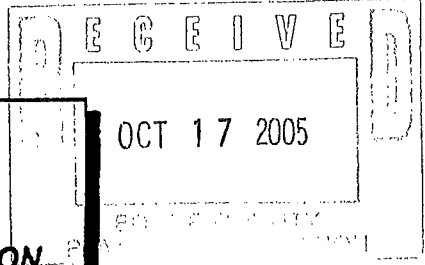


05-BCBA-24-A

APPLICATION FORM



BOARD OF ADJUSTMENT AND ZONING APPEALS ACTION BOONE COUNTY PLANNING COMMISSION

See Boone County Zoning Regulations SECTION A (To be completed by applicant)

- 1. (Check One) Boone [x] Florence Walton Union
2. (Check One) Conditional Use Permit [x] Variance Appeal
3. Applicant's Name BFS Diversified Products, LLC/Firestone Building Products Co.
4. Description of Request: Conditional use permit for placement of chemical storage tanks...
5. Name of Development Northern Kentucky Industrial Park
6. Location of Development 8170 Holton Drive, Independence, Kentucky
7. Acreage Under Review 10.147 acres (in Boone County) - total of 32.9673 acres
8. Lot Number and Name of Subdivision (if part of a subdivision) (Kenton & Boone Counties)
9. Owner of Property Cabot Industrial Venture B, LLC; c/o RREEF Management Co.
10. Address of Property Owner 4701 Creek Road, Suite 240 Cincinnati OH 45242
11. Proposed Use(s) on Site Manufacturing of plastic products
12. Total Square Footage of Existing and/or Proposed Buildings: 352,000
13. Current Zoning on Property I-1 (Industrial One)
14. Deed Book 856 Page No. 545 Group No. 2050
15. Is the site subject to a zone change? No
16. Have you submitted a Site Plan with this request? Yes
17. Have you submitted a list of adjoining property owners with this request? Yes
18. I, or we, understand and agree that this application and drawing(s) are being filed in accordance with the Boone County Zoning Regulations.

Applicant's Signature: Roger M... Plant Manager
Property Owner's Signature: [Signature]

BOARD OF ADJUSTMENT AND
ZONING APPEALS ACTION
APPLICATION
PAGE 2

SECTION B (To be completed by the Boone County Planning Commission Staff)

1. Date Received 10-18-05 Fee Received: \$1957.00 LA 44083
2. Is application complete? Yes No
3. Staff Reviewer _____
4. Scheduled Board Action Date _____
5. Board Action: _____
_____ Approved
11/9/05 Approved with Conditions (See #6)
_____ Denial (See #7).
6. Conditions of Approval: SEE 11/9/05 B.C.B.O.A.
MEETING MINUTES
7. Reasons for Denial: _____

Boone County Planning Commission
2995 Washington Street
Burlington, Kentucky 41005
(859) 334-2196 - Phone
(859) 334-2264 - Fax
plancom@boonecountyky.org - E-mail
www.boonecountyky.org - Web Page

NOTE: See Boone County Planning Commission Fee Schedule for Board of Adjustment Fees.

Site Plan Review is not granted by the appropriate Board of Adjustment.

An application consists of all fees paid in full, submitted drawings and a completed application form.

STAFF REPORT

APPLICANT: BFS Diversified Products, LLC (Firestone Building Products Co.)

LOCATION: 8170 Holton Drive, Boone County, Kentucky

ZONING: Industrial One (I-1)

DATE: November 9, 2005

PROPOSAL

The applicant is requesting a Conditional Use Permit to allow indoor and outdoor chemical storage tanks to be located at 8170 Holton Drive, Boone County, Kentucky. The proposed tanks will store Pentane and Polyol. The chemicals will be used to produce foam panels which are used for building insulation.

While the majority of the 352,000 square foot building and 32.9673 acre site are located in the City of Independence, a Conditional Use Permit is required from the Boone County Board of Adjustment because inside and outside chemical storage tanks are being proposed in Unincorporated Boone County.

The Concept Plan shows that a driveway will extend from the southeast portion of the parking lot to the western side of the building. The driveway will connect to an unloading area which houses a 45,000 gallon Pentane tank. This Pentane tank is located in Unincorporated Boone County. The plan also shows that there are eleven (11) chemical storage tanks inside the building. Three (3) of these tanks are located in Unincorporated Boone County and each store up to 12,000 gallons of Polyol.

APPLICABLE REGULATIONS

Article 2, Section 220 of the Boone County Zoning Regulations states that one of the duties of the Board of Adjustment is to grant conditional uses permits as specified by the zoning order.

Article 11, Section 1133 of the Boone County Zoning Regulations permits a business which "stores chemicals" as a Conditional Use within the Industrial One (I-1) district.

The Board should evaluate the applicant's request as it relates to the criteria necessary for granting a Conditional Use Permit as stated in Sections 262 & 1133 of the Boone County Zoning Regulations.

Findings listed in Section 262 (Findings for all Conditional Uses):

1. Will be harmonious with and in accordance with the general objectives, or with any specific objective of the County's Comprehensive Plan, a specific corridor plan and/or the zoning order;

2. Will be designed, constructed, operated, and maintained so as to be harmonious and appropriate in appearance with the existing or intended character of the general vicinity and shall not change the essential character of the same area;
3. Will not be hazardous to existing or future neighboring uses;
4. Will be served adequately by essential public facilities and services such as highways, streets, police and fire protection, drainage structures, refuse disposal, water and sewer, and schools; or that the persons or agencies responsible for the establishment of the proposed use shall be able to provide adequately such services;
5. Will not create excessive additional requirements at public cost for public facilities and services and will not be detrimental to the economic welfare of the community;
6. Will not involve uses, activities, process, materials, equipment and conditions of operation that will be detrimental to any persons, property, or the general welfare by reason of excessive production of traffic, noise, smoke, dust, fumes, glare, or odors;
7. Will have vehicular approaches to the property which shall be so designated as not to create an interference with traffic on surrounding public thoroughfares.

Article 11, Section 1133 of the Boone County Zoning Regulations allows a business which "stores chemicals" as Conditional Uses in the Industrial One (I-1) district provided that:

- a. the activity is provided primarily in support of and obtains its trade from the employees of the district; or
- b. the activity is of integral relation to the purpose of the district;
- c. the use, building or structure is subservient to and not of scale, nature, trade or other character which will compete, detract or conflict with the purpose and permitted uses of the district; and
- d. provided the arrangement of uses, buildings or structures is mutually compatible with the organization of permitted and accessory uses to be protected in the district.

RELATIONSHIP TO THE COMPREHENSIVE PLAN

The 2000 Boone County Comprehensive Plan's "2025 Future Land Use Plan" designates the site in question for "Industrial" uses. This designation is defined as "manufacturing, wholesale, warehousing, distribution, assembly, mining, and terminal uses."

The following Goals & Objectives from the 2005 Boone County Comprehensive Plan apply to the application:

- A. "Boone County businesses are developed in appropriate locations and are compatible with their surrounding areas" (Business Activity, Goal).
- B. "Effective site placement, architectural design and landscape design for industrial uses shall enable a favorable relationship with adjoining uses. Industrial nuisances such as smoke, dust, noise and odor shall be kept at a minimum, and site development and enforcement shall be carefully coordinated with necessary approvals of other regulatory agencies" (Business Activity, Industrial Objectives).
- C. "Provisions shall be made for proper control of industrial uses, which have processes or make products that could be hazardous to human life and property. (Examples of such products are explosives and flammable or corrosive chemicals). New and existing industrial uses shall comply with federal and state air and water pollution regulations" (Business Activity, Industrial Objectives).

SURROUNDING LAND USES

North: Holton Drive & A.O. Smith Corporation

South: Richardson Road, Single-Family Residential Dwellings, and Churches

East: Auto Repair Shop & Single-Family Residential

West: Norfolk-Southern Railroad Right-of-Way

SITE CHARACTERISTICS

The proposed operation is located on a 32.9673 acre site which contains a 352,000 square foot office/warehouse. Only 10.147 acres of the property and the extreme western portion of the building are located within Unincorporated Boone County.

STAFF COMMENTS

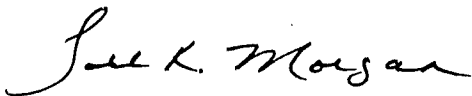
1. The applicant has supplied information regarding the business operation and Material Safety Data Sheets (MSDS) for the chemicals that will be stored in Boone County (see attachments). The information explains that Pentane is a flammable liquid but that propane and gasoline have greater flammability hazards.
2. Staff has received a letter from Florence Fire regarding the application. Florence Fire has asked the applicant to provide a fire hydrant near the rear of the facility and driveway to the 45,000 gallon Isopentane tank. Other than these issues, Florence Fire had no comment (see attachments).
3. Staff has attached a letter from the Zoning Administrator from the City of Independence. The letter indicates that the operation is principally permitted in the City of Independence and that they have issued zoning and building permits (see attachments).

4. Staff recommends that the Board should analyze the following conditional use permit criteria before voting on the request:
 - A. the use "will be harmonious with and in accordance with the general objectives, or with any specific objective of the County's Comprehensive Plan, a specific corridor plan and/or the zoning order";
 - B. the use "will not be hazardous to existing or future neighboring uses"
 - C. The use "will not involve uses, activities, process, materials, equipment and conditions of operation that will be detrimental to any persons, property, or the general welfare by reason of excessive production of traffic, noise, smoke, dust, fumes, glare, or odors"
5. If the Board approves the request, Staff recommends a condition which requires a street frontage landscape buffer to be installed along the portion of Richardson Road which is located within Unincorporated Boone County.

Conclusion

KRS 100.237 and Section 220 of the Boone County Zoning Regulations gives the Boone County Board of Adjustment and Zoning Appeals the authority to grant the Applicant's request.

