

### Guidance for K-State Laboratory Signage

This document provides [general information and guidance about the laboratory signage format](#) required at Kansas State University and [instructions for filling out the form](#) used to print the laboratory signs (Figure 1). These signs are required for all laboratories at the Manhattan campus and must be in place by January 17, 2017.

#### Why must I use this sign?

The use of a standardized system for laboratory signs is required to provide consistent information to emergency responders, students, faculty and staff. The “language” of the signage will be communicated in training and will become part of emergency response procedures and communications.

Submitting the completed form sends the lab specific information to K-State Public Safety (Police and Environmental Health & Safety) eliminating the need to provide this information separately. Having this central repository of information allows the K-State Police Dispatch office to provide up-to-date information to emergency responders or promptly contact the PI, lab personnel, or department representative in the event of an incident in their lab(s).

K-State Environmental Health and Safety (EHS) has worked with Manhattan Fire Department and other safety representatives on campus to develop the sign system. It provides information that aids hazardous materials response teams, fire response efforts, and facilitates emergency communications.

It allows those entering the lab to see at a glance the nature of the laboratory hazards, the required personal protective equipment (PPE), any precautions needed and general hazards present. This system fulfills various related regulations and funding entity expectations.

#### Where do I get the sign template?

The required sign template (Figure 2) and guidance is available from through K-State EHS (website: [www.ksu.edu/safety](http://www.ksu.edu/safety)). From the main EHS webpage, select the Lab Signs link or

**Go directly to the lab sign webpage:** [ksu.edu/safety/lab/labsign2/](http://ksu.edu/safety/lab/labsign2/)

If it does not open, you must download the PDF form and save it to your computer [to edit](#). Figure 2 provides an example of what the form you fill out looks like.

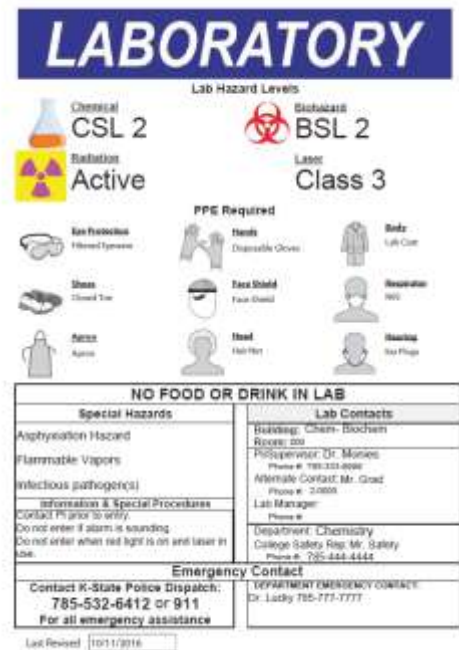


Figure 1 - Completed Sign Example

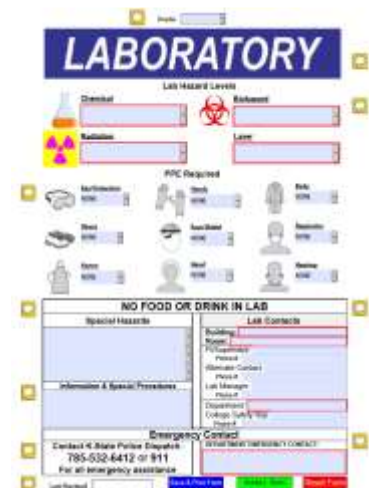


Figure 2 - Template form example

## ***What if the sign does not meet all my needs?***

If there are things that you feel should be added to the sign template or pull down options, contact the EHS office at 785-532-5856.

In some cases, regulation or industry standard requires the use of specific wording or signage (e.g., certain radiation sources, lasers, security precaution). Use of the K-State lab sign does not preclude the use of other required warning symbols, signage or instructions. However, other signage or symbols may not conflict with the K-State lab sign. [Example: it is not permitted to have one sign indicating BSL1 and another posted as BSL2; conflicting PPE requirements; or differing hazard communication words (e.g., danger and warning for the same hazard)].

In some cases, an NFPA “diamond” (Figure 3) may be recommended or required. This sign provides information to fire fighters responding in the event of fire or similar emergency. The numeric ratings on this “diamond” may differ from the levels on the lab sign that are intended for lab users. Guidance and final approval from the K-State EHS Fire Marshal is required before posting any NFPA diamond because these specifications are coordinated with the Manhattan Fire Department.



