



# Structure Demolition – Work Procedures and Policies



07-16-2015

## **This presentation identifies:**

- **VELCO's specific policies for demolition of old structures, adopted and entered into our safety manual on 08-30-2013.**
- **VELCO's Structure Wreck Out JHA (Job Hazard Analysis), created by our line crew and issued to line workers on 08-01-2014, revised on 7-11-2015 to include the restriction on free fall dropping of poles.**
- **VELCO's Line Crew Tailboard form, updated on 09-4-2014 to include specific instructions relating to spotters and exclusion zones under aerial work.**

# From VELCO's Safety Manual, see revision dates:

REVISION HISTORY			
Revision	Description of Change	Author	Effective Date
1	(3) <i>Demolition of Equipment, Structures, or Poles</i> was added; Review and non-substantive edits	D. Sawyer	08/30/13
2	Added requirement to contact the Director of Transmission Assets or the Asset Engineer before an uncontrolled drop if a controlled drop is deemed infeasible	D. Sawyer	08/01/14

## 3. Demolition of Equipment, Structures, or Poles

In most situations the removal of equipment can be accomplished by an aerial device, a crane, hand line or a controlled manual removal. The preferred method of removal is using an aerial device or crane. Porcelain insulators, switches, or material that is larger than a single person can safely handle, will be lowered to the ground by an aerial device, crane, or hand line.

A controlled drop of materials is acceptable if the use of an aerial device, crane, or hand line has been reviewed and deemed infeasible or impractical (i.e. you cannot access the structure with an aerial device). **In the event that a structure cannot be disassembled using an aerial device, crane, or hand line, the Person in Charge must contact the Director of Transmission Assets or the Asset Engineer before a controlled drop can occur.**

**a) General safety precautions for demolition activities include:**

- 1) A dedicated spotter;**
- 2) Verbal or visible communications between the line worker and spotter;**
- 3) A barricade to prevent access to the work area, and;**
- 4) In the event personnel are required to access the work area the following guidelines must be used:**

- i. They must communicate to those working above of their intention to enter.**
- ii. Only when those working above have (1) acknowledged the request to enter, (2) work has ceased, and (3) “permission to enter” is granted may personnel enter the work area.**
- iii. Dropping of materials will not resume until all the Ground staff have vacated the work area.**

## **b) The dedicated spotter:**

- **Must wear high visibility clothing (vest);**
- **Must maintain a safe distance from the hazard area;**
- **Must be positioned to effectively gauge/monitor the hazard area;**
- **Cannot have any other responsibilities; and**
- **Must be identified on the tailboard.**

## **c) Controlled Drops**

**A controlled drop is the drop of material without use of an aerial device, a crane, or a hand line. Additional safety precautions when performing a controlled drop include:**

- 1. Notifying the Director of Transmission Assets or the Asset Engineer before the drop can occur.**
- 2. Barricades - a 20' radius around the base of structure/work area where terrain allows.**



# The Job Hazard Analysis (JHA)

“TFS 008 Wreck Out Structure” Revision Date 7-11-2015

## Procedures:

1. Tailboard to include work assignments and any public concerns.
2. Control work area access and barricade areas around energized lines to keep non essential personnel away from the hazard area & have access control person on site.
3. Notify Dig Safe.
4. Switch and tag the circuit.
5. Test and ground the circuit.
6. Inspect all rigging equipment.
7. Inspect all machinery and perform a pre-flight inspection.
8. Inspect all PPE and climbing equipment.
9. Barricade the area or appoint area access controller.

