

CRAWFORD & BAXTER, P.S.C.

ATTORNEYS AT LAW
523 Highland Avenue
P.O. Box 353
Carrollton, Kentucky 41008

James M. Crawford
Ruth H. Baxter

Phone: (502) 732-6688
1-800-442-8680
Fax: (502) 732-6920
Email: CBJ523@AOL.COM

November 1, 2013

Mr. Jeff Derouen, Executive Director
Kentucky Public Service Commission
P.O. Box 615
211 Sower Boulevard
Frankfort, Kentucky 40602-0615

RECEIVED

NOV 01 2013

**PUBLIC SERVICE
COMMISSION**

RE: PSC Case No. 2013-00230

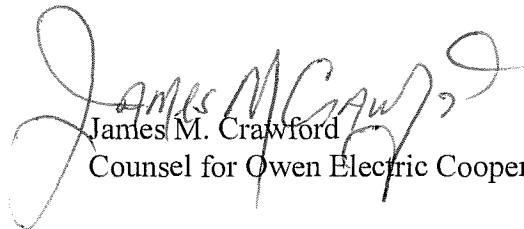
Dear Mr. Derouen:

Please find enclosed for filing with the Commission in the above-referenced case, an original and ten copies of Owen Electric Cooperative, Inc.'s response to Commission's Order dated August 20, 2013.

Please contact me with any questions.

Respectfully yours,

CRAWFORD & BAXTER, P.S.C.



James M. Crawford
Counsel for Owen Electric Cooperative, Inc.

JMC/mns

Enclosures

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED

NOV 01 2013

PUBLIC SERVICE COMMISSION

In the Matter of:

OWEN ELECTRIC COOPERATIVE)
)
ALLEGED FAILURE TO COMPLY WITH)
KRS 278.042)

CASE NO. 2013-00230

**OWEN ELECTRIC COOPERATIVE, INC.'S RESPONSE TO COMMISSION'S ORDER
DATED AUGUST 20, 2013**

Comes now Owen Electric Cooperative, Inc. ("OEC"), by and through counsel and for its Response to the Commission's Order dated August 20, 2013, respectfully states as follows:

1. On August 2, 2013, an informal conference with OEC was held at the Commission offices to discuss and address the issues in this case. On August 6, 2013, Commission Staff filed a memorandum memorializing the discussions held at the informal conference.
2. OEC agreed to provide certain information to Commission Staff, including, but not limited to, an itemized and finalized list of modifications to safety, supervisory, and policy changes; revisions to OEC's safety manual; a description of other general safety measures that have been or will be implemented; the results of the Caterpillar survey and the changes adopted as a result of the study; and a detailed statement of the costs incurred by virtue of all the remedial measures and policies.
3. The OEC Board of Directors and Management are committed to maintaining a culture of safety. One of the initiatives in OEC's strategic plan is to "elevate the OEC Safety Program to increase awareness of our employees and ensure their focus and motivation

be on eliminating ALL injuries to themselves, colleagues, members, and the public-at-large.” The steps enumerated below reflect OEC’s continued commitment to safety.

4. In its July 18, 2013 filing with the Commission in this proceeding, OEC provided an overview of the Caterpillar Safety Services (“Caterpillar”) initiative and the associated timing of interviews, workshops, and reports. Exhibit A of this response, pages 1 through 24, contains the Safety Perception Survey Report Out (“Report Out”) presented by Caterpillar to OEC’s supervisors and management on September 12, 2013. On September 10-11, Caterpillar held its START (Supervisor Training in Accident Reduction Techniques) Workshops. The START workshop manual is provided on pages 25 through 84. The primary outcomes of the Report Out were the need to: 1) establish continuous improvement teams; 2) evaluate the results of the safety survey; 3) review the recommendations of the Report Out; and 4) develop a safety action plan going forward. OEC has utilized continuous improvement teams to improve business practices for the past ten years. Given OEC’s experience with continuous improvement teams, OEC’s safety team and management team have recommended that the Board of Directors engage an outside consultant to assist OEC in launching safety continuous improvement teams to implement the safety action plan in 2014. At its October 31, 2013 meeting, OEC’s Board of Directors approved the above recommended action for 2014. It is important to note that this continuous safety improvement initiative is an ongoing process and will take through 2014 to implement. The following topics are among those upon which the continuous improvement teams are focusing:
 - a. Management safety presence in the field;

- b. Review and improve job briefing process to ensure that risks are identified, hazard controls are put into place, and that safety trumps “getting the job done”;
 - c. Training processes on new equipment or procedures;
 - d. Improving the incident reporting process including enhancing the reporting of near misses;
 - e. Examine monthly and annual safety meeting content;
 - f. Enable safety accountabilities at all levels of the organization; and
 - g. Develop training to ensure practical communication, including recognition and corrective actions for safety performance.
5. Exhibit B of this response contains a redlined version of revisions to OEC’s Safety Manual, as drafted by OEC’s Safety Team. Please note that OEC’s Safety Manual incorporates its safety and supervisory policies. The following sections of the OEC Safety Manual were revised; the sections are provided in their entirety.
- a. Section 105-Reporting Employee Injuries
 - b. Section 112-Taking Chances
 - c. Section 311-Cranes, Derricks, Hoisting Equipment
 - d. Section 317-Track Machine Operation
 - e. Section 617-Grounding-General
 - f. Section 621-Derrick Trucks, Cranes, etc.
 - g. Section 810-General
 - h. Section 812-Grounding

Section 105 was modified to state that in the event of an incident occurring that may cause an employee to lose focus of his job duties, management will remove the employee

from safety sensitive functions for the remainder of the workday that the incident occurred (or for a longer time if deemed necessary.) Section 112 was modified to require an OEC employee entering a jobsite to notify the person in charge of his presence; the person in charge must then advise the employee of any potential hazards associated with that particular job. Section 311 was modified to describe the use of appropriate grounding of digger derrick line trucks, to prohibit screw type grounding, to provide for the use of barricades when needed to protect the public, and to stress the importance of not contacting a vehicle without the appropriate personal protective equipment. Section 317 was added to address the proper operation of the track machine. Sections 617, 621, and 812 were modified to be consistent with Section 311. Section 810 was modified to address the erection of barricades in underground areas to protect the public.

6. Exhibit C of this response contains other initiatives undertaken by OEC's Safety Team. Page 1 contains a revised Job Briefing Compliance Checklist, which is completed at the beginning of each new construction or maintenance job. The revised checklist now requires each employee to print and sign his name; initials are not accepted. The Safety Team also initiated a Temporary Ground Integrity Testing study, included on Pages 2 through 6. The results of the testing showed that direct connection to the system neutral or the nearest available pole ground be used in every case where equipment grounding is required. The results of this study led to the prohibition of using a screw type ground (Reference: Safety Manual Section 311.)
7. Exhibit D of this response contains a PowerPoint presentation used for re-training on minimum approach distance. This re-training was conducted by the OEC Safety Manager on October 22, 2013. Rosters of attendees are also provided.

8. Exhibit E of this response contains the PowerPoint presentation given by a representative of Terex, the manufacturer of the boom used on the track machine, on October 22, 2013. The rosters of attendees are also provided. During the presentation, Terex held a re-training on the digger derrick boom operation of the track machine. As recommended by the Safety Team, the track machine is no longer being used for “hot work” and its overall use is limited. In early October, several employees of OEC attended the ICUEE trade show in Louisville, Kentucky. Several track machines were showcased at this trade show. At its October meeting, the OEC Board of Directors passed a resolution to include in the 2014 budget the purchase of a new track vehicle which will replace the existing track vehicle. While OEC has not decided which specific track vehicle it will purchase, the one ultimately purchased will have a fiberglass insulated boom with an attached bucket. This configuration will provide a greater distance of protection, will keep conductive parts of the boom out of the minimum approach distance, and thereby ensure the safety of OEC’s crews.
9. Exhibit F of this response contains a PowerPoint presentation given by Mark Stallons on October 14, 2013 during OEC’s Employee Day. This presentation summarized the results of the Safety Perception Survey conducted by Caterpillar Safety Services (“Caterpillar”). OEC’s Employee Day also featured a safety speaker, Rene Olibo. Mr. Olibo was severely injured in an electrical accident while working as a lineman for Duke Indiana; this injury occurred by taking a “short-cut” while working with an energized line. Mr. Olibo’s message was impactful to OEC employees.
10. Two statewide associations, three generation and transmission cooperatives, and 18 distribution cooperatives were asked to participate in the 2013 NRECA Safety

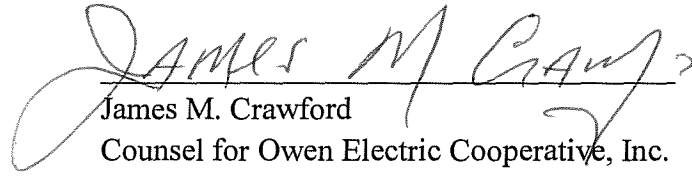
Leadership Summit (“Safety Summit”) in San Antonio, Texas on October 30-31, 2013, and provide displays at the Safety Summit’s showcase. Exhibit G contains OEC’s poster which will be displayed at the showcase; the idea is for OEC to use its poster as a discussion guide to share improvement efforts with other cooperatives. OEC is highlighting improvements made in the use of fall protection equipment. Four management employees and two crew members are attending this Safety Summit. Additionally, the Safety Summit contains numerous breakout sessions on topics which include assessing risk and planning to mitigate incidents, overcoming flaws that compromise near miss reporting, safety accountability, sustaining safety success, and keeping employees out of harm’s way. OEC employees in attendance will share the knowledge obtained from this Safety Summit with other OEC employees upon their return.