Figure 3 - NFPA Diamond

## ***Where are signs posted?***

These signs must be posted on the doors, or wall immediately adjacent to doors at all entrances to a laboratory on K-State facilities. The signs must be posted so they are readily visible to those entering the laboratory.

A laboratory is any room or building equipped for scientific experiments, research, teaching, or for the manufacture of drugs or chemicals, or sample diagnostics. The signs are **not intended for\***:

- computer labs or other rooms that do not pose specific risks,
- mechanical rooms or other facility support rooms,
- animal housing rooms (unless there are also lab functions performed therein)

Laboratories requiring this signage include, but may not be limited to, laboratories where chemical, radiological, or biological substances are used or stored and/or where physical hazards are or may be present (except as previously excluded\*).

The sign may be affixed directly or placed in clear holders (optional). View an example holder available from state-approved office vendor Staples (~\$8.00 each single purchase, or <\$2.00 each if purchased in bulk, products [810899](#) or [665638](#)).

## ***Can I use this sign for non-labs?***

The signs may be used for clinics or other rooms that support or contain laboratory-like activities or diagnostic functions that house similar hazards to those previously described.

If you have a workshop or other type of function-support room that houses hazards, but is not a laboratory, contact EHS. A different template is being developed for these settings.

## ***Who will see this information?***

The information entered into the PDF form prints out on the lab sign that you post on/next-to the lab door. Everyone with access to your building/floor/wing will see this. Do not post a personal mobile number or home phone unless you are comfortable sharing that. You can send a personal number in the text of the email that is generated when you hit the submit button on the form. However, you must provide at least one [emergency contact](#) number on the sign and this individual must be available during non-business hours.

Do not post specifics about a substance or equipment present if doing so presents a security risk. However, you must indicate the “nature” of the hazard presented by the chemicals, pathogens, equipment, etc. that are used/present in the lab. At minimum, you must indicate the level of chemical, biological, laser, or radiation hazard.

Once you hit the “submit” button, the information in the form is sent to the K-State Environmental Health and Safety Department (EHS) by email. EHS provides this to the K-State Police Dispatch Office and also maintains a record for the EHS hazmat team and lab safety personnel.

A copy for a college or department may be provided to department heads or deans by EHS upon request.

## ***What do the sign components mean?***

### **Header**

The header defaults to the word “laboratory”. This option should be selected for all basic laboratories on campus. Unless there is a specific requirement or rationale to post a danger, warning or caution sign at the entrance, *do not select the alternative header*. Overstating a risk for entry could delay emergency response efforts. It is important to communicate the nature of the risks present in the laboratory. Use the following guidance to make the header selection determination or contact EHS for assistance.

Use of the header “**Danger**” means that *serious injury or death will* occur if a hazardous condition in the laboratory is not avoided. The potential risk exists upon entry to the lab if that condition is present.

Use of the header “**Warning**” means that *serious injury or death could* occur if a hazardous condition in the laboratory is not avoided. The condition presents potential risk upon entry to the lab.

Use of the header “**Caution**” means the worst credible severity or *risk of injury/illness is minor or moderate*. Because many laboratories do pose a risk of injury, the use of this header is more likely, but should be based on the requirement for specific precautions (such as PPE) that must be taken *upon entry* to the lab. It is understood that if the posted precautions are not taken, injury or illness is a credible risk. It also is used to indicate that a release or spill in the lab could cause minor or moderate injury.

When selecting one of the alternative headers, additional information about the nature of the hazard and precautions *must* be identified within the Special Hazards and Information and Special Procedures sections of the form.

Additional guidance is provided in the “[how do I fill out the sign](#)” section. The requirement to post a precautionary alert label (i.e., Danger, Warning, or Caution) may be specified by regulatory requirement,

policy, or industry standard based on the presence of a specific hazard. If you are unsure, seek guidance from [EHS](#) (785-532-5856).

### PPE Required

The PPE selections should be based on the required or recommended personal protective equipment needed for work within the laboratory. This should be based on all risks present in the lab and relate to all procedures conducted that present a risk in the lab.

Additional PPE may be needed for conducting specific procedures in controlled/isolated areas of the lab or lab suite that are *not routine*. These additional PPE requirements, if not posted on the Lab Sign, should be posted at the control area or equipment and communicated through SOPs and training.