Respectfully submitted,

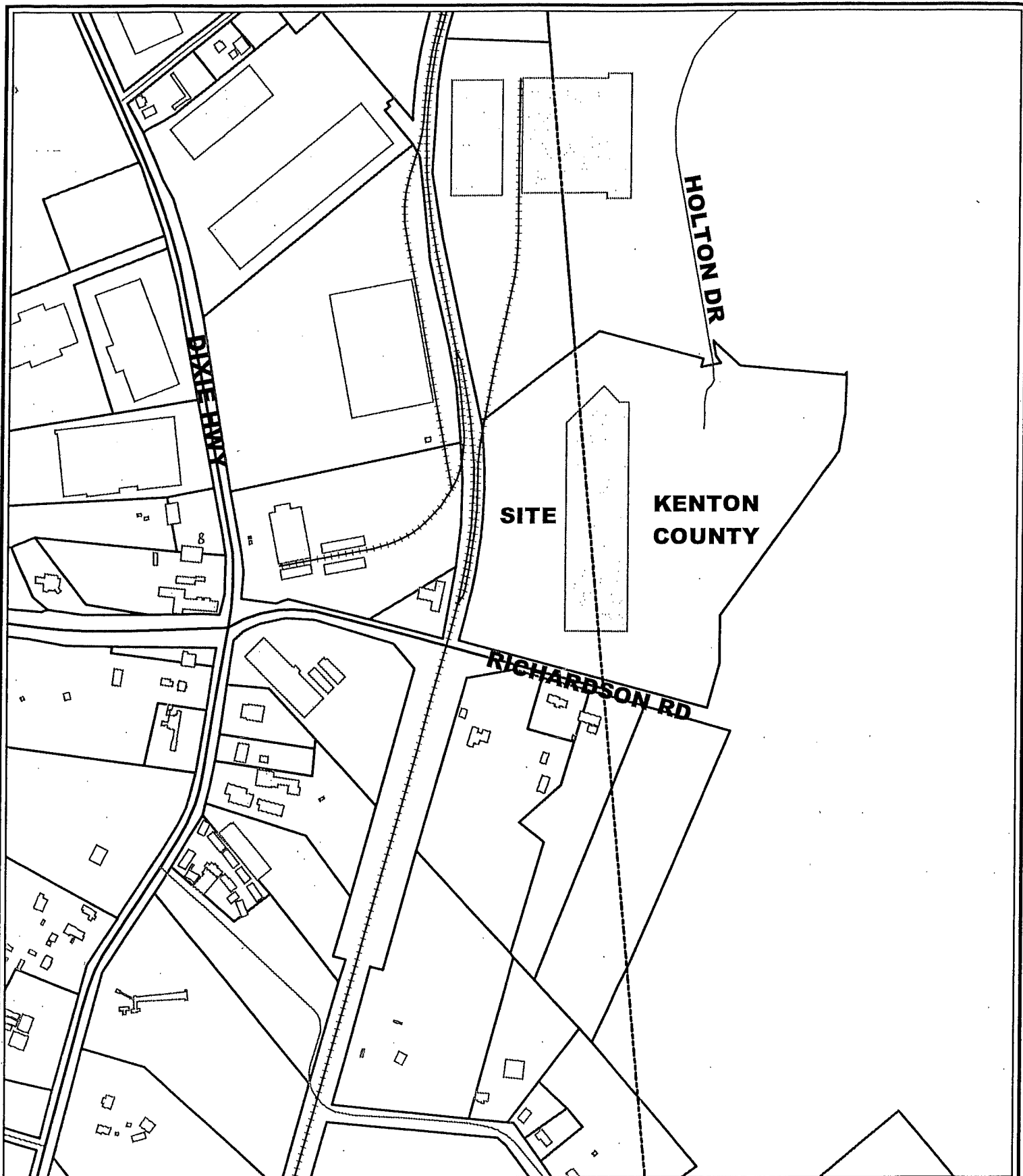


Todd K. Morgan, AICP
Planner, Zoning Services

TKM/pr

Attachments

- Exhibit A – Site Vicinity Map
- Exhibit B – Concept Development Plans
- Exhibit C – Letter From Tom Vergamini
- Exhibit D – Materials Addressing the Business Operation
- Exhibit E – Material Safety Data Sheets
- Exhibit F – Aerial Map
- Exhibit G – Zoning Map
- Exhibit H – Future Land Use Map
- Exhibit I – Letter From Florence Fire Department
- Exhibit J – Letter From City of Independence
- Exhibit K – Application

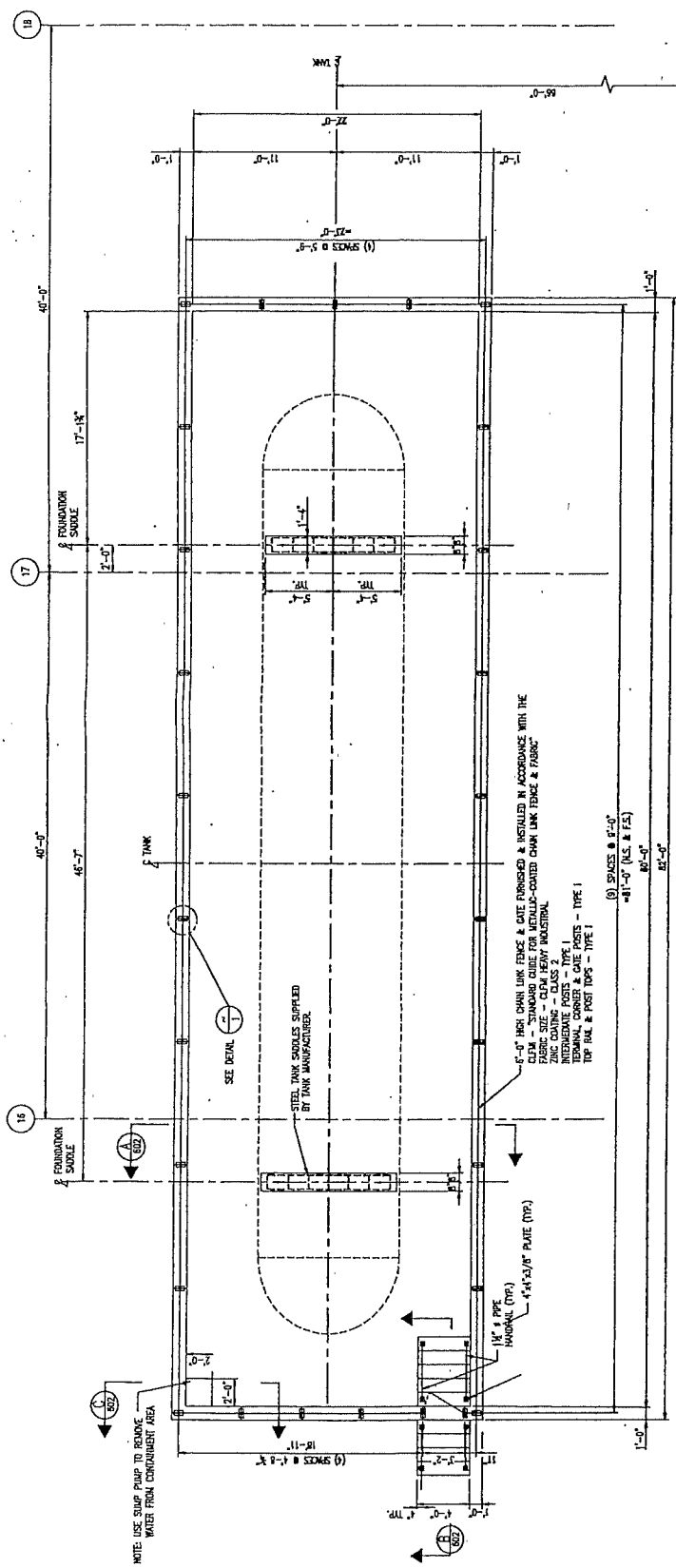


Site Vicinity Map

500 0 500 Feet

1 inch equals 500 feet
Produced by the
Boone County Planning Commission
GIS Services Division
November 1, 2005

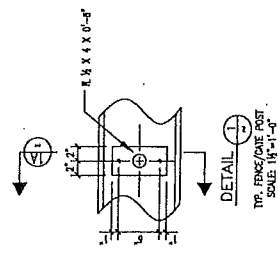




NOTE: USE SUMP PUMP TO REMOVE WATER FROM CONTAMINATED AREA.

6"-0" HORN CHAIN LINK FENCE & GATE FINISHED & INSTALLED IN ACCORDANCE WITH THE CLEM - STANDARD GUIDE FOR METALLO-COATED CHAIN LINK FENCE & GATE. FABRIC SIZE - 24" H, 12" V. GALV. COATED STEEL. INTERMEDIATE POSTS - TYPE 1. TERMINAL CARRIER & GATE POSTS - TYPE 1. TOP RAIL & POST TOPS - TYPE 1.

(5) SPACES @ 6'-0" @ 11'-0" (N.S. & E.S.) @ 2'-0"



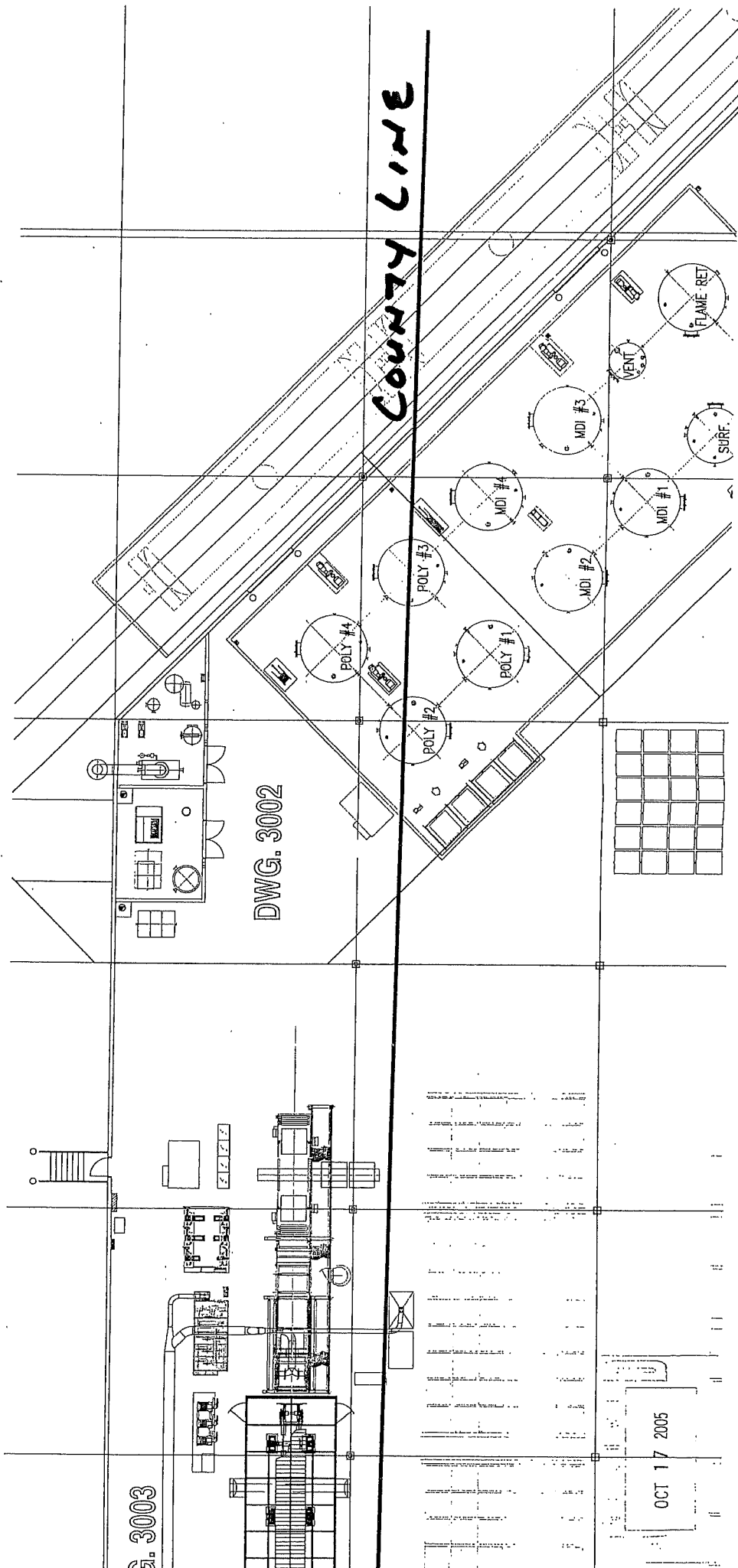
SECTION 1A
SCALE: 1/4"=1'-0"