11. Caterpillar’s fees for the safety perception survey, interviews and START workshops were \$31,200, plus expenses of \$1,143.61. This total of \$32,343.61 represents OEC’s out-of-pocket costs to date relating to remedial measures and policies.

WHEREFORE, OEC respectfully requests that the Commission consider the initiatives taken by OEC when determining the remaining procedural schedule and in rendering its decision in this matter.

Dated at Owenton, Kentucky, this 31 of October 2013.

RESPECTFULLY SUBMITTED,

A handwritten signature in cursive script, reading "James M. Crawford", is written over a horizontal line. The signature is positioned to the left of the typed name and contact information.

James M. Crawford

Counsel for Owen Electric Cooperative, Inc.

Crawford & Baxter, P.S.C.

P.O. Box 353

Carrollton, Kentucky 41008

Phone: (502) 732-6688

Fax: (502) 732-8303

CBJ523@aol.com

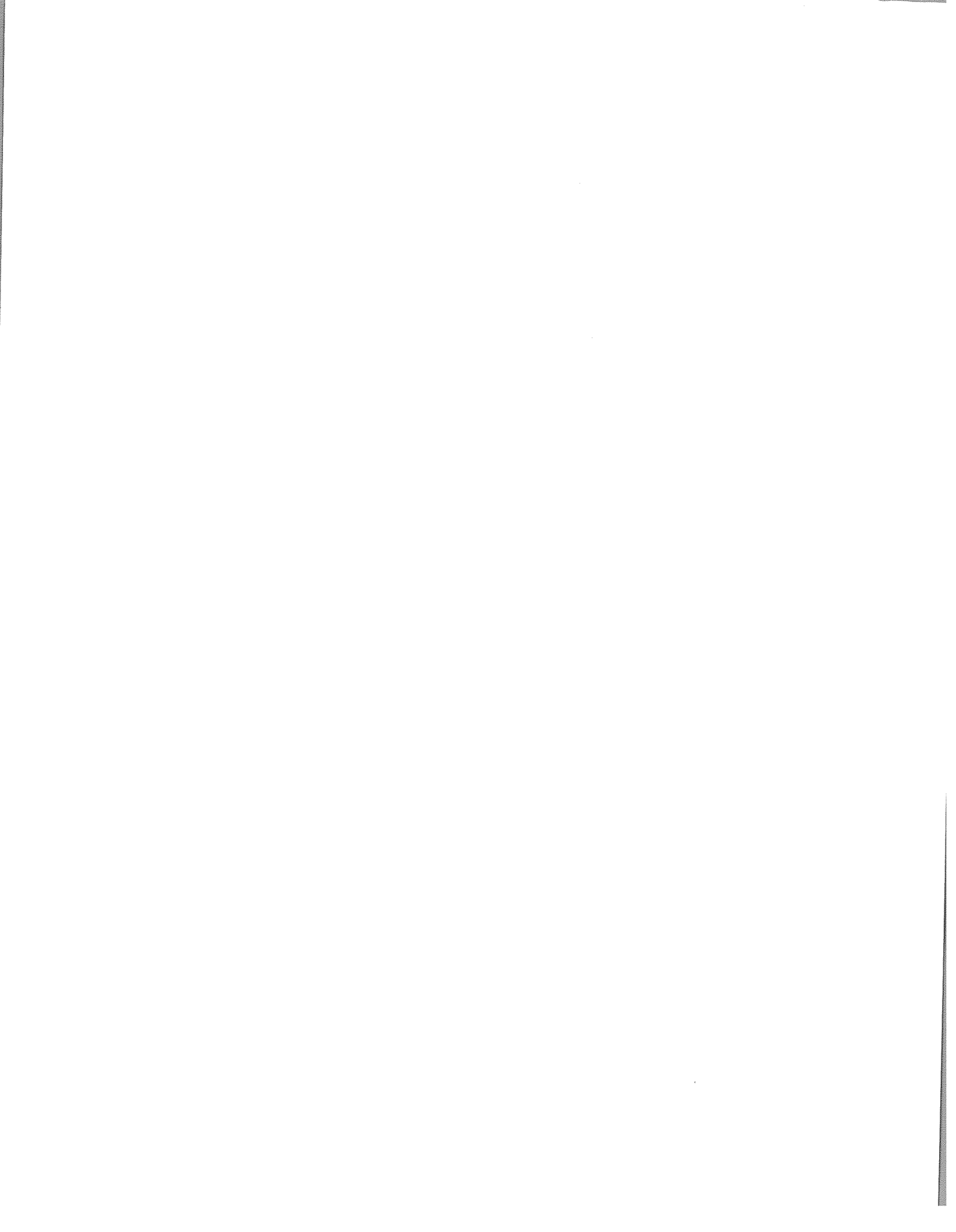


EXHIBIT A

Safety Perception Survey **Report Out**

September 2013

CATERPILLAR®

Caterpillar Inc.
1732 NW Quimby Street
Suite 225
Portland, OR 97208 US

800 537-8352

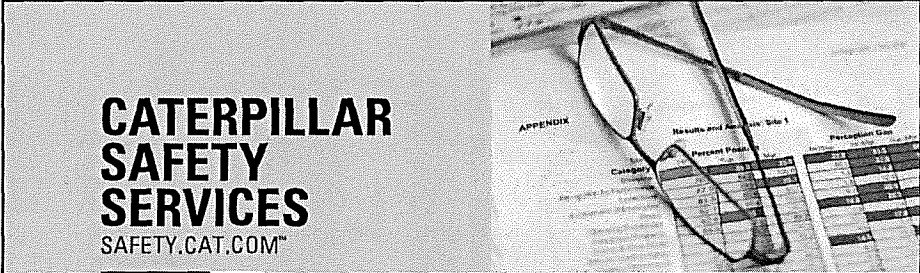
SAFETY.CAT.COM™

Copyright


CAT, CATERPILLAR, their respective logos, ZIP, "Caterpillar Yellow" and the POWER EDGE trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission. © 2013 Caterpillar All Rights Reserved

Disclaimer

The material in this document is provided for informational purposes only and not as a comprehensive or exhaustive resource on this topic. This material has been compiled from a multitude of sources believed to be accurate; however, Caterpillar Inc. assumes no responsibility for the accuracy or currency of this information and encourages you to consult experts in this area for more information. In no event does the content of this document supersede any applicable local, state, or federal statutes or regulations.



**CATERPILLAR
SAFETY
SERVICES**
SAFETY.CAT.COM™




Presenter:
**MIKE
BRODOCK**
CHSP
Senior Safety Consultant

**ASSESSMENT OF SAFETY
LEADERSHIP SYSTEMS &
EMPLOYEE PERCEPTIONS**

Owen Electric Cooperative
May 2013

© 2013 Caterpillar All Rights Reserved




Safety Perception Survey Report Out

Employee Perception Survey

- ⊗ 132 employees
- ⊗ 98 hourly, 18 supervisors, 16 managers
- ⊗ 2 locations
- ⊗ Statistically validated
- ⊗ Measurement of “percent positive” responses
- ⊗ Gap analysis between personnel segments
- ⊗ Comparison against a multi-industry database

CATERPILLAR SAFETY SERVICES
SAFETY.CAT.COM™

© 2013 Caterpillar All Rights Reserved



Survey Safety Management Categories

- ☒ Attitude Towards Safety
- ☒ Awareness Programs
- ☒ Communication
- ☒ Discipline
- ☒ Employee Training
- ☒ Goals of Safety Performance
- ☒ Hazard Correction
- ☒ Incident Analysis
- ☒ Inspections
- ☒ Involvement of Employees
- ☒ Management Credibility
- ☒ New Employees
- ☒ Operating Procedures
- ☒ Quality of Supervision
- ☒ Recognition for Performance
- ☒ Safety Climate
- ☒ Safety Contacts
- ☒ Substance Abuse
- ☒ Supervisor Training
- ☒ Support for Safety

CATERPILLAR SAFETY SERVICES
SAFETY.CAT.COM

© 2013 Caterpillar All Rights Reserved

CATERPILLAR

Safety Perception Survey Report Out

What do the numbers mean?

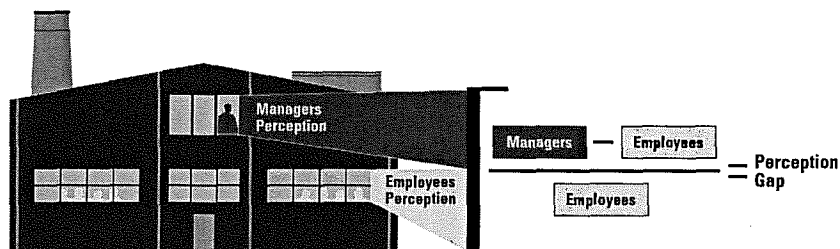
Percent Positive Perception	
Under 75%	Needs immediate attention
75% to 89%	Needs improvement
Over 90%	Strong performance
14%+ perception gap	Needs attention

CATERPILLAR SAFETY SERVICES
SAFETY.CAT.COM

© 2013 Caterpillar All Rights Reserved

CATERPILLAR

Calculating the Perception Gap



Subtract the lower score from the higher score and then divide the sum by the lower score.

The perception gap is the percent difference of the two scores.

CATERPILLAR SAFETY SERVICES
SAFETY.CAT.COM

© 2013 Caterpillar. All Rights Reserved

CATERPILLAR

Safety Perception Survey Report Out


25 vs. 25 or 38 vs. 71?

