



MEMBER FOCUSED
**SAFETY
ALWAYS**

CONTRACTOR **SAFETY** ORIENTATION



ENSURING A SAFE WORK ENVIRONMENT

Connexus Energy may review the contractor's safety program to ensure that the minimum Federal, State, and Local safety standards are addressed; and may cause the contractors, where necessary, to modify and/or expand their safety programs to address project site-specific hazards and/or incorporate safe work practices that Connexus Energy deems as necessary to protect contractors and their employees from known or recognized hazards.



SAFETY TRAINING AND WORK PRACTICES

- **Safety culture, safe work practices, and safety training are the responsibility of every contractor**
- **Nothing in this safety orientation or materials shall relieve the contractor from their safety obligations, nor does Connexus Energy assume any contractor's liability unless specifically stated**



SAFETY PROGRAM

All contractors performing work for Connexus Energy are required to have in place a safety program that as a minimum, meets the current requirements of the Occupational Safety and Health Act (OSHA), MNOSHA regulations, and other Federal, State, or local laws and regulations governing safety in the workplace



SCOPE AND PURPOSE OF THE ORIENTATION

- **This information is not intended to be a safety manual or substitute for the contractors safety program and required training**
- **It is a presentation which addresses safety hazards at Connexus Energy's facilities, lines and equipment, and emergency procedures as well as safe work practices in the areas of confined spaces, cutting and welding, and energy control to name a few known hazards**



WE ARE HERE TO HELP

If at any point a contractor or contractors employee needs assistance in identifying, controlling, or eliminating a hazard, please contact either of the following departments:

- ✓ **Safety**
- ✓ **Security and Facilities**

Connexus Energy is committed to assisting to you develop and maintain an injury free workspace – but you have to let us know if you need the help



AGENDA

- **Why safety matters and the importance of orientation**
- **Controlled Substance & alcohol policy**
- **Safe work practices**
- **Environmental considerations**
- **Emergency procedures**
- **Site specific safety & personnel security**



SAFETY ORIENTATION – WHY?

- **To provide a safe and healthy workplace**
- **To provide information of the requirements at Connexus Energy's facilities**
- **To ensure compliance with all applicable regulations**
- **To achieve a goal of ZERO injuries to anyone working in or on Connexus Energy's facilities, lines, or equipment**
- **To meet the annual requirement of informing individuals of changes in the work areas that Connexus Energy owns and operates**





WHO IS REQUIRED TO HAVE THIS ORIENTATION?

**This orientation is required for all personnel who will be performing work for
Connexus Energy who are not employed directly by Connexus Energy**



EXEMPTED FROM ORIENTATION

Personnel who are delivering goods and not performing “work” may enter, drop off, and leave through controlled access points without going through this orientation

Generally, these types of personnel are on site 5 minutes or less

Allowed delivery points:

- ✓ Warehouse loading dock
- ✓ Fleet Services
- ✓ Main lobby



ACCESS TO CONNEXUS ENERGY WORK SITES

- **All who need to gain access to a Connexus Energy site to perform work shall first receive this “Safety Orientation”**
- **Sites include, but not limited to:**
 - ✓ **The main building, yard, or grounds at 14601 Ramsey Boulevard**
 - ✓ **Substations owned or operated by Connexus Energy**
 - ✓ **Columbus Service Center**
- **Access is granted after orientation and proper clearance by the contract owner and the Connexus Security department**



PROPER CLEARANCE = ACCESS

- **Any contractor employee entering Connexus Energy property must be authorized by the Connexus Energy Security dept. prior to access and must be identified by a guest badge or contractor ID**
- **Unless agreed to in advance, Connexus Energy offices, phones, break rooms, and rest rooms are off limits to contractor personnel**
 - ✓ *Please understand this is a Security best practice and not personal*
- **All warehouse materials must be obtained through authorized warehouse staff employed by Connexus Energy**



WHEN WORK CAN BEGIN

After meeting the following steps:

- 1. Completing this Safety Orientation**
- 2. Receiving the appropriate security and identification clearance**
- 3. The contractor and the employees who will be working on the site have conducted a site walk / orientation to the work area**

Note: For line clearing or line construction the scope of the site walk will be determined by the Contractor and the Manager of Engineering or C&M at Connexus Energy



WORK ACTIVITY APPROVAL

- **In or on the building and grounds at 14601 Ramsey Boulevard, work approval may be given by:**
 - ✓ **Facilities and Security (Leone Sweeney and Andrew Quinn)**
 - ✓ **Manager, Electric Operations (Matt Claypool)**
 - ✓ **Safety Manager (Tim Flint)**
 - ✓ **Information Technology (Mark Koplín or Jon Rono)**
- **In or on Connexus Energy lines or equipment**
 - ✓ **Substations (Mike Felber)**
 - ✓ **Lines and equipment (Eric Welle or Nick Loehlein)**



CONNEXUS OWNED VEHICLES, EQUIPMENT, TOOLS

- **Contractors shall not use property owned by Connexus Energy without express written consent**
- **If any vehicles, equipment, tools or other property is to be used by the contractor, the contractor shall demonstrate the competency and qualifications of their employee who will be using it**
- **We may provide additional training specific to the item being used, but ONLY if the contractor employee is qualified by the contractor to use that specific item**



CONTRACTORS TRAINING OBLIGATION

- **Ensure all employees working on or in Connexus Energy’s facilities, substations, or on Connexus Energy lines or equipment have the training and qualifications necessary to do the work safely**
- **Ensure all employees working on or in Connexus Energy’s facilities, substations, or on Connexus Energy lines or equipment have completed this orientation and a “site walk”**
- **Ensure that all employees who have completed this orientation have signed the training roster or otherwise documented the date, time, and place of completion**
 - ✓ Students Name
 - ✓ Company works for
 - ✓ Students home or cell phone number
- **Documentation shall be submitted to Connexus Energy**



CONTRACTOR EMPLOYEES RESPONSIBILITY

- **Successfully complete this Safety Orientation**
- **Adhere to safe work practices and policies spelled out in this orientation or by your employer**
- **Be properly identified as the Contractors employee**
- **Follow required security and sign in procedures**
- **Remain in the work areas or common areas you are allowed access to**
- **Refrain from using your cell phone while driving on Connexus Energy owned property**



POTENTIAL INJURIES (NOT ALL INCLUSIVE) IN OUR WORKPLACE

- **Slip, trip, or fall due to poor footing or housekeeping**
- **Airborne objects lodging in the eye**
- **Cuts or abrasions due to pinch points or sharp objects**
- **Burns (electrical or from cutting / welding)**
- **Insect stings or bites**
- **Heat or Cold extremes due to lack of proper clothing**
- **Strains and Sprains due to lifting too much or in a poor position**



GENERAL HAZARDS FOUND IN OUR WORKPLACE

- **Flammable oils, gases, vapors, or solids (mainly in the Fleet area)**
- **Inappropriately used chemicals**
- **Voltages in excess of 50 volts**
- **Falls to a lower level**
- **Slippery walking surfaces (during times of inclement weather)**
- **Moving machinery or parts of machinery**
- **Excessive exposure to high noise levels (pump room, Fleet area)**



