferred from the larger Works location. It also has facilities for manufacturing state of the art equipment in small quantities. It is also a Global Provisioning Center engaged in wh	
PPP250Y	Lucent Technologies, Inc. - Kansas City Global Provisioning	9501W.. 67th Street	Merriam	KS	66203				This location manufactures end of life cycle equipment that has been transferred from the larger Works location. It also manufactures custom cable assemblies. It also is a Global Provisioning Center that conducts whole order delivery of custom orders.	
PPP250Z	Lucent Technologies, Inc. - Indianapolis Customer Information Center	2885 N. Franklin Road	Indianapolis	IN	46219				This location prints and distributes documents for both AT&T and Lucent Technologies	
PPP301	Volant Ski Corporation	10601 W I-70 Frontage Rd N		CO	80033	Unknown		1.22	Manufacture of snow ski and snowboards	Snow Skis
PPP302	Conarc Inc	20 School St. PO Box 24	Terryville	CT	06763					
PPP303	BASF Corporation	NA	NA							
PPP304	Hicks & Otis Prints, Inc.	9 Wilton Avenue	Norwalk	CT	06851					

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PPP305A	Hasbro, Inc. - 1027 Newport Ave. Pawtucket	1027 Newport Ave.	Pawtucket	RI	02861					
PPP305B	Hasbro, Inc. - 1011 Newport Ave. Pawtucket	1027 Newport Ave.	Pawtucket	RI	02861					
PPP305C	Hasbro, Inc. - 200 Narragansett E. Providence	200 Narragansett Park Dr.	E. Prividence	RI	02916					
PPP305D	Hasbro, Inc.	615 Elsinore Place	Cincinnati	OH	45202	Unknown	Not Applicable	0.34	Coating of toy prototypes for research and development.	Toys, Prototypes
PPP305E	Hasbro, Inc. - Hasbro Games	50 Dunham Rd	Beverly	MA	01915	Unknown		0.04	Marketing and R & D departments.	Prototype molds
PPP306	Regal Finishing, Inc.	3927 Bessemer	Coloma	MI	49038	Synthetic minor source	Permit Limitations	11.97	We coat a wide variety of plastic parts on a contract basis.	Vehicular lighting equipment
PPP307A	Hackney & Sons Inc.	PO Box 880 - 400 Hackney Ave.	Washington	NC	27889	Minor or area source	Potential Emissions	19.62	We coat plastic slab which comprise approximately 10% of the total surfaces covered. The slabs are used on roll-up doors.	Truck bodies, doors
PPP307B	Kidron Inc	PO Box 17 - 13442 Emerson Rd.	Kidron	OH	44636				All other forms - same as PPP307A	
PPP307C	Kidron Inc	3330 Flightline Dr.	Lakeland	FL	33811				All other forms - same as PPP307A	
PPP307D	Hackney & Sons Inc.	300 Hackney ave.	Independence	KS	67301	Minor or area source	Potential Emissions	19.62	(The functions at this location are the same as at the Washington NC facility - Reporting # PPP307A.) We coat plastic slab which comprise approximately 10% of the total surfaces covered. The slabs are used on roll-up doors.	Truck bodies, doors
PPP308	Parker Hannifin Corporation, Finite Filter Division	500 Glaspie St.	Oxford	MI	48371					
PPP309	Plascore, Inc.	615 N. Fairview	Zeeland	MI	49464				Manufacturer of honeycomb structures composed of laminated plastic tubing, aluminum sheets, and resinated nylon paper sheets, used for a wide variety of purposes. No coating of plastic parts, only adhesives (99% VOC free) are used at this facility.	
PPP311	Cairn Studio	200 McKenzie Rd.	Mooresville	NC	28115				Cairn Studio is a manufacturer of polyester resin figurines with a pecan shell flour filler using a casting process. We are not a major source for the coating operations.	
PPP312A	Crown Group - Detroit Plant	6300 E. Seven Mile	Detroit	MI	48234				Misc. metal parts consisting of metallic and non-metallic components are coated under Mich. Rule 336.1621(9)(e) and as such are regulated under R. 336.1632.	
PPP312B	Crown Group - Ecorse PLT.	100 Mill St.	Ecorse	MI	48229				Current permits allow coating of plastic substrate parts. No plastic parts are currently being processed.	
PPP312C	Crown Group - Livonia PLT.	31774 Enterprise	Livonia	MI	48150					
PPP312D	Crown Group - Port Huron PLT.	1631 Dove St.	Port Huron	MI	48180					
PPP312E	Crown Group - Portland TN PLT.	133 Davis	Portland	TN	37148					
PPP312F	Crown Group - Fort Wayne IN. PLT.	4301 Engle Rd	Fort Wayne	IN	46804					
PPP313	Design House, Inc.	14700 Commerce Dr	Menmomnee Falls	WI	53051	Unknown	Not Applicable	7.93	Application of paint to polystyrene shutters by spraying & cleaning of application equipment.	Polystyrene plastic
PPP316	Central Coating Company, Inc	165 Shrewsburg St	West Boylston	MA	01583	Synthetic minor source	Permit Limitations	4.47	Central Coating Company Inc. applies E.M.I./R.F.I. Coating and cosmetic coatings on plastic housings for the computer, medical and business machine industries. Central Coating Co. Inc. is a job shop.	Coating plastic housings
PPP317	Fontaine Modification Company	5135 Cougar Trail Rd	Dublin	VA	24084				This facility is providing surface coating of heavy duty truck bodies, bumpers, doors, and hangers. The coating category would be automotive and light duty trucks?	
PPP319	Document Technologies									
PPP319	Document Technologies	2265 W Desert Cove	Phoenix	AZ	85029	Minor or area source			We recote our external copymachine covers.	Copymachine covers
PPP320	Applied Composites, Corp.	333 North 6th St.	St. Charles	IL	60174					
PPP321D	The Budd Company - Plastics Division									
PPP323A	Wilson Sporting Goods Co. - Corporate Headquarters	8700 W. Bryn Mawr	Chicago	IL	60631				This location is the corporate headquarters - All employees at this location are office workers.	
PPP323B	Wilson Sporting Goods Co. - Rosemont Tech Center	5551 N. Milton Parkway	Rosemont	IL	60018					
PPP323D	Wilson Sporting Goods Co. - Greenville	206 Georgia St.	Fountain Inn	SC	29644					
PPP323E	Wilson Sporting Goods Company									
PPP323F	HYE Precision Products	745 Carroll St.	Perry	GA	31069					
PPP323G	Wilson Sporting Goods Co. - Newbury PK	3533 Old Conejo Rd., Unit 103	Newbury Pk.	CA	91320					
PPP323H	Wilson Sporting Goods Co. - Sparta	4600 Roberts Mathers Hwy	Sparta	TN	38583					
PPP323I	Wilson Sporting Goods Co. - Springfield	601 Central Ave.	Springfield	TN	37172					
PPP323J	Wilson Sporting Goods Co. - Tullahoma	303 Wilson Ave.	Tullahoma	TN	37388					
PPP324	JRLON, Inc.	4344 Fox Road	Palmyra	NY	14522	Minor or area source			We are a New York Sate permitted "small quantity" HAP source(1996VOC total emissions aprox 7,000#'s). Mr Mike Bryant of the Eastern Research Group informs us via phone that we were included in the database for this questionnaire in advert entry and are no	
PPP325	W. Kendall & Sons, Inc.	10270 W. US Hwy. 30	Wanatah	IN	46390					
PPP328	Nero Plastics Inc.	401 S. Delaney Rd	Owosso	MI	48867	Unknown	Permit Limitations	7.62	We are custom plastic-molders of various products.	Truck body panels
PPP331	Shrock Mfg, Inc.	28531 Jami Dr.	Elkhart	IN	46515					
PPP332	Diamond Brands Inc.	1800 Cloquet Ave.	Cloquet	MN	55720					
PPP333A	Summit Polymers, Inc. - Kalamazoo	6700 Sprinkle Rd	Kalamazoo	MI	49001	Synthetic minor source	Permit Limitations	12.59	Injection molding, painting for automotive parts.	Automotive Plastic Parts
PPP333B	Summit Polymers, Inc. - Valley Plant	3140 E Kilgore	Kalamazoo	MI	49002	Synthetic minor source	Permit Limitations	5.38	Injection molding of plastic automotive parts.	Automotive Plastic Parts
PPP333C	Summit Polymers, Inc. - Syntech Plant									
PPP333C	Summit Polymers, Inc. - Syntech Plant	1211 Progress St	Sturgis	MI	49091	Unknown			Injection molder, decorator & assembler of plastic parts for automotive interiors.	plastic products

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PPP333E	Summit Polymers, Inc. - East Plant	6717 Sprinkle Rd	Kalamazoo	MI	49002	Synthetic minor source	Permit Limitations	2.85	Injection molding & painting of plastic automotive parts.	Automotive Plastic Parts
PPP333F	Summit Polymers, Inc. - Columbia Plant	1550 E Boone Industrial Blvd	Columbia	MO	65202	Minor or area source	Permit Limitations	1.09	Injection molding & painting of plastic automotive parts.	Automotive Plastic Parts
PPP334	Evaporated Coatings, Inc.	2365 Maryland Rd.	Willow Grove	PA	19090				We do not apply coatings as defined in Enclosure 1. Chemicals listed on Table 2 are not used.	
PPP339	E-S Plastic Products ,Inc.	809 Mohr Ave	Waterford	WI	53185	Minor or area source	Potential Emissions	0.00	Custom plastic injection molder with pad printing and vacuum metallizing secondary operations.	Timing Light parts
PPP341	Resinart	1621 Placentia Ave.	Costa Mesa	CA	92627					
PPP342	American Mannequin									
PPP342	American Mannequins Inc.	220 N. Sunset Ave.	City of Industry	CA	91744	Unknown			We manufacture mannequins and props for the retail environment. We paint the fiberglass mannequins.	Mannequins
PPP343	Eyelematic Manufacturing Company, Inc.	1 Seemar Rd	Watertown	CT	06795					
PPP346	Aeroquip Corp.	1035 Mecklenburg	Mooresville	NC	28115				Plant closed 4/1997.	
PPP347	GenCorp Inc.	175 Ghent Road	Fairlawn	OH	44333330					
PPP348	Sun Plastic Coating Co.	42105 Postiff	Plymouth	MI	48170					
PPP356	Metro Plastics Technologies, Inc.	9175 E. 146th St.	Noblesville	IN	46060	Minor or area source	Permit Limitations	0.08	Plastic injection molding of miscellaneous parts. Coating operation on one production part - a cover site tube. Occasional use of spray coatings to illustrate customer color choices.	Cover site tube
PPP357	General Electric Company - EMD	1350 South Second St.	Coshocton	OH	43812				This facility produces copper clad laminate for the printed wiring board industry. The five main processes are: Raw material receipt and storage; resin making; paper and fiberglass impregnation; lamination; and fabrication.	
PPP359	Strick Corp.	RR 8 Box 281	Danville	PA	19030000					
PPP362	The DECC Co. Inc	1266 Wallen Ave. SW	Grand Rapids	MI	49507					
PPP363	Precision Dynamics, Inc.	1033 Carter Ave.	Charlotte	NC	28206					
PPP365	Fleet Painting	708 Poplar Ave.	Nashville	TN	37210				We paint over-the-road van trailers and straight trucks (Ryder rental type trucks with 18-30 ft cargo boxes) for the trucking and service industries. We don't do body work or paint cars or light trucks.	
PPP368A	Winona Corporation - Winona Lake	205 First Str.	Winona Lake	IN	46590					
PPP368B	Winona Corporation - Mentone	PO Bos 527	Mentone	IN	46539					
PPP368C	Winona Corporation - Elkhart	4519 Wyland Dr.	Elkhart	IN	46516					
PPP369A	Flambeau Corporation - Blow Molding operating Division	715 Lynn Ave.	Baraboo	WI	53913	Minor or area source	Actual Emissions		Custom blow molding offering value add assembly, etc..	Tool container
PPP369B	Flambeau Corporation - Injection Molding Operating Division	801 Lynn Ave.	Baraboo	WI	53913	Minor or area source	Potential Emissions		Custom injection molding offering value add assembly, etc..	Hand sets
PPP369C	Flambeau Corporation - Micro Division	1655 Corporate Center Drive	Sun Prairie	WI	53590	Minor or area source	Potential Emissions		Custom injection molding offering value add assembly, etc..	940373
PPP369D	Flambeau Corporation - Southeast Division	1330 Atlanta Hwy.	Madison	GA	30650	Minor or area source	Potential Emissions		Custom injection molding offering value add assembly, etc..	067601
PPP371	SAS Rubber Company	474 Newell Str.	Painsville	OH	44077					
PPP372	Akron Porcelain & Plastics Company	2739 Cory Ave.	Akron	OH	44314					
PPP373	L & J of New England, Inc.	15 Sagamore Rd.	Worcester	MA	01605399					
PPP375A	Lincoln Composites - Main Plant	4300 Industrial Ave.	Lincoln	NE	68504	Synthetic minor source	Permit Limitations		Manufacturer of a wide variety of specialty filament wound composite structures from glass, Kevlar or graphite with epoxy resin systems; made to individual customer specifications on a limited production scale. Products include pressure vessels for aerosp	Waste Tanks
PPP375B	Lincoln Composites - NGV	4131 N. 48th Street	Lincoln	NE	68504	Minor or area source	Permit Limitations		Fabrication of all composite fuel tanks for fleet vehicles (buses) and automobiles and other uses using glass and carbon filament winding with an epoxy resin around a high density polyethylene (HDPE) thermoplastic liner.	Natural gas vehicle fuel tanks
PPP375C	Lincoln Composites - 820	4720 NW 38th Street	Lincoln	NE	68504	Minor or area source	Permit Limitations		Fabrication of composite filament wound external fuel tanks for military customers. Tanks are wound around plastic or resin inner liners and painted to customer's specifications prior to shipping.	External Aircraft Fuel Tanks
PPP376A	M. H. Eby, Inc. - Blue Ball	1194 Main Street	Blue Ball	PA	17506					
PPP376B	M. H. Eby, Inc., Ohio Division - West Jefferson	4435 State Route 29	West Jefferson	OH	43162					
PPP379	Carrom Company	218 E. Dowland St	Ludington	MI	49431				We use some plastic parts in assembly, and coat wood parts with sealers, finishes, inks & enamels; but do not coat any plastic products.	
PPP382	Peerless Coatings, Inc.	1611 22nd St. SE	Cullman	AL	35055				Manufacture of wood and industrial coatings.	
PPP383	Nautilus International Corp.	709 Powerhouse Rd.	Independence	VA	24348					
PPP384	Jones Performance Products, Inc.							1.07		
PPP389A	GI Plastek Limited Partnership - Bellville	1202 Mill Road	Bellville	OH	44813				Manufacturer of plastic components that supports a variety of industries. NO coating operations are preformed at this facility.	
PPP389B	GI Plastek Limited Partnership - Marysville	648 Clymer Road	Marysville	OH	43040				This facility produces injection molded parts for a variety of industries. NO coating operations are performed at this facility.	
PPP389C	GI Plastek Limited Partnership, Dec-Rite Div.	692 Clymer Road	Marysville	OH	43040	Unknown		9.32	This facility performs secondary assembly and finishing operations for plastic parts, most of which are molded by a company related injection molding plant that is located next door to it.	Plastic top cover
PPP394	Plasti - Paint Inc	801 Woodside Dr	St Louis	MI	48880	Synthetic minor source	Permit Limitations	7.00	We paint products for the automotive market.	Plastic products
PPP395A	Burpee Company - Barrington Plant	128 West Liberty Street	Barrington	IL	60010	Synthetic minor source	Potential Emissions	0.09	The Burpee Company's Barrington plant fabricates and coats metal parts. However, some plastic parts are glued together and used in the final metal product.	Gasket & Plastic backing
PPP395B	Burpee Company - Cary Plant	170 Detroit Street	Cary	IL	60013	Minor or area source	Potential Emissions	-	The Burpee Company's Cary plant produces miscellaneous plastic parts by injection molding. Some parts require gluing together to form the final product.	Plastic holders
PPP396	Novabus Incorporated	42 Earl Cummings LPW	Roswell	NM	88201					
PPP397	Massee Products Ltd.	2612 N 5th Street	Niles	MI	49120					

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PPP398	FET Engineering, Inc.	903 Nutter Drive	Bardstown	KY	40004					
PPP404	Sajar Plastics, Inc.	15285 South State Avenue	Middlefield	OH	44062				Products include various plastic parts that are painted/coated. These products include toys, misc. retail articles, medical, lawn & garden, entertainment, electrical, electronic, telecommunications, banking, business equipment and transportation articles	
PPP405	Pharmacia & Upjohn Company	7000 Portage Road	Kalamazoo	MI	49001					
PPP406	Newport Thin Film Laboratory Inc	4534 Carter Court	Chino	CA	91710					
PPP407A	MetoKote Corporation - Plant #6	3435 Stop Eight Road	Dayton	OH	45414				Electrocoating of miscellaneous metal parts.	
PPP407B	MetoKote Corporation - Plant #7	2945 South Gate Drive	Sumter	SC	29154				Electrocoating of miscellaneous metal parts.	
PPP407C	MetoKote Corporation - Plant #8	8186 Industrial Park Drive	Grand Blanc	MI	48439				Electrocoating of miscellaneous metal parts.	
PPP407D	MetoKote Corporation - Plant #9	5477 Evergreen Parkway	Sheffield Village	OH	44054				Electrocoating of miscellaneous metal parts.	
PPP407E	MetoKote Corporation - Plant #11	5750 State Route 251	Peru	IL	61354				Electrocoating of miscellaneous metal parts.	
PPP407F	MetoKote Corporation - Plant #12	1540 Cainsville Road	Lebanon	TN	37090				Electrocoating of miscellaneous metal parts.	
PPP407G	MetoKote Corporation - Plant #13	8040 Center Point 70 Blvd.	Huber Heights	OH	45424				Electrocoating of miscellaneous metal parts.	
PPP407H	MetoKote Corporation - Plant #14	702 Lewiston Road	Grovetown	GA	30813				Electrocoating of miscellaneous metal parts.	
PPP407I	MetoKote Corporation - Plant #15	312 Savannah Park Road	Cedar Falls	IA	50613				Electrocoating and wet coating of miscellaneous metal parts.	
PPP407J	MetoKote Corporation - Plant #17	7251 Zellmiller Pkwy.	Statesboro	GA	30458				Electrocoating of miscellaneous metal parts.	
PPP407K	MetoKote Corporation - Plant #18	43963 Plymouth Oaks Blvd.	Plymouth	MI	48170				Electrocoating of miscellaneous metal parts.	
PPP407L	MetoKote Corporation - Plant #19	4040 Vista Drive	Roanoke	VA	24019				Powdercoating of miscellaneous metal parts.	
PPP407M	MetoKote Corporation - Plant #21	6615 Maumee Western Road	Maumee	OH	43537				Electrocoating, powdercoating, and wet painting of miscellaneous metal parts.	
PPP407N	MetoKote Corporation - Plant #22	3116 N. Wilson Ct.	Walker	MI	49544				Electrocoating of miscellaneous metal parts.	
PPP407O	MetoKote Corporation - Plant #23	6703 NC Highway 55	Fuquay Varina	NC	27526				Electrocoating of miscellaneous metal parts.	
PPP407P	MetoKote Corporation - Plant #24	2320 Northeast Avenue	Waterloo	IA	50703				Electrocoating of miscellaneous metal parts.	
PPP407Q	MetoKote Corporation - Plant #26	9610 Corporate Park Dr.	Loudon	TN	37774				Electrocoating of miscellaneous metal parts.	
PPP407R	MetoKote Corporation - Plant #27	100 S.L. White Blvd.	LaGrange	GA	30241				Electrocoating of miscellaneous metal parts.	
PPP407S	MetoKote Corporation - Plant #28	3015 5th Ave.	East Moline	IL	61244				Electrocoating & powdercoating miscellaneous metal parts.	
PPP407T	MetoKote Corporation - Plant #29	5000 Wommack Road	Sanford	NC	27330				Electrocoating and wet painting of miscellaneous metal parts.	
PPP407V	MetoKote Corporation - Plant #1	1075 Prosperity Road	Lima	OH	45801				This plant is research and development only, no full production is completed at this facility.	
PPP408	Viking Pools Inc.									
PPP411	Marlam Industries, Incorporated	834 E Hammond Lane		AZ	85034				This facility manufactures cultured marble products such as tubs, sinks, etc. Also, the facility manufactures laminated countertops and corian. The painting or coating of plastic parts does not occur at this facility.	
PPP412	Onvoy / Division of Badger Plug Company	610 Beliot Road	Walworth	WI	53184					
PPP415	S R of Arkansas							-		
PPP416	Astro Industries Inc. - Division of Borden Chemical	114 Industrial Blvd.	Morganton	NC	28655					
PPP417	Select Engineering, Inc.	260 Lunenburg Street	Fitchburg	MA	01420					
PPP418	Risdon AMS	60 Electric Ave.	Thomaston	CT	06787	Synthetic minor source	Actual Emissions	4.24	Mold components for assembly of cosmetic pumps. Vacuum metalizing of cosmetic closures (caps) for fragrance industry.	Cosmetic caps
PPP420B	Polaris Industries, Inc. - Spirit Lake							17.34		
PPP420B	Polaris Industries, Inc. - Spirit Lake	1900 Hwy 71	Spirit Lake	IA	51360	Synthetic minor source	Permit Limitations	17.34	Polaris Industries, Inc. designs, engineers, manufactures and markets snowmobiles, all-terrain vehicles, personal watercraft and motor cycles for recreational and utility use.	Watercraft
PPP422	Viskase Corporation	106 Blair Bend Drive	Loudon	TN	37774					
PPP425A	Contempoary Products - Plant 1	N57 W13580 Reichert Ave.	Menomonee Falls	WI	53051			7.16		
PPP425B	Contemporary Products, Inc. - Plant 2	N57 W13282 Carmen Ave	Menomonee Falls	WI	53051					
PPP425C	Contemporary Products, Inc.	CBI								
PPP425D	Contempoary Products - Plant 4	N56 W13640 Silver Spring Ave	Menomonee Falls	WI	53051					
PPP427B	Thomasville Furniture Industries, Inc. - Plant B									
PPP427E	Thomasville Furniture Industries, Inc. - Plant E/COF/CDK/New Y	1425 Unity Street Ext.	Thomasville	NC	27360					
PPP427F	Thomasville Furniture Industries, Inc. - Fayette Plant	Jefferson Industrial Park	Fayette	MS	39069					
PPP427G	Thomasville Furniture Industries, Inc. - Upolstery Cutting Plant # 8	890 F Avenue Drive SE	Hickory	NC	28602					
PPP427I	Thomasville Furniture Industries, Inc. - Sawmill Plant	4003 Hwy 321-A	Hudson	NC	28638					