- ❑ Category X resulted in an employee score of 65% and a supervisor score of 90%, for a 25-point difference.
- ❑ Category Y revealed an employee score of 35% and a supervisor score of 60%, also a 25-point difference.
- ❑ Comparing the gap “as is,” the 25-point difference doesn’t tell the whole story.
- ❑ A clearer picture factors the category scores themselves.
- ❑ The SPS formula factors in how low the scores are.
- ❑ The emphasis shifts to the scores at the lower end of the scale, where the overall problem is more acute.

CATERPILLAR SAFETY SERVICES
SAFETY.CAT.COM

© 2013 Caterpillar. All Rights Reserved

CATERPILLAR

<p>INJURY FREQUENCIES (I.E., TRIR, LTIR)</p>	<p>TRIR = Total Recordable Incident Rate</p> <p>LTIR = Lost Time Incident Rate</p> <p>Frequency rate calculations are based on the OSHA standard of 200,000 hours.</p>
	
<p>CATERPILLAR SAFETY SERVICES SAFETY.CAT.COM</p>	<p><small>© 2013 Caterpillar All Rights Reserved</small></p> <p>CATERPILLAR</p>

Safety Perception Survey Report Out

Composite

Category	Score			Positive Gap		
	Emp.	Sup.	Mgr.	Emp. Sup.	Emp. Mgr.	Sup. Mgr.
Recognition for Performance	67.8	67.9	72.3	0.1	6.6	6.6
Supervisor Training	69.4	72.1	78.7	3.9	13.5	9.2
Quality of Supervision	75.7	78.9	76.6	4.2	1.2	2.9
Involvement of Employees	77.6	82.1	76.1	5.9	1.8	7.3
Substance Abuse	78.6	73.2	85.7	6.9	9.0	17.1
Awareness Programs	78.6	85.7	76.1	9.0	3.3	11.2
Discipline	79.6	80.0	67.8	0.5	14.9	15.3
Operating Procedures	80.1	72.0	82.2	10.1	2.7	14.2
Goals of Safety Performance	80.3	79.7	70.7	0.7	11.9	11.3
Inspections	81.1	86.2	79.2	6.2	2.3	8.1
Attitude Towards Safety	83.1	85.9	87.6	3.3	5.4	2.0
Support for Safety	84.7	87.6	86.4	3.4	2.0	1.3
Employee Training	85.1	80.8	78.4	5.0	7.9	3.1
Communication	86.4	91.8	80.9	6.2	6.4	11.9
Safety Climate	86.6	83.3	86.0	3.7	0.7	3.2
New Employees	86.7	86.3	85.7	0.5	1.1	0.6
Safety Contacts	87.0	88.7	79.1	1.9	9.1	10.8
Management Credibility	87.8	87.5	88.4	0.4	0.6	1.0
Incident Analysis	90.0	88.2	83.3	1.9	7.4	5.6
Hazard Correction	90.5	90.2	90.5	0.3	0.0	0.3
Combined Score	81.8	82.4	80.6	3.7	5.4	7.1
Respondents	98	18	16			

Strong Performance (≥ 90%)
 Needs improvement (75%-89%)
 Needs immediate attention (< 75%)
 Needs attention (≥ 14% perception gap)

Bottom 10 Indicators

The Bottom Categories for each of the organizational levels

Category	Employee	Supervisor	Manager
Recognition for Performance	1	1	3
Supervisor Training	2	3	8
Quality of Supervision	3	5	6
Involvement of Employees	4	9	5
Substance Abuse	5	4	
Awareness Programs	6		4
Discipline	7	7	1
Operating Procedures	8	2	
Goals of Safety Performance	9	6	2
Inspections	10		10
Attitude Towards Safety			
Support for Safety			
Employee Training		8	7
Communication			
Safety Climate		10	
New Employees			
Safety Contacts			9
Management Credibility			
Incident Analysis			
Hazard Correction			
# of Respondents	98	18	16

Benchmark Comparison - Employee

Category	Avg. Emp. Score 2013	Global Database Avg. All Emp. Takers
Recognition for Performance	67.8	59.3
Supervisor Training	69.4	69.0
Quality of Supervision	75.7	72.7
Involvement of Employees	77.6	72.1
Substance Abuse	78.6	69.0
Awareness Programs	78.6	71.7
Discipline	79.6	69.9
Operating Procedures	80.1	71.5
Goals of Safety Performance	80.3	76.4
Inspections	81.1	67.1
Attitude Towards Safety	83.1	75.4
Support for Safety	84.7	75.0
Employee Training	85.1	76.6
Communication	86.4	78.6
Safety Climate	86.6	74.9
New Employees	86.7	77.1
Safety Contacts	87.0	80.4
Management Credibility	87.8	76.4
Incident Analysis	90.0	81.7
Hazard Correction	90.5	77.2
Combined Score	81.8	73.6
Respondents	98	

Benchmark Comparison - Supervisor

Category	Avg. Sup. Score 2013	Global Database Avg. All Sup. Takers
Recognition for Performance	67.9	68.1
Operating Procedures	72.0	76.2
Supervisor Training	72.1	78.6
Substance Abuse	73.2	73.4
Quality of Supervision	78.9	84.3
Goals of Safety Performance	79.7	79.3
Discipline	80.0	72.6
Employee Training	80.8	83.5
Involvement of Employees	82.1	78.5
Safety Climate	83.3	82.1
Awareness Programs	85.7	77.7
Attitude Towards Safety	85.9	85.3
Inspections	86.2	78.4
New Employees	86.3	83.2
Management Credibility	87.5	85.0
Support for Safety	87.6	83.6
Incident Analysis	88.2	90.6
Safety Contacts	88.7	87.4
Hazard Correction	90.2	86.2
Communication	91.8	86.0
Combined Score	82.4	81.0
Respondents	18	

Benchmark Comparison - Manager

Category	Avg. Mgr. Score 2013	Global Database Ave. All Mgr. Takers
Discipline	67.8	76.2
Goals of Safety Performance	70.7	80.0
Recognition for Performance	72.3	71.9
Awareness Programs	76.1	80.3
Involvement of Employees	76.1	81.1
Quality of Supervision	76.6	83.9
Employee Training	78.4	84.8
Supervisor Training	78.7	78.6
Safety Contacts	79.1	87.9
Inspections	79.2	81.6
Communication	80.9	87.9
Operating Procedures	82.2	75.1
Incident Analysis	83.3	91.6
New Employees	85.7	84.6
Substance Abuse	85.7	75.0
Safety Climate	86.0	85.3
Support for Safety	86.4	85.4
Attitude Towards Safety	87.6	88.0
Management Credibility	88.4	87.4
Hazard Correction	90.5	89.4
Combined Score	80.6	82.8
Respondents	16	

Performance Level Scorecard

Performance Level	Number of Categories		
	Employee	Supervisor	Manager
Needs Immediate Attention	2	4	3
Needs Improvement	16	14	16
Strong Performance	2	2	1
Significant perception Gaps vs. Employee	NA	0	1

Number of Questions by Performance Level

Performance Level	Number of Questions		
	Employee	Supervisor	Manager
Needs Immediate Attention	19	20	25
Needs Improvement	28	22	25
Strong Performance	26	31	23
Questions Scoring 100	1	16	13

Score Comparison - Department

Department	# of Respondents			Score			Positive Gap		
	Emp.	Sup.	Mgr.	Emp.	Sup.	Mgr.	<u>Emp.</u> Sup.	<u>Emp.</u> Mgr.	<u>Sup.</u> Mgr.
COMPOSITE	98	18	16	81.8	82.4	80.6	3.7	5.4	7.1
Inside	54	9	14	84.9	85.6	79.5	4.7	7.3	8.4
Outside	44	9	2	78.7	79.2	88.0	6.8	21.3	21.6

Bottom 10 Questions

	Question	Score			Positive Gap		
		Emp.	Sup.	Mgr.	Emp. Sup.	Emp. Mgr.	Sup. Mgr.
10	Have you used the safety involvement teams to get action on a complaint or hazard which concerned you?	16.5	61.1	37.5	200.0	127.7	38.6
69	Is promotion to higher level jobs dependent upon good safety performance?	37.5	50.0	41.7	33.3	11.1	16.7
4	Would a safety incentive program cause you to work more safely?	39.8	64.7	60.0	62.6	50.8	7.3
51	Are employees with personal problems effectively handled by supervisors?	43.9	47.1	66.7	7.3	52.0	41.7
30	Is your family more concerned about off-the-job safety as a result of the organization's safety program?	45.1	50.0	40.0	10.8	11.4	20.0
58	Does compliance with safety rules and regulations slow down the operation?	50.6	37.5	57.1	25.9	12.9	52.4
59	Are safe workers picked to train new employees?	55.0	33.3	54.5	39.4	0.8	63.6
56	Are risks involved sometimes overlooked in order to get the job done?	56.2	47.1	66.7	16.2	18.7	41.7
60	Do supervisors discuss safety goals and performance with employees regularly?	63.3	64.7	66.7	2.2	5.3	3.0
9	Do you think penalties should be assessed for safety and health violations?	63.6	70.6	100.0	10.9	57.1	41.7
Combined Score		47.1	52.6	59.1			

Strong Performance (≥ 90%)
 Needs Improvement (75%-89%)
 Needs immediate attention (< 75%)
 Needs attention (≥ 14% perception gap)

"Negative-Positive" questions appear in bold: a "no" response indicates a favorable perception.