GENERAL PRECAUTIONS

- **Wear the prescribed Personal Protective Equipment**
- **Do not remove guards**
- **Follow safe work practices**
- **Identify hazards before beginning the job and control the risk**
- **Use the Contractor Safe Work permit for:**
 - ✓ **Cutting and Welding**
 - ✓ **Electrical changes or Line Break**
 - ✓ **Confined Space**



CONTROLLED SUBSTANCES & ALCOHOL

- **We expect and maintain a “Drug Free” environment out of respect for our employees, guests, and contractors**
- **The use, possession, or being under the influence of a controlled substance or alcohol creates undue risk for you and those working around you**
- **Use, possession, or being under the influence of a controlled substance or alcohol will result in your immediate expulsion from Connexus Energy’s property and you may not be allowed back for any future work**



CONTROLLED SUBSTANCES & ALCOHOL - CONTINUED

- **We expect that you discuss any over the counter and prescription drugs with your doctor and employer and you are approved to report to the work site in suitable condition to safely perform the work**
- **If you are expelled due to reasonable suspicion of being under the influence of a controlled substance or alcohol, we will require your employer to provide proof of a negative drug / alcohol test prior to allowing you back to the jobsite**



TOBACCO POLICY

- **Smoking is not allowed on Connexus Energy grounds**
- **During the pre job planning session please let us know if any of your employees smoke – we can help identify the closest and most convenient locations off our grounds for them to use**
- **Smoking in any area where flammables, combustibles, or Connexus Energy employees are present will result in that contractor employee being suspended from the jobsite for the day, and will likely result in expulsion from the jobsite permanently**



NO TOLERANCE (NOT) INFRACTIONS

- **NoT infractions are those that violate a specific rule or policy that is likely to cause serious injury, death, or property damage**
- **If a NoT infraction occurs, it will likely result in your expulsion from Connexus Energy property**
- **While any infraction that may lead to serious injury is included, consistent and / or willful violation of work rules may also lead to expulsion**
- **The next slide details actions NoT allowed on our grounds, jobsites, facilities, buildings, substations, or system**



NO TOLERANCE (NOT) INFRACTIONS

- **These examples are not all inclusive but are intended to give examples of infractions that are cause for expulsion:**
 - ✓ Working under the influence of a controlled substance
 - ✓ Failure to safeguard against a fall when working at 4' height or greater
 - ✓ Not gaining a required permit (confined space, cutting & welding, etc.)
 - ✓ Failure to use Lockout or required Hazardous Energy Control methods
 - ✓ Driving recklessly in / on Connexus Energy property (includes using cell phone)
 - ✓ Not using required PPE for high energy or high hazard tasks
- **During the site walk contract owners may state other specific No Tolerance policies dependent on the nature of the work**



HOUSEKEEPING

- **We define good housekeeping as “everything has it’s place, and everything is in it’s place”**
- **We expect that all jobsites will be maintained in a clean and orderly fashion, consistent with our definition of good housekeeping**
- **Good housekeeping minimizes hazards to workers**
- **Poor housekeeping will not be tolerated - poor housekeeping is defined as having a jobsite that has unnecessary tools, trash, cords, or other items lying out which may cause an accident**



PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIREMENTS – IT'S JOB SPECIFIC

- **All tasks are not created equal, and PPE must be specific to the job. PPE that all contractors and employees shall have at their disposal includes:**
 - ✓ **Hard hat**
 - ✓ **Gloves**
 - ✓ **Safety toed shoes**
 - ✓ **Hi Visibility vest or shirt**
 - ✓ **Safety Glasses**
- **All PPE shall be provided by the contractor unless otherwise specified**
- **Loose clothing, hair, and jewelry must be secured or removed before working around equipment with moving parts or exposed wiring**



GENERAL PPE REQUIREMENTS

- **PPE, if stated as required, shall be worn at all times the applicable hazard is present**
- **If the contractors PPE requirements exceed Connexus Energy's, the contractors employees shall abide by the contractors requirements**
- **If Connexus Energy's PPE requirements exceed the contractors, the contractors employees shall abide by Connexus Energy's requirements**
- **Each TASK shall be evaluated for necessary PPE, and it is the contractors responsibility to see that it is identified and used**



GENERAL PPE REQUIREMENTS

- **All PPE should meet applicable codes and standards as set forth by OSHA, ANSI, and ASTM.**
- **PPE must be in serviceable condition**
- **PPE must be rated for the level of hazard present**
- **Defective or damaged PPE shall not be worn**



MINIMUM PPE - SUBSTATIONS

If entering a substation the following SHALL be worn at all times:

- ✓ **Hardhat**
- ✓ **Safety shoes**
- ✓ **Safety glasses**

If working inside the fence, and opening any type of enclosure or manipulating any mechanical or electrical device, the appropriate level of FR clothing and PPE shall be worn (see NFPA 70E and NESC standards)



MINIMUM PPE - JOBSITE

While on any Connexus Energy jobsite the following shall be worn:

- ✓ **Hardhat**
- ✓ **Safety shoes**
- ✓ **Safety glasses**
- ✓ **Hi Visibility vest**

If any hazardous electrical energy source is exposed to a contractor or their employees, the appropriate level of FR clothing and PPE shall be worn (see NFPA 70E and NESC standards)



HAND PROTECTION

Gloves must appropriately protect the user from anticipated hazards

- ✓ Cuts (cut proof)
- ✓ Heat (gauntlets)
- ✓ Electrical hazards (rubber)
- ✓ Chemical exposure (Nitrile)



EYE PROTECTION

- **Eye protection must appropriately protect the user from anticipated hazards**
- **ANSI approved safety glasses that are designed and rated for the hazards expected shall be available to contractors employees at all times**
- **Specialty protection is required in some instances such as:**
 - ✓ **If grinding or chipping full facial protection is required**
 - ✓ **If welding, a properly rated welding helmet / shield is required**
 - ✓ **Arc rated face shields may be required when working around energized line or equipment – see Appendix for examples**



HEAD PROTECTION

- **Head Protection must appropriately protect the user from anticipated hazards**
- **A hard hat, rated for the foreseeable hazards, shall be always worn when an overhead hazard is or could be present**
- **Examples of operations that require a head protection:**
 - ✓ Working with cranes and aerial devices
 - ✓ Stringing wire
 - ✓ Overhead electrical lines
 - ✓ Tree trimming



HEARING PROTECTION

- **Hearing Protection must appropriately protect the user from anticipated noise level**
- **Examples of high noise areas:**
 - ✓ **Construction site where heavy equipment is present**
 - ✓ **Fleet Garage while work is being done**
 - ✓ **Tree trimming**
 - ✓ **Pump rooms**
- **A sound level survey is available in the appendix and high noise areas within the Connexus Energy building are posted**



SAFETY FOOTWEAR

- **Footwear must appropriately protect the user from anticipated hazards**
- **If a crush or puncture hazard is present, safety shoes must be worn and meet the current ANSI or ASTM standard (check the shoe tag)**
- **Examples of areas requiring safety footwear**
 - ✓ **Welding or cutting**
 - ✓ **Lifting heavy objects**
 - ✓ **Jobsite where vehicles are present**
 - ✓ **Jobsite where excavation is taking place**
 - ✓ **Jobsite where sharp objects are present**
 - ✓ **Jobsite where chainsaws are being used**