DETAIL
SCALE: 1/4"=1'-0"

OCT. 17 1965

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DATE: 10/17/65 BY: CS CHECKED: DBZ APPROVED: RAC	DATE: 10/17/65 BY: SI CHECKED: DBZ APPROVED: RAC	DATE: 10/17/65 BY: SI CHECKED: DBZ APPROVED: RAC
REVISION: A ISSUED FOR CLIENT REVIEW B ISSUED TO CLIENT FOR REVIEW C ISSUED FOR BID	REVISION: A ISSUED FOR CLIENT REVIEW B ISSUED TO CLIENT FOR REVIEW C ISSUED FOR BID	REVISION: A ISSUED FOR CLIENT REVIEW B ISSUED TO CLIENT FOR REVIEW C ISSUED FOR BID
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RW COOPER & ASSOCIATES, INC. Engineers - Project Managers CHICAGO, ILLINOIS	FIRESTONE BUILDING PRODUCT COMPANY KENOSHA, WISCONSIN	FIRESTONE BUILDING PRODUCT COMPANY KENOSHA, WISCONSIN
FILE NAME: 723-401	DWG. NO.: 723-401	DWG. NO.: 723-401

OUTSIDE
TANK



INSIDE TANKS

TAFT, STETTINIUS & HOLLISTER LLP

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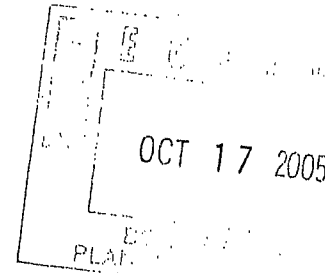
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THOMAS P. VERGAMINI
513-357-9625
vergamini@taftlaw.com

October 17, 2005

HAND DELIVERY

Todd K. Morgan, AICP
Planner
Boone County Planning Commission
2995 Washington St.
Burlington, KY 41005



Re: 8170 Holton Drive
Our Client: BFS Diversified Products, LLC
Firestone Building Products Company

Dear Todd:

I present on behalf of our client, BFS Diversified Products, LLC, an application for a conditional use permit that affects the storage of chemicals on the portion of the above-referenced premises that lie within Boone County. The exhibits to this application contain the drawings and appropriate supporting documentation relating to the storage of chemicals at this site.

Permit me to briefly explain the unique circumstances about the layout of our client's building and land that will assist in this application. Our client leases this building and land from Cabot Industrial Venture B, LLC. The alignment of this building on this land is such that part of the building is bisected by the Kenton/Boone County boundary line. Most of the building and land lies within Kenton County, the City of Independence. The rear portion of the building and land is located in Boone County.

Our client's business operation involves the manufacture of plastic products which is a permitted use in the Industrial 1 zone under the Boone County Zoning Ordinance.

This manufacturing process uses liquid polymer chemicals (i.e. plastics) that will be stored in twelve storage tanks. Eleven of these storage tanks will be located inside the building

Todd K. Morgan, AICP
October 17, 2005
Page 2

and one storage tank is located outside of the building. Of these 12 storage tanks all or a portion of 4 storage tanks are located in Boone County. Below is some detail information about the capacity of these 4 storage tanks and the product they will contain.

1 Outdoor Storage Tank: 45,000 gallon capacity - Chemical Product – Pentane.

3 Indoor Storage Tanks each with a 12,000 gallon capacity - Chemical Product – Polyol.

Please let me know if there is any other information about these specific storage tanks that you may need in order to present this application to the Board of Adjustment hearing scheduled for November 9, 2005.

Very truly yours,



Thomas P. Vergamini

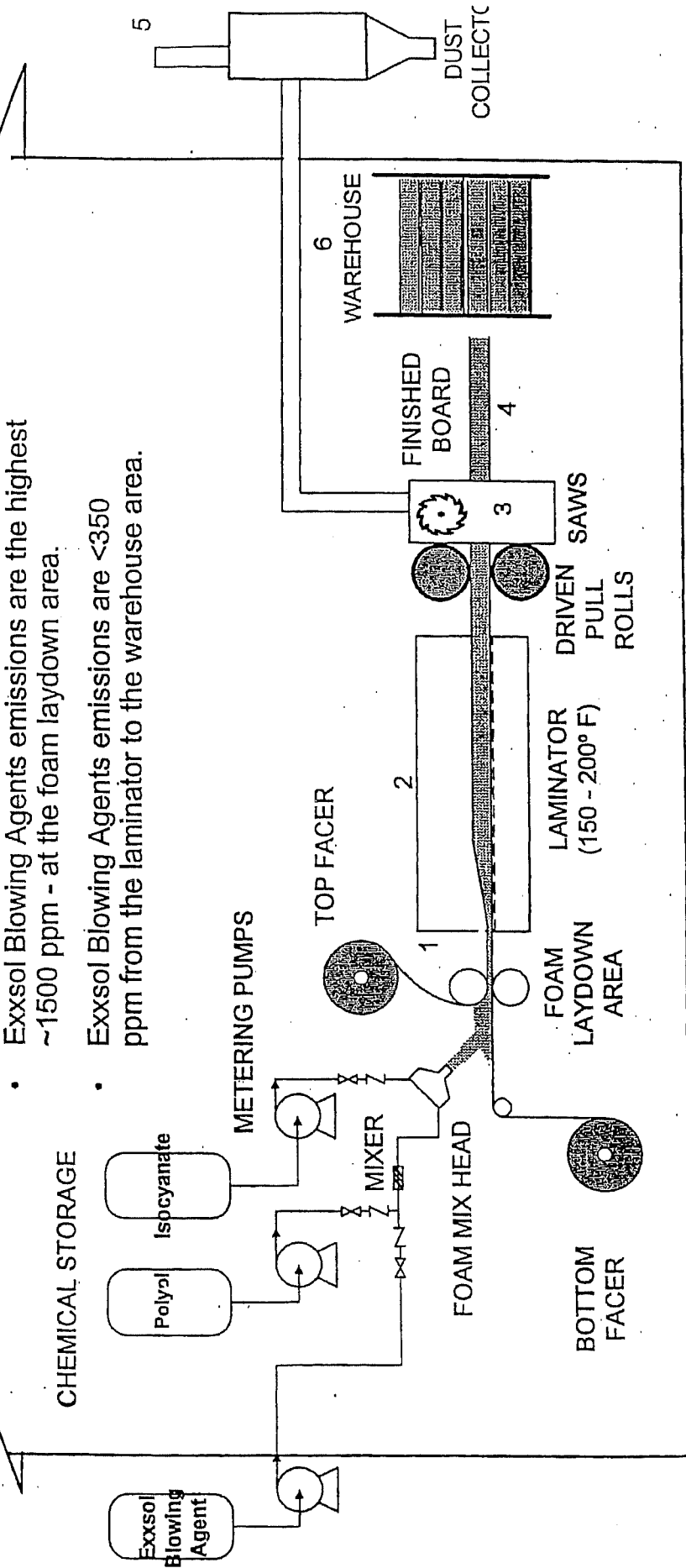
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Enclosures

cc: Mr. Bruce Douglas

EXXSOL BLOWING AGENTS EMISSIONS DURING POLYISOCYANURATE FOAM PROCESSING **

- Exxsol Blowing Agents emission levels are well below the LEL 1.1% (11,000 ppm).
- Exxsol Blowing Agents emissions are the highest ~1500 ppm - at the foam laydown area.
- Exxsol Blowing Agents emissions are <350 ppm from the laminator to the warehouse area.



** 1-6 EMISSION SOURCES: Typical Pentane Emissions, based on short run time conditions
 1 ~1500 ppm; 2-6 <350ppm

EXHIBIT D

INTRODUCTION

Firestone Building Products Company (Firestone) will operate a foam insulation manufacturing facility at 8170 Holton Dr. Florence, KY 41042. Firestone has prepared this construction permit application to cover anticipated emission units at the new facility.

The facility operations include raw material unloading and storage, material blending operations, panel production and cutting, product storage, and loading operations.

- A pentane formulation consisting of either n-pentane, cyclopentane, isopentane or a combination of the three is proposed as the blowing agent. FACILITY DESCRIPTION AND PROCESS DESCRIPTION

FACILITY DESCRIPTION

The new facility is to be located at 8170 Holton Dr. Florence, KY 41042. The facility, which is expected to begin operation in 2006, produces foam panels used for building insulation.

PROCESS DESCRIPTION

The processes performed at the present Covington facility include the following:

- Unloading of raw materials into receiving tanks;
- Mixing of "B-Side" materials (polyol and additives);
- Mixing "B-Side" mixture with pentane;
- Combining of "B-Side" mixture with "A-Side" (MDI) at the laydown nozzle. This combination begins the reaction, to create the foam, which cures between paper backing;
- Foam "sets" while on the conveyer to the saw cut area;
- Continuously fed sheet of foam panel product is cut into various final panel lengths and trimmed on sides; and
- Panels are stacked, wrapped and stored inside the production/warehouse building until shipping.

A-Side

The A-Side component of the mixture consists of only MDI. MDI arrives at the facility via truck and railcar and is loaded into indoor storage tanks equipped with an air blanket. MDI is transferred from the storage tanks to the "A" pump tank as needed in the process.

2.2

B-Side

The B-Side consists of a blend of polymer and "blowing agents". The polyol (polyester resin) is received via truck and railcar into indoor storage tanks. Polyol is blended with additives in an in line blending system. Additives may consist of small amounts of the following: catalyst, surfactant, water, potassium octate, and flame retardant substances. These ingredients are mixed together with pentane. The B-Side mixture is sent to the "B" storage pump tank where it is fed to the laydown point.

1.2.3

Laydown Point

The A-Side and B-Side streams are introduced into the laydown nozzle separately. The two streams are blended together just before the exit from the laydown nozzle. Streams of the "wet" product exit from the nozzle to paper backing located on a conveyor. From here, the bottom paper backing is introduced into a heated pressure conveyor along with the top paper backing to the foam panels. This conveyor system is inside an insulated enclosure that measures; approximately 100 ft long is 14 feet wide and 10 feet high. Inside this conveyor, the four product streams extend as foam to fill the space between the paper backings to form the continuous length of panel. The thickness of the foam insulation board varies depending on line speed and laminator settings. Sidewalls along the conveyors force the expanding foam to conform to the width of the paper backing. Process emissions from the room enclosure are ducted to the RTO.

Saw Cut

After the continuous sheet of foam panel leaves the laydown area, it enters the saw cut area. Automated saws trim the edges of the board. An additional saw automatically cuts the continuous sheet of foam panel into segments of various lengths. An exhaust pick-up is attached to the cutting area of this saw. A separate manually operated saw is also used intermittently to cut certain products. All saw cut emissions are collected and routed to a dust collector, which exhaust to the ambient air. The process line can not operate if the dust collector is not operational.

1.2.4

Product Storage

After the foam panels are cut, they travel on a conveyor to a station where they are stacked, bagged and shrink wrapped. The wrapped panels are then stacked and stored inside the building pending shipment.

Process Description: PENTANE USE AT THE FIRESTONE FACILITY

Introduction

The Firestone facility will use a mixture of pentanes. These substances are flammable liquids. The flow of pentane at the Firestone facility can be described in terms of four process areas:

Pentane Storage Tank and Inlet Piping,
The Pentane Skid,
The Foaming Stage, and
Final Product Storage.