VELCO Job Hazard Analysis Form		
Job Title	Written By	Date
Removal of a structure	ADS/RLK/NDB	08/01/2014
Department Code	JHA Number	Job Location (if applicable)
TFS	008	
<b>Task Description: Removal of a structure</b>		
Disassemble of structures using handlines, digger derricks, or a jib on a bucket truck.		
<b>Hazard Descriptions (Environment, Exposure, What Can Go Wrong, and Consequence):</b>		
Shock & Arc Flash. Fall from height. Caught in equipment. Struck by equipment or falling objects. Extreme weather conditions.		
<b>Hazard Controls (Safety Equipment, Work Practices, Procedures, Eng Design, Monitoring, Signage/Warnings, Training, Buddy System, etc.):</b>		
<b>Safety Equipment</b>		
1	Hard Hat Safety Glasses Safety Toed Boots High visibility clothing or vest FR Clothing Climbing equipment Fall protection	
<b>Equipment</b>		
2	Rigging Barricade material	
<b>Procedures</b>		
3	Tailboard to include work assignments and any public concerns. Control work area access and barricade areas around energized lines to keep non essential personnel away from the hazard area & have access control person on site. Notify Dig Safe. Switch and tag the circuit. Test and ground the circuit. Inspect all rigging equipment. Inspect all machinery and perform a pre-flight inspection. Inspect all PPE and climbing equipment. Barricade the area or appoint area access controller. Access controller will be identified on the tailboard. Inspect structure to be removed to ensure it can be climbed safely. Disassemble the structure using handlines, digger derricks or a jib on a bucket truck. All poles and materials shall be lowered to the ground in a controlled manner. <b>If poles and materials cannot be lowered using a hand line, digger derrick, or on the jib, the Director of Asset Maintenance or Asset Maintenance Engineer will be consulted for approval prior to demolition.</b> The poles may <b>not</b> be cut and dropped in one piece after the pole top and hardware are lowered.	
<b>Work Practices</b>		
4	Define work area and identify any potential problems. Electrical safety measures. Adjacent energized lines. Possible heavy machinery in operation in area. Possible aerial machinery in operation. Rigging equipment, personnel climbing gear and standard PPE. Objects coming down from above. Alert to weather conditions.	
<b>Contributing Factors / Special Considerations / Notes:</b>		

# The Job Hazard Analysis (JHA)

“TFS 008 Wreck Out Structure” Creation Date 8-1-2013




Revised 7-11-2015 Added restriction on free falling poles, #14 below.

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Removal of a structure	ADS/CLK/NDB	08/01/2014
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<b>Work Practices</b>		
4	Define work area and identify any potential problems. Electrical safety measures. Adjacent energized lines. Possible heavy machinery in operation in area. Possible aerial machinery in operation. Rigging equipment, personnel climbing gear and standard PPE. Objects coming down from above. Alert to weather conditions.	
<b>Contributing Factors / Special Considerations / Notes:</b>		

10. Access controller will be identified on the tailboard.
11. Inspect structure to be removed to ensure it can be climbed safely.
12. Disassemble the structure using hand lines, digger derricks or a jib on a bucket truck.
13. All poles and materials shall be lowered to the ground in a controlled manner.
14. The poles may **not** be cut and “timber” dropped (felled) in one piece after the pole top and hardware are lowered.
15. **If poles and materials cannot be lowered using a hand line, digger derrick, or on the jib, the Director of Asset Maintenance or Asset Maintenance Engineer will be consulted for approval prior to demolition.**