FALL PROTECTION

- **Fall protection must appropriately protect the user from anticipated hazards**
- **OSHA standards detail where fall protection must be used**
- **Connexus requires fall protection when work is to be done where the fall distance is greater than 4' – unless the work is covered by a specific OSHA standard that allows a specific exception**
- **Examples where fall protection is required:**
 - ✓ Working off an aerial device
 - ✓ Tree trimming
 - ✓ Stringing wire
 - ✓ Roofing



FALL PROTECTION - CONTINUED

- **Fall protection equipment should be inspected daily before use**
- **Defective or damaged fall protection equipment shall not be used**
- **An anchor point that meets the OSHA requirement shall be identified and used before beginning work that requires personal fall protection**
- **Appropriate methods of Fall Protection systems are:**
 - ✓ **Handrail systems**
 - ✓ **Safety Nets**
 - ✓ **Personal Fall Arrest System**



RESPIRATORY PROTECTION

- **Respiratory protection must appropriately protect the user from anticipated hazards (dusts, mists, gases)**
- **If respiratory protection is required, the user must have passed the appropriate fit test**
- **The following are examples where respiratory protection may be required:**
 - ✓ Any operation where silica dust is generated (cutting concrete)
 - ✓ Any operation where bacteria may be present (cleaning filtration)
 - ✓ Any operation where hazardous mist or fumes may be present (tank cleaning)



PPE IS NOT ALWAYS THE ANSWER

- **PPE is the last option for protecting employees against hazards**
- **Assess the workplace and identify hazards, then select the most appropriate method to control the hazard. This may include:**
 - ✓ **Engineering the hazard out**
 - ✓ **Guarding the hazard**
 - ✓ **Administrative controls (safe job procedure)**
- **PPE is a last resort – employees must be trained on how to use it, when to use it, and what it protects against**
- **PPE should be identified during the pre job planning and hazard assessment period – contact Connexus Energy Safety if help is needed determining the hazards present**



RIGHT TO KNOW / HAZCOM

- **Connexus Energy must be notified if any Hazardous, or Extremely Hazardous substances will be brought on any worksite BEFORE they are present**
- **Those substances must be approved before bringing on site**
- **SDS's must be available to both Connexus Energy and the contractors employees while the substance is on a Connexus Energy jobsite**
- **Containers must be labeled and the labels meet applicable standards**
- **All SDS's for any substance that Connexus has on site are available through MSDS Online – website provided in the appendix**



FIRST AID / AED'S

- **First Aid stations are available throughout the Connexus Energy campus. A trauma bag and AED are present at our employee entrance and in Fleet Services**
- **First Aid supplies are required on any Connexus Energy jobsite (off campus) and are the contractors responsibility to supply to their employees**
- **All OSHA requirements for training shall be met by the contractor relative to the work being done (i.e. at least one First Aid trained employee available on any jobsite covered by OSHA 1910.269)**



WORK AREA BARRICADES / EXCLUSION ZONES

- Any areas that may be hazardous to the general public or passersby shall have barricades or exclusion zones present
- If a barricade or exclusion zone isn't possible, the contractor will provide a designated spotter
- Examples of those areas:
 - ✓ Exposure to falling objects (e.g. tree trimming)
 - ✓ Where objects are being lifted (e.g. crane operations)
 - ✓ Where open excavations are present (e.g. trench)
 - ✓ Where open sided elevated floors, walkways, or platforms are present (e.g. roof)
 - ✓ Where heavy equipment is operating (e.g. construction site)



WORK AREA BARRICADES / EXCLUSION ZONES

- **Examples of those areas (continued):**
 - ✓ Where exposed energized electrical conductors are present (e.g. downed wire)
 - ✓ Where slip or trip hazards are present (e.g. oil spill)
 - ✓ Where a temporary hazard may exist (e.g. unloading heavy objects)
- **Barricades and exclusion zones shall be inspected at least at the start and end of the work for the day**
- **Access to the area barricaded or excluded must be easily identifiable to the contractors employees**
- **Barricades should be removed once the hazards are no longer present**



HAZARD IDENTIFICATION

- **Specific hazards may need to be identified with an informational tag**
- **The tag should spell out:**
 - ✓ **Date and time the tag was placed**
 - ✓ **The specific hazard present**
 - ✓ **The person placing the tag**
 - ✓ **Contact information for the person placing the tag (cell phone number)**
- **This includes defective equipment, electrical cable and wire, electrical enclosures, and any other situation where a condition may expose contractor or Connexus employees to an unanticipated hazard**
- **Tags should be visible, legible, weatherproof, and have a reliable means of attachment**



SIGNAGE AND MARKS

- **Any informational or safety signage present on a jobsite must be kept present**
- **If the work requires signage to be temporarily moved this must be communicated to the Connexus Energy representative who authorized the work**
- **Contractors and contractor employees are required to read informational and safety signage present on each jobsite before beginning work**
- **If flags or marks made by locating services are removed or disturbed, it is your responsibility to call and have them refreshed**



SIGNAGE - CONTINUED

If signs indicate the presence of a substance in a line or pipe that is:

- ✓ Under pressure
- ✓ Electrical
- ✓ Flammable
- ✓ High temperature
- ✓ Used for emergency purposes (i.e. sprinkler lines)

Then the applicable Safe Contractor Work permit must be acquired from either the Facilities or Safety departments before beginning work



COMPRESSED GAS CYLINDERS

- **Any compressed gases the contractor or contractors employees are bringing on site must be declared during the pre job assessment and a proper storage area identified**
- **Cylinders must be secured and stored away from combustible material at all times**
- **Caps must be present on cylinders not in use**
- **Flashback arrestors shall be present on any cutting torches**
- **All cylinders shall be labeled per OSHA and manufacturer requirements**



FLAMMABLES AND COMBUSTIBLES

- **All flammables and combustibles that will be stored on Connexus Energy grounds or property shall be declared during the pre job assessment and a proper storage area identified**
- **All flammables and combustibles will be stored according to manufacturer, OSHA, and NFPA standards**
- **All remote fueling operations, including use of “jerry cans” or other containers must comply with OSHA and NFPA standards**



CONFINED SPACES

- **Connexus Energy expects the contractor, if entering confined spaces, to meet all regulatory requirements before entering any confined space**
- **Confined spaces on Connexus Energy's jobsites may include:**
 - ✓ Trenches and excavations
 - ✓ Tanks
 - ✓ HVAC equipment
 - ✓ Cooling towers



CONFINED SPACE ENTRY

- **If any entry is to take place into a confined space owned by Connexus Energy, the Connexus Energy Confined Space permit – or the equivalent Contractor permit – will be completed prior to entry**
- **Information the permit must contain:**
 - ✓ Time frame the permit is good for
 - ✓ Specific identification of the hazards present
 - ✓ Rescue plan and emergency numbers
 - ✓ Atmosphere conditions (survey the space for expected gases)
 - ✓ Names of trained employees conducting the entry



CONFINED SPACE ENTRY - CONTINUED

- **All confined space permits must be reviewed and signed by a Competent Person as identified by OSHA**
- **A site inspection that includes the Connexus Energy Safety Manager, Facilities Manager, or Security Specialist must take place prior to entering any confined space on the Connexus Energy main campus**
- **After the site inspection approval will be given if the contractor has met the permit requirements by means of a Safe Contractor Work permit**