These process areas account for the entire flow of pentane and mixtures containing pentane within the Firestone facility. There are no other process areas in the Firestone plant that involve pentane.

Pentane is the most flammable material used on site. All materials that are mixed with pentane are less flammable, including a flame retardant designed to reduce flammability of the final solid product.

In the subsequent sections, each of the four process areas is described in detail with particular emphasis on release prevention/mitigation systems, safety interlocks, and backups/redundancies designed to control the pentane hazards.

Included in Appendix A is a summary of the hazards of pentane. Within all four of the major process areas, Firestone has incorporated engineering control measures to help prevent the release of pentane or to mitigate the effects of a release should it occur. Additionally Firestone has addressed flammability issues of the final product with appropriate mitigation systems.

Smoking is not permitted in any of the process areas or product storage areas. Hot work permits are required for any maintenance activities that may generate an ignition source. The plant manager must approve any maintenance work performed on the pentane piping or systems.

A comprehensive process management and risk management program will be part of the SOP for operating with pentanes.

Pentane Storage Tank and Inlet Piping

At the Firestone facility, pentane is stored outside the building in an above-ground

45,000 gallon tank. The tank is equipped with the following gauges to monitor the following conditions: temperature, pressure, and level. Facility standard operating procedures (SOPs) stipulate that the temperature and level gauges are checked daily.

Pentane Storage Tank and Inlet Piping (continued)

The pentane storage tank is diked to prevent flammable material from spreading in the event of an inadvertent release of pentane from the tank. The pentane storage tank and inlet piping (from the outdoor storage tank to the pentane skid) are grounded to eliminate accumulation of static charge.

The tank is appropriately labeled with the proper placards (including the NFPA diamond) that are clearly visible. The tank is equipped with two safety relief valves that vent to the atmosphere thereby reducing the effects of any over-pressure condition. The storage tank and all outdoor piping are white in color to help maintain a cool temperature. The pentane storage tank and loading area are encompassed with fencing and kept locked. This may help to deter vandals and also prevents a truck driver from attempting to unload prior to contacting a facility employee. The fencing should also help prevent vehicle traffic in the facility parking lot from inadvertently striking the tank.

A pneumatic automatic shutoff system is in place which will automatically close the valves in the event that one of the air lines is severed. Thus if a fire were to occur at the unloading area the air lines, designed to sever easily, would sever causing the valves to immediately close. This should prevent any additional pentane from being loaded into the tank (in a manner that would not require a person to close any valves in the midst of an incident). The severing of the air lines also causes alarms to sound and initiates plant shut down.

Firestone SOPs for pentane truck un-loading require that an employee accompany the truck driver during hook-up and verify the proper hook-up of the hoses. Labels are in place at the junctures where the hoses meet the metal piping. This should help eliminate any confusion regarding proper hook-up if care is taken not to cross or twist the hoses. The hoses are slightly different in size, also helping to avoid confusion. The hoses and inlet piping to the tank are grounded to prevent accumulation of static charge.

The pentane piping system incorporates schedule 80 pipe and all indoor piping is color-coded (yellow) to denote the hazard. Piping from the outdoor storage tank enters through a wall of the building and is routed vertically along the inside wall to nearly ceiling height. Then pentane flows horizontally near the ceiling to the pentane skid. Transporting pentane near ceiling height reduces the chances of the piping being inadvertently struck by a forklift. The only areas within the building where pentane inlet piping is within the range of a forklift are along the wall at the inlet to the building and at the location where pentane piping descends to the pentane skid.

Pentane Skid

At the pentane skid pentane is injected into a mixture of less flammable materials. This

produces the B-side stream that is routed to the foaming stage. Ballards and guardrails are in place adjacent to the skid to prevent forklift traffic from damaging the skid.

Four MSA gas detectors, designed to detect pentane vapors, are installed within the pentane skid. These detectors are linked to a programmable logic controller designed to initiate the following actions if the level of pentane vapors reach 15 % of the lower explosive limit (LEL):

Sound an alarm, and
Start the skid exhaust fans.

The alarm alerts facility personnel to take corrective action. In the event that corrective action cannot be performed expediently, another interlock is in place and designed to shut down pentane flow to the skid when vapors reach 30% of the LEL.

Another interlock causes an alarm to sound in the event that one of the MSA detectors malfunctions.

The pentane skid is equipped with temperature, pressure and flow sensors to continually monitor pentane flow within the skid. Level indicators are also incorporated at multiple locations within the skid. Float switches are in place to signal shut down of the pentane skid in the event of an improper level. All equipment within the skid is electrically grounded to prevent accumulation of static charge.

The mixture exiting the skid contains a maximum of approximately 18 percent pentane under normal operations. This mixture, a flammable liquid (Class IB), is called the B-side mixture. The B-side mixture is routed from the pentane skid to the foaming stage. All operations to this point are closed operations.

The Foaming Stage

INTRODUCTION TO THE FOAMING STAGE

The B-side mixture (flammable liquid) exiting the pentane skid is increased in pressure and routed to the foaming stage. Here the B-side mixture collides with another high pressure stream of non-flammable material, called the A-side and this collision within a small chamber causes an exothermic chemical reaction to commence as the composite mixture (reaction mixture) exits nozzles that dispense onto a paper facer. The chemical reaction in the presence of the pentane blowing agent causes foaming to occur, and the reaction mixture turns from a liquid to a cross-linked polymer in less than a minute. As the polymer forms the material adheres to the facer and is conveyed through the laminator.

Pentane vapors are released as the reaction mixture exits the nozzles and the chemical reaction increases the temperature. Approximately 95% of the pentane is trapped within

the closed cell structure of the foam that forms. Ventilation is in place at the foaming stage to collect pentane vapors and maintain the concentration below the LEL. In the event that ventilation is disrupted, flow switches are in place that will signal a shutdown.

Flammable pentane vapors do not accumulate because of the ventilation and the conveyance of product into a fume hood with additional ventilation provided at the exit to the fume hood. Once the foam product has formed, flammable vapors are no longer an issue.

Process controls are in place to maintain the weight percentages of mixture components (including pentane) to within very specific ranges. If the percentage of liquid pentane in the B-side mixture is maintained within the target ranges, the pentane vapors that escape during the chemical reaction will be collected within the ventilation system maintaining conditions in the immediate area below the LEL. Fume detectors are positioned throughout the ventilation system at the entrance to the fume hood, within the fume hood, and at the exit to the fume hood.

NFPA VENTILATION GUIDELINES

The Fire Protection Handbook (NFPA 17th Edition, Section 3, Chapter 5, Page 3-47) provides guidelines for calculating the volume of air required to provide dilution sufficient to prevent the formation of ignitable vapors when the quantity of a liquid is known. This source states that the volume of vapor produced from 1 gal of the liquid can be calculated from the specific gravity of the liquid and the vapor density as follows:

$$\text{Cubic feet of vapor} = \frac{8.33 \times \text{specific gravity of liquid}}{0.075 \times \text{vapor density}}$$

This equation will be used to show that pentane vapors at the foaming stage are below the LEL under normal operating conditions.

The Foaming Stage (continued)

VENTILATION REQUIREMENTS UNDER NORMAL OPERATING CONDITIONS AT THE FOAMING STAGE

In the case of the reaction mixture exiting the nozzles at the foaming stage, the vapor density and specific gravity are unknown. These values are changing because the composition of the mixture components changes as the chemical reaction proceeds.

However, reasonable assumptions can be made that will enable calculation of an appropriate ventilation rate and the use of the equation recommended by NFPA. The three major assumptions are:

1. Less pentane vapors will emanate from the quantity of liquid pentane in this reaction mixture than would emanate from an equal quantity of liquid pentane that was not in

the reaction mixture.

2. Calculation of a ventilation rate based on pure pentane (in equal quantity to that found in the mixture) is a conservative estimate of the ventilation rate required for the reaction mixture.
3. In a calculation based on pure pentane, changes in specific gravity and vapor density of the pentane due to temperature changes can be neglected in the computations.

The justification for each of these assumptions is as follows:

1. In the foaming process pentane is trapped within the product within a closed cell structure. Therefore not as much vapor escapes the surface. This has been confirmed by independent studies, which indicate that greater than 95 percent of the pentane is trapped within the closed cell structure of the foam.
2. **A ventilation rate based on pure pentane would be greater than that required for a substance emanating less pentane vapors, such as the reaction mixture. This assumption provides very conservative engineering estimates.**
3. The sample calculation in the NFPA source did not account for property changes (vapor density and specific gravity) due to temperature gradients, and clearly temperature gradients were present in the NFPA example (which is a drying oven). Furthermore any error resulting from not considering the temperature gradient should be more than compensated for by the conservative estimate (see assumption 2).

The Foaming Stage (continued)

VENTILATION REQUIREMENTS UNDER NORMAL OPERATING CONDITIONS AT THE FOAMING STAGE (continued)

Thus a calculation considering pentane is performed, utilizing the NFPA equation. Pentane at ambient temperature has a vapor density of approximately 2.5 and a specific gravity is 0.683. Substitution of these values into the above equation yields the quantity of vapor produced from one gallon of blend:

$$\text{Cubic feet of vapor} = \frac{8.33 \times 0.683}{0.075 \times 2.5}$$

$$\text{Cubic feet of vapor} = 30.34 \text{ ft}^3$$

The LEL of pentane in air is 1.5 %. Thus any mixture containing more than 98.5% air

cannot be ignitable because it is too lean in pentane. The ratio of the volume of air required per volume of pentane is computed as:

$$98.5 / 1.5 = 66.0$$

Thus the volume of air required to dilute vapor emanating from one gallon of pentane below the LEL is:

$$30.34 \times 66.0 = 2006 \text{ ft}^3$$

Under normal operations at the foaming stage the maximum percentage of pentane in the B-side stream is 18 percent, resulting in approximately 8.5 percent of pentane in the reaction mixture exiting the nozzles. The maximum flow rate of pentane through the reaction nozzles under normal conditions is 3 gallons per minute (gpm).

Thus, the ventilation requirement per minute at the foaming stage is computed as:

$3 \times (2006) = 6018$ cubic feet per minute. This assumes that all the pentane is released from the mixture. We know from testing data that only 5% is released from the foaming mixture.

The Foaming Stage (continued)

The ventilation system has a total capacity of 15,000 cubic feet per minute. The minimum ventilation rate at the foaming stage dispensing nozzles is 2,500 to 3,000 cubic feet per minute (cfm). Additional ventilation of 1000 cfm is provided as the material is conveyed through the entry point of the laminator. The ventilation system has the capacity to add an additional 10,000 cfm at the laminator enclosure. Ventilation is controlled at levels necessary to keep vapors well within safety limits.

VERIFICATION BY MEASUREMENT

At the Jacksonville, Florida facility of Firestone, during normal operations on June 20, 2001, a meter was used to verify the quantity of pentane vapors at three specific locations at the foaming stage (just prior to the inlet of the fume hood):

Directly where the reaction mixture first contacts the facer,
Inside one of the ventilation intakes, and

Approximately one foot away from the ventilation intake (outside the conveyor area).

The readings obtained were:

200,000 ppm at the facer,
50,000 ppm in the ventilation intake
0 ppm at a distance of one foot.