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PPP427J	Thomasville Furniture Industries, Inc. - Johnson City Plant	815 Love Street	Johnson City	TN	37605					
PPP427K	Thomasville Furniture Industries, Inc. - Plant N	150 Jennings Street	Thomasville	NC	27360					
PPP427M	Thomasville Furniture Industries, Inc. - Smethport Lumber Yard	151 Smethport Drive	West Jefferson	NC	28694					
PPP427N	Thomasville Furniture Industries, Inc. - Conover Plant	1118 Old Hwy 70A West	Conover	NC	28613	Synthetic minor source	Potential Emissions		We manufacture wood furniture, which may contain plastic parts such as decorative moldings, feet, etc..	Upholstered furniture
PPP427O	Thomasville Furniture Industries, Inc. - Upolstery Plant 7	2260 Highland Avenue	Hickory	NC	28601					
PPP427Q	Thomasville Furniture Industries, Inc. - Upolstery Cutting Plant 6	3165 Highland Avenue	Conover	NC	28613					
PPP427R	Thomasville Furniture Industries, Inc. - Carysbrook Plant	Route 15 & 615	Fork Union	VA	23055					
PPP427S	Thomasville Furniture Industries, Inc. - Statesville Plant	820 Cochran Street	Statesville	NC	28677					
PPP427T	Thomasville Furniture Industries, Inc. - Troutman Plant 4	350 Old Murdock Road	Troutman	NC	28166					
PPP427U	Thomasville Furniture Industries, Inc. - Troutman Plant 3	Old Murdock Road	Troutman	NC	28166					
PPP430	Timpte Inc.	1827 Industrial Drive	David City	NE	68632				Timpte is not subject to the submittal of information on the questionnaire because Timpte Inc. only surface coats metals.	
PPP431	The Shelburne Corporation	6221 Shelburne Road	Shelburne	VT	05482					
PPP432	Southern Defense Systems, Inc.	168 Technology Way	Eastaboga	AL	36260					
PPP433	Genesee Coatings, LLC	56 Harvester Ave.	Batavia	NY	14020				Note: Exempt per Bruce Moore (less than 25 gallons per month)	
PPP434	American Coatings Technologies, Inc.	200 Industrial Blvd.	Greenville	NC	27834					
PPP437	General Electric Company - d/b/a GE Plastics	1 Lexan Lane	Mt. Vernon	IN	47620	CBI	CBI		Coating of plastic sheet and plastic film.	Extrusion/coating of plastic sheets/film
PPP438	Vincent Industrial Plastics, Inc.	920 North Adams St	Henderson	KY	42420					
PPP439	Asheville Paint and Powder Coat, Inc.	16 Old Charlotte Hwy	Asheville	NC	28805				Commercial powder coater of ferrous and non-ferrous metal parts.	
PPP441	DeKalb Molded Plastics Company	6422 US 6 West	Butler	IN	46721	Minor or area source	Potential Emissions	2.23	Structural Plastic Molding and Finishing	Plastic Parts
PPP442	Mattel - Murray	307 Poor Farm Rd.	Murray	KY	42071					
PPP446	SHAT-R-SHIELD	116 Ryan Patrick Dr.	Salisbury	NC	28147					
PPP447A	Worthington Custom Plastics, Inc. - Lebanon	655 Industrial Drive	Lebanon	KY	40033					
PPP447D	Worthington Custom Plastics, Inc. - St. Mathews	130 Worthington Dr.	St. Matthews	SC	29135	Unknown			Injection molded plastic parts producer. Some products receive conventional "wet Paint" coating applications and final assembly. Primary market served is automotive and lawn and garden.	Plastic Tractor side frames
PPP448A	Mack Molding Company - Inman Plant									
PPP449	Menasha Corporation - Montec Plastics	96 Palmer Road	Monson	MA	010570217	Minor or area source	Potential Emissions	1.24	Producer of custom injection molded plastic parts for a variety of industrial customers.	Electronic equipment covers
PPP450	J. H. Emerson Co.	22 Cottage Park Ave	Cambridge	MA	02140					
PPP451	NYPRO Colorado	805 S Lincoln St.	Longmont	CO	80501					
PPP452	Danmar Products, Inc.	221 Jackson Industrial Drive	Ann Arbor	MI	48103	Unknown		11.48	We coat a foam product for the handicapped population, such as wheelchair cushions, helmets and floatation devices for swim therapy.	Assistive Medical Devices
PPP453	K C Industries, Inc.	741 Waverly Court	Holland	MI	49423	Synthetic minor source	Permit Limitations	0.01	KC Industries is a job shop that finishes wood, metal and plastic substrates. We perform powder coat and wet coat application. We have both batch and overhead operations.	9593W, Primer
PPP455	Cardinal Scale Manufacturing Company	203 East Daugherty	Webb City	MO	64870					
PPP4584	Donnelly Corporation - 40th Street facility	40th Street	Holland	MI	49423					
PPP458A	Donnelly Corporation - Arizona	4400 S Santa Rita Avenue	Tuscan	AZ	857141642					
PPP458G	Donnelly Corporation - Grand Haven	1800 Hayes	Grand Haven	MI	49417					
PPP458I	Donnelly Corporation - 128th Avenue North	128th Avenue North	Holland	MI	49424					
PPP458J	Donnelly Corporation - North Industrial Complex	John F Donnelly Drive	Holland	MI	49424					
PPP458K	Donnelly Corporation - Kentucky	One Morgan Place	Mt. Sterling	KY	40353					
PPP458N	Donnelly Corporation - Newaygo Facility	700 S. Park Dr.	Newaygo	MI	49937					
PPP459A	Spensor Industries, Inc.	902 Buffaloville Rd.	Dale	IN	47523				Custom fabrications/molding of thermo formed plastic for appliance housings, housings for exercise equipment, housings for projector TV's, refrigeration housings on trucks, etc.	
PPP459B	Spensor Industries, Inc.	16 Dunn St.	Dale	IN	47523	Minor or area source	Potential Emissions	6.43	Custom fabrications/molding of thermo formed plastic for appliance housings, housings for exercise equipment, housings for projector TV's, refrigeration housings on trucks, etc.	Housings for Refrig. Units on trucks
PPP460	St. Croix of Park Falls, LTD (St. Croix Fishing Rods)	856 4th Ave N.	Park Falls	WI	54552	Unknown		0.03	Painting fishing blanks by means of a squeegee process. This is all done manually! No control devices are used!	Fishing rod blanks
PPP463	Goodyear Tire & Rubber Co.									
PPP465	GZA GeoEnvironmental, Inc.	North 4140 Duplainville	Pewaukee	WI	53072					
PPP469B	Green Tokai Company LTD. - Maysville	1780 Downing Drive	Maysville	KY	41086	Minor or area source	Potential Emissions	0.22	Manufacture automobile moldings by plastic extrusion, injection molding and finishing processes	Weather-strip molding
PPP470	American Extruded Plastics Inc.	938 Reynolds Place	Greensboro	NC	27403				Custom extrusion of plastic.	
PPP472	3-D Manufacturing Company, Inc.	500 Airport Drive	Shawano	WI	54166	Synthetic minor source	Permit Limitations		3-D Manufacturing, Inc. produces, finishes and paints emergency response vehicles (fire trucks, Ambulances. Etc.)	Emergency Response Vehicles

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PPP475	Amery Technical Products (AMTEC, Inc.)	241 Venture Drive	Amery	WI	54001					
PPP476B	Eastman Kodak Company - KPG	460 Buffalo Road	Rochester	NY	14652	Synthetic minor source	Potential Emissions		The facility serves as a manufacturing and research center for electronic imaging media, aluminum optical media dicks and polycarbonate writable CD dicks are coated via spin coat technology. Coating applied to polycarbonate disks are restricted to resear	Aluminum optical media disks
PPP476C	Eastman Kodak Company - Kodak Colorado Division	9952 Eastman Park Drive	Windsor	CO	805511590					
PPP477A	LaCrosse Footwear, Inc. - Claremont Division	401 Washington St.	Claremont	NH	037432776					
PPP478	Rehau Incorporated	1110 N. Clay Street	Sturgis	MI	49091	Synthetic minor source	Permit Limitations		Gravure coating of vinyl trim ("edgeband") for the furniture industry. Profiles are extruded then coated in-line.	Vinyl (PVC) T-Molding
PPP479	Midwest Plastic Engineering, Inc.	1501 Progress	Sturgis	MI	49091	Unknown		0.01	Spray painting of plastic parts.	Plastic parts
PPP485	Aero Spec Paint & Finish, Inc.	3215 Bennett St. N.	St Petersburg	FL	33713					
PPP487B	Artic Cat Inc. - Thief River Falls	601 Brooks Avenue South	Thief River Falls	MN	56701					
PPP488A	Mack Molding Company - Inman	10769 Asheville Hwy	Inman	SC	29349	Synthetic minor source	Permit Limitations	17.51	We mold, assemble, and paint a wide variety of plastic parts on a contract basis.	Plastic parts
PPP488B	Mack Molding Company - Statesville	149 Water Tank Road	Statesville	NC	28677	Synthetic minor source	Permit Limitations		We are an injection molding facility + we coat a wide variety of plastic parts that we mold. As of 11-9-98 we are around 85% water-based paints.	Plastic Parts
PPP490	Christian Brothers, Inc.	1001 State Ave. North	Warroad	MN	56763					
PPP494	Rutland Plastic Technologies, Inc.	10021 Rodney St.	Pineville	NC	28134					
PPP497	Kenro Incorporated	200 Industrial Drive	Fredonia	WI	53021					
PPP499	McClain E-Z Pack (formerly Galion Solid Waste Equipment, Inc.)	500 Sherman St.	Galion	OH	44833				Manufacturer of refuse equipment - Front loaders - side loaders - rear loaders, etc.	
PPP502	AMF Bowling Products, Inc.	8100 AMF Drive	Mechanicsville	VA	23111					
PPP503	Astro Cap Manufacturing, Inc.									
PPP504	Wilson Marble, Inc.	1134 E. Wabash	O'Fallon	MO	633662774	Unknown	Potential Emissions		Marble casting operation. Gel applied to molds via HVLP equip. in spray booth, marble matrix hand applied to molds - open - semiclosed.	Vanity tops
PPP506	Knapheide Manufacturing Company	436 South 6th St	Quincy	IL	62301					
PPP509	Exxene Corporation									
PPP510	Arkay Plastics Illinois, Inc.									
PPP510	Arkay Plastics Illinois, Inc.	2009 S. Main St.	Paris	IL	61944	Unknown	Permit Limitations		Plastic injection molding of automotive parts and other customer items (TV set cases); spray painting of molded parts; adhesive spray painting for parts assembly; and foam-in-place molding of automotive parts.	Plastic automotive parts
PPP511	GAC Plastics, LLC (formerly Glass Alternatives Corp.)	65 Fochtman Industrial Dr.	Petaskey	MI	49770			7.04	Coating and painting a variety of molded plastic parts on a contract basis.	CBI
PPP514	Mastermold, LLC	111 Grell Lane	Johnson Creek	WI	53038	Synthetic minor source	Permit Limitations	15.16	We coat a variety of plastic parts on a contract basis. Majority is prime coat only. Top coat used are of very low gloss, satin finish, higher solids material.	Onan RV generator boxes
PPP515	V.J Dolan & Company Inc.	1830 N.Laramie	Chicago	IL	60639					
PPP516	Beck Industries	74 Newport	Leola	PA	17540					
PPP517	Fluoro-Seal, Inc.	6018 Griggs Road	Houston	TX	77023					
PPP520	Federated Panit Mfg. Co. Inc.	1882 S. Normal Ave	Chicago	IL	60616					
PPP522A	Handi-Craft Co.	1111 Roe St./P.O. Box 50	Bonne Terre	MO	63628					
PPP522B	Handi-Craft Co.	4433 Flyer Ave. St. Louis	St. Louis	MO	63116					
PPP523	Amdek, Inc.									
PPP524	London Industries, Inc.	350 E. High St.	London	OH	43140	Synthetic minor source	Potential Emissions	5.55	We coat a variety of plastic parts on a contract basis for the automotive industry.	Plastic Auto Parts
PPP525	Fisher Barton, Inc.	201 Frederick St.	Watertown	WI	53094					
PPP527	Norplas Industries Inc.	7825 Caple Blvd.	Northwood	OH	43619					
PPP527ZZ	Norplas Industries Inc.	7825 Caple Blvd.	Northwood	OH	43619					
PPP528A	Walman Optical - Baltimore	6304 Blair Hill Lane	Baltimore	MD	21209	Unknown		0.05	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528B	Walman Optical - Bemidji	510 Beltcamp Ave	Bemidji	MN	56601	Unknown		0.00	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528C	Walman Optical - Billings	454 Moore Ln Suite 5	Billings	MT	59101	Unknown		0.07	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528D	Walman Optical - Denver	495 W. Cedar Avenue	Denver	CO	80223	Unknown		0.06	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528E	Ultra Coatings	6820 Shingle Creek Parkway	Brooklyn Center	MN	55430	Unknown		4.53	Plastic Parts on contract basis.	Plastic windows
PPP528F	Walman Optical - Duluth	426 Medical Arts Bldg	Duluth	MN	55802	Unknown		0.04	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528G	Walman Optical - Evansville	1121 Diamond Ave. Expwy	Evansville	IN	47711	Unknown		2.77	Optical lab preparing spectacle lenses some of which are coated.	Plastic lenses
PPP528H	Walman Optical - Fargo	1404 33rd St So. Suite K	Fargo	ND	58103	Unknown		0.04	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528I	Walman Optical - Fort Wayne	4629 Lima Road	Fort Wayne	IN	46808	Unknown		0.04	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528J	Walman Optical - Great Falls	410 Central Ave, 320 Strain Bldg	Great Falls	MT	59401	Unknown		2.75	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528K	Walman Optical - Green Bay	715 14th Avenue	Green Bay	WI	54304	Unknown		0.04	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528L	Walman Optical - Kent	20417 80th Avenue South	Kent	WA	98032	Unknown		0.05	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528M	Walman Optical - Las Vegas	3321 Sunrise Avenue Suite 110	Las Vegas	NV	89101	Unknown		0.04	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses

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PPP528N	Walman Optical - Minot	17 2nd Ave. S.E.	Minot	ND	58701	Unknown		2.78	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528O	Walman Optical - Missoula	1245 South 3rd West	Missoula	MT	59801	Unknown		0.05	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528P	Walman Optical - Montgomery	1601 Forest Avenue	Montgomery	AL	36106	Unknown		0.04	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528Q	Walman Optical - Norfolk	887 norfolk Square	Norfolk	VA	55411	Unknown		0.08	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528R	Walman Optical - Omaha	11019 I Street	Omaha	NE	68137	Unknown		0.04	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528S	Walman Optical - Rock Island	211 18th Street	Rock Island	IL	61201	Unknown		0.00	Optical lab processing spectacle lenses some of which are coated.	Plastic lenses
PPP528T	Walman Optical - Sioux Falls	1733 South Sherman	Sioux Falls	SD	57105	Unknown		0.04	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528U	Walman Optical - Springfield	4179 W Jefferson	Springfield	IL	62707	Unknown		0.05	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528V	Walman Optical - York	150 Rose Court	York	PA	17402	Unknown		0.03	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528W	Acurex	6820 Shingle Creek Pkwy	Brooklyn Center	MN	55430	Unknown		2.72	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528X	Walman Optical - Duluth	2775 Premier Pkwy.	Duluth	GA	30097	Unknown		0.01	Optical lab preparing prescription lenses some of which are coated.	Plastic lenses
PPP528Y	Walman Optical - Minneapolis	801 12th Ave N.	Minneapolis	MN	55411	Unknown		0.06	Optical lab processing spectacle lenses some of which are coated.	Plastic lenses
PPP531	DGP Inc.	3260 Fenner St.	Marlette	MI	48453					
PPP534	Galbreath, Inc. Plant #7	1301 W. Culver Rd.	Knox	IN	46534				Misc. Metal Parts & Products This facility manufactures Dump Trailers for the Waste Handling Industries. No plastic parts are made or coated at this facility.	
PPP535	California Products Corporation	169 Waverly Street	Cambridge	MA	02139000					
PPP537	Plas-Tech Coatings, Inc.	1000 N. Five Points Rd.	West Chester	PA	19380					
PPP540	Moonlight Industries Inc.	5320 W. River Drive	Comstock Part	MI	49321	Unknown		6.91	6 HVLP spray guns and paint booths spraying solvent reduced materials in an industrial setting. We coat a very large variety of plastic parts on a "job-shop" and contractual basis.	Furniture Industry related parts
PPP541	Tiffany Marble Manufacturing, Inc.	271 Larkin Williams Industrial Ct.	Fenton	MO	63026	Minor or area source	Permit Limitations		Manufacturer of sink tops, bathtubs, shower pans, shower walls, and miscellaneous access.	Sink Tops
PPP546	Nu-Coat Industries, Inc.									
PPP546	Nu-Coat Industries, Inc.	7709 West 20th Ave	Hialeah	FL	33014	Unknown			We coat plastic parts for the office equipment industry.	Telephone sets
PPP548	Continental Plastics Company	33525 Groesbeck Hwy	Fraser	MI	48026	Synthetic minor source	Permit Limitations	5.03	The facility uses three coating lines to coat injection molded plastic interior automobile parts.	Plastic auto interior parts
PPP551A	Donaldson Company, Inc. - Bloomington	1400 West 94th Street	Bloomington	MN	55431					
PPP551B	Donaldson Company, Inc. - Baldwin, Locust St	980 Locust Street	Baldwin	WI	54002					
PPP551C	Donaldson Company, Inc. - Baldwin, Evergreen St	500 Evergreen Street	Baldwin	WI	54002					
PPP551D	Donaldson Company, Inc. - Chillicothe	400 Donaldson Drive	Chillicothe	MO	64601					
PPP551E	Donaldson Company, Inc. - Cresco	111 Donaldson Ct.	Cresco	IA	52136					
PPP551F	Donaldson Company, Inc. - Dixon	815 Progress Drive	Dixon	IL	61021					
PPP551G	Donaldson Company, Inc. - Frankfort	3260 W. State Rd. 28	Frankfort	IN	46041					
PPP551H	Donaldson Company, Inc. - Grinnell	201 East Street South	Grinnell	IA	50112					
PPP551I	Donaldson Company, Inc. - Nicholasville	200 Etter Drive	Nicholasville	KY	40356					
PPP551J	Donaldson Company, Inc. - Stevens Point	5200 Coye Drive	Stevens Point	WI	54481					
PPP551K	Donaldson Company, Inc. - Feasterville	1741 Lorette Ave.	Feasterville	PA	19053					
PPP551L	Donaldson Company, Inc. - Old Saybrook	8 Custom Drive	Old Saybrook	CT	06475					
PPP551M	Donaldson Company, Inc. - Port Huron	2630 Dove St.	Port Huron	MI	48060					
PPP551N	Donaldson Company, Inc. - Rensselaer	1401 South Melville	Rensselaer	IN	47978					
PPP551O	Donaldson Company, Inc. - Mooresville	297 Rolling Hills Rd.	Mooresville	NC	28115					
PPP554	Attwood Corporation	1016 N. Monroe	Lowell	MI	493310260		Potential Emissions	0.01	Plastic injection molding of marine hardware and office furniture components. Surface coating is limited to one stamp pad printer to apply decals to marine pumps; one part with a hot stamped decal; and occasional adhesives in the assembly of marine parts.	Marine pumps and blowers
PPP556	Kelley Technical Coatings, Inc.	1445 & 1401 S. 15th St.	Louisville	KY	40210				We manufacture Paint & Coatings, but do not apply them.	
PPP560	United Gilsonite Laboratories	1396 Jefferson Avenue	Dunnmore	PA	18509					
PPP562	Pepro Enterprises, Inc.	4385 Garfield Street	Ubly	MI	48475					
PPP565	Milton Bradley Company	443 Shaker Road	East Longmeadow	MA	01028					
PPP569	G & L Industries (ASC Calamco)	1370 East South Street	Owosso	MI	48667				Foam pieces are coated with a resin/catalyst mixture and are applied to a substrate material and covered with vinyl or carpet. This is a patented process and does not incorporate traditional coating methods.	
PPP571	Advanced Fiber Products, Inc.	200 Cameron Ave.	LaCrosse	WI	54601	Minor or area source	Consultant	2.20	Manufacture of structural fiberglass - Pultrusion process	Tubes for aerial lift trucks
PPP575A	Johnson Controls, ASG - Battle Creek	76 Armstrong Rd.	Battle Creek	MI	49015				Wood fiber automotive interior systems.	