CONFINED SPACE ENTRY - CONTINUED

- **The confined space entry permit becomes void, and the confined space exited immediately if these or related conditions become present**
 - ✓ **Gas monitor sounds an alarm**
 - ✓ **An unknown or unanticipated hazard is discovered**
 - ✓ **Any member of the entry team has to leave the entry site for any reason**
 - ✓ **Any safety equipment malfunctions**
- **This list is not all inclusive – any member of the entry team may stop the operation should the work become immediately dangerous to health or life of the entrant or entry team**



GAS DETECTION / MONITORING

- **Gas or atmosphere monitoring equipment may be required due to the conditions of the jobsite or confined space**
- **Contractors shall supply the appropriate gas monitoring instruments for confined space entry, or other operations that may create or contain a hazardous atmosphere – examples include:**
 - ✓ **Line break of a gas pipe**
 - ✓ **Cleaning of petroleum or fuel tanks**
 - ✓ **Welding in an area with poor ventilation**
- **Any gas or atmosphere detection equipment used must be properly maintained, calibrated, and serviced according to the manufacturer**



CRANE OPERATIONS - GENERAL

- **Any crane will be operated by a competent and qualified operator when completing work for Connexus Energy**
- **A lifting plan, when required, will be completed by a competent person and reviewed with the operator and employees assisting with the lift**
- **Riggers and signal persons shall be qualified as required by OSHA or MNOSHA**
- **The crane and all rigging shall be inspected, before use, by a qualified and competent person**



CRANE OPERATIONS – KNOWN HAZARDS

Overhead power lines are a clear and present danger when operating cranes in their vicinity.

- ✓ **When operating a crane near our power lines, a documented meet with our Construction and Maintenance department is required prior to operations beginning**
- ✓ **No crane shall be operated within the boundaries mandated in the OSHA standard governing crane operations (of overhead power lines) without the lines being either de-energized or “cover up” placed on the lines**



ELECTRICAL SAFETY IN OUR BUILDINGS

- **Only qualified persons, as defined by OSHA, shall work on electrical equipment and lines in our facility**
- **Labels will indicate the level of the electrical hazard present in the facility – we follow NFPA 70E practices within our facility**
- **If no label is present, a competent and qualified person shall test and determine the hazard and voltage level**
- **Precautions shall be taken to either control the electrical hazard, or de-energize the line and or equipment being worked on**



ELECTRICAL SAFETY IN OUR BUILDINGS

- Access to electrical equipment rooms is prohibited except to perform work authorized by Connexus Energy
- Electrical equipment rooms are labeled as “Electrical Rooms”
- Any room containing Motor Control Centers (MCC’s), Switchgear, or related equipment shall not be entered by unqualified persons



PERMITTING FOR ELECTRICAL WORK

- Any work to be completed on electrical equipment or lines within the main building or grounds shall be defined on a Contractor Safe Work permit (may be obtained through Facilities / Security or Safety dept.)
- Any changes to lines, circuits, or equipment that will require changes shall be documented on electrical drawings and submitted to the Facilities department



HAZARDOUS ENERGY CONTROL / LOCKOUT

- **We have procedures written for equipment within the building for controlling hazardous energy sources**
- **We expect that if you will be working on any lines or equipment within the building that you control any hazardous energy sources**
- **The procedures may be obtained from Connexus Energy's Facilities, Security, or Safety departments, or our Contractor webpage**
- **Any Line Break or Electrical Systems Permit shall have the appropriate hazardous energy control procedure included with it and must be on the jobsite while the work is in progress**



HAZARDOUS ENERGY CONTROL / LOCKOUT

General Hazardous Energy Control principles

- If a hazardous energy source is to be “locked out”, each employee working on the line or equipment shall have their own individually keyed lock on the energy isolation control point until the work is completed
- No person may remove another persons lock without the jobsite supervisor completing the lock removal process in concert with the Safety manager for Connexus Energy
- All forms of hazardous energy must be controlled including any “stored” energy sources – these include but are not limited to mechanical, thermal, electrical, radiation, and compressed or flammable gases
- Contractors shall supply all hazardous energy control equipment (i.e. locks) unless otherwise specified and agreed upon



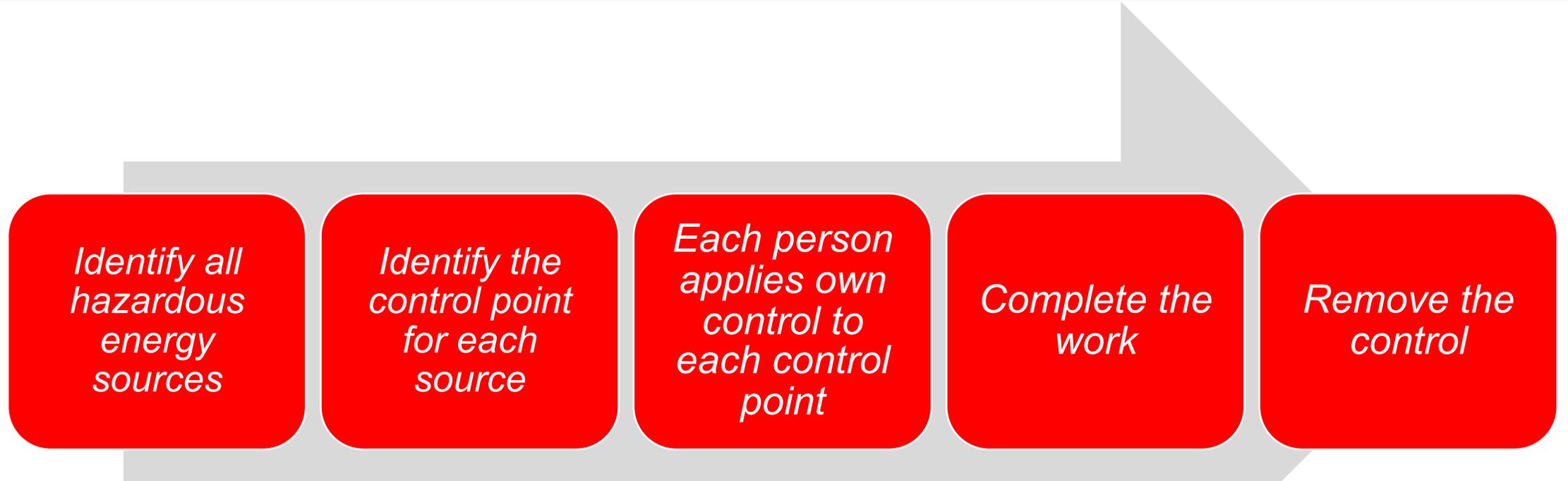
HAZARDOUS ENERGY CONTROL / LOCKOUT

General Hazardous Energy Control principles (continued)

- **Each lock used for hazardous energy control shall have a tag affixed to it that legibly shows:**
 - ✓ The person who applied the lock
 - ✓ A contact number for that person
 - ✓ The date and time the lock was applied
 - ✓ Why the lock was applied