At the distance of approximately one foot from the process no reading was discernable (0 ppm), which is clear evidence that the ventilation system is successfully collecting all pentane vapors that emanate from the foaming stage. According to facility personnel at the Jacksonville plant, similar readings have been obtained in previous measurements. The highest reading obtained directly at the facer was approximately 400,000 ppm. No pentane vapors have been detected outside of ventilation intakes at any time during normal operation.

Final Product Storage

Since pentane is used as the blowing agent in the foaming process, voids containing pentane are created in the final plastic product. Although this may tend to make the final product more flammable, the use of flame retardant in the reaction mixture makes the product less flammable than an untreated polyurethane foam. Firestone has provided documentation that indicates that the heat of combustion for the final product is approximately 4,279 cal/g. This value is less than some Group B plastics listed in the 1997 Uniform Fire Code, and substantially less than the Group A plastics listed in code.

An Early Suppression Fast Response (ESFR) sprinkler system will be installed in the Firestone facility.

APPENDIX A

THE HAZARDS OF PENTANE

Definitions and Classifications

Pentane is an organic compound, more specifically a hydrocarbon, containing only hydrogen and carbon atoms in the molecular structure. Pentane belongs to the class of organic compounds called *alkanes*: hydrocarbons containing only single chemical bonds. Since alkanes do not contain any double or triple bonds in the molecular structure they tend to be less reactive than many other types of organic compounds. Flammability of alkanes low in molecular weight and combustibility of alkanes of medium molecular weight are the chief hazards.

Pentane is a flammable liquid at ambient conditions that is found in one of three forms:

n-pentane (normal pentane),
iso-pentane, and
cyclo-pentane.

All three of these substances have low flash points and are ignitable at room temperature. All forms of pentane have the same number of carbon atoms (five), but the structure of each form and the number of hydrogen atoms can vary.

All three substances are classified as flammable liquids according to the Uniform Fire Code. Isopentane is a class I-A flammable liquid, cyclopentane is a class I-B flammable liquid, and normal pentane is a class I-B flammable liquid. With appropriate precautions and engineering control measures for flammable liquids, pentane can be handled safely.

Pentane and Gasoline: A Comparison of Hazards

Gasoline is a flammable liquid with similar hazards to pentane and is handled safely at millions of service stations everyday. Gasoline is a mixture of various organic compounds, whereas pentane is a single organic compound (not a mixture). However the hazards are similar as both materials are flammable liquids. In some respects, gasoline is more hazardous than pentane. For example gasoline contains benzene, a carcinogen (cancer-causing agent).

Comparison of Relative Hazards: Pentane and Propane

The relative hazards of pentane can be appreciated by comparison with other alkanes. Alkanes that are lighter in molecular weight than pentane have increased flammability hazards. Alkanes that are heavier in molecular weight than pentane have less severe flammability hazards.

Consider *propane*, another member of the alkane family like pentane. Propane is lighter in molecular weight than pentane. Propane at ambient conditions is a flammable gas in contrast with pentane which is found as a liquid at ambient conditions.

Propane gas is often compressed to a liquid state so that it can be stored in convenient quantities. This compression to the liquefied form introduces hazards associated with high pressure storage.

Pentane (in contrast to propane) needs no compression in a storage tank because it is a liquid at ambient conditions. Although some uses of pentane may involve the use of pressurized tanks, in general pentane can be stored at ambient conditions.

Thus high pressure hazards that are introduced with propane storage tanks, whereas pentane can typically be stored at normal pressures.

The relative hazards of pentane in comparison with propane are further illustrated by considering the scenario of a chemical release. Pentane releases as a liquid, and although flammable vapors emanate from this liquid, emergency responders can focus on the spilled liquid and the vapor space above the spill. If no ignition sources are present in the vicinity of the pentane spill, it is very likely that the spill can be contained and no severe consequences will result.

Conversely, in the event of a propane release, a tremendous vaporization of the propane from the compressed liquefied form to the gas phase produces great volumes of flammable gas which disperse to many locations quickly.

The vapors of pentane that emanate from the surface of liquid pentane are assigned a vapor density of 2.5. Substances with vapor densities greater than 1.0 such as pentane have vapors that are heavier than air, and tend to accumulate at ground level. Substances with vapor densities less than 1.0 such as propane, tend to rise when released.

Summary of the Hazards of Pentane

Pentane is a flammable liquid according to the Uniform Fire Code. Substances with greater flammability hazards than pentane, such as propane, are handled safely everyday at thousands of industrial facilities. Many flammable liquids with similar hazards to pentane such as gasoline are handled safely many times over throughout the world.

In presenting the hazards of pentane comparisons were made with the hazards of gasoline and propane. Although there have been catastrophic incidents with both gasoline and propane, in the vast majority of cases, these materials are handled safely. The root causes of these unfortunate incidents can be traced to lack of caution, inappropriate engineering control measures, or uncontrollable acts of God.

Pentane, and many other flammable liquids, can be handled safely by exercising caution, instituting appropriate engineering control measures, and carefully developing (and following) standard operating procedures (SOPs).

Chemical	CAS # and Concentration	Health	NFPA or HHS Ratings	Product & U.F.C. Class	Electrical Classification	Properties	Quantity: open use	Quantity: closed use	Quantity: storage	Specific location/area/room
Aromatic isocyanate (MDI)				NA	NA	400°F Oral LD50=5000mg/kg		closed system	4-12,000 gallon	Interior storage see drawing
Polymethac (MDI)	CAS # 9916-87-9 85% conc	3	1	1	NA					
Polyol, Stepanol PS2352; mvdsta 3522		1	1	0		280°F		closed system	4-12,000 gallon	Interior storage see drawing
Aromatic Polyester Polyol Diethylene Glycol	CAS #111-46-6 11% conc				Class 111 B Flammable liquid			closed system		
Surfactant, Silbyk TP 3805; Tegostab BB522; PEI-sil 5920	CAS# 68037-840-9 100% conc.	1	0	0				closed system	1-8,000 gallon	Interior storage see drawing
KC-1 In. DFC, DMG 377; PEI-cat 3540A Diethylene Glycol Potassium Oxidate	CAS# 111-46-6 25% conc CAS # 3164-85-0 75% conc.	2	1	0	Class IIIB liquid	>300°F		closed system	1-8,000 gallon	Interior storage see drawing
PEI-cat 5523 Tridimethylaminoethyl phenol	Cas # 000090-72-2	3	1	0	Class IIIB liquids	315 F LD50 1553 LC50=0.5 mg/ultr		closed system	Tobes	Interior storage manufacturing see drawing
DOT - Corrosive liquid UN 1760, 8, P 5 III Polyact SP/IDEA penamethyldiethylenethiamine	CAS# 3030-47-5 100% conc.	3	2	0	Class IIIA liquids	161°F alkaline LD50 1530 mg/kg LC50-290 ppm/5hr		closed system	Tobes	Interior storage manufacturing see drawing
DOT - Corrosive liquid UN 2592 iso-pentane/n-pentane, 55/45 blend										
Air Permit Application to be Submitted to Department of Health Required by Montreal Protocol to switch from HCFC 141b by January 1 2003 .	iso-pentane 55% CAS# 78-78-4 n-pentane 45% CAS# 109-66-0	1	4	1	Class II IA	<0°F		closed system	45,000 gallon tank	PENTANE STORAGE TANK OUTSIDE
FLAME RETARDANT, Etyol PCF, Antiblaze TMCP 1,1-difluoro-2,2-bis(4-phenylphenoxy)ethane	CAS# 136748-85 77%	1	1	1	Class IIIB liquids	350.6°F		closed system	1-12,000 gallon	Interior storage

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ConocoPhillips

OCT 17 2005

MATERIAL SAFETY DATA SHEET

Isopentane/n-Pentane Blend

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Isopentane/n-Pentane Blend
Product Code: None
Intended Use: Solvent
Synonyms: Normal Pentane/Isopentane
Chemical Family: C5 Hydrocarbons

Responsible Party: ConocoPhillips Specialty Solvents
PO Box 358
Borger, Texas
79008-0358

Customer Service: 800-696-4240
www.conocophillips.com/solvents

Technical Information: 800-696-4240

The intended use of this product is indicated above. If any additional use is known, please contact us at the Technical Information number listed.

EMERGENCY OVERVIEW

24 Hour Emergency Telephone Numbers:

Spill, Leak, Fire or Accident Call CHEMTREC:

North America: (800) 424-9300

Others: (703) 527-3887 (collect)

California Poison Control System: (800) 356-3219

Health Hazards/Precautionary Measures: Aspiration hazard if swallowed. Can enter lungs and cause damage. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Wash thoroughly after handling.

Physical Hazards/Precautionary Measures: Keep away from heat, sparks, flames, static electricity or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment).

Appearance: Colorless
Physical Form: Liquid
Odor: Mild

NFPA 704 Hazard Class:

Health: 1 (Slight)
Flammability: 4 (Extreme)
Instability: 0 (Least)

HMIS Hazard Class:

Health: 1 (Slight)
Flammability: 4 (Extreme)
Physical Hazards: 0 (Least)



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2. COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS					
Component / CAS No:	Percent (%)	ACGIH:	OSHA:	NIOSH:	Other:
n-Pentane 109-66-0	0.5-55	600 ppm TWA 1770 mg/m ³ TWA	1000 ppm TWA 2950 mg/m ³ TWA	1500 ppm IDLH	
Isopentane 78-78-4	45-99	600 ppm TWA 1770 mg/m ³ TWA	1000 ppm TWA 2950 mg/m ³ TWA	NE	

All components are listed on the TSCA inventory.

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

1%=10,000 PPM.

NE=Not Established

3. HAZARDS IDENTIFICATION

Potential Health Effects:

Eye: Contact may cause mild eye irritation including stinging, watering, and redness.

Skin: Contact may cause mild skin irritation including redness, and a burning sensation. Prolonged or repeated contact can worsen irritation by causing drying and cracking of the skin leading to dermatitis (inflammation). No information available on skin absorption.

Inhalation (Breathing): Low degree of toxicity by inhalation.

Ingestion (Swallowing): Low to moderate degree of toxicity by ingestion. ASPIRATION HAZARD - This material can enter lungs during swallowing or vomiting and cause lung inflammation and damage.

Signs and Symptoms: Effects of overexposure may include irritation of the digestive tract, irritation of the nose and throat, nausea, vomiting, diarrhea, abdominal pain and transient excitation followed by signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue).

Cancer: No data available.

Target Organs: Inadequate data available for this material.

Developmental: Inadequate data available for this material.

Other Comments: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage (sometimes referred to as Solvent or Painters' Syndrome). Intentional misuse by deliberately concentrating and inhaling this material may be harmful or fatal.

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin disorders, and respiratory (asthma-like) disorders.

Exposure to high concentrations of this material may increase the sensitivity of the heart to certain drugs. Persons with pre-existing heart disorders may be more susceptible to this effect (see Section 4 - Note to Physicians).

4. FIRST AID MEASURES

Eye: If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops and persists, seek medical attention.

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

Notes to Physician: Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias.