Top 10 Questions

Question	Score			Positive Gap		
	Emp.	Sup.	Mgr.	Emp. Sup.	Emp. Mgr.	Sup. Mgr.
6 Does your organization actively encourage employees to work safely?	100.0	100.0	100.0	0.0	0.0	0.0
44 Are incidents and injuries thoroughly investigated?	98.9	100.0	86.7	1.1	12.4	13.3
42 Do you initiate action to correct hazards?	97.8	100.0	100.0	2.3	2.3	0.0
62 Have your organization's efforts encouraged you to work more safely?	96.8	94.4	81.3	2.4	16.1	14.0
48 Do employees have a regular opportunity to attend safety meetings?	96.8	94.4	93.3	2.4	3.6	1.2
24 Do your co-workers support the organization's safety program?	96.7	88.9	86.7	8.1	10.4	2.5
7 Is safety considered important by management?	95.7	94.4	100.0	1.3	4.5	5.9
63 Is information that is needed to operate safely made available to employees?	95.7	100.0	86.7	4.5	9.4	13.3
34 Do employees understand the hazards of the operations they perform?	95.5	100.0	80.0	4.8	16.2	20.0
71 Are maintenance programs at a level which help prevent incidents?	94.9	93.8	83.3	1.2	12.2	11.1
Combined Score	96.9	96.6	89.8			

Strong Performance (≥ 90%)
 Needs improvement (75%-89%)
 Needs immediate attention (< 75%)
 Needs attention (≥ 14% perception gap)

"Negative-Positive" questions appear in bold: a "no" response indicates a favorable perception.

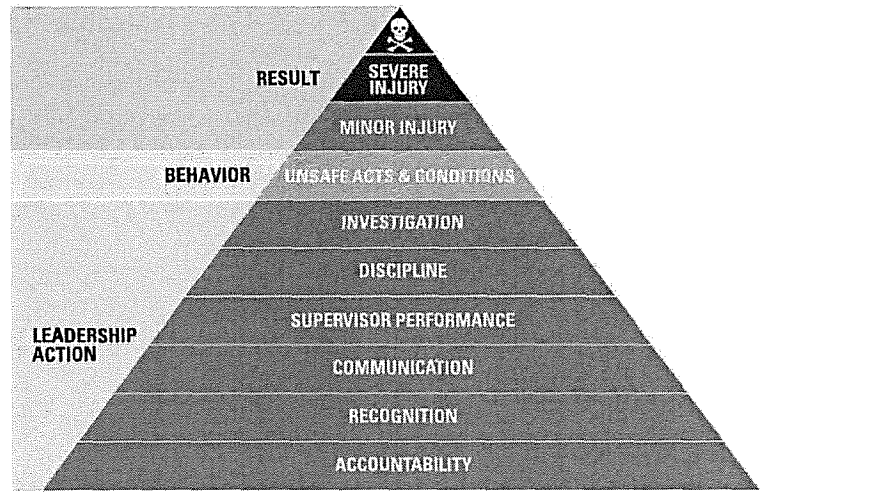
Inside

Category	Score			Positive Gap		
	Emp.	Sup.	Mgr.	Emp. Sup.	Emp. Mgr.	Sup. Mgr.
Recognition for Performance	77.0	82.9	70.2	7.6	8.9	15.4
Involvement of Employees	77.4	85.9	75.3	11.0	2.6	12.3
Operating Procedures	77.6	79.2	85.0	2.0	9.5	7.4
Awareness Programs	78.0	88.7	76.3	13.7	2.2	14.0
Discipline	79.0	77.1	68.6	2.3	13.1	11.0
Inspections	80.6	83.7	76.1	3.9	5.5	9.1
Supervisor Training	81.9	82.9	75.6	1.2	7.7	8.7
Quality of Supervision	83.1	84.9	73.0	2.1	12.2	14.0
Substance Abuse	83.5	81.0	84.3	3.1	0.9	4.2
Goals of Safety Performance	84.0	81.8	70.0	2.6	16.7	14.4
Safety Contacts	86.0	76.9	78.4	10.6	8.9	1.9
New Employees	87.5	87.2	85.9	0.4	1.8	1.4
Employee Training	87.5	86.2	75.9	1.5	13.3	12.0
Communication	87.7	96.1	79.7	9.6	9.1	17.1
Attitude Towards Safety	87.9	89.1	86.8	1.5	1.2	2.6
Support for Safety	89.8	88.0	84.8	2.0	5.5	3.6
Hazard Correction	91.3	95.9	89.0	5.1	2.4	7.2
Safety Climate	91.5	90.0	84.9	1.6	7.2	5.7
Incident Analysis	92.2	83.3	83.8	9.7	9.2	0.5
Management Credibility	93.6	92.1	86.6	1.6	7.5	6.0
Combined Score	84.9	85.6	79.5	4.7	7.3	8.4
Number of Respondents	54	9	14			

Outside

Category	Score			Positive Gap		
	Emp.	Sup.	Mgr.	Emp. Sup.	Emp. Mgr.	Sup. Mgr.
Supervisor Training	56.8	60.6	100.0	6.8	76.2	65.0
Recognition for Performance	59.2	53.5	87.5	9.6	47.8	63.6
Quality of Supervision	67.7	73.0	100.0	7.8	47.6	36.9
Substance Abuse	74.0	65.0	100.0	12.1	35.2	53.8
Goals of Safety Performance	76.0	77.8	75.0	2.3	1.4	3.6
Attitude Towards Safety	77.7	82.7	93.1	6.4	19.8	12.6
Involvement of Employees	77.8	78.7	81.8	1.2	5.2	4.0
Support for Safety	79.4	87.2	96.9	9.8	22.0	11.1
Awareness Programs	79.5	82.7	75.0	4.0	5.7	9.3
Discipline	80.2	82.9	62.5	3.3	22.1	24.6
Safety Climate	81.0	76.9	93.1	5.1	14.9	21.1
Management Credibility	81.3	82.9	100.0	2.0	23.0	20.6
Inspections	81.5	88.2	100.0	8.3	22.7	13.3
Employee Training	82.5	75.8	100.0	8.1	21.3	31.9
Operating Procedures	82.9	65.4	60.0	21.2	27.6	8.2
Communication	85.0	87.7	88.9	3.2	4.6	1.4
New Employees	85.8	85.4	83.3	0.5	2.9	2.4
Incident Analysis	87.7	92.6	80.0	5.6	8.8	13.6
Safety Contacts	88.2	100.0	83.3	13.4	5.5	16.7
Hazard Correction	89.7	84.9	100.0	5.4	11.4	17.8
Combined Score	78.7	79.2	88.0	6.8	21.3	21.6
Number of Respondents	44	9	2			

The Heinrich Triangle



CATERPILLAR SAFETY SERVICES
SAFETY.CAT.COM™

© 2013 Caterpillar. All Rights Reserved.

CATERPILLAR®

Safety Perception Survey Report Out

The Six Levels of Safety

	Incident Rates
Level 6 - How we LEAD: Culture in Action: Participation, Ownership, Passion	Absolutely Zero
Level 5 - How we ENGAGE: Effective Data-driven Safety Teams	Very Low
Level 4 - What we BELIEVE: Unseen Cultural Reality, Surveys, Interviews	Low
Level 3 - What we DO: Safety Accountability Systems	Moderate
Level 2 - What we SEE: Observations, JSA, Near-Miss, Inspections	High
Level 1 - Reacting: Compliance, Work Orders, Investigation, Meetings	Very High

CATERPILLAR SAFETY SERVICES
SAFETY.CAT.COM™

© 2013 Caterpillar. All Rights Reserved.

CATERPILLAR®

Perception Survey Summary

Six Criteria for Safety Excellence

Strengths:

- Owen Electric composite scores reflect few gaps in perception between all levels of employees. This indicates the three segments are on the same page regarding overall safety culture.
- Owen Electric composite scores in Incident Analysis (90.0% positive), Management Credibility (87.8% positive) and Safety Contacts (87% positive) among others, indicate a number of safety initiatives are a part of the culture.
- Among other top scoring questions employees believe the organization has: management that considers safety to be important 95.7%, actively encourages employees to work safely.

Opportunities:

- Hourly employees believe unsafe conditions, not behaviors, are the major cause of incidents. This belief needs to change. A level one Continuous Improvement team needs to review conditions and engage all levels of the organization in getting this fundamental safety issue to become a culture of correct.
- There are difficulties with inspections, how they are performed, who is involved and what gets accomplished. Is Owen Electric a production culture, or a culture of correct with respect to safety?

CATERPILLAR SAFETY SERVICES
SAFETY.CAT.COM™

© 2013 Caterpillar. All Rights Reserved

CATERPILLAR®

Safety Perception Survey Report Out

Perception Survey Summary

Safety Accountability Systems

Strengths:

- Incident Analysis and goals for performance score high.
- Incident Analysis scores indicate clarity of expectations regarding this process.
- Employees take action to correct hazards.

Opportunities:

- Recognition for positive safety performance is an issue.
- Operating procedures, inspections, discipline, and involvement of employees are primary accountabilities for supervisors. This implies supervisors, middle managers and others may be unsure what is expected in each of these areas.
- Supervisor training and quality of supervision scores are under 80% positive. These are not bad scores, yet indicate supervisors need more training.
- All organizational segments believe risks involved are sometimes overlooked to get the job done, implying that hazard controls are sometimes optional or unclear.

CATERPILLAR SAFETY SERVICES
SAFETY.CAT.COM™

© 2013 Caterpillar. All Rights Reserved

CATERPILLAR®

Survey Conclusions

Strengths:

- Very solid safety culture, with strong management support.
- Good level one and level two performance.
- Excellent foundation to break through to zero incident performance.

Opportunities:

- Develop a strategic plan that adopts new safety technology aimed at zero.
- Get cross-functional teams to close perception gaps.
- Focus on enhancing accountabilities.
- Improve the environment with six criteria of excellence connect directly to accountabilities.
- Ensure interpersonal one-on-one communications skill training.
- Train leaders and supervisors on a culture of accountability.