There are **minimum PPE expectations** for all typical labs with chemical use. These include **no open toed shoes** (e.g., flip flops, sandals) and use of **clothing that covers the arms and legs**.

Minimal guidance is provided under the [PPE sign instructions below](#), but it is important to note that the sign and these instructions are not a substitute for appropriate training and safety procedures developed specifically for laboratory and related activities.

### Lab Hazard Levels

Work with hazardous substances are either categorized by standard or may be determined based on user knowledge of the hazards presented by the substances and equipment used. In some cases, specific procedures conducted present risks.

- **Chemical** – The level of hazard presented by chemicals used or stored in the laboratory are ranked from 1 (lowest hazard), 2 (moderate hazard) to 3 (highest hazard). All laboratories that have chemicals in storage or use (regardless of the physical state or phase) will have a minimum of a Chemical Safety Level 1. Use of flammable liquids, generation of vapors, or the use of toxic materials in fume hoods (controlled hazards) or small quantities, presenting a moderate, non-life threatening health risk if released will be designated CSL-2. A CSL-3 designation is used when materials or procedures involving hazardous chemicals present a serious health risk to workers (e.g., work with [OSHA 29CFR1910 Subpart Z carcinogens](#) requiring special signage) or if released, is immediately dangerous to workers or emergency responders (risk of death or acute injury/illness). Additional guidance is provided in the section on [how to fill out the form](#). This section may be left blank if there are no chemicals used in the laboratory (e.g., only hazard is a sealed radioactive source or biological specimen storage).
- **Biohazard** – The Biosafety Level (BSL) designation is based on the hazards of the biological materials present or in use in the laboratory and goes from lowest hazard (BSL-1) to the highest level (BSL-3). The level is based on pathogen risk groups and other factors and as determined by the K-State Institutional Biosafety Committee using guidance from the CDC Biosafety in Microbiological and Biomedical Laboratories (BMBL). Selection is based on the highest hazard present in the lab. An option for BSL-4 is not provided on the form because this level of work is not permitted on K-State facilities.
- **Laser** – Lasers are classified by hazard based on power, wavelength, and pulse duration. The classification is determined based on ANSI Z-136.1 (latest version) and other guidance and standards. The laser may be purchased with one classification, but be reconfigured or altered.

The selection of classification on the lab sign form should be based on the highest hazard laser and/or configuration present in the lab.

- **Radiation** – This selection indicates if ionizing radiation or materials are used in the laboratory. Selection of the term “Active” means that there may be radioactive materials or sources within the lab as authorized by the K-State Radiation Safety Committee and the Radiation Safety Officer. All researchers must have a radiation authorization issued by the EHS radiation safety officer (RSO) in order to use or purchase radioactive materials. If the researcher has an authorization, but is not presently conducting work with radioactive materials (currently, in recent past or near future), they should select “No Material” from the drop down menu. If there is no radiation authorization and no work with radioactive materials conducted in the laboratory, select “NONE” from the pull down menu. Examples and further instruction are provided in the [how to fill out the sign section](#).

### Special Hazards

This section provides additional information regarding the *nature* of the hazards present in the lab that lead to the designations selected in the “Lab Hazard Levels”.

#### Information & Special Procedures

Additional information and special precautionary procedures related to the lab hazards and risks present in the lab are provided in this section.

The text field (limited to 200 characters) allows for customization of special instructions and or to communicate the specific nature of the hazard present in the lab. As applicable, the following are examples of the nature of information that should be entered in this section:

- This section should be used to communicate any special requirements for safe entry to the lab if applicable.
- Notification of the presence/use of known human carcinogens
- Notification of restricted or authorized access only.
- Notice to contact PI prior to entry for cleaning, inspection, etc.
- List of risks or hazards present that were not indicated in the previous section but are important hazards to communicate.
- Special instructions to emergency responders (e.g., “Turn off power before entry” or “Gas shut off located \_\_\_”)

### Lab Contacts

This section provides responders and others information about the individuals responsible for the laboratory. The **building, room number and department** fields are required because this information is needed by responders and these form fields will be used to populate a spreadsheet.