5. FIRE-FIGHTING MEASURES

Flammable Properties:

Flash Point:	<-60°F/<-51°C
Test Method:	(Estimate)
OSHA Flammability Class:	Flammable Liquid
LEL%:	1.4
UEL%:	8.3
Autoignition Temperature:	544°F / 284.4°C

Unusual Fire & Explosion Hazards: This material is extremely flammable and can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

Extinguishing Media: Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk.

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Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk. Cool equipment exposed to fire with water, if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

6. ACCIDENTAL RELEASE MEASURES

Extremely flammable. Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof equipment is recommended.

Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8).

Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Use foam on spills to minimize vapors (see Section 5). Spilled material may be absorbed into an appropriate absorbent material.

Notify fire authorities and appropriate federal, state, and local agencies. Immediate cleanup of any spill is recommended.

7. HANDLING AND STORAGE

Handling: Open container slowly to relieve any pressure. Bond and ground all equipment when transferring from one vessel to another. Can accumulate static charge by flow or agitation. Can be ignited by static discharge. The use of explosion-proof equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-704 and/or API RP 2003 for specific bonding/grounding requirements.

Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 and 8).

Wash thoroughly after handling. Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames. Use good personal hygiene practices.

High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when using high pressure equipment such as high pressure grease guns, fuel injection apparatus or from pinhole leaks in tubing of high pressure hydraulic oil equipment.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Post area "No Smoking or Open Flame." Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits (see Section 2), additional engineering controls may be required. Where explosive mixtures may be present, electrical systems safe for such locations must be used (see appropriate electrical codes).

Personal Protective Equipment (PPE):

Respiratory: A NIOSH certified air purifying respirator with an organic vapor cartridge may be used under conditions where airborne concentrations are expected to exceed exposure limits (see Section 2).

Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a NIOSH approved self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode if there is potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Skin: The use of gloves impervious to the specific material handled is advised to prevent skin contact, possible irritation, absorption, and skin damage. Examples of approved materials are nitrile, or Viton (see glove manufacturer literature for information on permeability). Depending on conditions of use, apron and/or arm covers may be necessary.

Eye/Face: Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

Other Protective Equipment: Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse. It is recommended that impervious clothing be worn when skin contact is possible.

Suggestions for the use of specific protective materials are based on readily available published data. Users should check with specific manufacturers to confirm the performance of their products.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm).

Appearance:	Colorless
Physical Form:	Liquid
Odor:	Mild
Odor Threshold:	No data
pH:	Not applicable
Vapor Pressure (mm Hg):	15.8-18.0 psia @ 100°F (38°C)
Vapor Density (air=1):	>1
Boiling Point:	82°F / 27.8°C
Melting/Freezing Point:	Not Established
Solubility in Water:	Negligible
Partition Coefficient (n-octanol/water):	No data
Specific Gravity:	0.63
Specific Gravity Special Conditions	@ 60°F (15.6°C)
Bulk Density:	5.23
Bulk Density Units	lbs/gal
Percent Volatile:	100%

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Evaporation Rate (nBuAc=1):	>1
Flash Point:	<-60°F/<-51°C
Test Method:	(Estimate)
Flammable/Explosive Limits:	No data
LEL%:	1.4
UEL%:	8.3
Autoignition Temperature:	544°F / 284.4°C
Decomposition Temperature:	No data

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. Extremely flammable liquid and vapor. Vapor can cause flash fire.

Conditions to Avoid: Avoid all possible sources of ignition (see Sections 5 and 7).

Materials to Avoid (Incompatible Materials): Avoid contact with: selected amines, strong acids, oxidizing agents, strong reducing agents, strong bases.

Hazardous Decomposition Products: Combustion can yield carbon dioxide and carbon monoxide.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Chronic Data: No definitive information available on carcinogenicity, mutagenicity, target organ, or developmental toxicity.

Acute Data:

n-Pentane - 109-66-0

Dermal LD50 = No data available
LC50 = >6,106 ppm (4-hr., Rat)
Oral LD50 = >2,000 mg/kg (Rat)

Isopentane - 78-78-4

Dermal LD50 = No data available
LC50 = >4,094 ppm (4-hr., Rat)
Oral LD50 = No data available

12. ECOLOGICAL INFORMATION

Not evaluated at this time.



13. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, would be a RCRA "characteristic" hazardous waste due to the characteristic(s) of ignitability (D001). If the spilled or released material impacts soil, water, or other media, characteristic testing of the contaminated materials may be required prior to their disposal. Further, this material, once it becomes a waste, is subject to the land disposal restrictions in 40 CFR 268.40 and may require treatment prior to disposal to meet specific standards. Consult state and local regulations to determine whether they are more stringent than the federal requirements.

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.

14. TRANSPORTATION INFORMATION

DOT Shipping Description: Pentanes

Hazard Class/Division: 3

UN Code: UN1265

Packing group: I

Non-Bulk Package Marking: Pentanes, UN1265

Non-Bulk Package Labels: Flammable

Bulk Package/Placard Marking: Flammable/1265

Packaging - References (Exceptions, Non-Bulk, Bulk): 49 CFR 173.150, 173.201, 173.243

Hazardous Substance: None

Emergency Response Guide: 128



IMDG Shipping Description: Pentanes, Liquid, 3, UN1265, I

Non-Bulk Package Marking: Pentanes, Liquid, UN1265

Non-Bulk Package Labels: Flammable

Placards/Marking (Bulk): Flammable/1265

Packaging - Non-Bulk: P001

EMS: F-E, S-D

ICAO/IATA Shipping Description: Pentanes, Liquid, 3, UN1265, I

UN/ID #: UN1265

Proper Shipping Name: Pentanes

Hazard Class/Division: 3

Packing Group: I

Subsidiary risk: None

Non-Bulk Package Marking: Pentanes, UN1265

Non-Bulk Package Labels: Flammable

	LTD. QTY.	Passenger Aircraft	Cargo Aircraft Only
Packaging Instructions #:	--	302	303
Max. Net Qty. Per Package:	--	1 L	30 L

15. REGULATORY INFORMATION

U.S. Regulations:

EPA SARA 311/312 (Title III Hazard Categories)

Acute Health:	Yes
Chronic Health:	No
Fire Hazard:	Yes
Pressure Hazard:	No
Reactive Hazard:	No

SARA - Section 313 and 49 CFR 372:

This material contains the following chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372:
--None Known--

EPA (CERCLA) Reportable Quantity:

--None Known--

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs

This material contains the following chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372:
-- None Known --

California Proposition 65:

Warning: This material contains the following chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm, and are subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):
-- None Known --

Carcinogen Identification:

This material has not been identified as a carcinogen by NTP, IARC, or OSHA.

TSCA:

All components are listed on the TSCA Inventory.

Canadian Regulations:

Domestic Substances List:

Listed

WHMIS Classification:

B2-Flammable Liquid

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

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16. OTHER INFORMATION

Issue/Revision Date: 17-Jun-2004
Previous Issue Date: None
Product Code: None
Reason for revision: New MSDS
MSDS Code: 778541

Disclaimer of Expressed and implied Warranties:

The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.



ConocoPhillips Company

PO Box 358
Borger, Texas 79008-0358

Specialty Hydrocarbon Solvents

ISOPENTANE/NORMAL PENTANE - Firestone 55/45

PROPERTY	SPECIFICATION	METHOD
Isopentane, Wt%	53.0 - 57.0 Max	GC
Normal Pentane, Wt%	43.0 - 47.0 Max	GC
Benzene, Wt%	0.00 Max	ASTM D-3606 MODIFIED
Color Saybolt	+30 Min.	ASTM D-6045
Specific Gravity	Report	ASTM D-4052
Sulfur, ppm	2 Max	ASTM D-4045

Proposed 7/20/04 by FDL

Modified 8/2/04 by FDL, changed the sulfur from 10ppm max to 2 ppm max per Jill Logan and John Lets of Firestone

MATERIAL SAFETY DATA SHEET



OCT 17 2005

1 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Trade Name **STEPANPOL PS2352**
Manufacturer **Stepan Company**
22 West Frontage Road
Northfield, IL 60093 USA

Telephone Numbers - 24 Hour Emergency Assistance
Medical 800-228-5635
Chemtrec 800-424-9300
Chemtrec Int'l 703-527-3887

Telephone Numbers - General Assistance
General (847) 446-7500

Product Class **Polyol**
Product Number **2505**

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	Percent
_Polyester Polyol	AN86136	60 - 85 %
_Diethylene glycol	111-46-6	10 - 20 %

3 HAZARDS IDENTIFICATION

Emergency Overview

May cause irritation to the eyes, skin, and respiratory system.

Health Effects: Eyes

This product may cause irritation to the eyes.

Health Effects: Skin

This product may cause irritation to the skin.

Health Effects: Inhalation

Inhalation of vapors or mists of the product may be irritating to the respiratory system.

Health Effects: Ingestion

Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.



4 FIRST AID MEASURES

Eyes

Immediately flush eyes with water for at least 15 minutes while holding eyelids open. If irritation persists get medical attention.

Skin

For skin contact flush with large amounts of water. If irritation persists, get medical attention. Immediately take off all contaminated clothing. Wash contaminated clothing before reuse.

Inhalation

If symptoms are experienced, remove source of contamination or move victim to fresh air. If symptoms persist, get medical attention. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Seek medical attention.

Ingestion

If ingestion of a large amount does occur, seek medical attention. Do not induce vomiting.

5 FIRE FIGHTING MEASURES

Flash Point (> 93.9 °C), > 201 F PMCC

Extinguishing Media

Dry chemical, foam, carbon dioxide, water fog.

Fire Fighting Equipment / Instructions

Firefighters should wear full fire-fighting turn-out gear (full Bunker gear) including NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6 ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK PROCEDURES

Emergency Action:

Isolate spill or leak area immediately. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering.

Do not touch or walk through spilled material. Stop leak if you can do it without risk. Wear appropriate personal protective equipment during cleanup. Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Large Spills: Dike ahead of liquid spill for later disposal. Prevent entry into waterways, sewers, basements or confined areas.

Surfaces may become slippery after spillage.

7 HANDLING & STORAGE

Handling Procedures

Avoid contact with skin and eyes. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Wash thoroughly after work using soap and water.

Storage Procedures

Keep the container in a well-ventilated place. Keep the container tightly closed and dry. Avoid freezing or excessive heat.

Other Toxicological Information

Note: this product may contain 1,4-dioxane as a by-product, which can be absorbed by inhalation and through the skin. Please be advised that 1,4-dioxane is a cancer-suspect agent and can cause liver and kidney injury with over-exposure.

LD50 Value

Oral LD50 (rat) = >500 - 5000 mg/kg

_Diethylene glycol 111-46-6

NIOSH - Selected LD50s and LC50s

Oral LD50 Rat : 12565 mg/kg; Oral LD50 Mouse : 23700 mg/kg; Dermal LD50 Rabbit : 11890 mg/kg

12 ECOLOGICAL INFORMATION

Ecotoxicity

Aquatic LC50 = >100-1000 mg/L

Environmental Fate

This product is biodegradable.

13 DISPOSAL CONSIDERATIONS

Disposal Instructions

Treatment, storage, transportation and disposal must be in accordance with applicable Federal, State/Provincial and Local regulations. Regulations may vary in different locations. Characterization and compliance with applicable laws are the responsibility solely of the generator.