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PPP575B	Johnson Controls, ASG - Roseville	18125 10 Mile Road	Roseville	MI	48066				Plastic automotive interior systems.	
PPP575C	Johnson Controls, ASG - Delaney	615 South Delaney	Owosso	MI	48867				Plastic automotive interior systems.	
PPP575D	Johnson Controls, ASG - Havre de Grace	1601 Clark Road	Havre de Grace	MD	21078				Plastic automotive interior systems.	
PPP575E	Johnson Controls, ASG - Brut Plastics	1500 Crooks	Clawson	MI	48017				Plastic automotive interior systems.	
PPP575F	Johnson Controls, ASG - Ofallon	864 Hoff Road	Ofallon	MO	68336				Plastic automotive interior systems.	
PPP575G	Johnson Controls, ASG - Chestnut	401 S. Chestnut	Owosso	MI	48867				Plastic automotive interior systems.	
PPP575H	Johnson Controls, Inc., Automotive Systems Group - Sterling Heights	6600 East 15 Mile	Sterling Heights	MI	48312				Plastic automotive interior systems.	
PPP575I	Johnson Controls, Inc., Automotive Systems Group - Nashville Plastics Products	660 Massman Drive	Nashville	TN					Waterbase paint line - service parts.	
PPP575J	Johnson Controls, Inc., Automotive Systems Group - Auburn Hills Division	3800 Lapeer	Auburn Hills	MI	48326				Plastic automotive interior systems.	
PPP582	Newcourt, Inc.	150 Earland Dr.	New Holland	PA	17557					
PPP583	Plastech							-		
PPP584	L & W Products	3982 Terry Diane	Beaverton	MI	48612					
PPP585	Commercial Cam Co. Inc.	1444 S. Wolf RD.	Wheeling	IL	60090					
PPP589	United Paint and Chemical Corporation	24671 Telegraph Road	Southfield	MI	48034					
PPP593	Columbia MFG. Inc.	One Cycle St	Westfield	MA	01085				Any and all plastic parts are purchased. We do not coat plastic parts of any kind.	
PPP594	Consolidated Coating Company	5 William Way	Bellingham	MA	02019	Minor or area source	Permit Limitations	3.08	Application of coatings to a wide variety of Plastic and metal Parts on a contract basis	Computer housings
PPP595	Krueger International Inc. - Manitowoc	1400 S 4st Str.	Manitowoc	WI	54220	Synthetic minor source	Permit Limitations	-	KI Manitowoc manufactures office partitions. The partitions (referred to as systems walls or panels) are made of metal cores with metal and/or plastic components and trim and are typically covered with upholstery or vinyl. They also manufacture desk compo	Up-Ceiling Cover Holder
PPP597	C & D Aerospace Inc.	1945 S. Grove Ave.	Ontario	CA	91761	Synthetic minor source	Potential Emissions	2.27	Manufacturer of aircraft interiors.	Aircraft interior plastic parts
PPP598	Booth Electrosystems, Inc.	30 Bypass 25 N.	Greenville	SC	29611					
PPP601	Rene Composite Materials Corporation	226 Industrial Park	Pearisburg	VA	24134	CBI			CBI	CBI
PPP602	Universal Coating Inc.	1167 West. Frances Road	Mt. Morris	MI	48458					
PPP606	Martix Enterprises									
PPP608	Shickel Corporation	115 Dry River Road	Bridgewater	VA	22812					
PPP611A	Red Spot Paint & Varnish Co., Inc.	1016 E. Columbia St.	Evansville	IN	47711					
PPP611B	Red Spot Paint & Varnish Co., Inc. - Westland	550 S. Edwin St.	Westland	MI	48185					
PPP612	Molded Fiber Glass Composite Systems Company - Ashtabula	2925 MFG Place	Ashtabula	OH	44004					
PPP612A	Molded Fiber Glass - Union City	55 Fourth Ave	Union City	PA	16438					
PPP614A	Tnemec Company, Inc. - North Kansas City	123 W. 23rd Avenue	North Kansas City	MO	641163094					
PPP614B	Tnemec Company, Inc. -	417 E. Weber Street	Compton	CA	90222142					
PPP619A	PCI	8120 Goldie Street	Walled Lake	MI	48390				Coating of polyester film.	
PPP619B	PCI	#6 Wolfer Industrial Park	Spring Valley	IL	61362				Coating of polyester film.	
PPP622	Pyramid Finishes	13954 Stansbury	Detroit	MI	48226					
PPP624	3M Columbia	5400 Route B	Columbia	MO	65205	Minor or area source	Permit Limitations		The principal activity at 3M Columbia is the production of electronic products. In addition, optical components are produced.	Plastic lenses for use in projectors
PPP625	The Gillette Company - Stationery Products Group - Arrow Park	1400 N. Parker Dr.	Janesville	WI	53545					
PPP629	Gentex Optics, Inc.	PO Box 336	Carbondale	PA	18407					
PPP632	Tex-Sol Plastics	4706 Broom St	San Antonio	TX	782173709	Synthetic minor source		-	Dip coating and molding of plastisol.	Dip coating & formed product
PPP633	Chromium Corporation - Conductive Coatings Division	2602 Spence Street	Lufkin	TX	75904	CBI	CBI		CBI	CBI
PPP634	Conformance Coatings & Prototype Inc.							-		
PPP634	Conformance Coatings & Prototype, Inc.	2321 Busha Hwy	Marysville	MI	48040	Unknown	Permit Limitations	-	CCP supports various molding facilities by decorating plastic products. We supply both automotive and non-automotive applications.	Non-automotive
PPP636	JSJ Plastics, Inc. (formerly Michigan Plastics Products Company)	1500 S. Beechtree St	Grand Haven	MI	49417	Minor or area source	Actual Emissions	2.60	Plastic molding (misc. plastic parts including automotive, furniture, appliance, etc.), finishing and assembly. No final product - all for other manufacturers.	Plastic parts
PPP637A	Rexam Cosmetic Packaging, Inc.	230 Ella Grasso Ave	Torrington	CT	06790	Minor or area source	Permit Limitations	0.62	Decorative spray coating of plastic parts used for the packaging of cosmetic products, I.e. lipstick.	Plastic parts I.e. lipstick containers
PPP637B	Rexam Cosmetic Packaging, Inc.	129 Industrial Lane	Torrington	CT	06790	Minor or area source	Permit Limitations	0.09	Decorative spray coating of plastic parts used for the packaging of cosmetic products, I.e. lipstick.	Plastic parts I.e. lipstick containers
PPP638	Flexible Technologies	528 Carwellyn Road	Abbeville	SC	29620					
PPP639	Chicago Candle Corp.	141 West 62nd Street	Chicago	IL	60621					
PPP642	Maracle Industrial Finishing Co., Inc.	39 Commercial St.	Webster	NY	14580	Unknown		0.75	We job shop a wide variety of plastic parts; the majority of which are office equipment skins, on a quote/purchase order basis.	Office Equipment Covers

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PPP643	Sherwin William's Automotive Finishes Corp.	395 Boggs Lane South	Richmond	KY	40475					
PPP644	Molded Dimentions, Inc.	701 Sunset Road	Port Washington	WI	53074					
PPP645A	Applied Coating Technology, Inc.	2411 Pilot Knob Rd.	Mendota Heights	MN	55120	Unknown		0.61	Job shop painting chromate conversion, iron phosphate, powder painting, liquid painting, masking, silk-screening, pad printing, paint stripping.	Temperature sensor
PPP645B	Applied Coating Technology, Inc.	3225 Columbia Ave. NE	Minneapolis	MN	55418	Unknown		0.26	Job shop painting, chromate conversion, iron phosphate, powder painting, liquid painting, paint stripping, electro-deposition (e-coat)	Panel cutter
PPP651	Systems & Electronics Inc. (SEI)	#1 McDaniel St.	West Plains	MO	65775				SIC 3715-Manufacurer heavy transportation Equipment-includes machining, welding, cleaning, painting, and assembly of large metal parts(ferrous and nonferrous)	
PPP652A	E & R Coatings, Inc.	3729 W. 49th Street	Chicago	IL	60632					
PPP652B	E & R Coatings, Inc.	2911 W. Carroll St.	Chicago	IL	60612				Plant destroyed by fire 9-5-97-property sold	
PPP652C	E & R Coatings, Inc.	2906 W. Carroll St.	Chicago	IL	60612				Operations ceased 3-98-property vacant and for sale.	
PPP653	Johnson & Johnson - Personal Products								Personal Products Company manufactures sanitary napkins. The primary products used in manufacturing include paper pulp, polyester non-woven fabrics and hot-melt glues. Per a phone conversation with Mr. Bruce Moore, the remainder of this questionnaire d	
PPP655	Stimsonite Corporation	7542 N. Natchez Ave.	Niles	IL	60714	Synthetic minor source	Permit Limitations		Manufacturer of traffic reflectors.	Traffic reflectors
PPP656	Solar Compounds Corporation	1201 W. Blancke St.	Linden	NJ	07036					
PPP659	Caorilina Extruded Plastics, Inc.	728 Utility ST.	Greensboro	NC	27405				Custom plastic Extruders	
PPP660	Opkor Inc	740 Driving Park Ave	Rochester	NY	14613	Unknown		-	OpKor Inc. designs, molds, coats and assembles precision polymer optics. The company coats a number of polymer lenses and mirrors with reflective, antireflective and scratch resistant coatings.	Video Conferencing Lens
PPP661	Paratronix Inc.	129 Bank St.	Ahleboro	MA	02703				per our telecon with Mr. Bruce Moore on 11-9-98 at 9:15 am, we do not have to complete the survey, as it does not apply to Paratronix Inc.	
PPP662A	Brentwood Industries, Incorporated	610 Morgantown Road	Reading	PA	19611		Potential Emissions		Brentwood Industries, Inc. is a manufacturer of thermoformed plastic products. Brentwood purchases PVC, ABS, Styrene, Polypropylene, and PETG plastics in rolls and sheets. The plastic is thermoformed into a shape that is required for a specific product. T	Custom products
PPP663	Dupli-Color Products Company	1601 Nicholas Boulevard	Elk Grove Village	IL	60007	CBI	CBI		CBI	CBI
PPP664	Dollinger Corporation	101 Spruce Street	Rich Creek	VA	24147					
PPP666	Rynone Manufacturing Corp.	PO Box 128 N. Thomas Ave.	Sayre	PA	18840				Told by Bruce Moore, US EPA that this does not apply to our industry per phone conversation 10-29-98. We manufacture bathroom sink tops only. Please take us off your list Thank you Gary Perry.	
PPP668	Plastigage Corporation	2917 Widwoo Ave.	Jackson	MI	49204	Minor or area source	Potential Emissions		Custom profile plastic extrusion inj. molding, pultrusion and retail plastic fabrication.	
PPP669	Apex Engineering, Inc.	1234 Wellington Place	Wichita	KS	67203					
PPP671A	Spectrum Cubic - McConnell	13 McConnell St., SW	Grand Rapids	MI	49503	Synthetic minor source	Permit Limitations	2.53	Spectrum coats a variety of automobile interior plastic parts.	Auto Interior Parts
PPP673	Four Winns, Inc.	925 Frisbee	Cadillac	MI	49601					
PPP676	Opticote, Inc.	10455 Seymour	Franklin park	IL	60131					
PPP677	Diversified Coatings, Inc.	4580-C Mack Ave	Fred	MD	21703	Unknown			Job shop - Emi shielding on plastic parts for electronic manufacturers for use in USA and abroad	Telecommunications
PPP678	Contract Manufacturer, Inc.	300 Ind. Road	Madillo	OK	73446				We build and paint steel trailers	
PPP680	A & K Finishing, Inc. - Plant 2	4436 Donkers Court	Kentwood	MI	49512			11.23	Coat a variety of automobile related plastic parts.	
PPP680A	A & K Finishing, Inc. - Plant 1	4175 Danvers Court	Kentwood	MI	49512			11.17	Coat a variety of automobile related parts.	
PPP681	FWD Corporation	105 East 12th St	Clintonville	WI	54929159					
PPP682	Selmer Company, Inc. Vincent Bach Div.	600 Industrial Parkway	Elkhart	IN	465150310				We produce Brass and Silver musical Instruments	
PPP683A	Spalding Sports World Wide									
PPP683B	Spalding Sports World Wide									
PPP684	Perfect Plastics Industries, Inc.	Bldg 201, 14th St.	New Kensington	PA	15068	Unknown		-	Molding, finishing, and painting with water borne primer of auto bumpers for the aftermarket	Plastic Bumpers
PPP687	G. S. Industries of Bassett, Inc.	85 Rosemont Road	Bassett	VA	24055	Synthetic minor source	Permit Limitations	4.55	We coat plastic mirror frames	Plastic mirror frames
PPP691	Goldberg Brothers, Inc.	8000 East 40th Ave	Denver	CO	80207				Manufacturer of sheet metal and machined parts. We also do welding and powder coating on metal.	
PPP692	Seaward international, Inc.									
RPC104	USCP - Houston	One North Sampson	Houston	TX	77003					
RPC105	Caine Corporation	85 High Street	Hebron	OH	43025				Not a major source or synthetic minor	
RPC108	Advanced Fibermolding, Inc.	20000 19 Mile Road	Big Rapids	MI	49307					
RPC109	Rubber & Plastic Applicators, Inc.	86 Telegraph RD.	Mobile	AL	36610		Permit Limitations		Manufacture Reinforced Plastic Composites	Plastic Pipe
RPC110A	Miles Fiberglass & Composites, Inc.	1516 Main St.	Oregon City	OR	97045				We do not do any adhesive coatings to our plastic parts.	
RPC110B	Miles Fiberglass & Composites, Inc.	8855 SE Otty Rd.	Portland	OR	97266				We do not do any adhesive coatings to our plastic parts.	
RPC111	Downs Manufacturing	715 N Main St	Lawton	MI	49065	Unknown		-	We gelcoat Reinforced plastic parts.	Go-Karts
RPC113	Comtech Antenna Systems, Inc.	3100 Communications Rd	St. Cloud	FL	34769					
RPC114	Clean Tech	2017 Horizon Ct	Zion	IL	60099					
RPC116	Hydrodynamics, Inc. Dba Associated Fiberglass Engineers	2417 Weaver St	Fort Worth	TX	76117					
RPC117	Mor Tech Fab., Inc.	4945 Hwy 85 South	Williston	ND	58801					
RPC118	Bohn Fiberglass Ind.,Inc.	7100 Distribution Dr.	Louisville	KY	40258					
RPC120	Southern Fiberglass, Inc.	41 Spring St.	Jacksonville	FL	32254				Mfg. Molded parts. Not a major source or synthetic minor source	

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RPC121	Fabwel Composites	16710 Maple City Drive	Goshen	IN	46526					
RPC126	Viking Custom Paint									
RPC128	Kreider MFG., Inc.	405 Gerber St.	Ligonier	IN	46767					
RPC131	Plaschem Supply & Consulting	1415 Spar Avenue	Anchorage	AK	99501					
RPC132A	Beetle Plastics, Inc. - OK	Ardmore Industrial Airpark	Ardmore	OK	73401					
RPC132B	Beetle Plastics, Inc. - Florida	965 Bunker Avenue Building 19 Reynolds Industrial	Green Cove Springs	FL	32043					
RPC132C	Beetle Plastics, Inc. - Texas	4519 Saunders Road	Houston	TX	77093					
RPC133	Fibreright Automotive MFG., Inc.	50 Boxwood Lane	Cheektowaga	NY	14227					
RPC134	Tri Glass Plastics	10447 Product Drive	Rockford	IL	61115144					
RPC135	Belco Manufacturing Co., Inc.	2303 Taylors Valley Rd	Belton	TX	76513					
RPC136	Miller Control and Manufacturing Co., Inc.	1008 Southwest Blvd.	Clinton	NC	28328					
RPC139	Fivestar Fabrication	36620 89th Street	Twin Lakes	WI	53181					
RPC140	Competition Specialties, Inc.	16936 County Road 252	McAlpin	FL	32062					
RPC141	S. R. Smith, Inc.									
RPC142	Fibra-Form Products, Inc.	16431-45th St. NE	Rogers	MN	55374					
RPC144	Pilling's FRP Inc	RR1 Box 75	New Columbia	PA	17856					
RPC145	Dagger Canoe Co.	P.O. Box 1500	Harrimah	TN	37748				Not a major source or a Synthetic Minor	
RPC147A	Glastic Corporation - Cleveland	4321 Glenridge	Cleveland	OH	44121					
RPC147B	Glastic Corporation - Jefferson	400 E. Jefferson	Jefferson	OH	44047					
RPC148	Shenandoah Fiberglass Pro. Co., Inc.	211 E. 4th Street	Front Royal	VA	22630					
RPC149	Hipoint Trailers USA	3747 Colorado Ave	Sheffield	OH	44054					
RPC150	Haysite Reinforced Plastics	5599 New Perry Hwy	Erie	PA	16509					
RPC151	Centek Industries, Inc.	116 Plantation Oak Dr.	Thomasville	GA	31792				Not a major source or synthetic minor	
RPC152	Tankinetics, Inc.	230 Industrial Pk Rd	Harrison	AR	72601				Manufacturing of filament wound/hand lay-up fiberglass tanks and boxes. (Gel-coats are used post filament wound and in-mold for boxes.)	
RPC153	Bittner Industries, Inc.	CBI								
RPC155	Deflecta-Sheild Corporation	314 East Jefferson		IA	50060152					
RPC156	Cardinal Fiberglass Industried - Perth Amboy	1050 State Street	Perth Amboy	NJ	08862				We are not a major source or synthetic minor.	
RPC159	Yankee Plastic Company	200 South Bellingham	Riverdale	IA	52722					
RPC160	Fibrex Corporation	P.O.Box 428	Burlington	WA	98233					
RPC161	Custom Composites, Inc	P.O. Box 689	Baraga	MI	49908068				Hand laminated fiberglass parts.	
RPC162	San Juan Pools of Oklahoma, Inc.	1518 E. 5th Ct.	Tulsa	OK	741204006	Unknown			Fiberglass swimming pool manufacture w/hand lay up procedures gel coat first layer. Redim with fiberglass mat & woven and sprayed to the gelcoat layer.	Swimming Pool
RPC163B	Resolite Polyglas	1575 Lebanon School Road	West Miffin	PA	15122				Manufacture pultruded thermoset plastic composites. Pultruded shapes are angles, channels, and rectangular tubing used in electrical applications. Also, manufacture small and large molded fan blades using a press.	
RPC166	Rohrback Tooling & Fabrication	Cottage 4 Hill Ave.	Glen Rock	PA	17327				We went out of business as of 5/1/98 was never a major source or synthetic minor.	
RPC170A	TPI Composites, Inc. - Warren Facility	373 Market Street	Warren	RI	02885					
RPC170B	TPI Composites, Inc. - Portsmouth Facility	225 Alexander Rd	Portsmouth	RI	02871			14.28		
RPC173	Duro Fiber Company, Inc.	11 Park Avenue	Hudson	NH	03051					
RPC174A	McClarin Plastics, Inc - Plastics Division	211 Blettner Ave.	Hanover	PA	17331					
RPC174B	McClarin Plastics, Inc - Plastics Division	320 Maple Ave	Hanover	PA	17331					
RPC174C	McClarin Plastics, Inc - Plastics Division	816 Mcallister St.	Hanover	PA	17331					
RPC176	Lyons Industries	30000 M-62 West	Dowagiac	MI	49047				Company produces acrylic sinks, tubs and shower enclosures.	
RPC178	Wiley Sanders Truck Lines	Hwy 29	Troy	AL	36079					
RPC180	Fibertech Incorporated	4155 Courtney	Franksville	WI	53126	Synthetic minor source	Potential Emissions	0.79	Manufactures custom molded OEM plastic resin products (I.e. Garden tractor housings, etc.).	
RPC181	DACO Composite Mfg Inc	P.O. Box 487 - 1116 Foundations Dr.	Pilot Point	TX	76258					
RPC182	Sampson Fiberglass, Inc.	135 N.Kaley St.	South Bend	IN	46619					
RPC184	Acme-Wiley Corp.	147 Litton Dr.	Lexington	SC	29073					
RPC187	J.I. Plastics Co. Inc.	19233 Plunk Rd.	Zachary	LA	70791				Not a major source or synthetic minor	
RPC188	Formcrete Fiberglass Products	1900 Ray Davis Blvd	Seminole	OK	74868				Manufacture fiberglass concrete forming equipment.	
RPC189	Fibernetics, Inc.	2 Cutters Dock Road	Woodbridge	NJ	07095					
RPC190A	Viatec, Inc. - Hastings	1220 W. State St	Hastings	MI	49058					
RPC190B	Viatec, Inc. - Belding	500 Reed St	Belding	MI	48809					
RPC191	Globe Metallurgical Sales, Inc.									
RPC193	Western Power Products	900 Portway Ave.	Hoodriver	OR	97031					
RPC195B	Core Materials Corporation - Gaffney	24 Commerce Drive	Gaffney	SC	29340				This facility was started 1/5/98. It does not currently perform any coating operations. This facility is expected to get new business in 1999 which may require coating operations.	
RPC197	Fiberglass Supply, Inc.	152 Toledo St	Farmingdale	NY	11735					
RPC200	Rainsong Graphite Guitars	300 Ohukai Rd, C-214	Kihei	HI	96753				We manufacture all-graphite guitars. No plastics used here.	
RPC201	Eckler's	5130 S. Washington Ave.	Titusville	FL	32780					