The principal investigator is provided for research labs. A supervisor or lab manager is provided for teaching labs or other laboratory functions. Both may be provided for research labs as appropriate. You must fill out one of the two (PI or Lab Manager/Supervisor). You are encouraged to provide an alternate in the event the designated person can't be reached. These individuals may be contacted in the event that something occurs in their laboratory (i.e., flood, fire, spill, extended loss of power affecting refrigerated media, etc.) or to provide information about planned entry or other events affecting the lab



attempt to print from the file menu on Adobe viewer, you will print the form (including instructions), not the actual sign format.

The **submit button** sends an email of the completed form to EHS (once you hit “send” on the email). EHS shares the lab contact information with KSU Police. Using the submit button ensures that the most current information for your lab is available to emergency responders and that the right people are contacted should something occur in your lab. Submitting this information is required. Each time you hit submit, the form generates an email to send to EHS. You may add additional input in the text of the email. EHS will replace the older version with the last data sent. Do not hit submit until you are ready to send the information and have completed all form fields. *The form will not submit if required fields are not filled out.*

The **revision date** is required. This should auto-update with the following format: mm/dd/yyyy. If it does not, please enter a current date whenever you make changes and re-submit the form.

### Header

The default sign header is “Laboratory”. You should use Laboratory or Caution unless you have a unique hazard type requiring a specific level of alert or precaution that would require you to select the Danger or Warning header. If you are unsure, contact KSU [EHS](#) or your safety committee for guidance.

To use one of the other headers select it from the pull down menu located just above the header on the form (Figure 4).



Figure 4 - Header Options

The “Laboratory” header with white lettering on a blue background is a “Notice” to those entering the room that procedures may be needed upon entry and to review the information. The alternative headers denote:

- **Danger** indicates immediate danger and that special precautions are necessary. It means that if the danger present is not avoided, it *will* cause **death or serious injury**. It should be used if unguarded equipment or other serious hazards are always present and can pose a risk upon entry to the lab or in an emergency condition. Examples: High Voltage, Pyrophoric Gases, or similar acute risk.
- **Warning** indicates a hazardous situation which, if not avoided (if the warning is not heeded), *could* cause **serious injury or death**. Like danger, when it is used on the lab sign header it denotes that the hazard can pose a risk upon entry to the lab or in an emergency condition.
- **Caution** is used as a safety alert. It indicates a hazardous situation, which if not avoided, *could* result in **minor or moderate injury**. This may be required to warn against potential hazards or to caution against unsafe practices (i.e., if a precaution is not taken, it may cause minor or moderate injury). Example: this may be specified when certain lower energy lasers (as defined in the laser standard) are used in the lab, or it can simply denote that chemicals or other hazards within the lab could present a minor or moderate injury/exposure risk if materials are spilled or released.

## PPE Required Section

Select the required personal protective equipment (PPE) needed for the laboratory from the pull down menus provided (See example in Figure 5).



Figure 5- PPE pull down menu example

PPE selection choices are grouped into options for:

- Eye Protection
- Shoes
- Apron
- Gloves
- Face Shield
- Head
- Body
- Respirator
- Hearing

If no PPE is needed from any PPE group (Figure 6), leave or select “NONE” from the pull down menu (the default setting). Otherwise, choose the appropriate PPE type from the choices in the pull down menu. [Table 1](#) provides descriptions of the images used in the form and their basic meaning. The specific nature of the type of PPE that is needed must be provided by the supervisor/PI or safety specialist with knowledge of the hazard(s) present, the risk posed, and the protection factors needed from PPE. The sign alone does not provide sufficient information to the lab workers about PPE type. For example:



Figure 6 – Select the needed PPE from the pull down menu.

- the *type* of disposable glove material (e.g., latex or nitrile),
- the nature of eye protection (e.g., specifically coated/filtered goggle),
- the type of respirator and *filter cartridges* for the respirator\*




















Training specific to the nature of the work and hazards present is required to ensure personnel safety while working in the lab. This should include training on the use of appropriate PPE and the limitations of the PPE used, as well as other precautions and safety measures.





Note: *\*Use of a respirator also requires additional training, medical screening, and may require an initial activity risk assessment by EHS to determine aerosol concentrations and estimate cartridge change out schedules.*

If you have questions regarding PPE selection, or require a risk assessment or exposure testing, [please contact EHS](#) (785-532-5856).