14 TRANSPORT INFORMATION

DOT Proper Shipping Name Refer to bill of lading or container label for DOT or other transportation hazard classification, if any.

15 REGULATORY INFORMATION

Ingredient Name	CAS Number	Percent
_Polyester Polyol	AN86136	60 - 85 %
_Diethylene glycol	111-46-6	10 - 20 %

State Regulations

This product may contain the following ingredient(s) known to the State of California to cause cancer, birth defects or other reproductive harm:1,4-Dioxane (CAS RN: 123-91-1)

Inventories

All components of this product are listed on the following inventories:U.S.A.(TSCA), Canada(DSL), Europe(EINECS/ELINCS/Polymer/NLP),

There is no calculable reportable quantity (RQ) for this product.

16 OTHER INFORMATION

Disclaimer

Disclaimer: Nothing contained herein grants or extends a license, express or implied, in connection with patents, issued or pending, of the manufacturer or others. The information contained herein is based on the manufacturer's own study and the works of others. The manufacturer makes no warranties, expressed or implied, as to the accuracy, completeness, or adequacy of the information contained herein. The manufacturer shall not be held liable (regardless of fault) to the vendee's employees, or anyone for any direct, special or consequential damages arising out of or in connection with the accuracy, completeness, adequacy or furnishing of such information.

HAZARD RATINGS	HMIS	NFPA
Health	1	1
Flammability	1	1
Reactivity	0	0
PPE	X	

Completed On

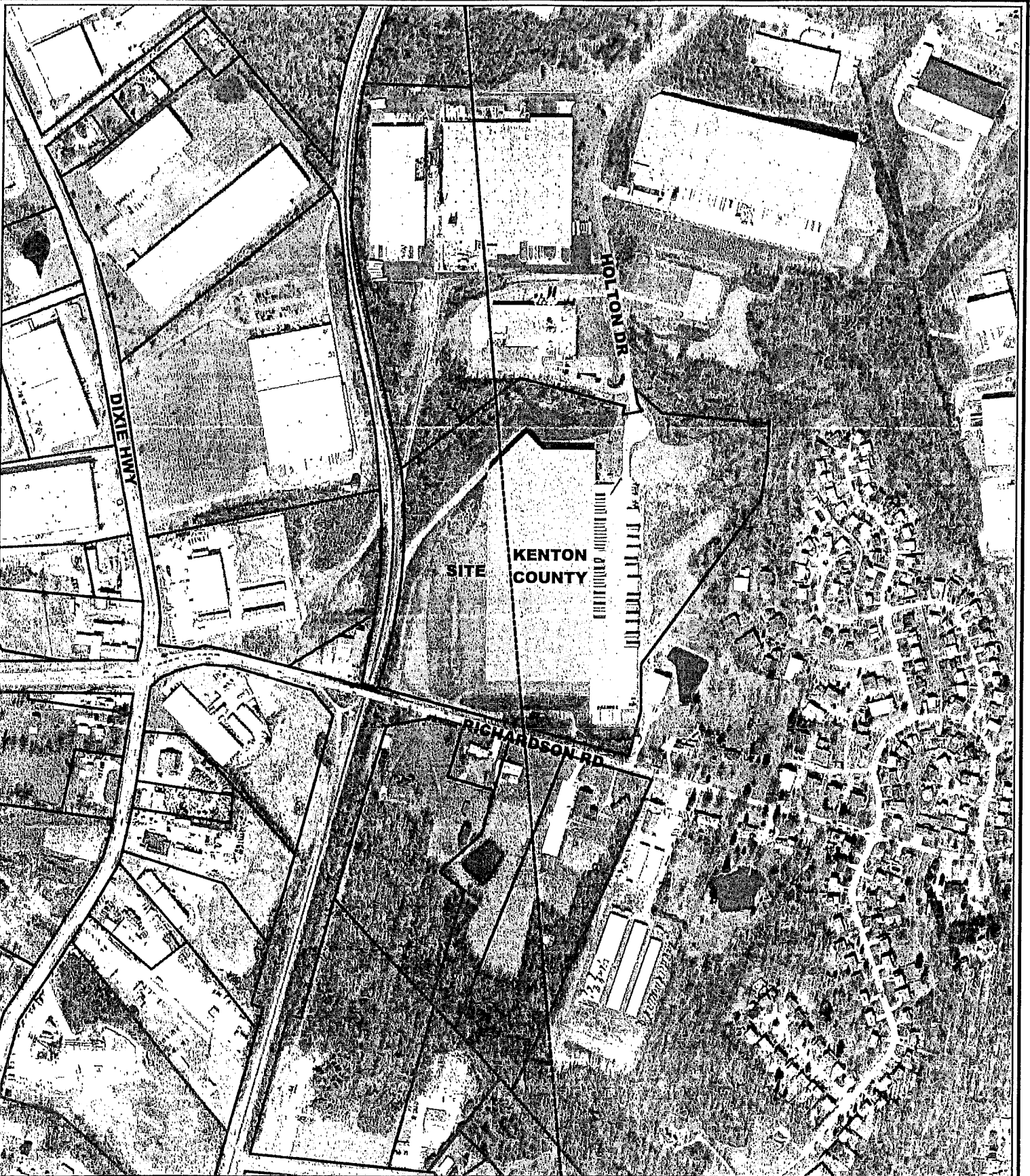
1/6/03

Replaces Sheet Dated

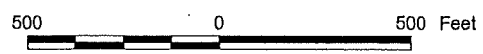
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Completed By

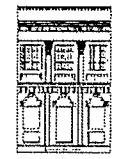
Product Safety & Compliance

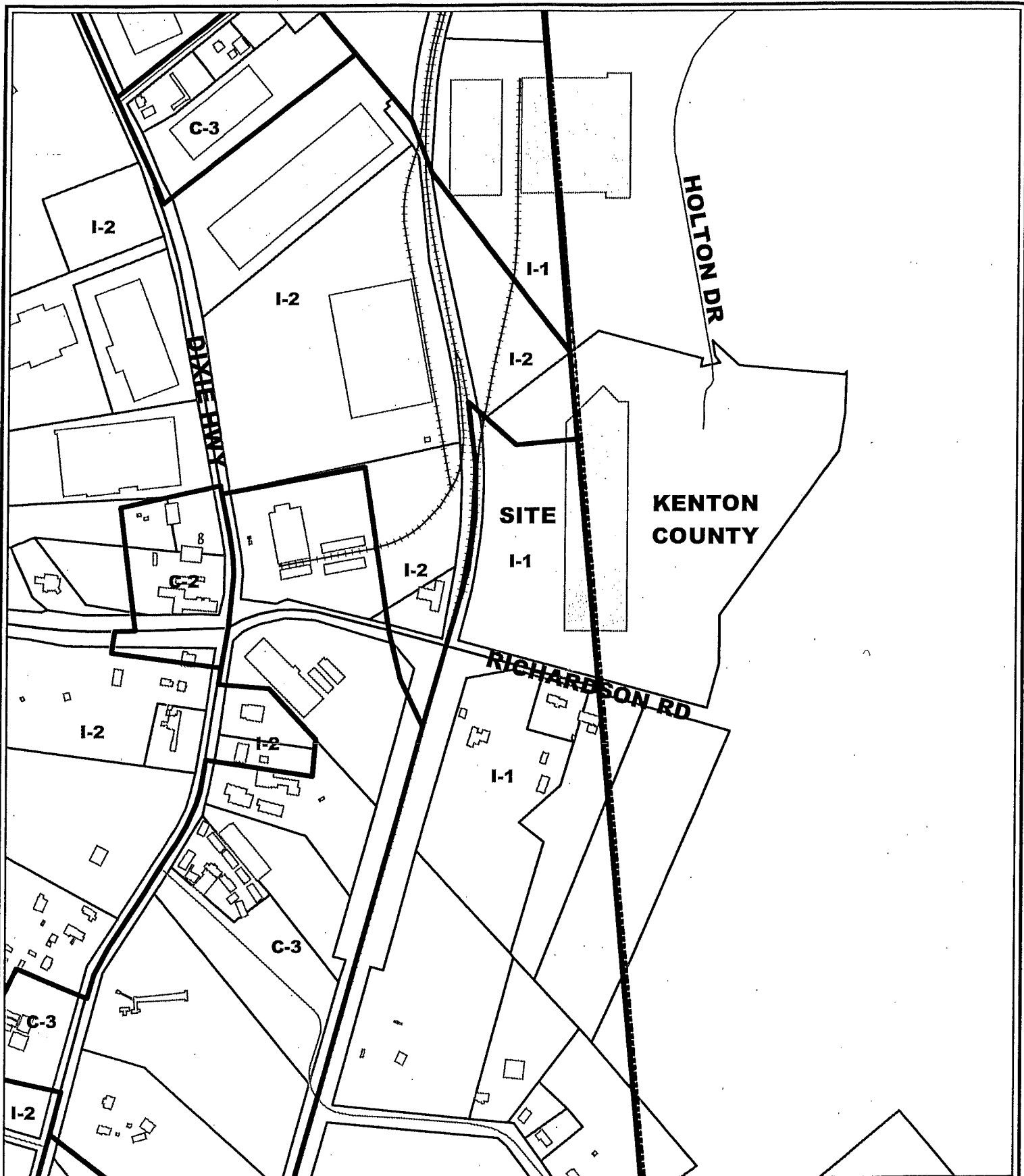


Aerial Map



1 inch equals 500 feet
Produced by the
Boone County Planning Commission
GIS Services Division
November 1, 2005