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RPC202B	HPP Acquisition Co. - DBA: Hamilton Plastics/Hamilton Bathware	2291 Military Street South	Hamilton	AL	35570					
RPC204	Kathabar Inc. - Elizabethtown Plant	1301 S. Poplar St.	Elizabethtown	NC	283372461				Not a major source or synthetic minor	
RPC206	Xenon Company, Inc.	9996 Lickinghole RD.	Ashland	VA	23005				Mfg. FRP Corrosion Control Equipment. Not a Major Source	
RPC210	Fiberglas & Plastic Fab., Inc.	2832 North Webster Avenue	Indianapolis	IN	46219				Manufacturer of custom molded fiberglass products. Main line is industrial housings. We minimal assembly and do not post product coatings.	
RPC211	Topcon Omni Systems, Inc.	2430 Blvd. OF The Generals	Norristown	PA	19403					
RPC212	Sabre Yachts	12 Hawthorne Road	Raymond	ME	04071	Unknown		0.08	Manufacture sail and power yachts. Lam-up and construction of reinforced fiberglass hulls and decks, which are then assembled.	
RPC212A	Sabre Yachts	Route 302	Casco	ME	04077	Unknown		0.12	Manufacturer of power yachts.	Sabreline 47
RPC213	Fibertech Corporation	250 South Depot St.	Pendleton	SC	29670					
RPC214A	Valmont Industries, Inc.	Highway 275-P.O. Box 358	Valley	NE	680640358					
RPC214B	Valmont Tulsa	801 N. Xanthus, Box 2620	Tulsa	OK	74110					
RPC214C	Valmont Indiana	58027 Charlotte Avenue	Elkhart	IN	46516					
RPC214D	Intermountain Galvanizing	1085 West 400 North	Lindon	UT	84042					
RPC214E	Oklahoma Galvanizing	5100 SW Alliance Drive	Claremore	OK	74017					
RPC214F	Pacific States Galvanizing	9700 SW Herman RD.	Tulatin	OR	97062					
RPC214G	Calwest Galvanizing	2226 East Dominguez Street	Long Beach	CA	90810					
RPC214H	Valmont West Point	1700 South Beemer	West Point	NE	68788					
RPC214I	Valmont International, Inc.	2105 S. Mannix Drive	San Antonio	TX	78217					
RPC214J	American Lighting Systems, Inc.	2551 Valmont Drive, Box E	Brenham	TX	77833					
RPC214K	Microflect, Inc.	3575 25th St., Box 12985	Salem	OR	973090985					
RPC216	Redmont, Incorporated	P.O. Box 413	Belmont	MS	38827					
RPC217	Hot Box	250 Cane Ave N	Jacksonville	FL	32254	Unknown			Manufacture insulated covers for water valves and pumps from both aluminum and fiberglass	Fiberglass Enclosures
RPC220	Great Plains Fiberglass Fabricators, Inc.	93 Ford Lane	Hazelwood	MO	63042				Not a major source or synthetic minor	
RPC221	GHM, Inc.	RR # 1, Box #1286A, Ind. Dr.	Orwigsburg	PA	179619727	Minor or area source	Potential Emissions	0.36	Manufacturer of fiberglass reinforced plastic tanks for fire fighting apparatus. Hand and spray lay-up molding and assembly of tanks.	Water storage tanks for fire apparatus
RPC222	Grayson Tool Company	900 West Fifth Street	Minden	NE	68959				Fiberglas reinforced products, open mold chop spray up with gelcoat surface. No coating of our production parts.	
RPC223	Composites USA, Inc.	One Peninsula Drive	North East	MD	21901				Fiberglass fabricator - Not a major source or synthetic minor	
RPC227	Harwood Industries, Inc.	17833 State Hwy. 31 E.	Tyler	TX	75705	Unknown			Gel coating of hand laid, open molded FRP automobile panels and parts.	Automobile Panels
RPC228	Raven Industries, Inc.	1810 "E" Ave.	Sioux Falls	SD	57104					
RPC228A	Glasstite West	1335 West Battaglia Road	Eloy	AZ	85231	Synthetic minor source	Permit Limitations	2.36	Manufacture fiberglass pickup truck toppers.	Fiberglass toppers
RPC229	Pyramid Operating Systems	639 Keystone Rd.	Greenville	PA	16125	Unknown			Not Reported	Fiberglas Reinforced Plastic
RPC230	Midwest Towers, Inc.	Hwy 19 East	Chickasha	OK	73018					
RPC231	Avia Sport Composits	731 Main Ave. SW	Hickory	NC	28602					
RPC232	Superior Fiberglass, Inc.	205 Beaumont St.	Jacksonville	TX	75766					
RPC234	Wescott's Auto Restyling	19701 SE Hwy 212	Boring	OR	97009				Not a major source or a synthetic minor	
RPC237	Dyer Fiberglass, Inc.	59 Currie Rd.	Dyer	TN	38330					
RPC238	Neutraman, Inc.	2701 S. Coliseum Blvd. Suite 1000-A	Ft. Wayne	IN	46803					
RPC239	Windsor Fiberglass, Inc.	801 Enterprise Dr.	Burgaw	NC	28425					
RPC240A	Industrial Pipe & Plastics - LaPort	11807 North D Street	LaPorte	TX	77571					
RPC240B	Industrial Pipe & Plastics - Pasadena	3415 Lilac	Pasadena	TX	77504					
RPC240C	Industrial Pipe & Plastics - Kansas City	300 W Riddleville Rd	Kansas City	TX	78118					
RPC241	The Fiberglass Shop	2352 Main St, BLDG 2G	Concord	MA	01742					
RPC242A	Warminster Fiberglass Company	725 County Line Rd.	Southampton	PA	18966				Laminating fiberglass reinforced plastic parts on molds using polyester gel-coat, polyester resin and fiberglass reinforcement. Hand lay-up, SMC Compression molding.	
RPC242B	Warminster Fiberglass Company	1428 Elberta St.	Jacksonville	TX	75766				Laminating fiberglass reinforced plastic parts on molds using polyester gel-coat, polyester resin and fiberglass reinforcement. Hand lay-up, SMC Compression molding.	
RPC243	Steele Plastics, Inc.	1280 Sturgis Rd	Conway	AR	72032					
RPC246	Composite Structures Inc.	2828 N. 23rd St. East	Omaha	NE	681102726	Unknown	Potential Emissions		Fiberglas reinforced plastic parts are manufactured in the facility. Process includes mold making, gel coating, laminating, grinding, sanding and assembly.	Truck body parts
RPC247	Marshall Industries Composites, Inc.	2250 Central Point Parkway	Lima	OH	45804					
RPC249	Electri-Glass, Inc.	63 Compass Drive	Jackson	TN	38301					
RPC250	Crain Enterprises Inc	100 Ohio Ave	Mound City	IL	62963					
RPC253	Primary Plastics, Inc.	315 Scarborough Dr.	Endwell	NY	13760					
RPC255	The Phil Carter System, Inc.	1014 Jefferson Ave.	Newport News	VA	23607				PCS, Inc. is a fiberglass fabrication facility using open spray up processes to manufacture portable sanitation equipment (i.e. portable toilets)	

FACID	Facility_name	Street	City	State	Zip	Reported Title V Status	Title_V_basis	Estimated Total HAP (TPY) (from "Facility Data Analysis, 5-3-05.xls")	Facility_Description	Product
RPC257	Janicki Machine Design	24595 State Route 20;617/621 Sunset Park Drive	Sedro-Wolley	WA	98284				Not a major source or synthetic minor	
RPC260A	Mac Lean-Fogg Company Corporate Engineering	690 S. Chaddick Drive	Wheeling	IL	600904738				Small Research and Development Engineering facility	
RPC260B	Polymer Technologies, A MacLean-Fogg Company	420 N. Universal Blvd	Whitewater	WI	53190				Not a major source or synthetic minor source of emissions of any of the substances on the hazardous air pollutants list. No paints, adhesives or coatings are used in this injection molding operation.	
RPC260C	MacLean Molded Products, a MacLean-Fogg Company	410 Mercantile Court	Wheeling	IL	60090				Not a major source or synthetic minor source of emissions of any of the substances on the hazardous air pollutants list. No paints, adhesives or coatings are used in this injection molding operation.	
RPC260D	Precision Fiberglass, a MacLean-Fogg Company	101 Park Avenue	Newberry	SC	29108				Not a major source or synthetic minor source of emissions of any of the substances on the hazardous air pollutants list. This is a fiberglass rod manufacturing operation, where there is no respirable mineral fibers, and the amounts of constituents in the	
RPC260E	Continental Electric Company, a MacLean-Fogg Company	6655 Highway 11 North	Trussville	AL	35173				Not a major source or synthetic minor source of emissions of any of the substances on the hazardous air pollutants list. This facility paints the fiberglass rods that our other company, Precision Fiberglass, makes: however, no paint constituents in the ag	
RPC260F	Metform Corp., a MacLean-Fogg Company	2551 Wacker Road	Savanna	IL	61074				Not a major source or synthetic minor source of emissions of any of the substances on the hazardous air pollutants list. This facility makes no plastic or molded parts, however we report it for the Teflon coating of metal parts, which uses small amounts o	
RPC261	Corrosion Controlers, Inc.	2930 Ford Street	Washougal	WA	98671					
RPC264	J. Jones Enterprises	61 Skagit Key	Bellevue	WA	98006					
RPC265	GL & V - LaValley Industries	7600 NE 47th Avenue	Vancouver	WA	98661					
RPC266	G & G Fiberglass		Eldonado	TX	76936					
RPC270	Elmore Truck Accessories, Inc.	107 E. Willis, PO Box 382	Elmore	MN	56027				Fiberglas manufacture products coated include: aerial lift buckets, tanks and towers.	Towers
RPC271	Hy-Tec Fiberglass Inc.	2204 Suppliers Ct	Ft. Wayne	IN	468181172	Minor or area source	Permit Limitations	0.28	We supply the lift truck industry with boom, buckets & small parts manufactured with fiberglass reinforced plastic. We hand lay up all parts. Buckets and small parts use gelcoat in mold coating. Booms are sanded & automotive painted.	Fiberglass booms
RPC272	C & K Fiberglass Plastic's, Inc.	200 Wabash St., P.O. Box 246	Millersburg	IN	46543					
RPC273	Appalachian Plastics,Inc.	34001 Glove Dr	Glade Spring	VA	24340					
RPC274	CAD Cut	Three Mile Bridge Rd.	Montpelier	VT	05602					
RPC275	Hauk Manufacturing Company	100 North Harris Street	Cleona	PA	17042					
RPC277	Mekco Manufacturing, Inc.	11110 Hwy 42	Newton	WI	53063					
RPC278	Architectural Molded Composites	101 Northern Road	Schofield	WI	54476				MFG of Architectural Composites	Styrid
RPC280	GPI Corporation	101 Northern Road	Schofield	WI	54476					
RPC282	Bedling Tank Technologies, Inc.	200 N. Gooding St.	Belding	MI	48809					
RPC287	CDR Systems Corporation	2 Kay Larkin Circle	Palatka	FL	32177					
RPC291A	Teel Plastics - Lynn Avenue Facility	702 Lynn Avenue	Baraboo	WI	53913					
RPC291B	Teel Plastics - Hitchcock Street Facility	426 Hitchcock Street	Baraboo	WI	53913	Minor or area source	Potential Emissions	1.64	Plastic tubing produced through extrusion process is coated. Currently no tubing is being coated, data is for 1997.	Plastic tubing
RPC293	American Matrix Technologies, Inc. - (Production & Development Canter)	500 57th Street	Marion	IA	52302				Not a major source or synthetic minor	
RPC294	Melcher Mfg. Co., Inc	6017 E. Mission	Spokane	WA	99212					
RPC298	Polymer Components, Inc.	2005 N. Park Central Ave.	Nicholasville	KY	40356					
RPC299	Ecological Tanks, Inc.	2247 HWY 151 No.	Downsville	LA	71234					
RPC305	Advanced Generator Technologies	18 Lark St.	Amsterdam	NY	12010					
RPC306	Fibercast Company	25 South Main	Sand Springs	OK	74063					
RPC307	Smith Fiberglass Products Company, a division of A.O.Smith Corporation	2700 West 65th Street	Little Rock	AR	72209					
RPC312	Salo Manufacturing, Inc.	26-12th Street S.E.	Menahga	MN	56464	Minor or area source	Permit Limitations		Manufacture fiberglass tubs and showers.	Bath tubs
RPC315	Formed Fiberglass Co., Inc.	809 State Rt. 288	Fombell	PA	16123					
RPC317	Sikes Composites Corporation	320 Barrett Industrial Blvd.	Wetumpka	AL	36092					
RPC318	Glasgo Plastics, Inc.	3240 East National Rd.	Springfield	OH	45505	Synthetic minor source	Permit Limitations		Bonding of steel inserts to FRP parts and primed other FRP parts all on site.	Tulip panel
RPC319	Inland Manufacturing - SPA Factory	800 Ironwood	Olathe	KS	66061				We do no coating of plastic parts. Thank you Mr. Moore for helping us complete this form.	
RPC320	Concept Fiberglass, Inc.	P.O. Box 518 1515 East 4th Street	Grand Island	NE	68802					
RPC322	Alchem Inc.	3617 Strawberry Rd	Anchorage	AK	88502				Not a major source or synthetic minor.	
RPC323	Gorman-Rupp Company	305 Bowman St.	Mansfield	OH	44901121					
RPC328	Aqua Bath, Co. Inc.	921 Cherokee Ave.	Nashville	TN	37207				Manufacture a variety of fiberglass reinforced handicap acrylic shower and tub/showers	
RPC330	Fab-Glas Industries, Inc.	300 Industrial Drive	Angole	IN	46703					
RPC331	Mckenzie Sports Products, Inc.	1910 St. Lukes Church Road	Salisbury	NC	28146	Synthetic minor source	Permit Limitations	0.20	We coat fiberglass molds, then pour an expanding foam into mold and paint adheres to the product.	Target
RPC333	Lunn Industries	1 Garvies Point Road	Glen Cove	NY	11542	Unknown			Coat parts U.S. Navy, antenna masts, radomes, aerospace panels, etc.	Surface cleaning
RPC334	Mandish Research International	5055 State R046	Mims	FL	32754					

FACID	Facility_name	Street	City	State	Zip	Reported Title V Status	Title_V_basis	Estimated Total HAP (TPY) (from "Facility Data Analysis, 5-3-05.xls")	Facility_Description	Product
RPC335	Bathcraft Incorporated	1610 James P Rodgers Dr	Valdosta	GA	31601					
RPC336	Sequentia, Inc. subsidiary of Kemlite, Div of Crane Co.	450 N. Hwy 368	Grand Junction	TN	38039					
RPC339	FRP Incorporated	1941 US Hwy 62	Winchester	OH	45697952					
RPC341	National Cycle	2200 Maywood Dr	Maywood	IL	601531783				We form and assemble motorcycle windscreens and accessories.	
RPC342	Diamond Fiberglass Fabricators, Inc.	P.O. Box 106	Victoria	TX	77902					
RPC346	Plastickos, Incorporated	220 Prospect Park	Peachtree City	GA	30269					
RPC347	Diamond Coach Corporation	2300 West Fourth Street	Oswego	KS	67356					
RPC348	GatorGrate	95-1 Levy Rd	Atlantic Beach	FL	32233			2.40		
RPC348B	Seasafe, Inc.	209 Galser Dr.	Lafayette	LA	70508	Synthetic minor source	Potential Emissions	1.81	Structural Fiberglass facility. Produce fiberglass composites through pultrusions process. Manufacture fiberglass grating, cable tray, handrail, ladders and perform custom fabrication. Do bonding, painting, sealing, coating and cleaning.	Structural Fiberglass
RPC350	Chautauqua Fiberglass and Plastics, Inc.	80 Canal St.	Sharpsville	PA	161500255	Minor or area source	Consultant	0.28	We are a custom fabricator of corrosion resistant thermoset plastic parts. We apply gel coat to approximately 1% of our parts. We hand brush a top coat on approximately 25% of our parts.	
RPC351	Kustom City Fiberglass, Inc.	5817 2nd Avenue North	Great Falls	MT	59405				FRP Repairs & custom Production. Not a major source or synthetic minor.	
RPC354	Kar-Del Plastics, Inc.	1177 Faultless Drive	Ashland	OH	44805	Unknown			Manufacturing of Fiberglass Reinforced Thermoset Plastics. Hand lay-up open molded products. Examples: Scrubber towers, tanks, pipe, fittings, ducting, hoods, stacks, housing and other miscellaneous parts.	Pollution control equipment
RPC357	Custom Fiberglass MFG.	1018 E. Madison	Oklahoma City	OK	73111					
RPC358	Wel- Tech Composites	254 Balwin Rd	Satsuma	AL	36572				Manufacture FRP flanges.	FRP Flange
RPC360	Great Lakes Plastics Corporation	P.O. Box 600 Houghton County Airpark	Hancock	MI	49930					
RPC361	ACCRA Industries, Inc.	586 Progressive Lane	South Beliot	IL	610801920	Synthetic minor source	Permit Limitations		We coat a variety of reinforced plastic parts manufactured on site.	FRP Small Floats
RPC362	Earl's Fiberglass, Inc.	128 W. Maricopa Fwy.	Phoenix	AZ	85003					
RPC365	C&C Fiberglass, Inc.	3659 Destiny Drive	Bremen	IN	46506				C&C Fiberglass conducts fiberglass fabrication regulated under the reinforced plastic composite NESHAP. Manufactured products/composites are not otherwise coated or painted.	
RPC366	Fib-Con Corporation	4605 Madison St.	Riverdale	MD	20737				Not a major source or synthetic minor	
RPC367	Westfall Manufacturing Company	381 Metacom Ave.	Bristol	RI	02809	Unknown			40' x 100' cinder block bldg.	Venturi flow meters, static mixers, de filter
RPC370	GEA Dynamic Fabricators	W. 13725 Hwy53	Rathdrum	ID	83858					
RPC372A	Aker Plastics Company Inc.	1400 Pidco	Plymonth	IN	46563048				Bath Tub Manufacturer	
RPC372B	Aker Plastics Company Inc.	1001 North Oak Road	Plymonth	IN	465630484				Bath Tub Manufacturer	
RPC372C	Aker Plastics Company Inc.	2011 Mid-Atlantic Pkwy	Romney	WV	25401				Bath Tub Manufacturer	
RPC373	Koral Industries, Inc.	1504 South Kaufman	Ennis	TX	75119				Spray up of fiberglass bathing units.	
RPC374	Composite Hobbies, Inc.	217 SW Pumice #C	Redmond	OR	97756					
RPC375	Swimcraft Inc.	462 W 200 N	Angola	IN	467703					
RPC377	Fiberglass Specialties, Inc.	500 Austin Ave	Henderson	TX	75652					
RPC379	Industrial Fiberglass Specialties									
RPC380	Frontier Plastic Fabricators, Inc.	4518 W. 56th St.	Tulsa	OK	74107	Synthetic minor source	Permit Limitations	0.14	We are a contract molded custom fiberglass pipe and fittings manufacturer. At times some fabrication jobs require adhesive joint assembly.	Fiberglas pipe
RPC385	New Boston Fiberglass, Inc.	19155 Shook Rd. - P.O. Box 188	New Boston	MI	48164				Not a major source or synthetic minor.	
RPC386	Glasspec Associates LTD	18735 SW 104 Ave	Miami	FL	33157				Manufacturer of molded fiberglass products	
RPC387	Plastic Development Company	RD #2 Box 249A-1	Williamsport	PA	17701					
RPC389	Fiberglas Engineering & Design	7421 Crawfordsville Rd.	Indianapolis	IN	46214				Not a major source or synthetic minor	
RPC391	Falls Fiberglass Products, Inc. (marked ALL CBI)	CBI	CBI		CBI				CBI	
RPC396	Palmer Manufacturing & Tank, Inc.	2814 West Jones Ave.	Garden City	KS	67846	Unknown			We mfg. steel and fiberglass tanks. Coating of FRP tanks is with pigments + gel coats. Steel tanks coated with paint.	Fiberglas tanks
RPC400	Hood Manufacturing Inc.	2621 S. Birch St.	Santa Ana	CA	92707					
RPC401I	Jacuzzi Whirlpool Bath - Irvine	1922 Barranca Pkwy	Irvine	CA	92606					
RPC401S	Jacuzzi Whirlpool Bath - Santa Ana	3000 W. Secerstrom	Santa Ana	CA	92704					
RPC403	Molded Fiber Glass Companies - West	9400 Holly Road	Adelanto	CA	92301					
RPC404	Peterson Products	1325 Old County Road	Belmont	CA	94002	Minor or area source	Potential Emissions	0.22	We secondarily paint a variety of reinforced plastic parts manufactured on site.	Covers for various medical diagnostic/treatment ma
RPC405	Prototype Concepts Inc	10865 Kawama River Ave.	Fountain Valley	CA	92708				Not a major source or synthetic minor	

7.0

Development of Model Shops for Sources Subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Motor Vehicles and Mobile Equipment Refinishing Operations for Area Sources

EASTERN RESEARCH GROUP, INC.

MEMORANDUM

TO: Kim Teal, U.S. EPA, Sector Policies and Programs Division/Natural Resources and Commerce Group (E143-03)

FROM: Brian Palmer, Eastern Research Group, Inc. (ERG)

Date: July 17, 2006

Subject: Development of Model Shops for Sources Subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Motor Vehicles and Mobile Equipment Refinishing Operations for Area Sources

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Model shops were developed for the sources affected by the motor vehicle and mobile equipment refinishing area source NESHAP. The model shops were used to estimate cost and environmental impacts. Model shops were based on information collected during site visits and from other information collected during the development of this NESHAP.

Development of Model Shops

Table 1 lists the latest available data that estimates the total number of automotive refinishing establishments according to the 2003 County Business Patterns.

Table 1. Number of U.S. Automotive Refinishing Establishments by Employment-size Class for the Paint or Body Repair Shops (NAICS 811121)

	Number of Employees									Total Establishments
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	≥ 1000	
Number of establishments	20,174	8,177	5,490	1,778	110	22	3	0	1	35,755

Source: 2003 County Business Patterns (NAICS 811121) (USCB 2003).

We suspect that the establishments with large numbers of employees (e.g., 100 or more employees) are actually companies with multiple locations that reported as a single

establishment. We did not observe or hear of any single shop locations with 100 or more employees during the development of this NESHAP.

Size classes in the County Business Patterns data were combined to create model shops that corresponded to the typical shops observed during site visits. These were small shops with 1 to 9 employees; medium shops with 10 to 19 employees; and large shops with 20 or more employees. These shops sizes corresponded to the number of employees we observed at shops with one, two, or three paint booths.

We estimated the total number of employees in each size range by taking the numerical midpoint of the employee range in the County Business Patterns data and multiplying it by the number of shops in that range. For example there are 20,174 shops with 1 to 4 employees; the midpoint of that range is (1 + 4)/2 = 2.5 employees per shop:

20,174 shops X 2.5 employees per shop = 50,435 employees.

The estimated number of employees for shops with 1 to 4 employees was added to the estimated number for shops with 5 to 9 employees to obtain the total number of employees for shops with 1 to 9 employees. Similar estimates were performed for the medium and large model shops.

Table 2 summarizes the information collected during site visits that was used to develop the values for model shop parameters, including number of employees, number of painters, number of spray booths, and number of cars refinished per month.