LOCKOUT PROCESS SIMPLIFIED



LOCKOUT - EXAMPLES

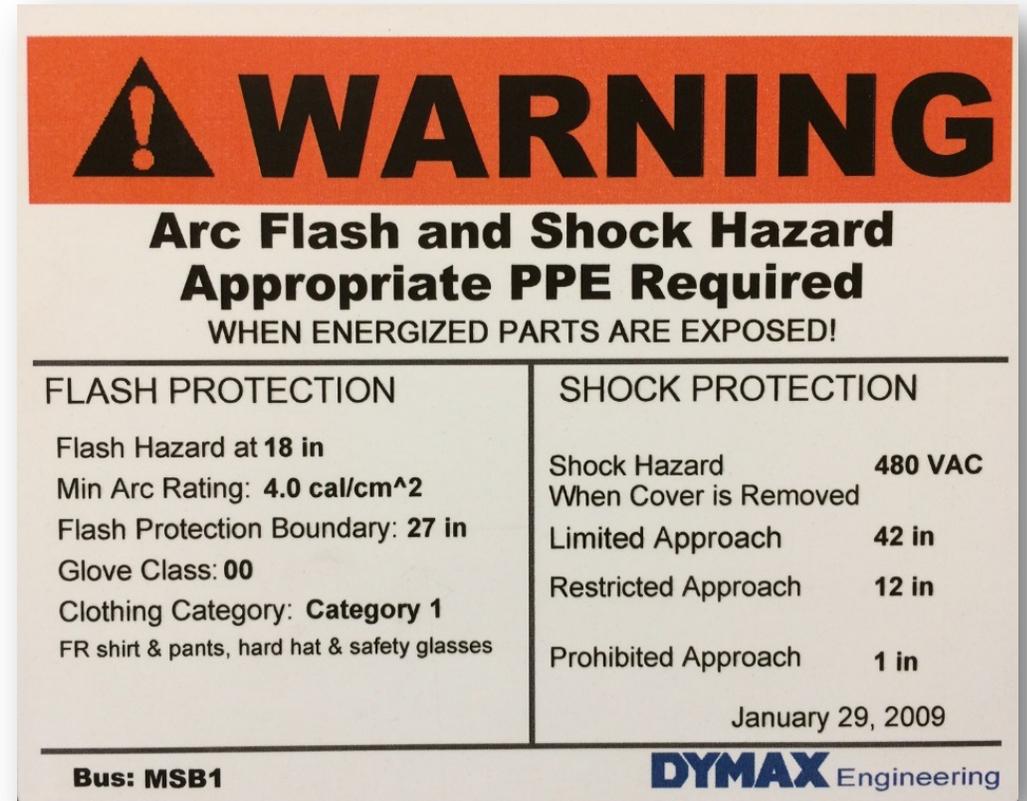
Single person lockout

Multiple person lockout



SHOCK AND ARC HAZARDS

- The building has had an Arc / Flash hazard analysis completed and electrical control equipment labeled with the appropriate label
- The labels will define the approach distances, PPE, and hazard level present



WARNING

Arc Flash and Shock Hazard
Appropriate PPE Required
WHEN ENERGIZED PARTS ARE EXPOSED!

FLASH PROTECTION	SHOCK PROTECTION
Flash Hazard at 18 in	Shock Hazard 480 VAC
Min Arc Rating: 4.0 cal/cm²	When Cover is Removed
Flash Protection Boundary: 27 in	Limited Approach 42 in
Glove Class: 00	Restricted Approach 12 in
Clothing Category: Category 1	Prohibited Approach 1 in
FR shirt & pants, hard hat & safety glasses	

January 29, 2009

Bus: MSB1 **DYMAX** Engineering



ARC / SHOCK APPROACH BOUNDARIES

LIMITED

Informed but unqualified employees, who are escorted by a qualified employee, may be within this boundary

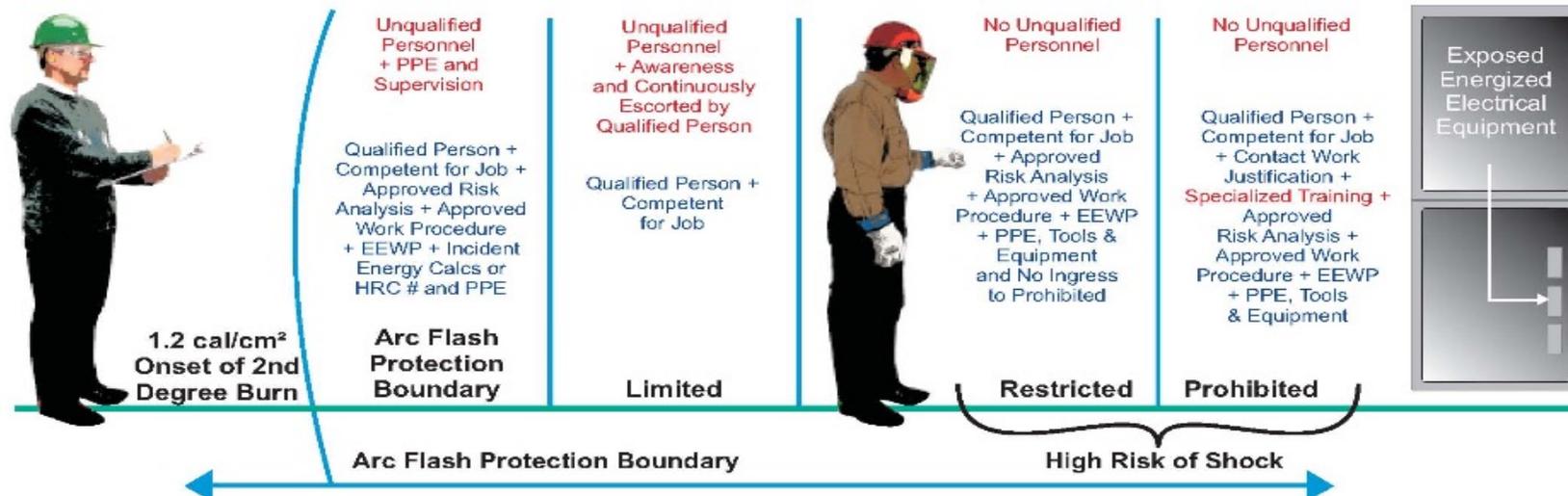
RESTRICTED

ONLY qualified employees may be within this boundary and must use appropriate PPE and work practices

PROHIBITED

ONLY qualified employees may be within this boundary and must use the same protection they would as if in direct contact with an energized part

Boundaries for Arc Flash Protection and Shock - Approach Limits



ARC / SHOCK HAZARD PRECAUTIONS

Electrical equipment greater than 50 volts shall either be de-energized, or the appropriate PPE worn and work practices used to control all hazardous energy sources present

When there are energized electrical conductors or parts to which an employee might be exposed:

- **Arc / shock protection is required and may include**
 - ✓ Rubber gloves
 - ✓ Arc rated face shield
 - ✓ Flame Retardant clothing
 - ✓ Grounding
 - ✓ Insulated tools



Electrical Personal Protective Equipment Chart

NFPA 70E 2012 Table 130.7 (C)(16) Protective Clothing & Personal Protective Equipment (PPE)

*For More Detailed Information or Other Options Refer to NFPA 70E 2012 Edition, Table 130.7 (C)(16)