CATERPILLAR SAFETY SERVICES
SAFETY.CAT.COM

© 2013 Caterpillar. All Rights Reserved

CATERPILLAR®

Safety Perception Survey Report Out

Organizational Change – Success/Failure Points



Complacency

- Have we created an adequate sense of urgency?



Guiding Coalition

- Have we identified the appropriate leadership coalition? (must contain both leaders and managers)



Underestimating the Power of Vision

- Is it concise and direct, aligned and inspiring? (Inarguable, desirable, feasible, focused, flexible, and communicable)



Under-communicating the vision

- Do we communicate powerfully and often, both in words and deeds?



Permitting obstacles to block the vision

- Have we identified possible blockers and a plan to deal with them (management systems, individuals)?



Failing to create short-term wins

- Have we created rather than hoped for opportunities to celebrate and keep employees focused?

— John Kotter | Harvard Business School



Declaring victory too soon

- Are we coasting after completing the first major project? REAL, lasting change is slow to occur.

CATERPILLAR SAFETY SERVICES
SAFETY.CAT.COM

© 2013 Caterpillar. All Rights Reserved

CATERPILLAR®

Six Criteria for Safety Excellence

- ❑ Top management is **visibly** committed.
- ❑ Middle management is actively **involved**.
- ❑ Front-line supervision is **performance**-focused.
- ❑ Employees are **actively** participating.
- ❑ System is **flexible** to accommodate the culture.
- ❑ Safety system is **positively** perceived by the workforce.

— Dan Petersen Ed.D.

CATERPILLAR SAFETY SERVICES
SAFETY.CAT.COM

© 2013 Caterpillar. All Rights Reserved

CATERPILLAR®

Safety Perception Survey Report Out

Next Steps

Strategic Planning

- ❑ Leadership group decides the focus and timing.

Develop Processes

- ❑ Optimize the safety management processes that deliver a “zero culture” using cross functional Continuous Improvement Teams.

Build Leadership

- ❑ Accountability, continuous improvement and job skills training.

Increase Participation

- ❑ Continuous Improvement focus teams on strategic issues.
- ❑ Consistent processes across all business units.
- ❑ “Hourly CEOs” at all work cells.
- ❑ A relentless passionate pursuit of zero.

CATERPILLAR SAFETY SERVICES
SAFETY.CAT.COM

© 2013 Caterpillar. All Rights Reserved

CATERPILLAR®

	(1) Traditional	(2)	(3) Progressing	(4)	(5) Best in Class
Senior Managers	<p>No safety actions unless there is a serious incident or injury</p> <ul style="list-style-type: none"> ▪ Safety is not part of the regular business discussions ▪ Hold middle managers accountable for production & quality only ▪ Injuries are a part of doing business 	<p>Demonstrated performance is better than level 1 but is not yet fully level 3.</p>	<p>Consistently talk about safety</p> <ul style="list-style-type: none"> ▪ Safety included in some business discussions ▪ Hold middle managers accountable for injury rates ▪ Regularly encourage safe work 	<p>Demonstrated performance meets all criteria in level 3 and some of the criteria in level 5, but not all.</p>	<p>Demonstrate visible commitment with actions that reduce injuries</p> <ul style="list-style-type: none"> ▪ Safety included in all business conversations ▪ Hold middle managers accountable for safety activities/results and recognizes top performers ▪ Viewed as safety champions and regard safety equal to production and quality
Middle Managers	<p>No safety actions unless there is a serious incident or injury</p> <ul style="list-style-type: none"> ▪ Safety assigned to safety department ▪ Manage safety by injury results ▪ Production, quality and budget are the focus for success 		<p>Talk about safety but rarely walk the talk</p> <ul style="list-style-type: none"> ▪ Have safety expectations, but they are unclear ▪ Hold supervisors accountable for injury rates and some safety activities ▪ Experiment with positive recognition 		<p>Support safety with actions that reduce injuries</p> <ul style="list-style-type: none"> ▪ Include safety in all business conversations ▪ Hold supervisors accountable for completion of safety activities and recognize safe behaviors ▪ Viewed as safety champions and support stopping work for safety concerns
Frontline Supervisors	<p>Turn over safety activities to the safety department</p> <ul style="list-style-type: none"> ▪ Safety activities are not part of the supervisor training program or performance evaluation ▪ Ignore unsafe employee behavior ▪ Allow employees to take short cuts to get the work done 		<p>Talk about safety but rarely walk the talk</p> <ul style="list-style-type: none"> ▪ Safety activities are clearly defined but are not checked or evaluated ▪ Sometimes stop unsafe work, other times ignore it ▪ Beginning to recognize safe behaviors 		<p>Accept responsibility for safety of all team members and model safe behavior</p> <ul style="list-style-type: none"> ▪ Have clearly defined safety performance activities for themselves and their employees ▪ Support stop downs by employees when the work is not safe ▪ Recognize safe behaviors
Employees	<p>Stay in the background and try to avoid being noticed</p> <ul style="list-style-type: none"> ▪ Complain about unsafe work but do nothing to improve it ▪ Actively resist any change to the way it is ▪ See managers as the cause of the majority of the problems that occur 		<p>Will join a safety continuous improvement team but reluctant to accept any leadership</p> <ul style="list-style-type: none"> ▪ Will engage in some safe work but slip back into old habits ▪ Reluctant to ask questions/engage with management about safety ▪ Engage in some positive changes in safety 		<p>Actively participate within safety continuous improvement teams</p> <ul style="list-style-type: none"> ▪ Follow safety policies and procedures ▪ Speak up when they see others (including managers) working unsafely or not following procedure ▪ Speak up and lead in team safety meetings
Flexibility	<p>This is a rules based safety culture</p> <ul style="list-style-type: none"> ▪ Just follow the rules and supervisors and managers will leave you alone ▪ The regulations set the standards, the safety department enforces them ▪ Safety gets in the way of production 		<p>Cross functional teams are finding solutions</p> <ul style="list-style-type: none"> ▪ When employees get involved in developing solutions, everyone benefits ▪ Employee's practical approach to safety combined with the safety department's technical knowledge is improving the entire workplace ▪ Safety is becoming integrated into our daily work 		<p>Partnering together in safety has changed the work environment</p> <ul style="list-style-type: none"> ▪ Dozens of safety issues have been solved by working together ▪ Every level of the organization is involved in self-sustained continuous improvement ▪ Everyone keeps volunteering to work on the next thing that needs improvement
Positive Perception	<p>Safety is a negative and everyone blames others for the injuries</p> <ul style="list-style-type: none"> ▪ Injuries are viewed as bad luck ▪ The only employee acknowledgement is for meeting production quotas ▪ Safety department members looked on as 'safety cops' 		<p>Some work groups are beginning to take responsibility for improving their own safety</p> <ul style="list-style-type: none"> ▪ Managers are beginning to support the safety efforts ▪ Some recognition for low injury rates and those working to achieve this kind of performance ▪ The safety department is improving their image by engaging in assisting 		<p>Senior/middle managers, supervisors and employees are all engaged in continuous safety improvements</p> <ul style="list-style-type: none"> ▪ Downstream injury statistics are reduced and upstream leading indicators are excellent ▪ People are proud of their safety performance and recognize each other for safe work ▪ Safety is fully integrated into the culture as "The way we work around here"

SAFETY.CAT.COM™
CATERPILLAR SAFETY SERVICES

S.T.A.R.T.™



Participant Workbook

Caterpillar Inc.
1732 NW Quimby Street
Suite 225
Portland, OR 97209 US

800 537-8352

SAFETY.CAT.COM™

Copyright

CAT, CATERPILLAR, their respective logos, S.T.A.R.T., "Caterpillar Yellow" and the POWER EDGE trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission. © 2012 Caterpillar All Rights Reserved

Disclaimer

The material in this document is provided for informational purposes only and not as a comprehensive or exhaustive resource on this topic. This material has been compiled from a multitude of sources believed to be accurate; however, Caterpillar Inc. assumes no responsibility for the accuracy or currency of this information and encourages you to consult experts in this area for more information. In no event does the content of this document supersede any applicable local, state, or federal statutes or regulations.

TABLE OF CONTENTS

Introduction	1
MODULE 1: Why Improve Your Safety Culture?	2
S.T.A.R.T. Video – Company Org Chart	2
Direct and Indirect Costs	3
Exercise: Impact of Incidents on Revenue & Profit	5
Legal Responsibilities	6
Safety Culture Model	8
Assessment: How is Our Safety Culture?	9
Supervisor’s Role in Creating our Safety Culture	10
MODULE 2: What Makes an Effective Safety Culture?	11
Focus Expectations on Activities	11
Role Play: Communicating Safety Expectations	12
Exercise: Training Checklist	14
Safety Meeting Tips	17
Role Play: Safety Meeting	19
Unsafe Conditions vs. Risky Actions	22
Fact Finding Versus Fault Finding	24
The Investigation Process	26
MODULE 3: How to Engage and Involve Employees	27
Better Together	27
Keys to Effective Safety Culture	29
Case Study: Exploring Accountability	30
Four Steps of Accountability	32
Recognition Checklist	33
Role Play: Recognizing and Correcting	35
How Engaged Are My Safety Conversations?	37
Trying Hard . . . but Lacking Finesse	39
Action Planning: Develop Your Safety Culture	43
Workshop Evaluation	47
Appendix	49
Glossary of Terms	49
S.T.A.R.T.: Assessment	52

INTRODUCTION

As supervisors, it is our job to master the challenges we encounter in our jobs. Typically, we are responsible for production, quality, scheduling, and training. Few companies, however, include safety along with these responsibilities.