Table 2. Information Collected During EPA Site Visits

Name and Location	Shop Type	Vehicles per Month	No. of Painters	No. of Employees	Gun Cleaner?	No. of Booths	Booth type
Advanced Restoration and Autobody Sacramento, CA	Restoration	1	1		Yes	2 (one is used only for sanding)	downdraft
The Finish Line Restoration Services, Inc. Monrovia, CA	custom restoration	1	1			1	crossdraft
Durham School District Transportation Department Garage Durham, NC	fleet vehicles (buses)	3	2		Yes	1	crossdraft

Table 2. Information Collected During EPA Site Visits

Name and Location	Shop Type	Vehicles per Month	No. of Painters	No. of Employees	Gun Cleaner?	No. of Booths	Booth type
NC DOT Maintenance Garage Raleigh, NC	Highway Department maintenance garage	5	1		Yes	2	crossdraft, semi-downdraft
Gemini Autobody Cedar Falls, IA	collision repair	8	1	1	Yes	1	crossdraft
Fulton Autobody Sacramento, CA	collision and custom restoration	15	1	4	Yes	1	crossdraft
McJack's Corvette Santa Ana, CA	Corvette restortions and repair	20	1		Yes	1	downdraft
Dale Bright Auto Service Chino, CA	collision repair	30	1		no	1	crossdraft
Rush Truck Center, Inc. Pico Rivera, CA	heavy duty trucks	40			Yes	1	downdraft
Walt Stickel Body and Frame Shop, Inc. Sacramento, CA	collision repair and refinishing	45	2	7	Yes	2	downdraft
Cherry Auto Body Chino, CA	collision repair	60	2		Yes	2	downdraft, semi-downdraft
1-Day Paint & Body Centers La Habra, CA	production	65			Yes	1	crossdraft
Coffman's Body Shop Cedar Falls, IA	collision repair	72	4	7	Yes	1	crossdraft
Niello Collision Service Sacramento, CA	collision repair	90	3	15	Yes	1	downdraft
California Auto Body Sacramento, CA	collision repair	100	4		Yes	2	crossdraft
Maaco Sacramento, CA	production	120	2		Yes	1	semi-downdraft
Zimmerman Ford Cedar Rapids, IA	collision repair	150	4	15	Yes	2	downdraft
Bertolucci's Body and Fender Shop, Inc. Sacramento, CA	collision repair and resoration	200	5		Yes	3	downdraft
Wondries Family Collision Center Alhambra, CA	collision repair	200			Yes	4	downdraft
Falconi's Collision Center Las Vegas, NV	collision repair	280	5		Yes	4	1 jambing booth, 3 downdraft spray booths
Deery Brothers Collision Center Cedar Falls, IA	collision repair	300	4	20	Yes	3	downdraft (2 fullsize booths and one jambing booth)

Table 2. Information Collected During EPA Site Visits

Name and Location	Shop Type	Vehicles per Month	No. of Painters	No. of Employees	Gun Cleaner?	No. of Booths	Booth type
Seidner's Collision Center Duarte, CA	collision repair	310	9	40	Yes	3	downdraft

Based on this information, we developed the three model shops that are summarized in Table 3. The average number of employees per shop was estimated by dividing the total number of employees in each model shop size range from the County Business Patterns data by the number of shops in each model. We assumed that one third of employees are painters, based on information from shops visited.

In June 2003, Body Shop Business magazine reported that the median amount spent per month on coatings was $1,350. We can assume that the median shop is best represented by the small model shop, since almost 80 percent of shops are small shops according to the County Business Patterns data, and the median is the middle value with 50 percent above and 50 percent below. . The annual coating cost for the small, medium, and large model shops was calculated using the relative number of cars per month as follows:

Small shops: ($1350/month)(12 months) = $16,200

Medium shops: (($1350/month)(12 months)(100 cars/40 cars) = $40,500

Large shops: ($1350/month)(12 months)(200 cars/40 cars) = $81,000

Table 3. Summary of Model Shop Parameters

Parameter	Small	Medium	Large
Number of employees	1-9	10-19	20 or more
Number of Shops (from County Business Patterns)	28,351	5,490	1,194
Total Number of Employees (estimated from County Business Patterns)	107,674	79,605	74,349
Average number of employees per shop	3.8	14.5	39.4
Average Number of painters	1.3	4.8	13.1
Number of Spray Booths	1	2	3
Number of Cars/Vehicles Refinished Per Month	40	100	200
Annual Coating Cost	$16,200	$40,500	$81,000

8.0

Estimate of Baseline Emissions and Emission Reductions for Sources Subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Motor Vehicles and Mobile Equipment Refinishing Operations for Area Sources

EASTERN RESEARCH GROUP, INC.

MEMORANDUM

TO: Kim Teal, U.S. EPA, Sector Policies and Programs Division/Natural Resources and Commerce Group (E143-03)

FROM: Brian Palmer, Eastern Research Group, Inc. (ERG)

Date: July 21, 2006

Subject: Estimate of Baseline Emissions and Emission Reductions for Sources Subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Motor Vehicles and Mobile Equipment Refinishing Operations for Area Sources

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Introduction and Summary of Results

The purpose of this memo is to document the results and methodology used to estimate baseline emissions and emission reductions for sources potentially subject to the proposed area source NESHAP for motor vehicle and mobile equipment refinishing operations. Emissions and emission reductions were estimated for organic HAP, volatile organic compounds (VOC), inorganic HAP, and particulate matter (PM). Table 1 summarizes the baseline emission estimates and emission reductions.

Table 1. Summary of Baseline Emissions and Emission Reduction Estimates

	Organic HAP	VOC	Inorganic HAP	PM
Baseline Emissions (ton/yr)	36,906	107,680	11.7	2,909
% Reduction	18.6%	18.6%	92%	92%
Emission Reductions (ton/yr)	6,846	19,975	10.8	2,679
Controlled Emissions (ton/yr)	30,060	87,706	0.9	231

The remainder of this memo describes the sources of data and methods used to produce these estimates.

Data Sources

Refinish coating data were provided by three refinishing coating suppliers: DuPont, PPG, and Sherwin-Williams. The other major refinishing coating suppliers, for which EPA did not have data, were Akzo Nobel, BASF, and Valspar. DuPont and PPG provided national sales

and HAP content data for 2003 that were equal in format to data provided to the California Air Resources Board (CARB) in 2001. Sherwin-Williams provided a copy of the same data that were reported to CARB in 2001, but did not provide equivalent national data for 2003. The method we used to estimate national data for 2003 for Sherwin-Williams is detailed in Appendix A to this memo.

The data provided to CARB and EPA included the coating name and identifying product code, gallons sold, density, weight and volume percent solids, weight and volume percent volatiles, weight and volume percent exempt (non-VOC) volatiles, weight and volume percent water, and name, chemical abstract service (CAS) number, and weight percent of each ingredient listed on the material safety data sheet (MSDS) for each product.

Each of the three companies also provided estimated 2003 sales and HAP content data for coatings that contained any one of the following HAP that were identified by EPA as a priority HAP for this area source category:[1]

benzene	cadmium compounds,
chromium compounds	diethylene glycol monobutyl ether
hexamethylene-1,6-diisocyanate monomer	hydrochloric acid
lead compounds	manganese compounds
methyl ethyl ketone (MEK)	methyl isobutyl ketone (MIBK)
naphthalene	nickel compounds
toluene	xylene

These data were used to estimate baseline emissions and emission reductions of the inorganic HAP (cadmium compounds, chromium compounds, lead compounds, manganese compounds, and nickel compounds.)

All of the data reported from these three companies were declared to be confidential business information (CBI) by the providers. The data and related analyses are being handled as such by EPA and ERG. To protect the confidentiality of these data, only aggregate values from the three data providers are being reported in this memo.

Extrapolating From Reported Data To The Whole Industry

The total volume of coatings from DuPont, PPG, and Sherwin-Williams was estimated to be 25.7 million gallons in 2003. The total estimated sales for 2003, based on U.S. Census data,

were 49.5 million gallons.[2] Therefore, these three suppliers were estimated to represent about 52 percent of total sales and this fraction was used to develop estimates for the whole industry from the provided data. That is, we divided the estimated total values for baseline emissions from these three suppliers by 0.52 to estimate the total baseline emissions for the whole industry.

We also assumed that all of the motor vehicle and mobile equipment refinish coatings sold by these suppliers are used at motor vehicle and mobile equipment refinishing operations. However, EPA has been informed in meetings with industry that these coatings are also used on non-automotive applications, including aircraft, boats, and other miscellaneous items where a high quality and durable finish is desired. However, no reliable estimate of the fraction used in non-automotive applications is available and the only available estimates are anecdotal. Therefore, we did not correct these values for the amount used in non-automotive applications.

These automotive refinish coatings are also used at some major source motor vehicle and mobile equipment surface coating operations that will not be subject to the area source rule, such as recreational vehicle (RV) manufacturers. The EPA does not have data to estimate the volume of automotive refinish coating used at all major source motor vehicle or mobile equipment surface coating sources. However, we believe that use of refinish coatings by major sources will have a minimal effect on the baseline emission and reduction estimates. For example, RV manufacturers, perhaps the largest group of major sources that use refinish coatings, used about 290,000 gallons of coatings in 2000, or about 0.6 percent of refinish coating usage. This was estimated using data provided to EPA by the Recreational Vehicle Industry Association (RVIA) to support the development of the assembled on-road vehicle surface coating emission limit in the major source rule for plastic parts and products surface coating operations (40 CFR 63, subpart PPPP). Therefore, we did not correct these values for the amount used by major sources.

Similarly, we did not try to account for hobbyists who use refinish coatings and assumed that refinish coatings would be used only by professional shops that are subject to the area source rule. Automotive hobbyists that perform their own surface coating would not be covered. The EPA has no reliable data to indicate how much coating is used by hobbyists, or whether hobbyists would be adopting any of the control measures specified by the rule for professional

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[1] Wyatt, S. Memorandum to S. Shaver, P. Lassiter, and ESD Group Leaders. Pollutant Information from Toxicity Weighting Analysis ESD Project Leads Should Be Aware of As They Develop Area Source Standards. September 25, 2003.

[2] U.S. Census Bureau data cited in "Coatings Industry Report for 2003." Edward W. Bourguignon. Paint and Coatings Industry Magazine. February 2005.

refinishers, such as the use of a filtered spray booth. Therefore, we cannot adjust the baseline emission and reduction estimates to account for coating use by hobbyists, but we expect that the effect of hobbyists to be minimal.[3]

Organic HAP and VOC Baseline Emissions

The baseline emissions of organic HAP and VOC were estimated as being equal to the consumption of organic HAP and VOC, less the amount of organic HAP and VOC that is in the coatings that become waste and are not used. Refinishers try to estimate the amount of coating needed for each job and mix only the amount needed to minimize waste, with a small amount of excess to ensure they can finish the job. The refinishers at shops visited and contacted by EPA estimated that the amount of coating that becomes waste ranged from 5 to 15 percent, with 10 percent being the most common response. Paint that is left over at the end of job can sometimes be saved for future work, but more often it is put in a sealed waste drum.

For the baseline and emission reduction estimates, we estimated that 10 percent of paint becomes waste. We assumed that all of the organic HAP and VOC in the 90 percent of coatings that do not become waste are emitted as the coatings are applied and cure.

The organic HAP and VOC in the coatings were estimated from the coating data provided by the three coating suppliers. Organic HAP ingredients were identified by CAS number and did not include chemicals that had been removed from the Clean Air Act list of HAP as of May 1, 2006. Total organic HAP for each coating was determined from the total weight percent of organic HAP (lb organic HAP/lb coating), coating density (lb/gallon), and coating sales (gallons).

The data provided by the coating suppliers reported the weight percent volatiles, weight percent exempt (non-VOC) volatiles, and weight percent water for each material. The fraction of VOC in each coating was calculated as the volatile fraction minus the exempt volatiles and minus the water:

$$\text{wt \% VOC} = (\text{wt \% volatiles}) - (\text{wt\% exempts}) - (\text{wt \% water})$$

[3] For example, the Antique Automobile Club of America (www.aaca.org) reports that they had 50,000 members in 1985. If we assume, as an example, that there are 100,000 hobbyists in the U.S. involved in restoring or customizing automobiles, and each used 3 gallons per year to refinish one automobile per hobbyist, that volume (300,000 gallons) would still be only 0.6 percent of total gallons sold. Most hobbyists do not refinish a car every year, and some use professionals to refinish their cars, or borrow or rent the use of a professional spray booth.

Total VOC and HAP (both organic and inorganic) for each coating was determined from the total weight percent of VOC or HAP (lb VOC or HAP/lb coating), coating density (lb/gallon), and coating sales (gallons):

lb HAP or VOC = (wt% VOC or HAP)/100*(lb/gallon)*(gallons sold)

Organic HAP and VOC Emissions Reductions

The area source rule would require all shop personnel that spray coatings to complete operator training and to use high transfer-efficiency spray equipment. Visits by EPA to over 20 automotive refinishing operations and meetings with industry indicate that high volume, low pressure (HVLP) and other types of high transfer-efficiency spray equipment have been almost universally adopted in the refinishing industry. Nearly all shops have already switched to high-efficiency equipment because of the potential coating cost savings compared to conventional spray equipment. Therefore, no additional emission reductions were estimated from an increased use of high efficiency spray equipment.

However, we estimate that additional organic HAP and VOC emission reductions will occur as a result of increased operator training that will lead to decreased coating consumption. The Iowa Waste Reduction Center (IWRC) has developed the Spray Technique Analysis and Research (STAR) program for spray painters. As part of that training, students complete a transfer efficiency test before and after training. The average reduction in gallons of coating used for 382 students trained in the STAR program was 18.55 percent, as reported on the IWRC web site.[4]

We assumed that the 18.55 percent reduction in the amount of coatings used would translate directly into an 18.55 percent reduction in organic HAP and VOC emissions as a result of increased operator training for spray gun operators:

Emission reduction = (Baseline emissions)*(18.55%/100)

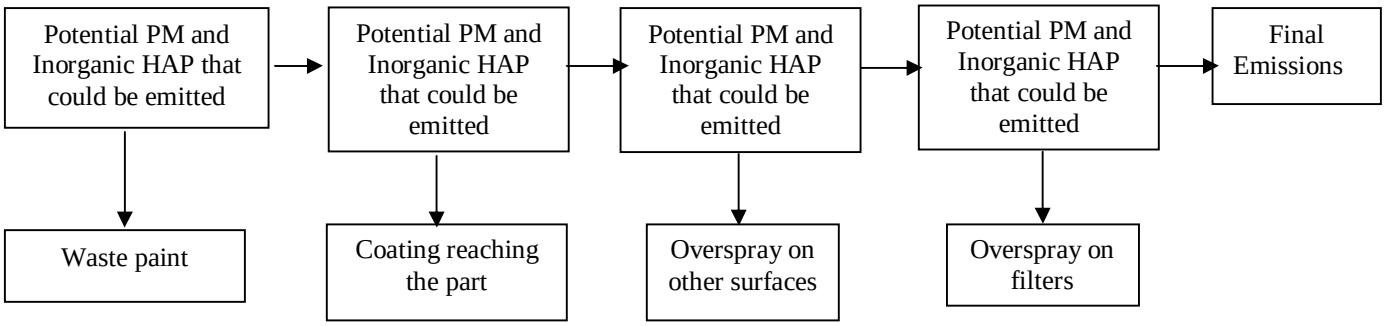
[4] www.iwrc.org/staruserqueries/avg_of_all_trainees.cfm

Inorganic HAP and PM Baseline Emissions and Emission Reductions

The inorganic HAP and solids (which could become emitted as PM) in the coatings were estimated from the coating data provided by the three coating suppliers. Inorganic HAP ingredients were identified from the data by ingredient name and included compounds of cadmium, chromium, lead, manganese, or nickel. Compounds of chromium and lead were most common and accounted for 95 percent of the inorganic HAP, by weight, from the three companies providing data.

The baseline emissions and emission reductions of inorganic HAP and PM are affected by several variables and their estimates are more complicated than for organic HAP and VOC.

Solids and inorganic HAP are removed from the potential air stream as coating is applied to a part, overspray settles on other surfaces, and overspray passes through a filter before being exhausted to the outside of the spray booth, if coatings are applied in a filtered booth. The emission process is represented graphically below. The top row of boxes represent the mass of inorganic HAP and coatings solids that could be emitted as particulate matter in coating overspray and the second row of boxes represent the points at which inorganic HAP and PM are removed from the potential emission stream. The mass of inorganic HAP and PM that could be emitted decreases as the "coating" moves through the flow diagram from left to right.



Assumptions Used in Estimating Baseline Emissions and Emission Reductions for PM and Inorganic HAP

For the baseline emission estimates of PM and inorganic HAP, we made the following assumptions:

- We assumed that 10 percent of coating becomes waste.

- We assumed that all painters are already using HVLP spray guns. These were the only types of spray guns observed in use during our visits to over 20 automotive refinishing operations.

- The average transfer efficiency of painters was 48 percent, based on the pre-training transfer efficiency of painters completing the IWRC STAR program. Transfer efficiency is defined as the percent of coating solids that reaches the part and becomes the final finish.

- 50 percent of the sprayed coating that does not reach the part and becomes overspray lands on other surfaces, such as masking paper around the area being painted, or spray booth walls and floors.

- 7 percent of all coating is applied at shops that do not have a booth. Body Shop Business magazine's 2003 reader survey reported that 86 percent of shops had either a downdraft or cross draft booth. We assumed this meant that 14 percent of shops had no booth and we assumed that all shops without a booth were "small" shops (1 to 9 employees). We estimated that these shops accounted for 7 percent of painters and, therefore, 7 percent of paint usage, based on our model shops and County Business Pattern data for 2005 from the U.S. Census.

- 90 percent of coatings are applied in a booth or filtered prep station and 10 percent are applied in the open shop environment. During EPA visits, we observed that some small jobs (usually a primer application, painting door jambs, or small finish jobs) are occasionally done outside a booth.

- The baseline efficiency of filters in spray booths is 96 percent. This was the median efficiency of the filters for which we collected data from filter vendors.

For the final emission estimates for PM and inorganic HAP, we made the following assumptions:

- We assumed that 10 percent of coating would still become waste.

- We assumed that all painters would increase transfer efficiency from a starting average of 48 percent to a final average of 59 percent after training, as measured in the IWRC STAR program.

- 100 percent of shops would have a filtered spray booth.

- 100 percent of coatings would be applied in a filtered booth or filtered prep station.

- Spray booth and prep station filters would have an efficiency of 98 percent. This is the efficiency achieved by fiberglass and polyester fiber filters and is the standard specified in the proposed rule for filters that were not fiberglass or polyester fiber filters.

Methodology for Estimating Baseline Emissions of PM and Inorganic HAP

The following equation was used to estimate the PM (as coating solids, tons/yr) or inorganic HAP (tons/yr) that were in the coatings that reached the part, before operator training is conducted:

$$A = B * C$$

Where:

A = PM, as coating solids, or inorganic HAP reaching the part (tons/yr);
B = Pre-training transfer efficiency, fraction;
C = PM, as coatings solids, or inorganic HAP that is in the coating that does not become waste, tons/yr.

The following equation was used to estimate the PM (as coating solids) or inorganic HAP that become airborne overspray (tons/yr):

$$D = (1 – E) * (C – A)$$

Where:

D = PM, as coating solids, or inorganic HAP that become airborne overspray (tons/yr);
E = Fraction of overspray that settles on other surfaces;
C = Inorganic HAP and coatings solids that is in coating that does not become waste, tons/yr;
A = Inorganic HAP or PM reaching part, tons/yr).

The following equation was used to estimate baseline emissions of PM or inorganic HAP from shops without a booth (tons/yr):

$$F = D * G$$

Where:

F = Baseline emissions of PM or inorganic HAP from shops without a booth (tons/yr);
D = PM, as coating solids, or inorganic HAP that become airborne overspray (tons/yr);
G = Fraction of coatings applied by shops without a filtered booth.

The following equation was used to estimate baseline emissions of PM or inorganic HAP from shops with a booth (tons/yr):

$$H = (1-G)*((D*(1-J))+(D*J*(1-K)))$$

Where:

H = Baseline emissions of PM or inorganic HAP from shops with a booth (tons/yr);
G = Fraction of coatings applied by shops without a filtered booth;
D = PM, as coating solids, or inorganic HAP that become airborne overspray (tons/yr);
J = Baseline fraction of coatings applied in a booth at shops with booths;
K = Baseline paint overspray filter/arrestor efficiency; i.e., fraction of paint reaching the filter that is captured in the filter.

The following equation was used to estimate the total baseline emissions of PM or inorganic HAP (tons/yr):

$$L = F + H$$

Where:

L = Total baseline emissions of PM or inorganic HAP (tons/yr);
F = Baseline emissions of PM or inorganic HAP from shops without a booth (tons/yr);
H= Baseline emissions of PM or inorganic HAP from shops with a booth (tons/yr).

Methodology for Estimating Final Emissions of PM and Inorganic HAP

The following equation was used to estimate the PM (as coating solids, tons/yr) or inorganic HAP (tons/yr) that were in the coatings that reached the part, after painter training is conducted:

$$A = BB * C$$

Where:

AA = PM, as coating solids, or inorganic HAP reaching part (tons/yr), after painter training;
BB = Post-training transfer efficiency, fraction;
C = PM, as coatings solids, or inorganic HAP that is in the coating that does not become waste, tons/yr.

The following equation was used to estimate the PM (as coating solids) or inorganic HAP that become airborne overspray, after painter training is conducted:

$$DD = (1 – E) * (C – AA)$$

Where:

DD = PM, as coating solids, or inorganic HAP that become airborne overspray (tons/yr), after painter training;

E = Fraction of overspray that settles on other surfaces;
C = Inorganic HAP and coatings solids that is in coating that does not become waste, tons/yr;
AA = PM, as coating solids, or inorganic HAP or PM reaching part (tons/yr), after painter training.

The following equation was used to estimate final emissions of PM and inorganic HAP (tons/yr) from all shops. All shops are assumed to have a filtered booth, all coatings are applied in the booth and the booth has filters with 98 percent efficiency.

$$HH = (DD*(1-JJ))+(DD*JJ*(1-KK))$$

Where:

HH= Final emissions of PM or inorganic HAP from all shops (tons/yr).
DD = PM, as coating solids, or inorganic HAP that become airborne overspray (tons/yr), after painter training.
JJ = Final fraction of coatings applied in a booth at all shops (1.0, or 100 percent).
KK = Final paint overspray filter/arrestor efficiency, fraction of paint reaching the filter that is captured in the filter.

Appendix A:

Documentation of how total national sales, solids, HAP and VOC were estimated from data provided by Sherwin-Williams Automotive Finishes Corporation

Background:

Sherwin-Williams provided two sets of data to U.S. EPA for their automotive refinish coatings. These data were used to estimate national baseline levels for total gallons of coating used, pounds (lb) of coating used, lb of solids used, lb of HAP used, and lb of VOC used. These baseline estimates of consumption were used to estimate baseline emissions and potential emission reductions.

One set of data was for all coatings sold in California in 2001. These data were assembled and provided to the California Air Resources Board (CARB) for the development of a new suggested control measure to reduce VOC emissions from automotive refinish coatings. These data included volume (gallons) sold, density, weight percent solids, weight percent HAP (by individual ingredient), and weight and volume percent volatiles, exempt (non-VOC) volatiles, and water. These data are included in the Microsoft® Access® database entitled SW forms 3 to 5 update (CBI).dba.

The second set of data were for all coatings sold in the United States in 2003 that contained the following HAP identified by EPA as priority HAP for regulation of this area source category:[5]

benzene	cadmium compounds,
chromium compounds	diethylene glycol monobutyl ether
hexamethylene-1,6-diisocyanate monomer	hydrochloric acid
lead compounds	manganese compounds
methyl ethyl ketone (MEK)	methyl isobutyl ketone (MIBK)
naphthalene	nickel compounds
toluene	

Xylene was also included in the list of HAP considered a priority by EPA, but was not provided by Sherwin Williams, for an unknown reason. MEK was removed by EPA from the list of HAP after these data were provided.