**Table 1 – PPE Image Chart**

PPE Type	Image Descriptions				
<b>Eye/Face</b>					
	Safety glasses	Safety goggles	Filtered/coated safety goggles or specialty glasses	Face shield ( <i>must be worn with safety glasses or goggles when splashes possible</i> )	
<b>Hand</b>					
	Disposable gloves		Work glove or specialty glove ( <i>e.g., may require thermal, submersion, and/or cut protective gloves</i> ).		
<b>Respirator</b>					
	N95 or other particulate filtering face piece.	Half face negative pressure filtering respirator	Full face negative pressure filtering respirator	Powered Air Purifying Respirator (PAPR)	Self-Contained Breathing Apparatus (SCBA)
<b>Footwear</b>					
	Closed-toed shoes (cover all of foot including heel) are the minimum requirement in wet labs		Disposable shoe covers	Over boot or "galosh" (liquid resistant or impermeable)	Steel toed work boot/shoe
<b>Body protection</b>					
	Lab Coat	Scrubs	Tyvek or similar full body coverall		Apron (liquid resistant)

<b>Head</b>			
	Hard hat	Hair net	
<b>Hearing</b>			
	Ear muff/covers <i>(Indicates hearing protection required)</i>	Ear plugs <i>(Indicates hearing protection required)</i>	

### Lab Hazard Levels

There are pull down menus with selections for each of four Lab Hazard Levels (Chemical, Biohazard, Radiation, and Laser). Use the small arrow to the right of the blank space to view the pull down menus options (Figure 7). The form will not submit unless these required fields (outlined in red) are chosen.

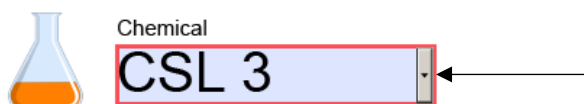




Figure 7 - Lab hazard level example

Follow the guidance previously provided in the [“what do the sign components mean”](#) section to aid in making the proper selection for the following Lab Hazard sections of the form.

- **Chemical** – This section communicates to workers, visitors and responders the nature of the “chemical” hazard for the lab. Selection are made based on chemical-only hazards.
  - Select **CSL 1** – chemicals are used or stored in the laboratory in liquid, solid, vapor or gas phase. Chemicals present represent a minor or low hazard. Work with chemicals present does not represent a serious health or injury risk. There are no flammable or toxic gases. Use of low volumes of toxic solids or liquids in controlled form (no generation of aerosols outside of hoods). Chemicals are in closed chemical containers.
  - Select **CSL 2** – chemicals used or stored in the laboratory (in any state) represent a moderate health risk. Use of flammable liquids, generation of vapors, or the use of toxic materials is in fume hoods (controlled hazards). Release or use of chemicals present a moderate health risk (not immediately dangerous to life). There are no poison or pyrophoric gases present.
  - Select **CSL 3** - chemicals present represent a serious health risk. Select this option if use of materials in the lab pose a recognized risk of death (chronic or acute) if safety controls are not employed. If released or uncontrolled chemicals are immediately dangerous to workers or emergency responders. Select this option if poison/toxic gases, pyrophoric materials, or large volumes of flammable gases are present and/or if working with water or air reactive chemicals.
  - Select **NONE** if there is no possibility for the presence of chemicals.

- **Biohazard** – Select the appropriate level or none from the pull down menu. Reference the BMBL and K-State Institutional Biosafety Committee (IBC). There is no option for BSL4 as no K-State lab is approved for this level.
  - BSL1
  - BSL2
  - BSL3
  - NONE – no work with biological materials, rDNA, medical specimens/samples, or animals
- **Laser** – Select “NONE” if there are no lasers used in the lab or choose the laser classification that represents the highest hazard laser present in the lab or configuration possible.
- **Radiation** – See Table 2 for examples.
  - Select “None” - No radioactive materials possible.
  - Select “Active” - Means that radioactive materials *may* be present in the lab.
  - Select “No Material” if lab is not using the lab for radiation studies. Means there are no radioactive materials present.

*Table 2 - Sample Radiation Lab Hazard Levels*

	<p><b>Radiation</b></p> <p>Active</p>	<p>Active rad authorization and working with radioactive materials. Presence of radioactive materials in the lab is possible and/or likely. <i>The sign does not need to change if there are no materials present on any given day.</i></p>
	<p><b>Radiation</b></p> <p>No Material</p>	<p>Active rad authorization, but not working with radioactive materials. There are no radioactive materials present in the lab at this time.</p>
	<p><b>Radiation</b></p> <p>NONE</p>	<p>There is no rad authorization issued. There are no radioactive materials present.</p>

### Contacts

These are fillable fields. The department, emergency contact, building name, room number and at least one lab contact are required. This information is sent to Public Safety and aids emergency responders. Do not post sign or submit form without filling these out. When contacts or contact numbers change, the sign must be reprinted, posted **and re-submitted**.