It can be shown that without safety, productivity and profitability suffer. Therefore, supervisors need to be accountable for safety in the same manner as they are for managing other aspects of the operation.

The S.T.A.R.T.[™] program uncovers the elements of a safety culture and shows the essential steps to enhance your organization's safety culture. Once you've completed this course, you'll know what you can do to nurture your organization's safety culture.

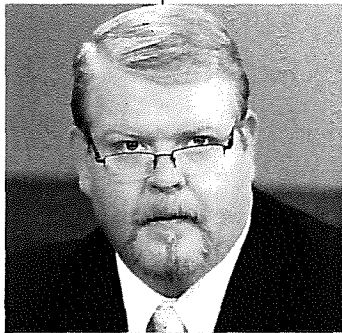
MODULE 1: Why Improve Your Safety Culture?

S.T.A.R.T. Video – Company Org Chart

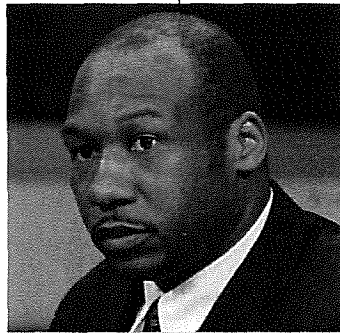
Throughout this course you'll follow the progress of this executive team as they grapple with how to improve their company's safety culture.



Parker, President & CEO



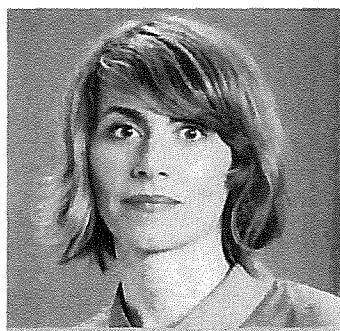
Stone, VP Manufacturing



Carlson, VP Construction



Bergstrom, VP Warehouse



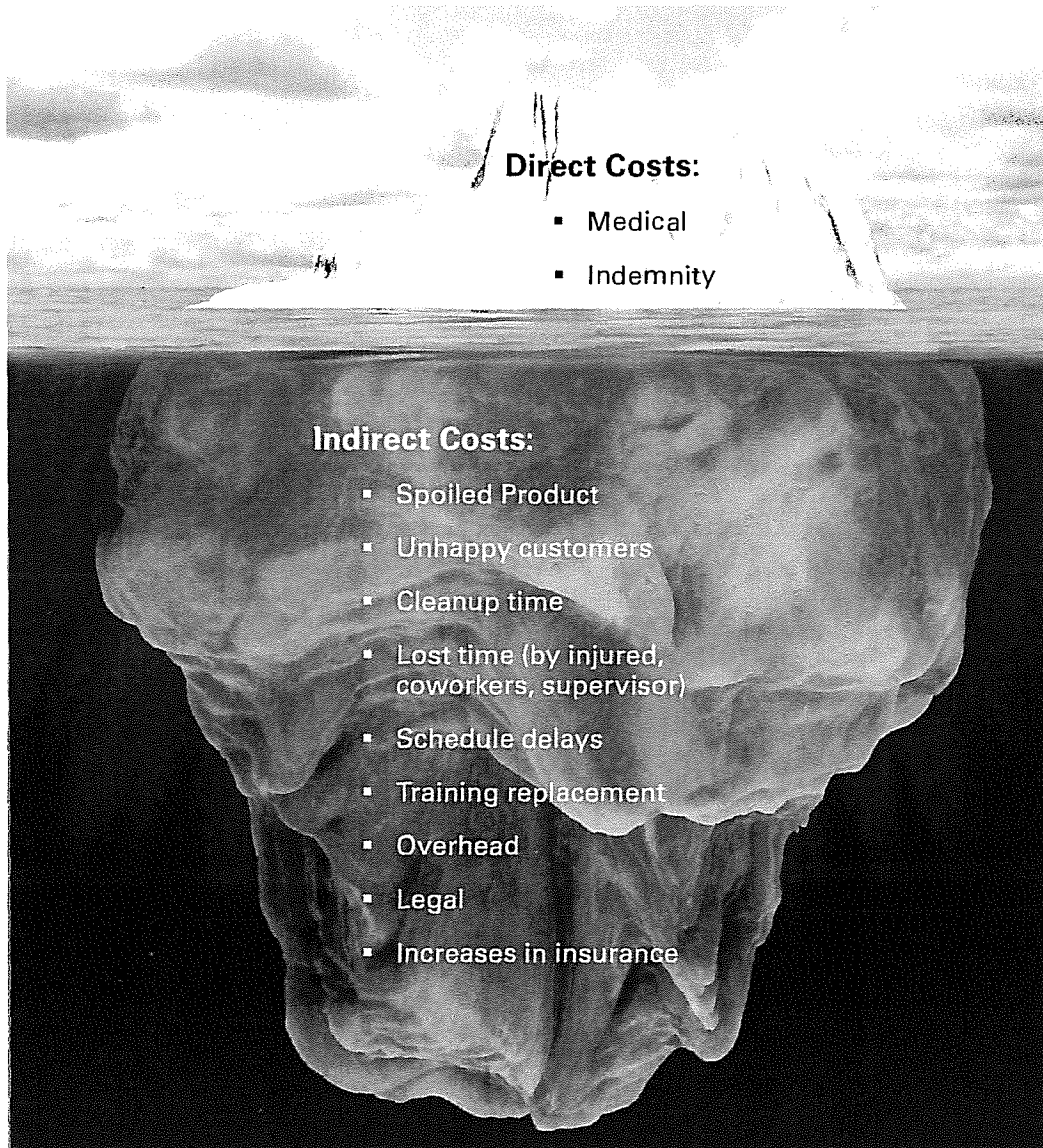
Miller, Financial Analyst

MODULE 1: Why Improve Your Safety Culture?

Direct and Indirect Costs

On average the indirect costs exceed the direct costs by a 4:1 ratio*.

NOTE: Some companies include other direct costs associated with an incident - like equipment repair.



* H.W. Heinrich (1931, 1959) - U.S.

MODULE 1: Why Improve Your Safety Culture?

Injury Situation:

A forklift unloading a trailer backs off a loading dock. The driver is injured and taken by ambulance to the nearest hospital. A load of chemicals broke open during the incident, stopping operations for three hours while cleanup was completed.

Based on the above incident, identify the following as either a **Direct Cost** or an **Indirect Cost**.

Cost Related to Injury	Direct	Indirect
1. Cleanup of chemical spill		
2. Medical treatment for employee		
3. Training of replacement employee		
4. Forklift repair		
5. Physical therapy for injured employee		
6. Production downtime		
7. Time of incident investigation		
8. Writing of reports		
9. Ambulance service		
10. OSHA investigation		

MODULE 1: Why Improve Your Safety Culture?

Exercise: Impact of Incidents on Revenue & Profit

You are the President of a company generating 5 million dollars in revenue.

Your profit is 5%. Calculate your total profit (5,000,000 x .05):

Total Revenue	\$5,000,000
Profit Margin	x .05
Profit =	\$

Last year your company had incident costs of:

Direct Costs	\$20,000
Indirect Costs	+ 80,000
Total Incident Costs =	\$

Incident costs reduced your profit to:

Enter Profit	\$
Subtract Incident Costs	\$
Remaining Profit =	\$



MODULE 1: Why Improve Your Safety Culture?

Legal Responsibilities

ARLINGTON, Va. – The U.S. Department of Labor’s Mine Safety and Health Administration today announced that it has imposed a **fine of \$10,825,368**, the largest in agency history, following its investigation into the April 2010 explosion at the Upper Big Branch-South Mine, which was operated by Performance Coal Co., a subsidiary of Massey Energy Co. The investigation followed an explosion that **killed 29 miners and injured two** – the worst U.S. coal mining disaster in 40 years. A report concludes that Massey’s corporate culture was the root cause of the tragedy. MSHA has issued Massey and PCC **369 citations and orders**, including for an unprecedented **21 flagrant violations**, which carry the most serious civil penalties available under the law. Gary May, mine superintendent was sentenced to 24 months in federal prison.

“Every time Massey sent miners into the UBB Mine, Massey put those miners’ lives at risk. Massey management created a culture of fear and intimidation in their miners to hide their reckless practices. Today’s report brings to light **the tragic consequences of a corporate culture that values production over people**,” said MSHA Assistant Secretary Joseph A. Main.

Moshe Junger, a demolition contractor and owner of Mordechai Rubbish, Inc., pled guilty in January 2002 to **causing the death of a worker** by failing to comply with OSHA regulations. Junger’s company had been hired to demolish a building in Brooklyn, N.Y. Prior to that, an OSHA compliance officer had visited the site and **instructed the general contractor not to begin demolition until he or the demolition subcontractor had obtained an engineering survey** to find out if the building had the structural integrity to support the workers and their equipment. The general contractor advised Junger of this requirement; however, Junger authorized the demolition to commence without obtaining the survey.

On April 30, 2001, workers drove a 24,000-pound material handler onto the second floor of the building to remove several 5,000-pound steel beams. While removing a beam, **the concrete floor under the machine handler collapsed** and worker Rogelio Villanueva-Daza was fatally crushed by the falling beam. Junger was sentenced to four months in prison and, as part of his settlement agreed, to pay a **\$100,000 penalty** to OSHA.

[sources: OSHA, U.S. Department of Justice]

MODULE 1: Why Improve Your Safety Culture?**LEGAL RESPONSIBILITIES QUIZ****DIRECTIONS:**

Based on the two examples, mark each of the following as **TRUE** or **FALSE**.