This set of data was in a Microsoft® Excel® spreadsheet entitled Sherwin Williams CBI-EPA-Priority HAP Data.xls. The data included the product name and code, gallons sold in 2003, density, and weight percent content of each of the priority HAP listed above, and total lb of each priority HAP.

Sherwin-Williams did not report complete data for the U.S. that was comparable to the CARB data. The coatings that contained the priority HAP did not represent all coatings sold by Sherwin Williams, and these data did not include solids, non-priority HAP, and VOC information.

[5] Wyatt, S., U.S. EPA, Memorandum to S. Shaver, P. Lassiter, and ESD Group Leaders,, U.S. EPA. Pollutant Information from Toxicity Weighting Analysis ESD Project Leads Should Be Aware of As They Develop Area Source Standards. September 25, 2003.

Therefore, ERG needed to estimate total U.S. sales, pound (lb) solids, lb HAP, and lb VOC by extrapolating from the two available data sets. We assumed that the California data represented nearly all the products that are sold in the U.S. We recognize that there may be some products that are not sold in California because they do not comply with California VOC regulations, but these are probably off-set by products that are sold in California and not elsewhere in the United States. For purposes of this analysis (estimating baseline emissions and emission reductions), we believe that this assumption introduces a minimal and acceptable amount of error.

The final estimates of U.S sales, lb HAP, lb solids, and lb VOC are contained in the Excell spreadsheet entitled SW calcs for 5-1-06 (CBI).xls on the bottom of the page entitled "US baselines." The other pages in that spreadsheet provide the data that were used to estimate those values. The procedure used is described in the following paragraphs.

Methodology:

Step 1. We estimated the percentage of U.S. coatings that were represented by the coatings that contained the priority HAP using the CARB data. We assumed that the same percentage of coatings in the CARB data would contain the same priority HAP as the U.S. coatings. We calculated that 72.75 percent of coatings sold in California, by volume, contained the same priority HAP. We assumed that the U.S. data for coatings that contain priority HAP also represent 72.75 percent of total U.S. sales. Therefore, we calculated that total U.S. sales (gallons) equals the amount containing priority HAP divided by 0.7275.

Step 2. Similar to step 1, we estimated the percentage of U.S. coatings that were represented by the coatings that contained the priority HAP using the CARB data, but this time on a weight basis. This weight-basis percentage was used when we scaled up for lb of solids, HAP, and VOC, instead of gallons. We calculated that 72.23 percent of coatings sold in California, by weight, contained the same priority HAP.

Step 3. The CARB data provided solids, HAP, and VOC content[6] data for almost all of the U.S. coatings that contained priority HAP, but not all of them. Some of the coatings sold nationally are not sold in California because they would not comply with California VOC limits. Also, the two data sets are 2 years apart (2001 and 2003) and products may have been added or discontinued in that time. We linked the two data sets by the product code and calculated that the CARB data provided solids, HAP, and VOC data for 92.12 percent of the U.S. coatings (by weight) that contained priority HAP.

Step 4. We used the CARB data to calculate the total lb solids, HAP, and VOC for those U.S. coatings that contained priority HAP. Since these coatings represent only 72.23 percent of all

[6] The CARB data did not specifically include actual weight or volume percent VOC content. We calculated VOC as total volatiles minus exempt compounds and minus water. We also found that in some cases, water content was reported in the CARB data as both an exempt solvent and as water. This resulted in a negative VOC content if the water content was more than half the volatile content. If the water and exempt solvent percentages were the same, we assumed that water was the only exempt solvent and the exempt solvent value was changed to "zero" on the spreadsheet and the water value was left as reported. We did not make this change in the Access database with the CARB data. Our decision was supported by a review of several MSDS for the affected materials, copies of which have been saved for the project file.

coatings, and only 92.12 percent of these coatings (by weight) were in the CARB database, we had to correct these totals (solids, HAP, VOC) to obtain total U.S. estimates. Therefore, these values were divided by (0.7223 x 0.9212 = 0.6654) to obtain the total U.S. estimates for solids, HAP, and VOC.

Alternative Approach:

For comparison, we also tried simply scaling up the CARB data to national values using the relative populations of California and the U.S. from census data. From the 2000 Census, California represents 12.2 percent of the U.S. population. We then calculated the total gallons of coating, lb solids, HAP, and VOC from the CARB data and divided these by 0.122 to obtain national estimates.

We compared these results to the results we obtained from steps 1 to 4, above. The alternative approach based solely on population estimated 6 percent fewer gallons sold, 7 percent more lb solids, 27 percent lower lb HAP, and 20 percent lower lb VOC. Scaling from the CARB data based on population also resulted in a 30 percent lower emission rate for HAP per lb of solids, and a 25 percent lower emission rate for VOC per lb of solids. These results are consistent with the fact that coatings sold in California are subject to more stringent VOC regulations than coatings sold nationally and that this has resulted in higher solids contents, and lower VOC and HAP emission rates. These results also support our decision to use the approach described in steps 1 to 4 above, since the results are probably more representative of the coatings sold nationally.

	Gallons Coating	Coating (ton/yr)	Organic HAP (ton/yr)	VOC (ton/yr)	Solids (ton/yr)	Total Inorganic HAP (ton)	Pb in Pb-Compounds (ton/yr)	Cr-6 in Cr-Compounds (ton/yr)
Totals for companies A, B, C	25,688,500	100,983	21,281	62,091	32,524	131	78	24
Industry totals (1)	49,500,000	194,587	41,007	119,645	62,671	252	150	46
(1) Industry total for Gallons Coating is from U.S. Census Bureau data cited in "Coatings Industry Report for 2003." Edward W. Bourguignon. *Paint and Coatings Industry Magazine.* February 2005.								
Other values for industry totals are scaled from the totals for companies A, B, and C based on ratio of 49,500,00/25,688,500 = 1.93								
Percent of coating that becomes waste and goes into a "sealed" drum				10%				
Non-waste consumption that is potentially emitted (ton/yr)			36,906	107,680	56,404	227	135	42
IWRC measured reduction in gallons of coating sprayed per job as a result of training				18.55%				
			Organic HAP	VOC				
Baseline Organic HAP and VOC emissions (tons/yr)			**36,906**	**107,680**				
Organic HAP and VOC emissions after training (tons/yr)			**30,060**	**87,706**				
Organic HAP and VOC reductions after training (tons/yr)			**6,846**	**19,975**				
Organic HAP and VOC reductions after training (%)			**18.55%**	**18.55%**				
Pre-training transfer efficiency from IWRC					48.04%	48.04%	48.04%	48.04%
Post-training transfer efficiency from IWRC					59.12%	59.12%	59.12%	59.12%
Pre-training solids and inorganic HAP reaching part (tons/yr)					27,096	109	65	20
Post-training solids and inorganic HAP reaching part (tons/yr)					33,346	134	80	25
Percent of overspray that settles on other surface		50%						
Pre-training solids and inorganic HAP that become airborne overspray (tons/yr)					14,654	59	35	11
Post-training solids and inorganic HAP that become airborne overspray (tons/yr)					11,529	46	28	9
Percent of coatings applied at a shop without a booth			7%	based on the fraction of painters that work at shops without booths				
Baseline Emissions from shops without a booth (tons/yr)					1,061	4	3	1
Baseline percent of coatings applied in a booth at shops with booths			90%	assumes that small priming jobs, some jambing, and some small finish jobs are done outside a booth				
Baseline paint arrestor efficiency			96%					
Baseline emissions from shops with a booth (tons/yr)					1,849	7	4	1
Total Baseline emissions from all shops					**2,909**	**11.7**	**7.0**	**2.1**
Rule percent of coatings applied in a booth			100%					
Rule paint arrestor efficiency			98%					
Post-training air emissions with rule booth usage and paint arrestor efficiency					**231**	**0.9262**	**0.6**	**0.2**
PM, Inorganic HAP, Pb, and Cr-6 Emission reductions (tons/yr)					**2,679**	**10.8**	**6**	**2**
PM, Inorganic HAP, Pb, and Cr-6 Emission reductions (%)					**92%**	**92%**	**92%**	**92%**
					PM	Total Inorganic HAP	Pb	Cr-6

9.0

Estimate of Baseline Emissions and Emission Reductions for Sources Subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Miscellaneous Surface Coating Area Sources

EASTERN RESEARCH GROUP, INC.

MEMORANDUM

To: Kim Teal, U.S. EPA, Sector Policies and Programs Division/Natural Resources and Commerce Group (E143-03)

From: Brandin McDonough and Brian Palmer, Eastern Research Group, Inc. (ERG)

Date: July 27, 2006

Subject: Estimate of Baseline Emissions and Emission Reductions for Sources Subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Miscellaneous Surface Coating Area Sources

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Introduction and Summary of Results

The purpose of this memo is to document the results and methodology used to estimate baseline emissions and emission reductions for sources potentially subject to the miscellaneous surface coating area source NESHAP. Emissions and emission reductions were estimated for organic HAP, volatile organic compounds (VOC), inorganic HAP, and particulate matter (PM). Table 1 summarizes the baseline emission estimates and emission reductions.

Table 1. Summary of Baseline Emissions and Emission Reduction Estimates

	Organic HAP	VOC	Inorganic HAP	PM
Baseline Emissions (ton/yr)	853	12,747	0.72	235
% Reduction	7.5%	7.5%	88%	88%
Emission Reductions (ton/yr)	64	956	0.63	207
Controlled Emissions (ton/yr)	789	11,791	0.09	28

The remainder of this memo describes the sources of data and methods used to produce these estimates.

Data Sources

The data used in this analysis were located in databases created in the development of the National Emission Standards for the Surface Coating of Plastic Parts and Products (40 CFR 63, subpart PPPP), and the National Emission Standards for Miscellaneous Metal Parts and Products Surface Coating Operations (40 CFR 63, subpart MMMM). These two databases were created

by obtaining survey responses from more than 1300 coating facilities. Of these facilities, 518 were estimated to be major sources of HAP and 831 facilities were estimated to be area sources based on their reported Title V major source status and HAP consumption.[1] We have coating data for 236 facilities that we estimated are area sources. The data provided in the survey responses from the 236 facilities were used to generate the baseline emissions and emission reduction estimates above.

The baseline emissions and emission reductions were not scaled from 236 facilities to 831 facilities (e.g., multiplied by a factor of 831/236 = 3.5) because we cannot confirm the actual area/major source status of those we estimate to be area sources that did not provide coating data.

Organic HAP and VOC Baseline Emissions

The baseline emissions of organic HAP and VOC were estimated as being equal to the consumption of organic HAP and VOC, less the amount of organic HAP and VOC that is in the coatings that become waste and are not used. We estimated that baseline consumption was 947.4 tons per year (ton/yr) of organic HAP and 14,163 tons/yr of VOC.

We assumed that 10 percent of coating becomes waste. The fraction of VOC in each coating was calculated as the volatile fraction minus the exempt volatiles and minus the water:

wt % VOC = (wt % volatiles) – (wt% exempts) – (wt % water)

Total VOC and HAP (both organic and inorganic) for each coating was determined from the total weight percent of VOC or HAP (lb VOC or HAP/lb coating), coating density (lb/gallon), and consumption (gallons):

Lb HAP or VOC = (wt% VOC or HAP)/100*(lb/gallon)*(gallons consumed, less waste)

We estimated baseline emissions of 853 tons of organic HAP and 12,747 tons of VOC emitted per year.

[1] Memorandum. From B. Palmer, ERG, Inc., to K.Teal, U.S. EPA/NRCG. Estimating the Number of Miscellaneous Surface Coating Area Sources for Which EPA Has Data. July 19, 2006.

Organic HAP and VOC Emissions Reductions

The area source rule would require all spray coating to be performed using high volume, low pressure (HVLP), or equivalent, spray guns. The reduction of emissions achieved by this measure is directly related to the reduction in gallons of coatings used as a result from switching from conventional spray guns to HVLP. The fraction of coating that reaches the product, instead of becoming overspray, is termed transfer efficiency. We assume that conventional spray guns achieve 30 percent transfer efficiency and that HVLP spray guns achieve 48 percent transfer efficiency.[2] Switching to an HVLP spray gun would reduce the amount of coating used for each job. We estimate that the amount of coating sprayed after switching from conventional spray guns to HVLP is reduced by 37.5 percent:

$$[(1 / 0.30) – (1 / 0.48)] / (1 / 0.30) = 0.375$$

The estimated number of facilities using conventional spray guns is 20 percent.
Number of facilities using conventional spray guns = (total number of facilities)*(0.2)

Emission reduction = (Baseline emissions)*(0.375)

We estimate that facilities switching from conventional spray guns would reduce organic HAP emissions by 64 tons per year and VOC emissions by 956 tons per year:

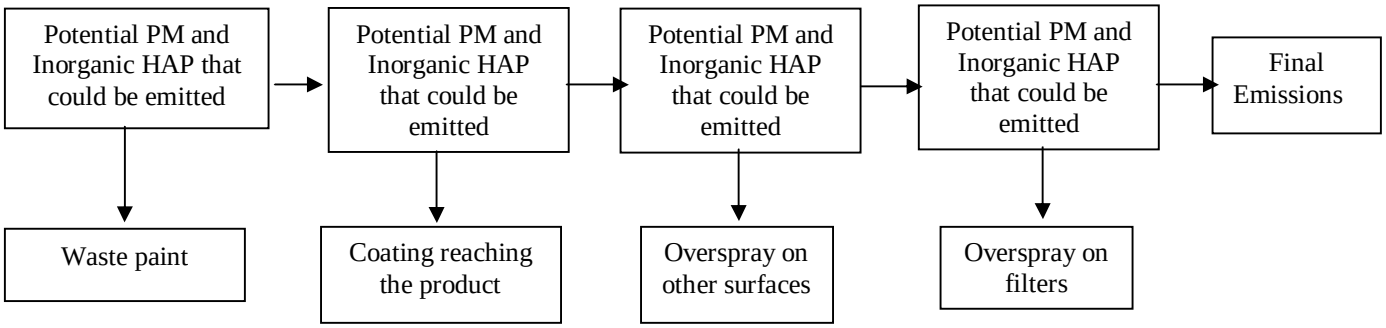
Inorganic HAP and PM Baseline Emissions and Emission Reductions

The baseline emissions and emission reductions of inorganic HAP and PM are affected by several variables and their estimates are more complicated than for organic HAP and VOC.

Solids and inorganic HAP are removed from the potential air stream as coating is applied to a product, overspray settles on other surfaces, and overspray passes through a filter before being exhausted to the outside of the spray booth.

[2] [Insert references for transfer efficiency for conventional and HVLP spray guns. DfE and IWRC documents.]

The emission process is represented graphically below. The top row of boxes represent the potential inorganic HAP and PM that could be emitted and the second row of boxes represent the points at which inorganic HAP and PM are removed from the emission stream.



We assumed that 10 percent of coating becomes waste since it is not applied after mixing. We assumed that 50 percent of the coating that does not reach the product and becomes overspray lands on other surfaces, such as masking paper around the area being painted and spray booth walls and floors. Some of the remaining fraction that enters the spray booth exhaust would be removed depending on whether the booth has filters and their filter efficiency.

The inorganic HAP and solids in the coatings were estimated from the coating survey data. We estimated that baseline consumption was 18.5 ton/yr of inorganic HAP and 6,054 tons/yr of coating solids. Inorganic HAP ingredients were identified from the data by ingredient name and included compounds of cadmium, chromium, lead, manganese, or nickel. Compounds of chromium and lead were most common and accounted for 87 percent of the inorganic HAP, by weight, from the facilities providing data.

Emissions of PM and inorganic HAP are affected by paint spray gun transfer efficiency, the capture of coating overspray in a spray booth or similar enclosure, and the capture of paint overspray in the booth exhaust on a filter or other type of paint overspray arrestor.

The rule would require that all spray applied coatings would need to be applied with HVLP (or similar) spray guns in a filtered spray booth, and the filters would need to meet a minimum filter efficiency.

<u>Assumptions Used in Estimating Baseline Emissions and Emission Reductions for PM and Inorganic HAP</u>

For the baseline emission estimates of PM and inorganic HAP, we made the following assumptions:

- 10 percent of coating becomes waste.

- 88 percent of coatings are applied in a spray booth; 75 percent of sources in the data have a dry filter spray booth and 13 percent use wet filters.

- 12 percent of coatings is applied outside a booth.

- 80 percent of coatings are applied with conventional spray guns and 20 percent with HVLP spray guns.

- The average transfer efficiency of conventional spray guns was assumed to be 30 percent and for HVLP spray guns was 48 percent.

- 50 percent of the sprayed coating that does not reach the part and becomes overspray lands on other surfaces, such as masking paper around the area being painted, or spray booth walls and floors.

- The baseline efficiency of filters in spray booths is 96 percent. This was the median efficiency of the filters for which we collected data from filter vendors.

For the final emission estimates for PM and inorganic HAP, we made the following assumptions:

- We assumed that 10 percent of coating would still become waste.

- We assumed that all coatings would be applied with HVLP spray guns with transfer efficiency equal to 48 percent.

- 100 percent of shops would have a filtered spray booth.

- Spray booth filters would have an efficiency of 98 percent. This is the efficiency achieved by fiberglass and polyester fiber filters and is the standard specified in the proposed rule for filters that were not fiberglass or polyester fiber filters.

Methodology for Estimating Baseline Emissions of PM and Inorganic HAP

The following equation was used to estimate the PM (as coating solids, tons/yr) or inorganic HAP (tons/yr) that were in the coatings that reached the part:

$$A = B * C$$

Where:

A = PM, as coating solids, or inorganic HAP reaching the part (tons/yr);
B = Transfer efficiency, fraction;
C = PM, as coatings solids, or inorganic HAP that does not become waste, tons/yr.

The above equation was performed for the fraction of coatings applied with conventional spray guns and with HVLP spray guns, and then the two were summed to determine the total PM and inorganic HAP reaching the part from all surface coating.

The following equation was used to estimate the PM (as coating solids) or inorganic HAP that become airborne overspray (tons/yr):

$$D = (C - A)*(1 - E)$$

Where:

D = PM, as coating solids, or inorganic HAP that become airborne overspray tons/yr);
C = Inorganic HAP and coatings solids that does not become waste, tons/yr;
A = Inorganic HAP or PM reaching part, tons/yr);
E = Fraction of overspray that settles on other surfaces;

The following equation was used to estimate baseline emissions of PM and inorganic HAP (tons/yr):

$$F = D*(((1-G)) + (G*(1-H)))$$

Where:

F = Baseline emissions of PM or inorganic HAP from shops without a booth (tons/yr);
D = Solids and inorganic HAP the become airborne overspray (tons/yr);
G = Baseline fraction of coatings applied in a booth;
H = Baseline average paint arrestor efficiency (fraction).

<u>Methodology for Final Emissions of PM and Inorganic HAP</u>

The following equation was used to estimate the solids and inorganic HAP reaching the parts after all facilities are using HVLP spray guns (tons/yr):

$$AA = BB * C$$

Where:

AA = PM, as coating solids, or inorganic HAP reaching the part after all facilities are using HVLP spray guns (tons/yr);
BB = Transfer efficiency, fraction, for HVLP spray guns;
C = PM, as coatings solids, or inorganic HAP that does not become waste, tons/yr.

The following equation was used to calculate the solids and inorganic HAP that becomes airborne overspray after all sources switch to HVLP spray guns (tons/yr):

$$DD = (C-AA)*(1-E)$$

Where:

DD = PM, as coating solids, or inorganic HAP that become airborne overspray after all sources switch to HVLP spray guns (tons/yr);
C = Inorganic HAP and coatings solids that does not become waste, tons/yr;
AA = PM, as coating solids, or inorganic HAP reaching the part after all facilities are using HVLP spray guns (tons/yr);
E = Fraction of overspray that settles on other surfaces.

The following equation was used to calculate the final PM and inorganic HAP that are emitted from the overspray (tons/yr) after all spraying is done in booths with filters:

$$FF = DD*(((1-GG)) + (GG*(1-HH))$$

FF = PM or inorganic HAP that become airborne overspray after all spraying is done in a booth with filters (tons/yr);
DD= PM, as coating solids, or inorganic HAP that become airborne overspray after all sources switch to HVLP spray guns (tons/yr);
GG = Final fraction of coatings applied in a booth;
HH = Final paint arrestor efficiency (fraction).

	Gallons Coating	Coating (ton/yr)	Organic HAP (ton/yr)	VOC (ton/yr)	Solids (ton/yr)	Total Inorganic HAP (ton)	Pb Compounds (ton/yr)	Cr Compounds (ton/yr)
Totals for 236 area sources in merged database which submitted data	5,994,596	26,193	947.4	14,163	6,054	18.50	10.58	5.55
Percent of coating that becomes waste and goes into a "sealed" drum				10%				
Non-waste consumption that is potentially emitted (ton/yr)			853	12,747	5,449	16.65	9.52	5.00
Percent of operations spraying with conventional spray guns				20.00%				
Transfer efficiency from conventional spray guns				30.00%				
Transfer efficiency from HVLP				48.00%				
Gallons needed to spray to get one gallon on part with conventional guns				3.33				
Gallons needed to spray to get one gallon on part with HVLP guns				2.08				
Reduction in gallons of coating used as a result of switching from conventional spray guns to HVLP				37.50%				
			Organic HAP	VOC				
Baseline pollutant emissions (tons/yr)			**853**	**12,747**				
Emissions from operations using conventional spray guns (tons/yr)			171	2,549				
Emission reductions from switching from conventional to HVLP (tons/yr)			**64**	**956**				
Emission reductions as percent of baseline			**7.5%**	**7.5%**				
(Reductions are due to decreased coating usage after switching to HVLP)								
Emissions after operations have switched to using HVLP (tons/yr)			**789**	**11,791**				
For solids and inorganic HAP, these values are consumption rates, not emissions								
Baseline consumption rates (tons/yr)					5,449	16.65	9.52	5.00
Baseline consumption at operations using conventional spray guns (tons/yr)					1,090	3.33	1.90	1.00
Baseline consumption at operations using HVLP spray guns (tons/yr)					4,359	13.32	7.62	4.00
Solids and inorganic HAP reaching part from facilities using conventional spray guns (tons/yr)					327	1.00	0.57	0.30
Solids and inorganic HAP reaching part from facilities using HVLP (tons/yr)					2,092	6.39	3.66	1.92
Total solids and inorganic HAP reaching the parts					2,419	7.39	4.23	2.22
Percent of overspray that settles on other surfaces		50%						
Solids and inorganic HAP the become airborne overspray (tons/yr)					1,515	4.63	2.65	1.39
Baseline percent of coatings applied in a booth		88%						
Assumes all coatings at sources with a booth are applied in a booth. 75% have dry filters and 13% have wet filters (88% total)								
Baseline paint arrestor efficiency		96%						
Baseline Air Emissions of PM and Inorganic HAP (tons/yr)					**235**	**0.718**	**0.41**	**0.22**
Solids and inorganic HAP reaching part after all facilities are using HVLP spray guns (tons/yr)					2,615	7.99	4.57	2.40
Solids and inorganic HAP the become airborne overspray (tons/yr)					1,417	4.33	2.48	1.30
Rule percent of coatings applied in a booth		100%						
Rule paint arrestor efficiency		98%						
Final (after rule) Air Emissions of PM and Inorganic HAP (tons/yr)					**28.33**	**0.087**	**0.05**	**0.03**
PM and Inorganic HAP Emission Reductions (tons/yr)					**207**	**0.63**	**0.36**	**0.19**
PM and Inorganic HAP Emission Reductions (%)					**88%**	**88%**	**88%**	**88%**

10.0

Estimate of Capital and Annual Costs For Automotive Refinishing Operations and Miscellaneous Surface Coating Operations Subject to the Proposed National Emission Standards for Hazardous Air Pollutants for Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources

EASTERN RESEARCH GROUP, INC.