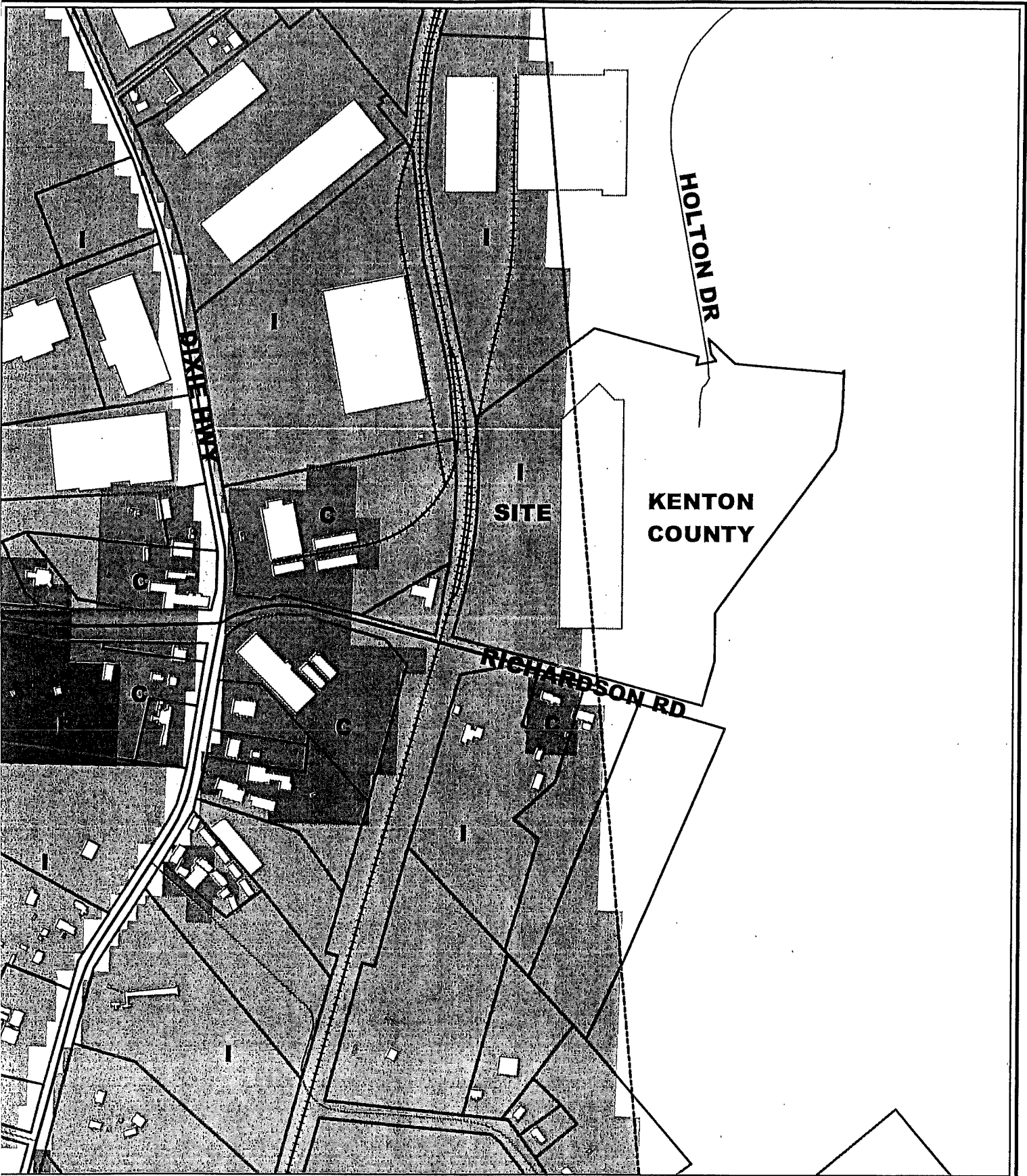


Zoning Map

500 0 500 Feet

1 inch equals 500 feet
 Produced by the
 Boone County Planning Commission
 GIS Services Division
 November 1, 2005





500 0 500 Feet

Future Land Use Map

1 inch equals 500 feet
 Produced by the
 Boone County Planning Commission
 GIS Services Division
 November 1, 2005

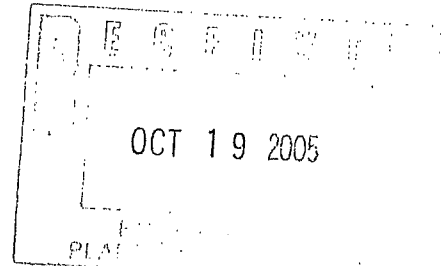




FIRE/EMS DEPARTMENT

October 19, 2005

Mr. Todd K. Morgan
Boone County Planning Commission
2995 Washington Street
Burlington, KY 41005



Dear Todd:

This letter is in regard to the Firestone Building Products project at 8170 Holton Drive. As you are aware Firestone Building Products is planning to occupy the building formerly occupied by Appleton Paper Company. It is my understanding that Firestone Building Products has filed a conditional use permit with the Board of Adjustments.

Some time ago, Florence Fire/EMS Department met with representatives of Firestone Building Products, Northern Kentucky Area Planning Commission and Office of the Kentucky State Fire Marshal. The main points of this discussion were operations and the installation of a 45000 gallon above-ground storage tank to store Isopentane. As the building sits there is no roadway to provide access to the proposed storage tank. Additionally, there is limited water supply to the rear of the building.

During the meeting Florence Fire/EMS Department outlined requirements to construct a roadway around the building to provide fire department access to the Isopentane storage tank. We also asked for a fire hydrant to be installed at the rear of the facility. Firestone Building Products indicated there would be no problem having these two items addressed.

Mr. Roger Mair, Firestone Building Products, has submitted a complete list of hazardous materials and material safety data sheets for the site.

With this said, Florence Fire/EMS Department has no additional comment or concern toward the project.

Please feel free to contact me if I may provide further assistance.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Krebs".

Robert Krebs
Fire Marshal

OCT 31 2005

859-356-5302 • FAX: 859-356-6843

October 27, 2005

BFS Diversified Products, LLC
Firestone Building Products Company
Attn: Roger Mair
4301 Boron Drive
Covington, KY 41015-1720

Re: 8170 Holton Drive, Independence, KY/ Northern Kentucky Industrial Park

Dear Mr. Mair:

This letter acknowledges and confirms the approval by the City of Independence of your company's proposed use of the building located at the above address.

The use of this facility for the production of products from previously prepared materials, which in your situation is plastics (polymer components), meets the permitted use allowed by the City of Independence Zoning Ordinance for the IP (Industrial Park) Zone. *Section 10.18(A)*.

This letter further acknowledges that under the Independence Zoning Ordinance no conditional use permits are required. The Accessory Uses section of this Zoning Ordinance addresses the customary accessory structures and uses, including operations, required to maintain and support any use permitted in this zone on the same lot. *Section 10.18(B)*.

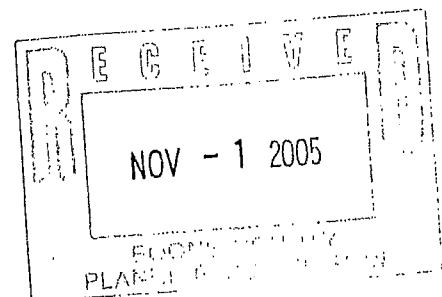
With these points addressed I confirm, on behalf of the City of Independence, that your company application for building use and zoning permits are in order and are approved.

Very truly yours,

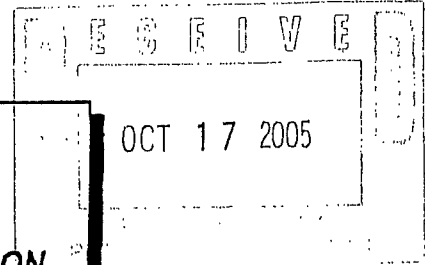


Annie Wuestefeld
Zoning Administrator

cc: ✓ Mr. Bruce Douglas
✓ Thomas P. Vergamini, Esq.



APPLICATION FORM



BOARD OF ADJUSTMENT AND ZONING APPEALS ACTION BOONE COUNTY PLANNING COMMISSION

See Boone County Zoning Regulations

SECTION A (To be completed by applicant)

- 1. (Check One) x Boone ... Florence ... Walton ... Union
2. (Check One) x Conditional Use Permit ... Variance ... Appeal
3. Applicant's Name BFS Diversified Products, LLC/Firestone Building Products Co.
4. Description of Request: Conditional use permit for placement of chemical storage tanks...
5. Name of Development Northern Kentucky Industrial Park
6. Location of Development 8170 Holton Drive, Independence, Kentucky
7. Acreage Under Review 10.147 acres (in Boone County) - total of 32.9673 acres
8. Lot Number and Name of Subdivision (if part of a subdivision) (Kenton & Boone Counties)
9. Owner of Property Cabot Industrial Venture B, LLC; c/o RREEF Management Co.
10. Address of Property Owner 4701 Creek Road, Suite 240 Cincinnati OH 45242
11. Proposed Use(s) on Site Manufacturing of plastic products
12. Total Square Footage of Existing and/or Proposed Buildings: 352,000
13. Current Zoning on Property I-1 (Industrial One)
14. Deed Book 856 Page No. 545 Group No. 2049B, 2049C, 2050
15. Is the site subject to a zone change? No
16. Have you submitted a Site Plan with this request? Yes
17. Have you submitted a list of adjoining property owners with this request? Yes
18. I, or we, understand and agree that this application and drawing(s) are being filed in accordance with the Boone County Zoning Regulations.

Applicant's Signature: Roger Nair / Plant Manager
Cabot Industrial Venture B, LLC, a Delaware Limited Liability Company By: RREEF Management Co, a Delaware, IT'S Property Mgr.
Property Owner's Signature: [Signature]

COPY

CLUR #05-BCBOA-024-A

CERTIFICATE OF LAND USE RESTRICTION

1. NAME AND ADDRESS OF PROPERTY OWNER(S)
Cabot Industrial Venture B. LLC
c/o RREEF Management Company
4701 Creek Road, Suite 240
Cincinnati, OH 45242

2. ADDRESS OF PROPERTY
8170 Holton Drive
Independence, KY 41017
3. NAME OF SUBDIVISION OR DEVELOPMENT (if applicable)
BFS Diversified Products

4. DEED BOOK 856 PAGE NO. 545 GROUP NO. 2050

5. TYPE OF RESTRICTION(S) (Check all that apply)

 Zoning Map Amendment:
From _____ To _____ Conditional Use Permit

 Development Plan Conditional Zoning

 Subdivision Plat Other:
(Not Recorded)

 Variance

6. NAME AND ADDRESS OF PLANNING COMMISSION, BOARD OF ADJUSTMENT,
LEGISLATIVE BODY OR FISCAL COURT WHICH MAINTAINS THE ORIGINAL
RECORDS CONTAINING THE RESTRICTION

BOONE COUNTY PLANNING COMMISSION
2995 WASHINGTON STREET
BURLINGTON, KENTUCKY 41005

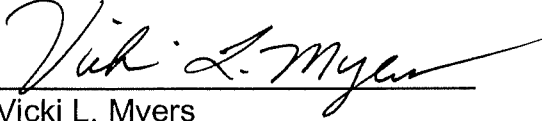
Todd K. Morgan
SIGNATURE OF COMPLETING OFFICIAL

Todd K. Morgan, Planner, Zoning Services
Name and Title of Completing Official

COMMONWEALTH OF KENTUCKY

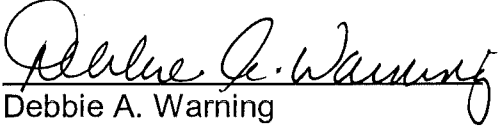
COUNTY OF BOONE

Subscribed, sworn to, and acknowledged before me by Todd K. Morgan on behalf of the
Boone County Planning Commission this 15 day of November, 2005.


Vicki L. Myers
NOTARY PUBLIC, State at Large

My commission Expires:
April 17, 2007

This instrument was prepared for recording purposes only by:


Debbie A. Warning
Boone County Planning Commission
2995 Washington Street
Burlington, Kentucky 41005

NO TITLE EXAMINATION

(Legal Description and source of Title and Group Number furnished by the applicant.)

CONDITIONS OF APPROVAL

The following Conditions of Approval apply to the Conditional Use Permit approved by the Boone County Board of Adjustments and in accordance with the current zoning in effect as of November 9, 2005 Certificate of Land Use Restriction (#05-BCBOA-024-A), for Cabot Industrial Venture B. LLC, c/o RREEF Management Company, Property Owner(s).

The following conditions will apply:

- 1) A fire hydrant is to be placed near the rear of the property.
- 2) The driveway is to be maintained between the parking lot and the 45,000 gallon chemical tank which is located at the rear of the building.
- 3) There is to be a chainlink fence with opaque slats to hide the view of the tank.

The approved Conditional Use Permit as well as the preceding conditions apply to the property described in:

DEED BOOK 856

PAGE NO. 545

GROUP NO. 2050