# The Line Crew Tailboard

## Updated 9-4-2014

						<b>SIGN OFF</b> TIME : AM / PM	
<b>LINE CREW TAILBOARD</b>		<b>EMERGENCY INFORMATION</b>					
DATE:		PRIMARY CONTACT: EMERGENCY COORD					
JOB LOCATION:		PRIMARY PHONE #: (802) 770-8280					
PERSON IN CHARGE:		SECONDARY CONTACT:					
P.I.C. IDENTIFIED (GATE TAGGED): Y / N		SECONDARY PHONE #:					
JOB REVIEWED WITH SUPERVISOR: Y / N		911 ADDRESS (IF AVAILABLE):					
DEFINE AND DISCUSS ON SITE HIERARCHY <input type="checkbox"/>		TOWN:					
<b>OTHER CREWS</b>		ON MAP/GUIDE: Y / N FIRST AID KIT: Y / N					
CREW:		DEFIB ON SITE: Y / N					
PERSON IN CHARGE:		DHART PHONE: 1-800-650-3222					
JOB DESCRIPTION:		CREW:					
CLEARANCE ISSUED:		PERSON IN CHARGE:					
CLEARANCE RELEASED:		JOB DESCRIPTION:					
CREW:		CLEARANCE ISSUED:					
PERSON IN CHARGE:		CLEARANCE RELEASED:					
JOB DESCRIPTION:		After Lunch Briefing Done					
CLEARANCE ISSUED:							
CLEARANCE RELEASED:							
<b>JOB OVERVIEW</b>		<b>TWO MINUTE DRILL TOPIC:</b>					
JOB DESCRIPTION: (see reverse side for additional detail)							
Applicable JHA's	# TFS002 Title: Install new structure	# TFS008 Title: Wreck our structure	# TFS003 Title: Equipment moving	# VEL003 Title: ATV & UTV operation	# TFS004 Title: Pole moving	#	#
<input type="checkbox"/>	REPORTING LOCATION / YARD REVIEW	<input type="checkbox"/>	STAR PROTOCOL	<input type="checkbox"/>	REVIEW WORK PROCEDURES	<input type="checkbox"/>	USE SAFE WORK TECHNIQUES (LIFTING, ETC)
<input type="checkbox"/>	JOB ASSIGNMENTS (ADD DETAIL ON SEPARATE SHEET IF NECESSARY)	<input type="checkbox"/>	IDENTIFY/DISCUSS TASKS	<input type="checkbox"/>	OTHER	<input type="checkbox"/>	OTHER
<input type="checkbox"/>	PPE (SAFETY GLASSES, GLOVES, HEARING)	<input type="checkbox"/>	STEEL TOE BOOTS; CHAIN SAW PROTECTION, ETC.)	<b>ZONE OF PROTECTION: if applicable</b>			
<input type="checkbox"/>	PROTECTION FR CLOTHES, FALL PROTECTION	<input type="checkbox"/>	PROTECTIVE TAGS NEEDED?	<input type="checkbox"/>	PROPERLY TAGGED?	<input type="checkbox"/>	BACK FEED SOURCES IDENTIFIED/ISOLATED?
<input type="checkbox"/>	STEEL TOE BOOTS; CHAIN SAW PROTECTION, ETC.)	<input type="checkbox"/>	TESTED DE-ENERGIZED?	<input type="checkbox"/>	PROPERLY GROUNDED?	<input type="checkbox"/>	LOCK/OUT TAG/OUT DONE?
<input type="checkbox"/>	MINIMUM APPROACH DISTANCE (QUALIFIED WORKERS ONLY)	<input type="checkbox"/>	OPERATIONAL ALERTS / NON STANDARD EQUIPMENT (BOOBY TRAPS)	<input type="checkbox"/>	OPERATIONAL ALERTS / NON STANDARD EQUIPMENT (BOOBY TRAPS)	<input type="checkbox"/>	OPERATIONAL ALERTS / NON STANDARD EQUIPMENT (BOOBY TRAPS)
<input type="checkbox"/>	13.8 KV 2' 2"	<input type="checkbox"/>	2' 3"	<input type="checkbox"/>	2' 10"	<input type="checkbox"/>	2' 10"
<input type="checkbox"/>	34.5 KV 2' 5"	<input type="checkbox"/>	2' 7"	<input type="checkbox"/>	3' 1"	<input type="checkbox"/>	3' 1"
<input type="checkbox"/>	46 KV 2' 7"	<input type="checkbox"/>	2' 11"	<input type="checkbox"/>	4' 3"	<input type="checkbox"/>	4' 3"
<input type="checkbox"/>	59 KV 2' 11"	<input type="checkbox"/>	3' 4"	<input type="checkbox"/>	4' 9"	<input type="checkbox"/>	4' 9"
<input type="checkbox"/>	115 KV 3' 4"	<input type="checkbox"/>	5' 8"	<input type="checkbox"/>	9' 2"	<input type="checkbox"/>	9' 2"
<input type="checkbox"/>	230 KV 5' 8"	<input type="checkbox"/>	9' 1"	<input type="checkbox"/>	14' 3"	<input type="checkbox"/>	14' 3"
<input type="checkbox"/>	345 KV 9' 1"	<input type="checkbox"/>	14' 3"	<input type="checkbox"/>		<input type="checkbox"/>	
<b>JOB SITE PROTECTION</b>		<b>JOB SITE PROTECTION</b>					
<input type="checkbox"/>	SITE PREP - BARRIERS, ETC	<input type="checkbox"/>	PUBLIC SAFETY (IF APPLICABLE)	<input type="checkbox"/>	ESCAPE PLAN REVIEWED	<input type="checkbox"/>	ELIMINATE SELF MADE HAZARDS
<input type="checkbox"/>	COMMUNICATION AVAILABLE	<input type="checkbox"/>	TEL CO	<input type="checkbox"/>	TERRAIN HAZARDS CONTROLLED (Uneven, snow, ice etc)	<input type="checkbox"/>	ENVIRONMENTAL HAZARDS (POISON IVY, ETC)
<input type="checkbox"/>	OPX	<input type="checkbox"/>	CELL	<input type="checkbox"/>	VELOC RADIO (Coordinators 261 & 262)	<input type="checkbox"/>	BEWARE of Surroundings for Potential Sabotage
<input type="checkbox"/>	TEL CO	<input type="checkbox"/>	HOUSEKEEPING	<input type="checkbox"/>	Immedialaly call (802) 770-8280 VELCO Coordinators	<input type="checkbox"/>	Immedialaly call (802) 770-8280 VELCO Coordinators