<p>Hazard/Risk Category</p> <p>0</p>	<p>Untreated natural fiber Shirt (long sleeve) Pants (long) Safety glasses Hearing protection Heavy duty Leather gloves (as needed)</p>	
<p>Hazard/Risk Category</p> <p>1</p> <p>4 cal/cm²</p>	<p>Arc-rated long-sleeve shirt Arc-rated pants or coverall Arc-rated face shield with hard hat Safety glasses Hearing protection Leather & voltage rated gloves (as needed) Leather work shoes</p>	
<p>Hazard/Risk Category</p> <p>2</p> <p>8 cal/cm²</p>	<p>Arc-rated long-sleeve shirt Arc-rated pants or coverall <small>(New 2012)</small> Arc-rated face shield & balaclava or arc flash suit hood with hard hat Safety glasses, Hearing protection Leather & voltage rated gloves (as needed) Leather work shoes</p>	
<p>Hazard/Risk Category</p> <p>3</p> <p>25 cal/cm²</p>	<p>Arc-rated long-sleeve jacket Arc-rated pants Arc-rated flash hood with hard hat Safety glasses, Hearing protection Leather & voltage rated gloves (as needed) Leather work shoes</p>	
<p>Hazard/Risk Category</p> <p>4</p> <p>40 cal/cm²</p>	<p>Arc-rated long-sleeve jacket Arc-rated pants Arc-rated flash hood with hard hat Safety glasses, Hearing protection Leather & voltage rated gloves (as needed) Leather work shoes</p>	

ELECTRICAL CORDS

- **Contractor shall provide ground fault protection where it is not already present**
- **Only cords in good condition (no nicks, cuts, exposed wire, etc.) shall be used**
- **All electrical tools shall be double insulated or grounded**
- **Any leads or cords should be placed so as not to cause a tripping hazard to employees working in the area**



EQUIPMENT AND TOOLS - GENERAL

- All tools and equipment shall be inspected prior to use
- Damaged or defective tools shall be taken out of service
- We expect that the contractor and contractors employees use the right tool for the job – if you don't have it please ask if we do
- Contractors employees shall be trained on the safe manner in which to use any tools or equipment required for the job
- Compressed air shall not be used to clean off dust or debris from clothing that is worn by the contractor or their employees while still being worn (possible to inject contaminants with compressed air)



HAND HELD ELECTRONIC DEVICES

- **Cell phones and other electronic devices shall not be used while driving vehicles while on Connexus Energy property**
- **Cell phones and other electronic devices, unless UL approved for the atmosphere present, shall not be used in areas that may contain volatile or flammable gases or dusts**
- **The cognitive distraction (takes your concentration away) of using a cell phone or other electronic communication device, while working, can be dangerous – please put it away when you are working or step away to a safe place before using it**



CUTTING & WELDING – “HOT WORK”

- **“Hot Work” is defined as any temporary operation that involves open flames, sparks, or heat over 100 degrees Fahrenheit**
- **Any “hot work” shall require a Contractor Safe Work Permit if conducted in the main building**
 - ✓ **The ONLY exception to this is if the work is done in Fleet Services within the cutting and welding area**
- **The permit may be obtained through Facilities / Security or Safety**
- **Any hot work outside the building shall be coordinated in advance with the Facilities / Security department**



HOT WORK DEFINED

HOT WORK EXAMPLES

- Cutting (with a torch)
- Welding
- Heating (over 100 deg F)
- Grinding (creates sparks)
- Soldering (with torch)

GENERAL DEFINITIONS

- An open flame
- Creates sparks
- Creates high heat
- Generates high friction > heat
- May cause a fire



HOT WORK PERMIT

- Shall be obtained before beginning work
- Defines the purpose of the work, the time the work may be completed
- Includes emergency information
- Includes any special precautions
- Must be present at the jobsite

This Permit may only be issued by **Facilities Management** is mandatory for all high risk work listed under No 2)

Contractor Safe Work Permit

Connexus Energy

1) Permit AM
PM
Date (dd-mm-yy)
Time

2) Permit for
 Work from Height
 Fire Impairment
 Confined Space* (*contractor supplies permit)
 Hot work
 Live Electrical

3) Permit Expiry AM PM
Date (dd-mm-yy) Time

4) Contractor (To be completed if Permit Receiver is a Contractor)
 Name: _____ Telephone No: _____ Facsimile No: _____
 Street Address: _____ City: _____ State: _____ Emergency No: _____
 Zip Code: _____

5) Work Location
 Campus Location: _____
 Description of Work Location (Building number, room number): _____

6) The Work
 Inspection/Test Service/Installation Maintenance/Repair Construction/Renovation
 Welding & Cutting Fire Safety System Mechanical Electrical/Telecom
 Process Equipment Office Furniture & Equipment Cleaning/Janitorial Other (specify)
 Description of the work: _____

7) Safe Work Checklist

Work Location Cordoned Off & Access Restricted?	Yes	N/A	Comments
Safety Signs Posted?	<input type="checkbox"/>	<input type="checkbox"/>	
Lockout Procedures In Place & Tested?	<input type="checkbox"/>	<input type="checkbox"/>	
Work Location Ventilated? <input type="checkbox"/> By Air Handler <input type="checkbox"/> Atmosphere	<input type="checkbox"/>	<input type="checkbox"/>	
Fire Protection Measures In Place?	<input type="checkbox"/>	<input type="checkbox"/>	
Elevated Work Procedures In Place?	<input type="checkbox"/>	<input type="checkbox"/>	
Other Personal Protective Equipment & Devices Required?	<input type="checkbox"/>	<input type="checkbox"/>	
Construction Safety Procedures In Place?	<input type="checkbox"/>	<input type="checkbox"/>	

8) Permit Issuer
 Name: _____ Department: _____
 Date (dd-mm-yy): _____ Time: _____ AM PM

9) Permit Receiver (Permit Receiver to Complete)
 Name: _____ Cellular or Emergency No.: _____
 Signature: _____ Date (dd-mm-yy): _____

By signing, the Permit Receiver hereby acknowledges that the hazards have been reviewed and are known and understood by the Permit Receiver, that the hazards and requirements under this permit and of the applicable occupational health and safety legislation have been reviewed with and communicated to workers, and that requirements under this permit constitute the minimum requirements and the Permit Receiver will comply with the requirements of this permit and the occupational health and safety legislation, whichever is stricter.

Permit Receiver: _____

10) Work Completed (Permit Receiver to Complete)
 Returned by: _____
 Signature: _____
 Date (dd-mm-yy): _____ Time: _____ AM PM

Permit Issuer: Retain Photocopy of Safe Work Permit

11) Work Checklist (Permit Receiver to Complete)
 Lockouts Removed
 Equipment Removed
 Waste Removed
 Work Area Cleaned
 Permit Returned

12) Permit Returned
 Returned to: _____
 Signature: _____
 Date (dd-mm-yy): _____ Time: _____ AM PM



GENERAL HOT WORK PRECAUTIONS

- **The Contractor Safe Work Permit instructions must be followed**
- **Ensure there are no combustible or flammable substances within a 40' radius (you may use fire proof blankets to cover objects)**
- **Shield areas where sparks may cause hazards**
- **Area shall be guarded (by a designated employee or signage/barrier) while hot work is in progress**
- **Fire extinguishers must be present (at least two 5# ABC)**
 - ✓ **At least one employee trained in it's use present at all times**
- **A “Fire Watch” shall be in place for at least ½ hour after complete**





BREAK!!!