The form will not submit unless required fields (outlined in red) are filled in.

### Special Hazards and Information

This section includes drop down menu options and a fillable text field where you may customize information, provide special instructions/protocol or identify a hazard type not in the pull down menus.

### Special Hazards

Sample hazard types may be selected from three drop down menus under the “Special Hazards” header. There is also an option to write-in a hazard in each of the three drop down menus.

### Information & Special Procedures

You are encouraged to provide additional information about any hazard condition or material present within the **fillable text box** field under the “Information & Special Procedures” header. This text box is limited to 200 characters. *You are required to describe the nature of any high hazard condition.* If you selected an alternative sign header (i.e., Warning or Danger) or a CSL3 in the lab hazard levels section, you must describe the nature of the hazard in this section.

The name of a specific chemical presenting a high hazard condition is not *required* on the sign, but it must be on the container, equipment or device that contains the chemical within the lab. You must; however, indicate the nature of the chemical hazard (e.g., pyrophoric, explosive, toxic gas, high volume flammable liquids).

If special/unique PPE or other specific safety control is required to avoid injury/illness, this must be described in the supplied text box within this section of the form. For example, if a flame retardant lab coat is required for work within the lab, this should be indicated here. Special or more detailed instructions may also be posted in separate additional signage or as required by other policy, industry standard, code or regulation. If additional signage is posted, this section may refer to additional signage/instruction posted on the door.

Remember, other signage posted at the lab entrances cannot conflict with the information on the K-State lab sign. Remove all un-needed or old signage and old contact information to avoid confusion.

Information provided in this section is not intended as a substitute for training. All personnel authorized to work within the laboratory should receive training specific to their work and related precautions. All lab personnel should be informed about the nature of hazards present and potential risks.

### ***What should the completed sign look like?***

If your sign has comment icons and buttons showing, it is because the print button was not used to print the form. Please ensure only the completed sign elements print. An example of a completed sign is illustrated in Figure 8 below. Your sign will differ depending on your selections. The sign may be printed in color or B&W. It is designed for printing as an 8 ½ by 11 inch format. You may enlarge it, but it must not be printed smaller than 8 ½ by 11 inch.

With the current format, the completed signage may have blank spaces when PPE options are not selected. This is normal. Please do not write in or draw items in these areas. [Contact EHS](#) (785-532-5856) if you have additional needs.

# CAUTION

## Lab Hazard Levels

 **Chemical**  
**CSL 2**

 **Radiation**  
**Active**

 **Biohazard**  
**BSL 2**

 **Laser**  
**Class 3**

## PPE Required

 **Eye Protection**  
Filtered Eyeware

 **Hands**  
Disposable Gloves

 **Body**  
Lab Coat

 **Shoes**  
Closed Toe

 **Face Shield**  
Face Shield

 **Respirator**  
N95

 **Apron**  
Apron

 **Head**  
Hair Net

 **Hearing**  
Ear Plugs

NO FOOD OR DRINK IN LAB	
<b>Special Hazards</b>	<b>Lab Contacts</b>
Asphyxiation Hazard	<b>Building:</b> Chem- Biochem
Flammable Vapors	<b>Room:</b> 000
Infectious pathogen(s)	PI/Supervisor: Dr. Monies Phone #: 785-333-9999
<b>Information &amp; Special Procedures</b>	Alternate Contact: Mr. Grad Phone #: 2-0000
Contact PI prior to entry.	Lab Manager: Phone #:
Do not enter if alarm is sounding.	Department: <b>Chemistry</b>
Do not enter when red light is on and laser in use.	College Safety Rep: Mr. Safety Phone #: 785-444-4444
<b>Emergency Contact</b>	
Contact K-State Police Dispatch: <b>785-532-6412 or 911</b> For all emergency assistance	DEPARTMENT EMERGENCY CONTACT: Dr. Lucky 785-777-7777

Last Revised 10/11/2016

Figure 8 - Sample Completed Sign