Provides a uniform approach for discussing emergency contact information, first aid equipment available, E911 access location, site hazards, special precautions, PPE requirements, pre-work scope considerations, and a wide range of safety items and applicable reminders.



# The Line Crew Tailboard

## Updated 9-4-2014

SPECIAL PRECAUTIONS			
Y <input type="checkbox"/>	N/A <input type="checkbox"/>	OVERHEAD HAZARDS	Y <input type="checkbox"/>
Y <input type="checkbox"/>	N/A <input type="checkbox"/>	EQUIPMENT OPS (HYDRAULICS, CABLES, BUCKETS)	Y <input type="checkbox"/>
Y <input type="checkbox"/>	N/A <input type="checkbox"/>	TOOL CHECK	Y <input type="checkbox"/>
Y <input type="checkbox"/>	N/A <input type="checkbox"/>	HAZARDOUS MATERIALS (MSDS AVAILABLE)	Y <input type="checkbox"/>
Y <input type="checkbox"/>	N/A <input type="checkbox"/>	AIR QUALITY / CONFINED SPACE	Y <input type="checkbox"/>
Y <input type="checkbox"/>	N/A <input type="checkbox"/>	DIG SAFE NOTIFIED	Y <input type="checkbox"/>
DIG SAFE TICKET #		NAME:	ISSUES:
Specific Hazards		NAME:	ISSUES:
STRUCTURE REMOVAL			
Y <input type="checkbox"/>	N/A <input type="checkbox"/>	OVERHEAD HAZARDS	Y <input type="checkbox"/>
Y <input type="checkbox"/>	N/A <input type="checkbox"/>	EQUIPMENT OPS (HYDRAULICS, CABLES, BUCKETS)	Y <input type="checkbox"/>
Y <input type="checkbox"/>	N/A <input type="checkbox"/>	TOOL CHECK	Y <input type="checkbox"/>
Y <input type="checkbox"/>	N/A <input type="checkbox"/>	OVERHEAD HAZARD SIGNAGE	Y <input type="checkbox"/>
Y <input type="checkbox"/>	N/A <input type="checkbox"/>	WORK AREA CONTROLLER REQUIRED	Y <input type="checkbox"/>
CONTROLLER'S INITIALS:		NAME:	ISSUES:
		NAME:	ISSUES:
<b>NO ACCESS TO REMOVAL AREA ALLOWED WITHOUT CONTROLLER'S PERMISSION</b>			
ENVIRONMENTAL PROTECTION			
<input type="checkbox"/>			
<input type="checkbox"/> FLAGGED/BARRICADE TAPE			
<input type="checkbox"/> MATTING RESTRICTIONS			
<input type="checkbox"/> EROSION CONTROL MEASURES			
<input type="checkbox"/> REVIEW ARCHEOLOGICAL SENSITIVITY			
<input type="checkbox"/> REVIEW PLANS/CUT SHEETS			
<input type="checkbox"/> WETLANDS/STREAM CROSSINGS			
<input type="checkbox"/> OTHER - PLEASE DESCRIBE (RINA/RTE)			
<input type="checkbox"/>			
JOB SITE WORK PLAN/DIAGRAM OVERVIEW			
POST JOB REVIEW			
<input type="checkbox"/> SAFETY CONCERNS (AREAS FOR IMPROVEMENT) - COMMENTS:			
<input type="checkbox"/> OUTSTANDING EQUIPMENT CONCERNS - UNSAFE CONDITIONS OF PROPERTY - COMMENTS:			
<input type="checkbox"/> UNSAFE WORK PRACTICES - COMMENTS:			
<input type="checkbox"/> OTHER COMMENTS			

Includes dedicated sections addressing structure removal, overhead hazards, signage, spotter identification (controller), hazard zone barricading, climbing hazards, energy source control, grounding, and environmental protection reminders.

Questions?