Thank you for your attention!

Please take at least a 5 minute break now before proceeding



VEHICLES

- **Contractors vehicles must meet all applicable state and federal requirements for operation**
- **Contractors vehicles shall be parked in designated areas as discussed in the pre-job conference**
- **All posted signage shall be obeyed (examples below)**
 - ✓ **Speed**
 - ✓ **Use of phones / electronic devices**
 - ✓ **Entry points**
- **Vehicles are defined as ANY motor powered mobile equipment**



VEHICLES CONTINUED

- **Personal vehicles may be parked on a jobsite only if agreed to in advance during the pre job conference**
- **Park at your own risk – Connexus Energy makes no claims as to the security of any jobsite and shall not be liable for injury / damage sustained by any privately owned or contractor owned vehicles on Connexus Energy property or elsewhere on our system**
- **Traffic rules imposed by local, state, or federal authorities shall be followed when completing work for Connexus Energy**
- **Riders are not allowed on equipment unless the equipment is designed for passengers by the manufacturer**



WALKING AND WORKING SURFACES

- **Connexus Energy works to maintain safe and slip free surfaces at it's facilities, but cannot control the weather or every aspect of a jobsite**
- **Good housekeeping practices shall be followed to minimize slip and trip hazards on the jobsite**
- **Aisles and passageways shall be kept clear**
- **Guardrails shall be kept in place unless fall protection is in place – if removed they shall be reinstalled prior to leaving the jobsite**
- **If you encounter a hazardous walking or working surface on Connexus owned property – please let us know and we can discuss how to control it**



SCAFFOLDING

- **All scaffolding shall be erected and dismantled under control of, and approved for use by, a competent person as defined by OSHA**
- **All scaffolding must be inspected each shift, prior to use, by a competent person, or if the scaffolding is moved or altered**
- **If there is any potential safety concern or event that may cause the safety of the scaffolding to come in question the competent person must reassess and re-inspect the scaffolding**
- **Fall protection is required while using scaffolding above 4 feet above ground level**



UTILITIES

- **Without express written permission, the contractor shall make no connection, either temporary or permanent, nor operate any valves or switches to any utility line that feeds:**
 - ✓ Any equipment or buildings at 14601 Ramsey Boulevard
 - ✓ Any substation
 - ✓ Any energy generation (i.e. solar panel complex)
- **Generally, these may be permitted through the use of the Contractor Safe Work Permit**
- **On the Connexus Energy Distribution system, all connections to the system will be made by qualified line workers**



UTILITIES CONTINUED

- **All local, state, and federal laws relative to working around buried utilities shall be followed (see MN Statute 216D)**
- **Any excavations require calling for locates – calling 811 will put you in contact with the appropriate One Call Center**
- **Any excavating without locates will be cause for work stoppage and possible dismissal of the person in charge from work for Connexus**
- **If there is any question as to the location of a utility, call us and we will assist in locating that utility**
- **ANY gas line hit requires an immediate call to 911**



UTILITIES CONTINUED

- **Overhead power lines may carry up to 7200 volts in a single wire, and between two wires may carry up to 12,400 volts**
- **Any work requiring the use of equipment (i.e. crane or backhoe) underneath an energized overhead power line must be discussed with Connexus Energy prior to the work beginning**
- **Look up and Live!**



WASTE

- **A waste is defined as anything that cannot be reused and are broken into three categories**
 - ✓ **Recyclable wastes – wastes that may be collected for the purposes of reclamation (metals, paper products, some components)**
 - ✓ **Trash wastes – wastes that have no recycling value and are approved for disposal in a public landfill**
 - ✓ **Special wastes – wastes that are regulated by local, state, or federal guidelines and must be disposed of in a manner consistent with those regulations**
- **Contractors shall approve of all wastes in an appropriate manner as defined by the waste category**



WASTE CONTINUED

- **Use of Connexus Energy owned or rented waste receptacles shall be agreed upon prior to work beginning - the discussion shall include:**
 - ✓ Amount of waste
 - ✓ Type of waste
- **Special wastes shall not be disposed of in Connexus Energy owned or rented waste receptacles**
- **Any release of a special waste to the environment (soil, air, water) shall be immediately reported to the Connexus Energy Safety department**



NOT ALLOWED IN DUMPSTERS OR WASTE BASKETS

- Liquid wastes
- Chemicals
- Paints
- Solvents
- Batteries
- Asbestos
- Fluorescent bulbs
- Welding rods
- Any item that contains mercury
- Oil or oil contaminated waste
- Contaminated soil
- Filters (oil, paint, etc.)
- Greases
- PCB waste (test kits, etc.)
- Tires
- Special or hazardous wastes



HAZARDOUS WASTE

- **A subtype of a special waste is a hazardous waste – this is any substance that exhibits a hazardous characteristic such as:**
 - ✓ **Toxicity**
 - ✓ **Corrosivity**
 - ✓ **Reactivity**
 - ✓ **Ignitability**
 - ✓ **Adverse impact to the environment**
- **Any Hazardous waste generated shall be disclosed prior to any work**
- **Hazardous waste will be disposed of according to all regulations**
- **All Hazardous waste shall be labeled and contained properly**



GENERAL WASTE PRECAUTIONS

- **Paint and substance containers should not be left open**
- **Old, used up, or expired paint or substance containers are considered waste and shall be properly disposed of**
- **Do NOT leave open paint cans or substance containers uncovered to “dry out”**
- **Do NOT throw rags that have paint, solvent, petroleum, or hazardous substance residue in the trash**
- **Do NOT leave any ignitable or flammable waste lying around**



PCB'S (POLY CHLORINATED BI PHENOLS)

- **Connexus Energy is currently working to make our distribution system PCB free**
- **However, some equipment may contain PCB's over 50 ppm – typically we find this equipment was manufactured before 1982 and is in smaller transformers (10 kva and lower)**
- **Equipment that is PCB free is labeled as such**
- **If equipment is not labeled as PCB free, appropriate precautions shall be taken to ensure the safety of workers, and release to the environment**



PCB'S CONTINUED

- **If you suspect any equipment you are working on may contain PCB's, contact the Connexus Energy Safety Department immediately**
- **General precautions when working on suspected PCB containing equipment:**
 - ✓ **Wear chemical resistant gloves (i.e. nitrile)**
 - ✓ **Wear chemical resistant clothing (i.e. Tyvek suit)**
 - ✓ **Do not get oil on your skin**
 - ✓ **If you do get oil on your skin wash immediately with soap and water**
 - ✓ **Remove any oil impregnated clothing and bag until washed with detergent**



IN CASE OF A SUSPECTED PCB SPILL

This is for ANY amount of potentially PCB contaminated oil

- **Contact the MN Duty Officer immediately**
- **Contact the Connexus Energy System Operations room**
 - ✓ They will contact Safety
 - ✓ Safety will coordinate spill clean up efforts
- **Take steps to prevent the spread of the spill (barriers, booms)**



BEST PRACTICES TO PREVENT SPILLS

**Isolate and secure
substances**

**Practice good
housekeeping**



- **Secondary Containment**



STORM WATER POLLUTION PREVENTION PLAN (SWPP)