- | | | |
|----------|----------|---|
| T | F | 1. Workers' Compensation Insurance will pay for fines levied by courts for Supervisor's negligence. |
| T | F | 2. Supervisors can serve prison time for safety negligence. |
| T | F | 3. Failure to properly train an employee can be considered negligence. |
| T | F | 4. Prior knowledge of an unsafe condition can be considered negligence if not corrected. |
| T | F | 5. Courts generally ignore the quality of your safety culture. |

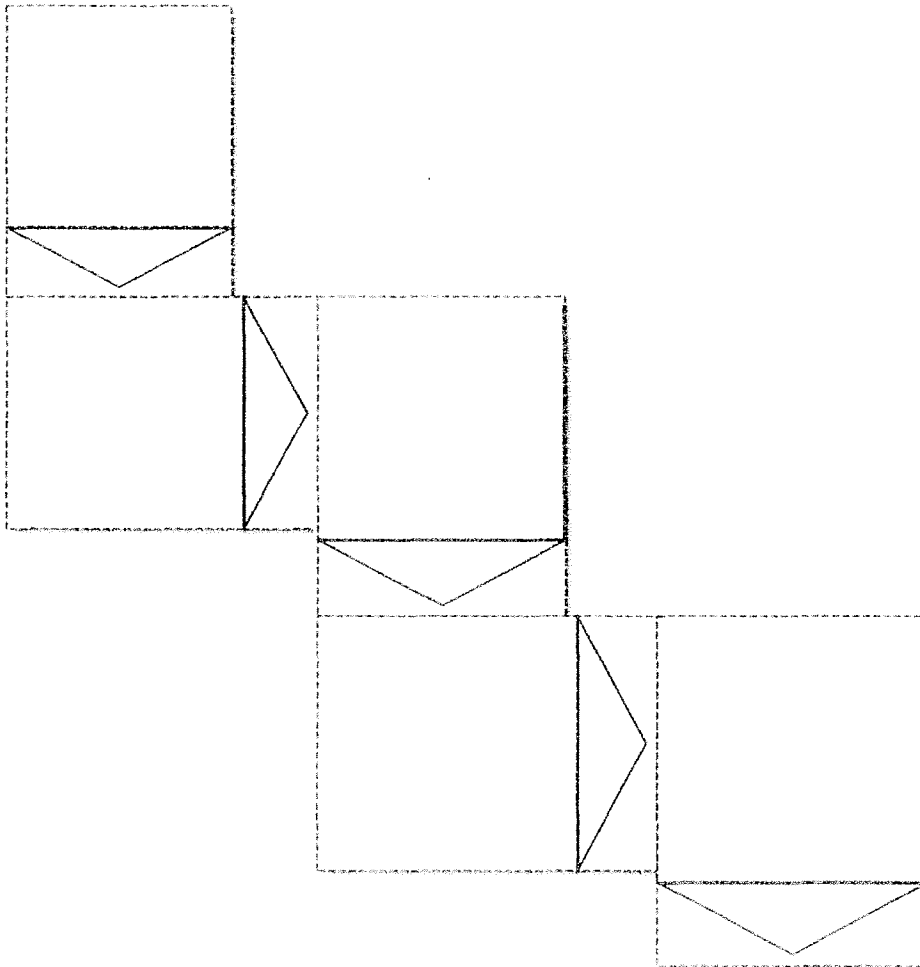
MODULE 1: Why Improve Your Safety Culture?

Safety Culture Model

Incidents are the result of cultural issues that can be traced back from at-risk behaviors to the attitudes, beliefs, and ideas that drive these behaviors, to the cultural norms that exist in every organization.

DIRECTIONS:

Fill in the blanks for each of the following items outlining why incidents happen.



MODULE 1: Why Improve Your Safety Culture?

Assessment: How is Our Safety Culture?

DIRECTIONS:

Circle the number on each scale of 0 to 4 that best indicates the current status of your company's safety culture. A rating of 4 means always or excellent—a rating of 0 means never or poor. For each item rated 0, 1, or 2, prepare your suggestions for improvement.

- | | | | | | |
|---|---|---|---|---|---|
| 1. Safety is demonstrated equally with production and quality. | 0 | 1 | 2 | 3 | 4 |
| 2. Management is visibly committed to improving our safety culture. | 0 | 1 | 2 | 3 | 4 |
| 3. All leaders set a good example for promoting safety. | 0 | 1 | 2 | 3 | 4 |
| 4. I clearly understand what's expected of me in relationship to safety. | 0 | 1 | 2 | 3 | 4 |
| 5. Safety activities have been defined for each supervisor | 0 | 1 | 2 | 3 | 4 |
| 6. The quantity and quality of these supervisor activities are measured. | 0 | 1 | 2 | 3 | 4 |
| 7. Safety conversations occur regularly to help prepare employees to work safely. | 0 | 1 | 2 | 3 | 4 |
| 8. Workers are actively involved in improving our safety culture. | 0 | 1 | 2 | 3 | 4 |
| 9. <i>Everyone speaks up when they identify risky actions and unsafe conditions.</i> | 0 | 1 | 2 | 3 | 4 |
| 10. The investigation process focuses on fact finding, not fault finding. | 0 | 1 | 2 | 3 | 4 |
| 11. Employees are aware of the impact incidents have on production schedules and the competitive position of the company. | 0 | 1 | 2 | 3 | 4 |
| 12. Supervisors and managers engage in positive and sincere recognition for safe work activities. | 0 | 1 | 2 | 3 | 4 |

Supervisor's Role in Creating our Safety Culture

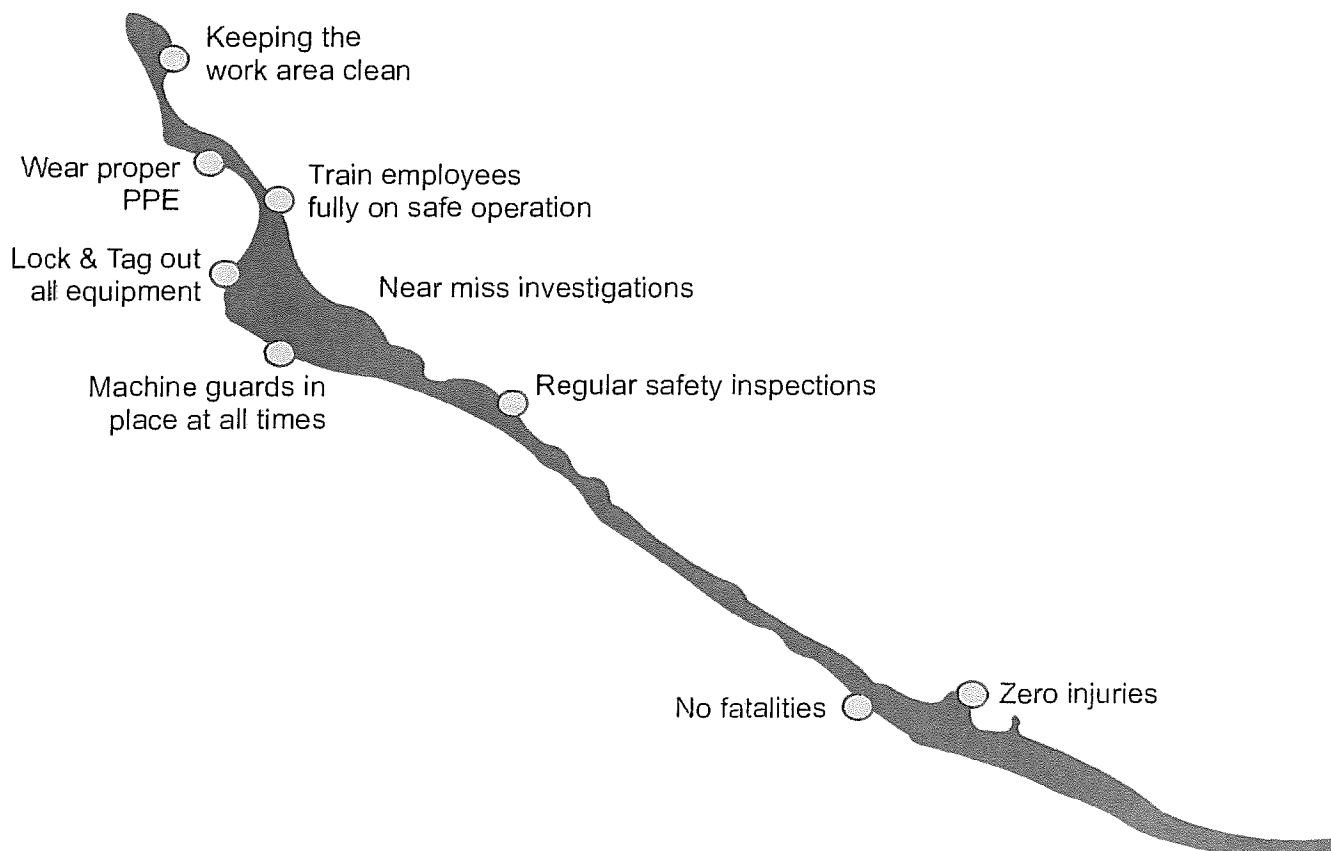
1. Set clear **Expectations** for safety
2. **Train** and **Coach** with regular safety conversations
3. **Notice** and **Investigate** concerns, incidents, and injuries
4. Support a *new kind of* **Accountability**
5. **Demonstrate your Commitment** to Safety by setting the example – Who you are and how you act determines how your workers will perform.
6. Facilitate Meaningful **Safety Conversations**
7. **Encourage Active Involvement** in Safety

MODULE 2: What Makes an Effective Safety Culture?