MEMORANDUM

TO: Warren Johnson, U.S. EPA, Sectors Policies and Programs Division/Natural Resources and Commerce Group

FROM: Brandin McDonough and Brian Palmer, Eastern Research Group, Inc. (ERG)

DATE: May 18, 2007

SUBJECT: Estimate of Capital and Annual Costs For Automotive Refinishing Operations and Miscellaneous Surface Coating Operations Subject to the Proposed National Emission Standards for Hazardous Air Pollutants for Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources

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This memo documents the procedures we used to estimate costs for all surface coating area sources that would be regulated under the Miscellaneous Surface Coating Area Source National Emission Standards for Hazardous Air Pollutants (NESHAP). We estimate that the controls required to comply with the proposed standards for surface coating operations at about 36,000 automotive refinishing shops and 800 miscellaneous plastic and metal part surface coating operations would have no net annual costs to those surface coating operations. The initial cost of complying with the proposed standards would be off-set and recovered over time by cost savings as a result of more efficient use of labor and materials by surface coating operations.

Initial and annualized costs were estimated for the following proposed rule requirements:

- Completing painter training to properly set up and use high-volume low-pressure (HVLP) spray guns to increase transfer efficiency at all by an estimated 94,533 painters.
- Upgrading to HVLP spray guns at 208 sources with the purchase of an average of 3 guns per source (624 spray guns, total).
- Installing enclosed and automated gun washers at 5,214 sources.
- Complying with equipment specifications or minimum efficiency standards for paint spray booth exhaust filters.

Table 1 summarizes the initial cost and annualized cost impacts of the miscellaneous surface coating standards. As explained in the following sections, we estimate that the proposed standards for surface coating operations will have no net annual cost after cost savings are taken into account.

Table 1. National Initial and Annualized Costs of Miscellaneous Surface Coating Area Source Requirements. All costs are in millions (MM) of dollars.

Cost Item	Number required	Capital Cost ($MM)	Annualized Cost ($MM)
Painter Training	94,533	$94.5	$18.9
HVLP guns	624	$0.44	$0.06
Gun washers	5,214	$9.4	$1.33
	Total	$104.3	$20.29

The cost of installing and operating spray booths are not included in the estimated total costs impacts for this rule because spray booths are previously required for compliance with existing OSHA standards (29 CFR 1910.94(c) and 1910.107(b)). Some surface coating sources may need to replace their current filters for ones with higher paint overspray capture efficiency, but the higher efficiency filters are readily available and will not result in an additional cost.

Assumptions and Procedure for Estimating Painter Training Costs

To estimate painter training costs, we developed four categories of model shops. Three model shops represented automotive refinish shops and one model shop represented a miscellaneous surface coating operation.

The three model automotive refinish shops were based on information obtained in the 2003 U.S. Census County Business Patterns and through EPA site visits, and are summarized in Table 2.[1] These models included the total number of employees and number of painters.

[1] Memorandum. To: Kim Teal, U.S. EPA, Sector Policies and Programs Division/Natural Resources and Commerce Group (E143-03). From: Brian Palmer, Eastern Research Group, Inc. July 17, 2006. Development of Model Shops for Sources Subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Motor Vehicles and Mobile Equipment Refinishing Operations for Area Sources.

Table 2. Summary of Automotive Refinishing Model Shop Parameters

Shop Size	Small	Medium	Large
Number of Vehicles Refinished Per Month	40	100	200
Number of employees	1-9	10-19	20 or more
Estimated Number of Shops (from County Business Patterns)	28,351	5,490	1,914
Total Number of Employees (estimated from County Business Patterns)	107,674	79,605	74,349
Average number of employees per shop	3.8	14.5	39.4
Number of Painters Per Shop	2	4	7
Total Number of Painters Needing Training	56,702	21,960	13,398

We estimated the number of painters for the three sizes of auto shops based on observations made during EPA site visits. Table 3 presents the number of vehicles per month and the number of painters at each of the sites visited by EPA. The sites with very low numbers of vehicles (5 or fewer per month) were either custom restoration shops or mobile equipment repair shops.

Table 3. Vehicle and Painter Information Collected During EPA Site Visits

Name and Location	Vehicles per Month	No. of Painters
Advanced Restoration and Autobody, Sacramento, CA	1	1
The Finish Line Restoration Services, Inc., Monrovia, CA	1	1
Durham School District Transportation Department Garage, Durham, NC	3	2
NC DOT Maintenance Garage, Raleigh, NC	5	1
Gemini Autobody, Cedar Falls, IA	8	1
Fulton Autobody, Sacramento, CA	15	1
McJack's Corvette, Santa Ana, CA	20	1
Dale Bright Auto Service, Chino, CA	30	1
Walt Stickel Body and Frame Shop, Inc., Sacramento, CA	45	2
Cherry Auto Body, Chino, CA	60	2
Coffman's Body Shop, Cedar Falls, IA	72	4
Niello Collision Service, Sacramento, CA	90	3
California Auto Body, Sacramento, CA	100	4
Maaco Sacramento, CA	120	2
Zimmerman Ford , Cedar Rapids, IA	150	4
Bertolucci's Body and Fender Shop, Inc., Sacramento, CA	200	5
Falconi's Collision Center, Las Vegas, NV	280	5
Deery Brothers Collision Center, Cedar Falls, IA	300	4
Seidner's Collision Center, Duarte, CA	310	9

Based on the site visit information and contacts with industry, we estimated that a small shop (40 cars per month), would have two painters. For a medium shop (100 cars per month),

we estimated four painters, and for a large shop (200 cars per month) we estimated seven painters.

ERG contacted a coating vendor, Robert Blair of Finishmaster Automotive and Industrial Paint, who is a former auto refinisher and he concurred with our model shop estimates and observations for the number of painters at small and medium shops.[2] He suggested that the number of painters for most of the large shops that we visited was probably too low because it only included the journeyman (finish) painters and did not include the painters that performed the priming and jamming, also known as prep painters. He confirmed that a shop servicing 300 cars per month would have about nine painters, total. Therefore, for the large model shop, we estimated seven painters because it is the midpoint between the number of painters for a medium shop (100 cars per month) and the confirmed number of painters for a shop painting 300 cars visited during site visits. Since the proposed rule would require both prep and journeyman painters to receive training, we included both in the total number of painters.

The model miscellaneous surface coating shop was developed from survey data collected from miscellaneous metal parts and miscellaneous plastic parts surface coating operations. The area source surface coating facilities reported an average of three coating scenarios. We assumed that the miscellaneous surface coating model shop would have three painters that would need training and three spray guns, one painter and spray gun per scenario. We estimated that 831 facilities were represented by the miscellaneous surface coating model shop, for a total of 2,463 painters who would need training.

We estimated a training cost of $1,000 per painter for both automotive refinish painters and miscellaneous surface coating painters. This includes $360 tuition cost and $640 labor cost for 16 hours of training time at $40 per hour. These are based on the I-CAR 16-hour refinishing course sequence that included "Refinishing Equipment and VOC Regulations," "Surface Preparation and Masking," and "Color Theory, Application, Tinting, and Blending."[3]

Since the training would be valid for a period of 5 years, the annualized cost was assumed to be one-fifth of the initial training cost, to account for worker turnover and the need to

[2] Telephone Call Record: Robert Blair, Field Sales Manager, Finishmaster Automotive and Industrial Paints. March 2, 2007.

[3] http://www.i-car.com/html_pages/training_programs/pricing.shtml. A the time these costs were first estimated by ERG in July 2006, costs were $90 per unit and each unit was equal to 4 hours of instruction; 16 hours of instruction would cost $360 for 4 units.

train new painters. The initial national cost to train 94,553 painters would be $94.5 million and the annual cost would be $18.9 million.

However, we believe that the actual annual cost of training to improve painter efficiency could be offset through reduced coating consumption and associated cost. Although the actual volume of coating use that can be reduced at each shop through training is difficult to estimate, it can be reduced substantially. Painter training programs that address increasing transfer efficiency, such as the Iowa Waste Reduction Center (IWRC) Spray Technique Analysis and Research (STAR®) program, have shown that the amount of coating sprayed per job can be reduced by 13 to 18 percent.[4] This increase in efficiency is expected to translate into reduced coating costs, but a one-to-one savings is not expected since, in some cases, a minimum amount of coating may still need to be mixed to achieve the correct color match and the excess coating will result in some coating becoming waste.

It is important to note that these "untrained" operators are not inexperienced painters. They often have many years of experience before they enter these training programs. However, they have not been specifically trained in how to best set up and operate high efficiency spray equipment and to optimize their technique to maximize transfer efficiency and minimize coating consumption.

Annual coating costs were estimated for each model shop based on information provided by Robert Blair of Finishmaster Automotive and Industrial Paint.[5] Mr. Blair provided the estimated coating costs for the following customer shops, which he felt are typical of many automotive refinish shops:

Shop 1: 2 painters, 40 to 50 cars per month, $5,000 per month for coatings.

Shop 2: 9 painters, 300 cars per month, $35,000 per month for coatings.

Mr. Blair felt that these two shops were indicative of the average coating cost for all like-sized shops. Based on the information provided, we estimated the average coating cost per car is about $110:

$35,000/month ÷ 300 cars/month = $116/car

$5,000/month ÷ 45 cars/month = $111/car.

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[4] www.iwrc.org/staruserqueries/avg_of_all_trainees.cfm (accessed on March 31, 2006) and http://www.star4d.org/database.cfm (accessed on July 17, 2006).

[5] Telephone Call Record: Robert Blair, Field Sales Manager, Finishmaster Automotive and Industrial Paints. March 2, 2007.

The annual coating cost for the small (40 cars/month), medium (100 cars/month), and large (200 cars/month) model shops was calculated using the relative number of cars per month as follows:

Small shops: ($110/car)(40 cars/month)(12 months) = $58,200/yr

Medium shops: ($110/car)(100 cars/month)(12 months) = $132,000/yr

Large shops: ($110/car)(200 cars/month)(12 months) = $264,000/yr

We estimated the annual coating savings that would be required to offset the training cost of $1,000 per painter in a single year. Since the proposed rule would allow a painter to use training completed in the last 5 years to satisfy the training requirements and the training certification is valid for 5 years, we also estimated the annual coating savings that would be required to offset the training costs over a 5 year period.

Table 4 shows the percent reductions of coating use and cost required to offset the training costs for both 1 year and 5 year payback periods for each of the three model shop types. If a shop were able to reduce annual coating use and costs by 5 percent, then the model shops would see a net cost savings in the first year, even after including the cost of training. These savings based on a 5 percent coating reduction are also presented in Table 4.

Table 4. Estimated Cost Savings Needed to Offset Training Costs in 1- and 5-Year Periods, and Estimated Net Cost Savings in 1 Year if Shops Reduce Coating Costs by 5 Percent

Shop Size	Small	Medium	Large
Number of Vehicles Refinished Per Month	40	100	200
Estimated Number of Painters	2	4	7
Estimated Training Cost per Shop	$2,000	$4,000	$7,000
Annual Coating Cost	$58,200	$132,000	$264,000
Reduction in coating use and cost required to recoup the training costs in 1 year.	3.4%	3.0%	2.7%
Reduction in coating use and cost required to recoup the training costs in 5 years.	0.7%	0.6%	0.5%
Coating cost savings at 5 percent reduction in annual coating cost	$2,910	$6,600	$13,200
Net cost savings in 1 year after training cost at 5 percent reduction in annual coating cost	$910	$2,600	$6,200

The coating reduction required to offset the cost of painter training in a single year, included in Table 4, was calculated by dividing the estimated cost of painter training by the estimated annual coating cost, for each model shop.

Small shops: (2 painters * $1,000) ÷ $58,200 = 3.4 percent

Medium shops: (4 painters * $1,000) ÷ $132,000 = 3.0 percent

Large shops: (7 painters * $1,000) ÷ $81,000 = 2.7 percent

The coating reduction required to offset the cost of painter training over 5 years was calculated by simply dividing the reduction needed in a single year by 5. All size model shops could recover their training costs in 1 year if the coating costs were reduced by at least 3.5 percent. We expect that most shops could reduce their costs by at least this amount, and could begin to see cost savings that exceed the cost of initial training in the first year after training is completed.

These estimates are consistent with estimates from the Iowa Waste Reduction Centers STAR® program, as reported by the EPA's Design for the Environment (DfE) program.[6] The STAR® program, in year 2000, estimated that a shop refinishing 15 cars per week (60 cars per month) that switched from conventional to HVLP spray guns could save $6,900 per year in coating costs. The same shops switching to HVLP and receiving training to use more efficient spray techniques were estimated to save $13,000 per year. We could assume that the difference, $6,100/year, would be the savings from training alone at shops that already use HVLP spray guns. This value ($6,100/year) is between the estimated cost savings for the small and medium model shops, when we assume that coating costs were reduced by 5 percent.

Although cost savings were not specifically estimated for miscellaneous surface coating shops, we expect that reduced coating consumption at these facilities would also be sufficient to offset the additional cost of painter training.

Assumptions and Procedure for Estimating HVLP Spray Gun Costs

We have assumed that HVLP spray guns are the industry standard for auto refinishing area sources and that only a substantial number of miscellaneous surface coating facilities would need to purchase HVLP spray guns. We estimated that 25 percent of miscellaneous surface

[6] http://www.epa.gov/dfe/pubs/auto/spraygun/spraygun.pdf United States Environmental Protection Agency. Design for the Environment, Auto Refinishing Shop Project. June 2000. "HVLP SPRAY GUNS: Cost-effective, environment-friendly technology." EPA 744-F-00-004.

coating area sources do not use HVLP spray guns, based on the percentage of sources that did not report using these types of spray guns or an equivalent, such as electrostatic spray guns. We estimated that there are a total 831 miscellaneous surface coating area sources and an average of three coating scenarios per area source. The number of area sources and the estimated percent needing to purchase HVLP spray guns is based on survey data collected from area sources in response to the EPA surveys used to develop 40 CFR part 63, subparts MMMM and PPPP.[7,8] We assumed that area sources would probably need to purchase multiple spray guns and assumed that one new spray gun would be purchased for each coating scenario reported by a source. We estimated that the total number of spray guns required is:

831 sources * 25% needing spray guns* 3 guns/source = 624 guns

The estimated cost for an industrial quality HVLP spray gun and accessories (e.g., larger diameter hose, gauges, extra air caps) is $700, based on vendor information.[9] The total capital cost to purchase 624 guns would be $0.44 million

We estimated annualized costs using the standard method and factors presented in the EPA Air Pollution Control Cost Manual (EPA/452/B-02-001). Table 5 shows the cost elements used to estimate annualized capitol costs. Capital recovery factors for all equipment were based on a 10-year economic life and 7 percent interest.

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[7] Memorandum. To: Kim Teal, U.S. EPA, Sectors Policies and Programs Division/Natural Resources and Commerce Group. From: Brian Palmer, Eastern Research Group, Inc. July 19, 2006. Estimating the Number of Miscellaneous Surface Coating Area Sources for Which EPA Has Data.

[8] Memorandum to: Kim Teal, U.S. EPA, Sectors Policies and Programs Division/Natural Resources and Commerce Group (E143-03). From: Brian Palmer, Eastern Research Group, Inc. July 19, 2006. Analysis of Generally Available Control Technology (GACT) Options for the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Miscellaneous Surface Coating Operations at Area Sources.

[9] HVLP Spray Gun Costs – Model 248 Astro
http://www.airmaxproducts.com/finishing_supplies.htm
Low End HVLP Spray Gun: High Point http://www.spraygunworld.com/products/HP/Highpoint2.html
Sata Jet 2000 HVLP Spray Gun: Model # SAT61168 http://search.cartserver.com/search/search.cgi?cartid=a-6834&category=datapaint&maxhits=20&keywords=SAT61168
Compressed Air Hoses for HVLP – Costs
http://www.1st-in-hvlp.com/compressed_air_hose.htm
Sata Satajet 3000 HVLP Spray Gun: Model SAT133025
http://www.spraygunworld.com/products/SATA/SATA%20HVLP%20133025.htm
DeVilbiss HVLP Spray Gun: Model DEVGTI620S - GTI2000 HVLP
http://www.spraygunworld.com/products/DeVilbiss/DeVilbiss%20DEVGTI620S.htm

Table 5. Derivation of Net Annualized Cost

Capital Cost Elements	
Installed Cost	A
Annualized Capitol Cost Elements	
Equipment Economic Life	n = 10 years
Interest Rate	i = 7 percent (0.07)
Capital Recovery Factor	$B = \frac{i*(1 + i)^n}{(1 + i)^n - 1} = 0.142$
Annualized Capital Recovery Cost	C = A*B

Using the capital recovery factor as derived above (10 year life, 7 percent interest), the annualized capital cost for an HVLP gun is $700 × 0.142 = $100 per gun. We assumed that sources would have no additional insurance, tax, or other administrative overhead costs for the spray guns since these were replacements for existing spray guns.

Cost savings from improved transfer efficiency and reduced coating usage were not estimated for the miscellaneous surface coating sources since we do not have coating cost data specific to these sources. However, based on the information collected by the IWRC and summarized above with respect to painter training, we expect that the cost savings compared to conventional spray guns would be sufficient to at least offset the annualized capital costs of purchasing HVLP or equivalent spray guns.

Assumptions and Procedure for Estimating Gun Washer Costs

We estimated that about 5,214 sources would not have automated enclosed spray gun washers. While sources often use multiple spray guns, a single gun washer is typically adequate to service all spray guns at a facility, particularly for area sources. The EPA visited over 20 automotive refinishing facilities and all but the smallest shop used an automatic, enclosed spray gun washer. The one shop that did not have a gun washer cleaned guns by hand in a small covered parts cleaning tray that held solvent. This latter shop would be able to comply with the proposed standards as long as no cleaning solvent was atomized through the spray gun.

For automotive refinishing shops, we assumed that 14 percent of shops, or about 5,006 shops, that did not report having a spray booth would also not have a gun washer. For miscellaneous surface coating shops, we assumed that the same 25 percent of shops that did not have HVLP spray guns, or about 208 shops, would also not have a gun washer.

The estimated capital cost for a spray gun washer was $1,800, based on calls with gun washer vendors and information available from internet-based searches.[10] We assumed that shops without a spray gun washer would install a durable, low-cost spray gun washer instead of a more expensive model. However, less expensive gun washers are available, including a frequently observed model that is available for less than $1,000.

The total capital cost to purchase 5,213 gun washers would be $9.4 million.

Using the same capital recovery factor as derived above, the annualized capital cost for a gun washer is $1,800 × 0.142 = $256.

The total annualized cost for all 5,214 sources estimated to need an enclosed spray gun washer was $1.33 million per year. However, we estimate that the initial cost of a gun washer could be offset within 1 year at nearly all shops through reduced labor to wash spray guns and through more efficient use of cleaning solvent, compared to manual spray gun washing. The more efficient use of solvent would reduce solvent costs and the costs to properly dispose of spent solvent.

Although spray gun washers can potentially reduce solvent and labor costs, and reduce emissions, the actual volume of solvent that can be reduced is difficult to estimate due to variances in enclosed gun cleaner makes, models, and solvent recovery efficiency. The Department of Defense's Joint Services Pollution Prevention Handbook states that "automatic paint gun washers can reduce the amount of solvent used and paint solvent waste generated by 70 to 80 percent when compared to manual paint gun cleaning."[11] As a conservative estimate, we used a 70 percent reduction of solvents to calculate associated cost savings. Even greater reductions in solvent use and waste generation are possible with systems that also use a still to recover clean solvent from waste paint and spent solvent, but these are more expensive than just an automated gun washer.

To estimate potential cost savings for automated gun washers compared to manual gun washing we used the following assumptions:

Labor Rate ($/hour):	$40.00
Solvent cost:	$6.75/gallon

[10] Paint Gun Equipment Washer from SAFETY-KLEEN: Model 1111
http://www.safety-kleen.com/SKInternet/SKShoppingDetailParts.aspx?ItemCode=6512
Manual Paint Gun Washer from SAFETY-KLEEN: Model 1077
http://www.safety-kleen.com/SKInternet/SKShoppingDetailParts.aspx?ItemCode=6630

[11] http://p2library.nfesc.navy.mil/P2_Opportunity_Handbook/4_9.html

Paint sludge waste disposal cost: $5.10/gallon

Monthly equipment service fee: $17.00

The labor rate is based on an industry survey by Body Shop Business magazine.[12] The costs for solvent, paint sludge waste disposal, and the monthly service fee are based on information from a site visited by EPA.

We assumed each vehicle would require at least 3 gun washings for a primer, color coat, and clear coat. We also assumed that manual gun washing would require 10 minutes and automatic gun washing would require 1 minute of labor to load the gun in the washer, based on the assumptions in the Joint Services Pollution Prevention Handbook.[13] We assumed that manual gun cleaning would require the use of 10 ounces of solvent per gun and automated gun washing 3 ounces per gun (a 70-percent reduction). We assumed no costs for paint sludge waste or solvent disposal for manual gun cleaning, even though it would be difficult to avoid these costs and remain in full environmental compliance for waste disposal. For waste paint sludge disposal costs with a gun washer, we assumed that the volume of waste sludge was equal to solvent purchases to maintain a constant solvent level in the machine.