- **If you are working at 14601 Ramsey Boulevard, or at a substation within sight of a wetland, you may be subject to a SWPP if:**
 - ✓ The job includes removal or delivery of any petroleum or oil based substance in containers of 55 gallons or greater
 - ✓ The job includes removal or delivery of any hazardous substance over the Reportable Quantity as defined by the EPA
 - ✓ The job includes work that could possibly damage the integrity of any tank over 55 gallons either above or below ground at either type of location
- **If you believe your operations may require you to be familiar with the SWPP for either of these categories, please contact the Safety department before beginning work**



EMERGENCY RESPONSE / EMERGENCY ACTION PLANS

The following is a list of contingency plans we have identified in the event of a foreseeable emergency condition:

- ✓ **Fire or Bomb Threat**
- ✓ **Tornado**
- ✓ **Shooter in the building**
- ✓ **Serious injury**
- ✓ **Chemical Spill**



FIRE OR BOMB THREAT

- In the event of a known fire or bomb threat the fire alarm will be pulled (pull stations throughout the main building)
- The alarm is a “loud and unmistakable” siren/alarm
- Call 911 and explain the emergency
- If in the building, report to one of the assembly areas:
 - ✓ Parking lot North end of the building
 - ✓ Parking lot South end of the building
- Remain there until you are given instructions by a Connexus Energy representative (Safety, Facilities, or Security)



TORNADO

- **If a tornado is either indicated on radar, or is observed visually, report immediately to any one of the several tornado shelters identified during your site walk**
- **The alarm is verbal over the intercom system - “A Tornado is approaching, seek shelter immediately”**
- **If you are outside, seek low ground or a protected area such as a culvert or concrete structure**
- **Remain in the shelter until the all clear is given**



SHOOTER IN THE BUILDING

- Due to the unpredictable nature of this emergency, Connexus Energy can only pass along training to help you identify the best course of action to take
- We recommend the “Run, Hide, Fight” video produced by the City of Houston which was funded by the Dept. of Homeland Security – click the link below to view the video
- The alarm is verbal over the intercom system “A person with a weapon is inside the building, take appropriate action immediately”

RUN, HIDE, FIGHT



SERIOUS INJURY

- **In the event of a life threatening or serious injury, get help from the closest person and have them dial 911**
- **Call the Connexus Energy System Operations control room – and let them know where the victim is located**
- **If you know First Aid / CPR administer as necessary**
- **The AEDs are located at the employee entrance, and in the electrical equipment shop next to Fleet Services**
- **Remain with the victim until help arrives**
- **The location of the nearest emergency room and clinic are located in the appendix at the end of this presentation**



CHEMICAL SPILL

- **In the event of a chemical spill notify the System Operations control room**
- **Back off to a safe distance and monitor the situation**
- **Keep any nonqualified personnel away from the spill**
- **At no time should you put yourself or others in danger, but if you can take actions to contain the spill you may choose to do so**
- **Any alarm, if necessary, will be verbal and give explicit instructions over the intercom system**



REPORTING AFTER AN EMERGENCY

- **After any emergency contractors are responsible for accounting for all of their personnel on site, and reporting the status of their people to the Incident Commander**
- **No personnel may leave the site until they have been accounted for and been given permission by the Incident Commander**



EMERGENCY INFORMATION – 14601 RAMSEY BLVD

Emergency Plan Summary - Connexus Energy Campus			
Fire	<ol style="list-style-type: none"> 1. Pull the closest fire alarm 2. Evacuate to the nearest exit 3. Report to an outside assembly area 4. Wait for the all clear / further instruction 	Outside Assembly areas Employee Parking Lot Customer Parking Lot Pole Yard (by east gate)	Location of this room - Mens Locker Room Closest outside assembly area - Employee parking lot Closest Tornado shelter - This room Closest Exit to outdoors - Patio Glass door Closest Fire Extinguisher - Scheduling Counter
Tornado	<ol style="list-style-type: none"> 1. Spread the alarm verbally or by pull station 2. Report to the closest Tornado shelter 3. Wait for the all clear / further instruction 	Tornado Shelters Locker rooms Bathrooms Columbus Community A&B Mail Room Computer training Enclosed copy rooms Enclosed Stairwell Parts Room (Fleet)	Key numbers: Fire / Police / Ambulance 911 System Operations 763-421-8613 Receptionist 763-323-2650 Security / Facilities 763-286-1461 Safety 763-350-1633 After hours (5 p.m. - 7 a.m.) 763-421-8613 Paging system (all zones) 141 (tone) 0 from Lync phone
Shooter in Building	<ol style="list-style-type: none"> 1. Verbally spread the alarm* 2. Run, Hide, or Fight based on judgment 3. Wait for the all clear / further instruction 	Shooter event Assembly PACT Charter School Water Tower	
Chemical Spill	<ol style="list-style-type: none"> 1. Verbally spread the alarm* 2. Evacuate to the nearest exit 3. Report to an outside assembly area 4. Wait for the all clear / further instruction 	Safe Rooms (Shooter) Upstairs copy room(s) Upstairs bathrooms CSS / Credit bathrooms Fleet bathroom Computer Training Room Mail room Locker room showers Warehouse bathroom Executive washroom HR Copy Room	Tornado alarm stations Fleet next to manager office West window by CSS Warehouse Office
Bomb Threat	<ol style="list-style-type: none"> 1. Notify System Operations 2. Evacuate <u>if instructed</u> 3. Report to the announced assembly area 4. Stay put for further instructions 		First Aid kit locations AED / Trauma bag Employee Entrance wall AED / Trauma bag Fleet - by door to Equipment shop First Aid Kit 1 Staff Center First Aid Kit 2 Coffee Station (1st floor) First Aid Kit 3 Coffee Station (2nd floor) First Aid Kit 4 HR Copy Room First Aid Kit 5 Fleet - by bathroom First Aid Kit 6 Warm Storage First Aid Kit 7 Warehouse
Serious Injury	<ol style="list-style-type: none"> 1. Call 911 from phone 2. Get help (call for help verbally or by phone) 3. Notify System Operations 4. Send someone for AED and Trauma bag 5. Send someone to meet the ambulance 6. Administer first aid 		
Location of this building:	Connexus Energy 14601 Ramsey Blvd Ramsey MN, 55303	In any case where the alarm is to be spread verbally - if possible please do the following: a) Notify all passerbys you see of the situation on your way to shelter b) Call System Operations at 763-421-8613 to activate the appropriate alarm	



SAFETY IS A VALUE FOR US – PLEASE RESPECT THAT

- Thank you for your time and attention
- Now please fill in the sign-in sheet **COMPLETELY** for each person in attendance as well as the contractor identification block
- Sign-in sheets can be sent via **ONE** of these methods (please do not send duplicate submissions)
 - ✓ Scan and e-mail to Tim.Flint@Connexusenergy.com
 - ✓ Mail to: Connexus Energy
14601 Ramsey Blvd
Ramsey MN 55303
Attn: Contractor Safety Orientation



PARTING THOUGHTS

- **Safety is a value for us at Connexus Energy – we expect during your time at our facility or on our system you honor that value**
- **If a Connexus Energy employee approaches you and makes a safety recommendation, they do it out of respect for you – please respond with that in mind**
- **If at any time you believe the work area has become imminently dangerous, we expect you to stop the work and contact us**
- **If at any time you are uncertain of a hazard, we welcome you to contact us and we will do our very best to help you**