The results of the gun washer cost analysis are presented in Table 6. Since we observed enclosed gun washers at all but one automotive refinishing shop visited by EPA, only results estimated for shops refinishing only 10, 20, and 40 cars per month are presented here since these are the shops most likely to have to purchase a gun washer.

Even a shop refinishing 10 cars per month could see a net annual cost savings that would offset the initial cost of an enclosed spray gun washer. A major component of these cost savings is the cost of labor saved. However, even if the assumptions are changed to reduce the difference in labor required to clean guns manually and with a gun washer (e.g., 5 minutes and 2 minutes, respectively), the cost savings could still offset the initial cost of a gun washer in 5 years or less.

[12] http://www.babcox.com/editorial/bb/704OperationsProf.pdf
[13] http://p2library.nfesc.navy.mil/P2_Opportunity_Handbook/4_9.html

Table 6. Gun Washer Cost Savings Analysis

Model Shop Parameters			
Cars per month per model shop	10	20	40
Gun washings per month	30	60	120
Manual Gun Washing Calculated values			
Calculated manual solvent use per month (gallons)	2.3	4.7	9.4
Manual solvent cost per month	$ 15.82	$ 31.64	$ 63.28
Manual gun washing labor per month (hours)	5.00	10.00	20.00
Manual gun washing labor cost per month	$ 200.00	$ 400.00	$ 800.00
Total Monthly Cost	$ 215.82	$ 431.64	$ 863.28
Total Annual Cost for Manual Gun Washing	$2,589.84	$5,179.69	$10,359.38
Automated Gun Washing Calculated values			
Gun washer virgin solvent use per month (gallons)	0.7	1.4	2.8
Gun washer solvent cost per month	$ 4.75	$ 9.49	$ 18.98
Gun washer waste sludge disposal cost per month	$ 3.59	$ 7.17	$ 14.34
Gun washer labor per month (hours)	0.50	1.00	2.00
Gun washer labor cost per month	$ 20.00	$ 40.00	$ 80.00
Service fee per month	$ 17.00	$ 17.00	$ 17.00
Monthly cost for solvent, waste, labor and fee	$ 45.33	$ 73.66	$ 130.33
Annual cost for solvent, waste, labor, and fee	$ 543.98	$ 883.97	$ 1,563.94
Annualized capital cost of gun washer	$ 256.28	$ 256.28	$ 256.28
Total Annual Cost for Gun Washer	$ 800.26	$1,140.25	$ 1,820.22
Estimated Annual Cost Savings for Automated Gun Washer Compared to Manual Gun Washing	$1,789	$4,039	$ 8,539

Assumptions and Procedure for Estimating Spray Booth Costs

The proposed rule would require all spray applied surface coating to be done in a ventilated enclosure, such as a spray booth, with fiberglass or polyester fiber filters on the exhaust, or filters that are demonstrated to achieve at least 98-percent overspray capture efficiency. The capital cost of installing a spray booth and annual operating costs were not included in the capital and annualized cost estimates because spray booths or similar enclosures are already required by existing OSHA standards such as 29 CFR 1910.94(c) or 1910.107(b). The proposed rule would only specify exhaust filter requirements, which are not addressed by the existing OSHA standards. We do not expect that the proposed standards would have any

cost impacts since compliant exhaust filters are readily available and the cost difference among exhaust filters is negligible.

We have included a discussion of spray booth capital and annualized costs for informational purposes for those affected sources that may need to install a spray booth to comply with this proposed rule as well as other existing rules.

Based on this information we have gathered, we estimate that about 5214 area sources affected by this rule may not have a spray booth. This estimate includes 5005 automotive refinishing shops and 208 miscellaneous surface coating area sources. A 2003 reader survey reported that 51 percent of automotive refinishing shops had a downdraft spray booth and 35 percent had a cross draft spray booth.[14] We assumed this meant that 14 percent of shops had no spray booth. Based on a population of 35,755 automotive refinishing shops, according to the 2003 County Business Patterns from the U.S. Census, we estimated that 5,006 shops may not have spray booths.

For miscellaneous surface coating shops, we used data collected in support of 40 CFR 63 subparts PPPP and MMMM that showed that 25 percent of miscellaneous surface coating area sources did not report having spray booths with dry filters. Based on this information, we estimated that 208 miscellaneous surface coating area sources affected by this rule may not have spray booths.

The estimated capital cost for a spray booth was $10,000, including installation. This approximate cost was based on the cost of an inexpensive cross draft automotive refinishing booth.[15] We assumed that sources without a booth would purchase the lowest cost booth needed to comply, rather than more expensive booths, such as downdraft booths or booths with separate heating systems. We also assumed that this cost would be a reasonable surrogate for the cost of a booth used in miscellaneous surface coating operations. Using the capital recovery factor derived above (0.142), the annualized capital recovery cost for the booth is $1,420.

The total annualized costs are equal to the annualized capital costs, plus the annual operating costs for the spray booth. The estimated annual operating costs for a spray booth are listed Table 7:

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[14] http://www.bodyshopbusiness.com/bb/Purchases.pdf

[15] See, for example, http://www.sprayshield.com/cgi-bin/hazel-cgi/hazel.cgi?action=serve&item=ECF-1000.html. Web page for an economy cross flow spray booth ($4899), plus cost for exhaust package ($700) and fire suppression system ($2,999).

Table 7. Estimated Spray Booth Annual Operating Costs.

Annual Operating Cost Item	Cost per year
Air Intake Filters (Cross Flow Booth)	$ 152
Exhaust Filters (paint extractors) (Cross Flow Booth)	$ 58
Exhaust Filters disposal	$ 440
Taxes, insurance, admin. costs (4% of installed capital cost):	$ 400
Natural gas to heat make-up air	$ 2,011
Electricity for fan in booth	$ 171

The costs for intake and exhaust filters and used filter disposal are based on the estimated costs provided by an automotive collision repair facility visited by EPA. These costs have been estimated for a small automotive refinishing facility that refinishes 40 cars per month, since these small facilities are most likely to not already have a booth. Taxes, insurance, and administrative costs were assumed to be 4 percent of the installed capital cost. This is a standard assumption for EPA cost estimates.

Natural gas is needed to heat the air that is used by the booth during cold weather months to maintain a constant shop and booth temperature. We estimated the annual cost of natural gas using the following assumptions:

- The booth would operate 1,000 hours per year at a flow rate of 10,000 cubic feet per minute.
- For 500 hours per year of operation, the air would need to be heated from 50 degrees F (a national average wintertime temperature) to 70 degrees F.
- The heater would be 80 percent efficient.
- The price of natural gas would be $13.50 per thousand cubic feet (mcf), based on the average cost for natural gas from the Energy Information Administration for the Winter of 2005 to 2006 (October to March, inclusive).
- The heating value of natural gas would be 950 Btu per cubic foot.

The estimated annual cost of natural gas would be $2011:

$$\frac{(10{,}000\ \text{cfm})(\text{heat capacity of air } 0.24\ \text{Btu/lb oF})(70-50\ \text{oF})(\$13.50/\text{mcf})(60\ \text{min/hr})(500\ \text{hrs})}{(\text{density of air } 13.1\ \text{lb/cf})(0.80\ \text{heater efficiency})(950\ \text{Btu/cf})(1{,}000\ \text{cf/mcf})} = \$2011$$

Electricity would be needed to operate the fans of a spray booth to move the air in and out of the spray booth. Electricity costs were estimated using an algorithm adapted from the OAQPS Control Cost Manual procedure to estimate operating costs for ventilation ductwork.

The algorithm estimated annual electricity cost based on flow rate, pressure drop, and electricity cost per kilowatt-hour (kwh). We estimated the annual cost of electricity using the following equation and assumptions:

Annual electricity cost ($/yr) = 0.0001175*Hours*Flow*ΔP*Price/Efficiency

Where:

0.0001175 =	an empirical computational constant with units of (hrs · acf · in. water/min · kwh)
Hours =	annual hours of operation, assumed to be 1,000 hours per year.
Flow =	booth air flow rate, assumed to be 10,000 cubic feet per minute, based on vendor information.
ΔP =	The total pressure drop across the spray booth system (inlet filters, outlet filters, and ductwork) would be 1.0 inches of water. This is over twice the maximum pressure drop for a loaded spray booth filter to also account for the pressure drop of the inlet filters.
Price =	The price for electricity, $0.0872 per kwh, based on the national average for 2005 from the U.S. Energy Information Service.
Efficiency =	The fan and motor combined efficiency, using the standard assumption from the OAQPS Control Cost Manual of 60 percent.

The annual operating cost for a spray booth is estimated to be $3,231. After adding the annualized capital cost of $1,424, the total annualized cost for a spray booth would be $4,655 per year.

Number of U.S. Automotive Refinishing Establishments by Employment Size Class for the Paint or Body Repair Shops (NAICS 811121)

	Number of Employees									
	1-4	**5-9**	**10-19**	**20-49**	**50-99**	**100-249**	**250-499**	**500-999**	**1000+**	**Totals**
Number of Establishments	20,174	8,177	5,490	1,778	110	22	3	-	1	35,755
Source: 2003 County Business Patterns										
Estimated Average Number of Employees (basedon midpoint of size range)	2.5	7	14.5	34.5	74.5	174.5	324.5	0	1000	
Employees per business size range (based on median)	50,435	57,239	79,605	61,341	8,195	3,839	974	-	1,000	262,628
Average number of employees per shop										7.3
Body ShopBusiness reported a median of 5 employees per shop and an average of 7.1 per shop.										
Model shop sizes are small (1-9 employees), medium (10 - 19 employees) and large (20 or more employees)										
	Small		Medium	Large						
Shops per size class	28,351		5,490	1,914						35,755
Employees per size class	107,674		79,605	75,349						262,628
Average employees per size class	3.80		14.50	39.37						
Number of painters per model shop	2		4	7						
Total Painter s per shop size class	56,702		21,960	13,398						92,060
Booths per model shop	1		2	3						
Total number booths	23,345		10,980	5,742						40,067

From Body Shop Business June 2003 Reader Survey

Average salary of painters:	$ 43,725	$ 21.02	$/hr	
Average posted labor rate ($/hr) for metal/refinish work:	$ 40			
Percent of shops with a downdraft spray booth:	46%			
Percent of shops with a crossdraft spray booth:	40%			
Percent of shops with a prep station	31%			
Percent of shops without a booth	14%			
Assume these are are all small shops				
Number of small shops without a booth	5,006			

From Body Shop Business June 2003 Reader Survey

Average salary of painters:		$ 43,725	
Average posted labor rate ($/hr) for metal/refinish work:		$ 40	
Body Shop Business reported that 67.4% of shops had at least one ASE certified tech (not necessarily a painter)			
32.7% of shops hired techs from votech schools.			
Total number of employees estimated from 2003 County Business Patterns:			262,628
Total estimated number of painters:			92,060
Percent of painters who are trained per year			20%
Total number of painters trained per year:			18,412
Hours of training:			16
Tuition cost of training course (Based on I-CAR Refinishing Course sequence):		$	360
Labor cost of training based on average posted labor rate		$	11,783,680
(#painters X hours X posted labor rate)			
Tuition cost of training ($360 per course based on ASE tuition cost)		$	6,628,320
Total training cost (labor and tuition)		**$**	**18,412,000**
Estimated coating cost per car	$110		
Baseline coating costs			
Cost per model shop:		Annual cost	
Small shops:	40 cars/mo	$ 52,800	
Medium shops	100 cars/mo	$ 132,000	
Large shops	200 cars/mo	$ 264,000	

Assumptions		References
Labor Rate ($/hour)	$ 40.00	From Body Shop Business survey
Solvent cost ($/gallon)	$ 6.75	From Seidners
Paint sludge waste disposal cost ($/gallon)	$ 5.10	From Seidners
Monthly service fee	$ 17.00	From Seidners, assumed to be the same for all size shops.
Capital Cost of Gun Washer	$ 1,800.00	From web and calls to vendors. Some washers are <$1,000.
Inerest rate	7%	
Capital recovery period (years)	10	
Caclulated Capital Recovery Factor	0.1424	
Annualized capital cost at 7% interest over 10 years	$ 256	
Gun washings per car (primer, base, clear)	3	Assumed
Minutes per manual gun cleaning	10	From DoD P2 Handbook gunwasher cost benefit analysis
Solvent used per manual gun washing (ounces)	10	From Becca (gun washer vendor)
Minutes per automated gun washer cleaning	1	From websites
Gun washer solvent efficiency	70%	This assumes a gun washer reduces solvent use by this percent compared to manual gun washing
		DoD P2 Handbook reported that gun washers could reduce solvent usage 70 to 90 percent
		Virgin solvent use and sludge volume disposal are assumed to be equal to maintain a constant solvent level in the gun washer.

Cars per month per model shop	10	20	40	100	200	
Gun washings per month	30	60	120	300	600	
Calculated manual solvent use per month (gallons)	2.3	4.7	9.4	23.4	46.9	
Annual VOC emissions (lbs)	196.9	393.8	787.5	1,968.8	3,937.5	
Manual Washing Calculated values						
Manual solvent cost per month	$ 15.82	$ 31.64	$ 63.28	$ 158.20	$ 316.41	
Manual gun washing labor per month (hours)	5.00	10.00	20.00	50.00	100.00	
Manual gun washing labor cost per month	$ 200.00	$ 400.00	$ 800.00	$ 2,000.00	$ 4,000.00	
Total Monthly Cost	$ 215.82	$ 431.64	$ 863.28	$ 2,158.20	$ 4,316.41	
Annual cost	$ 2,589.84	$ 5,179.69	$ 10,359.38	$ 25,898.44	$ 51,796.88	
Automated Washing Calculated values						
Gun washer virgin solvent use per month (gallons)	0.7	1.4	2.8	7.0	14.1	
Gun washer solvent cost per month	$ 4.75	$ 9.49	$ 18.98	$ 47.46	$ 94.92	
Gun washer waste sludge disposal cost per month	$ 3.59	$ 7.17	$ 14.34	$ 35.86	$ 71.72	Assumed sludge volume = virgin solvent volume.
Gun washer labor per month (hours)	0.50	1.00	2.00	5.00	10.00	
Gun washer labor cost per month	$ 20.00	$ 40.00	$ 80.00	$ 200.00	$ 400.00	
Service fee per month	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00	
Monthly cost for solvent, waste, labor and fee	$ 45.33	$ 73.66	$ 130.33	$ 300.32	$ 583.64	
Annual cost for solvent, waste, labor, and fee	$ 543.98	$ 883.97	$ 1,563.94	$ 3,603.84	$ 7,003.69	
Annualized capital cost of gun washer	$ 256.28	$ 256.28	$ 256.28	$ 256.28	$ 256.28	
Total Annual Cost	$ 800.26	$ 1,140.25	$ 1,820.22	$ 3,860.12	$ 7,259.97	
Annual Cost Difference	$ 1,789.58	$ 4,039.44	$ 8,539.16	$ 22,038.31	$ 44,536.91	

Misc metal & plastic part surface coating sources needing HVLP spray guns and gun washers

Number of area sources (entire category	831	(Spray booths)
Scenarios per source	3	(From GACT memo, 2nd paragraph)
Fraction of sources without a booth:	0.25	
Fraction of sources without enclosed gu	0.25	
Fraction of sources without HVLP spray	0.25	
Number of spray booths required	208	Based on survey Form D-4, 25% of area source scenarios do not use a filtered booth
Number of enclosed gun cleaners requi	208	Based on survey Form D-4, 25% of area source scenarios do not use HVLP spray guns
Number of HVLP spray guns required	663	(1 per scenario)
Number of painters (3/source)	2493	
HVLP spray gun capital cost		
Installed Capital Cost (ICC)	700	includes new supply hose, spare parts
Interest rate	0.07	
Equipment Life (Years)	10	
Capital recovery factor	0.142378	
Annualized capital cost	99.66425	
Gun washer capital cost		
Installed Capital Cost (ICC)	1800	
Interest rate	0.07	
Equipment Life (Years)	10	
Capital recovery factor	0.142378	
Annualized capital cost	256.2795	
National costs		
Number of spray guns per source	3	(1 per scenario, 3.2 scenarios per source)
Number of gun washers per source	1	
Number of sources	831	
Fraction without HVLP spray guns	0.25	Based on survey Form D-4, assumed to be same fraction (25%) of area sources that spray do not use a filtered booth
Fraction without enclosed gun washers	0.25	Assumed to be the same fraction that do not have a filtered booth.
HVLP guns	623.25	guns
Gun washers	207.75	washers
Total capital cost for spray guns	436275	
Total capital cost for gun washers	373950	
HVLP Guns - Annualized costs	62115.75	
Gun washers - annualized costs	53242.07	

Spray Booth Cost Analysis	
Installed Capital Cost	$ 10,000
Interest rate	7%
Equipment Life (Years)	10
Capital recovery factor	0.142377503
Annualized capital cost	$ 1,424
Annual Operating Costs	Small Shop
Air Intake Filters (Cross Flow Booth)	$ 152
Exhaust Filters (paint extractors) (Cross Flow Booth)	$ 58
Exhaust Filters disposal	$ 440
Taxes, insurance, admin. costs (4% of installed capital cost):	$ 400
Natural gas to heat make-up air	$ 2,011
Electricity for fan in booth	$ 171
Annualized capital and operating costs per booth	$ 4,655
Number of automotive shops that may need to purchase a booth:	5,006
Total capital cost for all shops	$ 50,057,000
Total annual cost for all shops without a booth	$ 23,301,883

Annual Costs for Seidner's Collision Centers

Material or Equipment Description	Cost	Typical Monthly, Quarterly, or Annual Usage	Annual Cost		Annual Costs		
					Shop Size and Cars per Month		
					Small	Medium	Large
		Based on 100 repaired vehicles per month		Cost per car	40	100	200
Virgin Solvent (VOC 225gm/lt) used in gun washing equipment	$6.75/gal	25 gallons/month	$2,025	$1.69	$810.00	$2,025.00	$4,050.00
Paint Related Waste (liquid) Recycled Waste Hauled to Recycler	$3.50/gal	28 gallons/month (adding for overpour)	$1,176	$0.98	$470.40	$1,176.00	$2,352.00
Paint Related Waste (Sludge) Non Recycled Waste	$5.10/gal	2 gallons/month	$122	$0.10	$48.96	$122.40	$244.80
Paint Related Waste (Solid) Non Recycled Waste	$6.80/gal	2 gallons/month	$163	$0.14	$65.28	$163.20	$326.40
Monthly Service fee	$17.00/month		$204	$0.17	$81.60	$204.00	$408.00
Air Intake Filters (Down Draft Booth)	$500/booth	1000 hours of booth operation (one year)	$500	$0.42	$200.00	$500.00	$1,000.00
Air Intake Filters (Cross Flow Booth)	$95/booth	250 hours of booth operation (one quarter)	$380	$0.32	$152.00	$380.00	$760.00
Exhaust Filters (paint extractors) (Down Draft Booth)	$30.00/booth	one exchange/month	$360	$0.30	$144.00	$360.00	$720.00
Exhaust Filters (paint extractors) (Cross Flow Booth)	$12.00/booth	one exchange/month	$144	$0.12	$57.60	$144.00	$288.00
Exhaust Filters disposal	$275/drum	Quarterly (hauled to hazardous waste facility)	$1,100	$0.92	$440.00	$1,100.00	$2,200.00
Air line maintenance (Oil Coalescing Filter & Desiccant beads)	$125	semi annual	$250	$0.21	$100.00	$250.00	$500.00
Air line exchange (heat breaks down airlines)	$35/hose	Quarterly	$140	$0.12	$56.00	$140.00	$280.00
Color Correct Fluoresant Lamps	$9.50/lamp	10/year	$95	$0.08	$38.00	$95.00	$190.00
			$6,660				

TOTAL ANNUAL COST SPREADSHEET PROGRAM--STRAIGHT DUCTWORK [1]

	INPUT PARAMETERS				
Spray booth flowrate (acfm):			10,000		
Fan-motor combined efficiency (fraction):			0.60		
Pressure drop (in. w.c.):[2]			1.000		
	ANNUAL COST INPUTS				
Operating factor (hours/year):			1,000		
Electricity price ($/kWhr) [3]:		$	0.0872	Average for 2005 from the U.S. Energy Information Service	
	ANNUAL COSTS			1,958	kWhr/source
Item		Cost ($/yr)		9,802,829	kWhr for all sources
Electricity		$	171		

Notes:
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[1] Algorithm and data used to develop this program were taken from 'OAQPS Control Cost Manual', 5th edition, Chapter 10.

[2] Assumed a pressure drop of 1.0 inches water column based on loaded exhaust filters.

[3] Average for 2005 from the U.S. Energy Information Service
http://tonto.eia.doe.gov/merquery/mer_data.asp?table=T09.09
accessed on June 28, 2006.

Spreadsheet to estimate the cost of natural gas to heat make-up air maintain shop temperature during cold weather months

Assume no heating required 6 summer months
Assume average daytime outdoor temperature of 50F, nationwide 6 months per year
Operate booth at 70F, 14,000 cfm, 1000 hrs/yr, 500 hrs/winter

Natural Gas cost from Energy Information Administration for Winter 2005-2006

	$/mcf
Oct-05	$14.60
Nov-05	$15.10
Dec-05	$14.26
Jan-06	$14.24
Feb-06	$13.11
Mar-06	$12.11
Avg =	$13.90

Flow, cfm	density of air at 60F (lb/cf)	heat capacity of air (Btu/lb °F)	ΔT (°F)	min/hr	heater efficiency	gas price	low heating value (Btu/cf)	(cf/mcf)	time (hrs)		
10000		0.24	20	60		$ 13.90			500	=	**$2,011**
	13.1				80%		950	1000			year

Flow, cfm	density of air at 60F (lb/cf)	heat capacity of air (Btu/lb °F)	ΔT (°F)	min/hr	heater efficiency	low heating value (Btu/cf)	(cf/mcf)	time (hrs)			
10000		0.24	20	60				500	=	**144.64**	mcf
	13.1				80%	950	1000			year	

144.64 mcf/yr 5005.7 shops needing a booth 724,006.43 mcf/yr