Focus Expectations on Activities

The Safety River

To get these 'downstream results' that we ALL want, we must focus on the 'upstream activities' that will drive these kinds of results. That's why we refer to this model as 'The Safety River' because the effects of the activities performed 'upstream' flow into desired results 'downstream'.



Role Play: Communicating Safety Expectations

Clear safety expectations begins the accountability cycle. Use the following situations to practice communicating expectations clearly. Keep the following TIPS in mind as you role play with a partner:

- **State what you want** – Create context for the discussion by sharing your beliefs and desires. (It’s really important to me that we all go home safe at the end of this task.)
- **Engage others** – Ask questions. Involve others. (What are the ways you might get hurt doing this task? What steps do we need to take to do this safely?)
- **Avoid broad platitudes** – Instead of saying, “Put safety first on this job!” Be specific about the safe actions you expect and give examples. Better yet, have a full team discussion about the tasks involved and specific actions each person will take to work safely.
- **Check for understanding** to ensure that what’s been shared or agreed is clear. If YOU repeat it back, you still won’t know if they understand. Have the OTHER person(s) summarize in their own words so you can check their understanding.

MODULE 2: What Makes an Effective Safety Culture?***ROLE PLAY: Communicating Safety Expectations*****DIRECTIONS:**

1. Pick a situation to role play. Possible situations to role play:

- You have a new employee who came from a workplace where there was an unbalanced focus on production. Your culture is different.
- An employee tells you about a coworkers unsafe activity but admits they've not addressed it with their peer because they don't feel it's their role. You can promote a culture where people Speak-Up.
- Teams of employees will be performing some critical maintenance functions during this twice-yearly plant shutdown. You're concerned for their safety because these are tasks they seldom do.
- Your situation: _____

2. Plan what you might say/do to ensure expectations are clear.

3. Conduct the role play with your partner functioning as the employee (or the team). Each of you should make up responses as appropriate to **keep the role play going**.

4. Discuss how you did. Review the above tips as part of your evaluation of what you did well, and what you could improve.

Exercise: Training Checklist

DIRECTIONS: Think about the way you train employees, particularly as it relates to safety. For each training success factor, place a checkmark in the appropriate column:

- NO** = Not true in my area of responsibility, we generally do not do this or do this *poorly*.
? = We *sometimes* do this; we are only partially/minimally following this practice.
YES = This is true in my area of responsibility; we are consistently doing this.

Training Success Factor	NO	?	YES
New Employees			
Train new employees immediately upon hiring.			
Integrate safety training with other aspects of new employee training and orientation.			
Begin with the "big picture" by clearly illustrating how each task contributes toward the overall process, including the benefits of tasks, and the end result.			
The training includes hands-on participation whenever possible. We give the worker a test-run on equipment.			
During the initial hands-on phase, the supervisor observes, clarifies and corrects procedures.			
We provide follow-up training and/or periodically observe, provide feedback, and evaluate.			
New Equipment*			
We train employees as soon as possible upon arrival of the new equipment.			
During training we integrate the safety aspects with operational aspects.			
We integrate the role of the new equipment into the overall system.			
We contrast the new system with the old system, noting safety and operational differences.			
We offer hands-on participation as soon as possible.			
We provide follow-up training and/or periodically observe, provide feedback, and evaluate.			

*The principles used to train new employees pertain to all employees *when introducing new equipment*.

NOTE: In effective safety cultures, *EVERY* employee becomes a trainer. They notice what each other are doing and **SPEAK—UP** both to correct inappropriate actions, and to reinforce correct behavior.

MODULE 2: What Makes an Effective Safety Culture?

Training Sequence

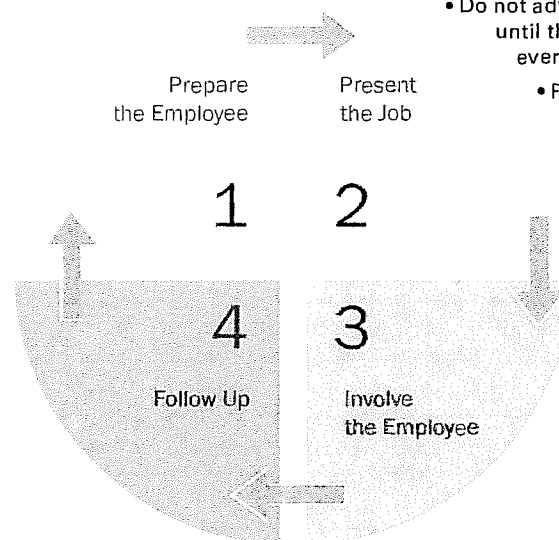
Effective training typically includes four phases. Be sure that you plan for each of these.

1. Prepare the Employee

- Put the worker at ease.
- Start with what he or she already knows.
- Stimulate interest in the task or job.
- Position the job within the overall process or system.

2. Present the Job

- Tell, show, and illustrate . . . carefully and patiently.
- Ask open ended questions, give examples.
- Stress key points.
- Explain the rationale behind procedures and policies.
- Cover one point at a time, in a logical sequence.
- Do not advance to the next topic until the trainee understands everything presented thus far.
- Repeat as necessary.



4. Follow-up

- Leave the employee to work unobserved.
- Designate who should be contacted for help.
- Check/inspect the work frequently, watching for errors, weak areas, or specific points.
- Encourage questions.
- Point out the positive prior to correction.
- Taper-off observation to standard level of supervision.

3. Involve the Employee

- Invite/require hands-on personal experience with a task.
- Point out the positive first, before discussing errors or corrections.
- Correct errors immediately and patiently.
- Repeat the procedure, concentrating on errors and perceived weak areas.
- Reinforce key points as they occur, in real time.
- Explain the "why" behind the "what."
- Observe the hands-on participation/ experience of the trainee until you are confident s/he they are able to do the task unobserved.

MODULE 2: What Makes an Effective Safety Culture?

Safety Meeting Tips

1. Hold **regular meetings**. The optimum frequency is daily, prior to the start of work. Some companies meet twice a day.
2. **Focus discussion** on the work being performed today. This keeps the conversation relevant and engaging. Identify:
 - a. The day's tasks
 - b. Risks associated with each
 - c. Prevention activities
 - d. Tools to work safely
3. **Engage all employees** cerebrally.
 - a. Ask workers (by name) for their input. Have them solve the problem and suggest ways to eliminate the hazard.
 - b. Encourage questions. The more participation in a meeting, the more workers will learn.
 - c. Use examples from your own experience. Illustrating a point by relating a story in which you were involved is a good way to both make a clear point and establish trust.
 - d. Use actual equipment or tools to illustrate your points.
4. At the end of the meeting, reinforce the positive points.

Discussion Topics

1. Recent Injuries

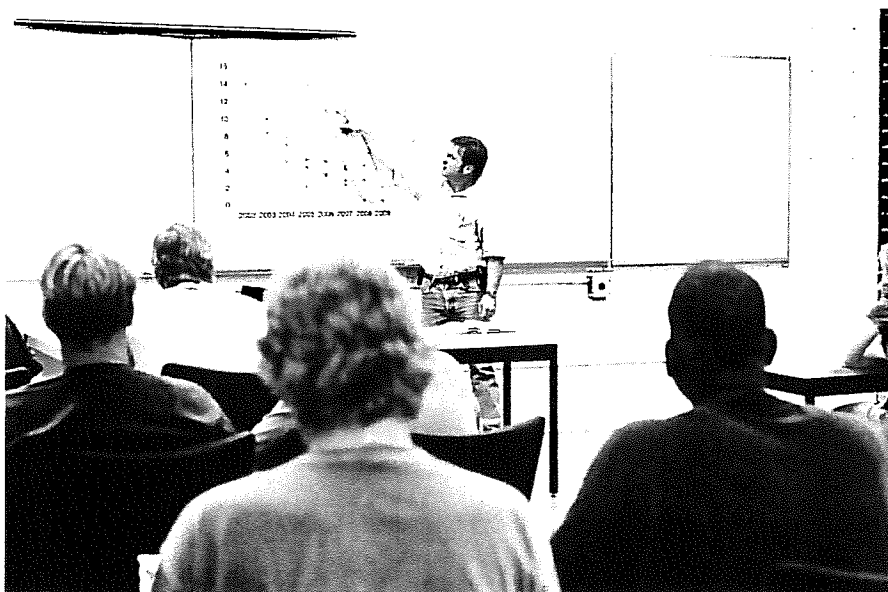
- What happened?
- Why did it happen?
- What should be done?

2. Near-Misses

- What happened?
- Why did it happen?
- What should be done?

3. Upcoming Work

- What are the hazards?
- What safety equipment will be necessary?
- What procedures will be necessary?



MODULE 2: What Makes an Effective Safety Culture?

Role Play: Safety Meeting

GOAL:

Eliminate unsafe acts, conditions, and the behaviors behind them through education and motivation of employees. Recognize that the knowledge and attitude of employees can be controlled and influenced by management.

DIRECTIONS:

Time	Activity/Instructions	Tips
1–2 minutes	<p>1. Form small groups. The goal is to run a 'mock' safety training meeting. Draw on the Safety Meeting Tips handout to serve as a guide to plan the meeting.</p> <p>NOTE: Some meeting topics may run for the entire role-playing time; simply swap-out leaders every few minutes. If the topic runs dry, then the next leader starts with a new safety topic.</p>	For best results use groups of 3 or 4.
1–2 minutes	<p>2. Process: Each of you will have an opportunity to be the safety meeting leader. When you're not leading the group, you'll be the audience of workers attending a typical training meeting.</p>	Review the Safety Meeting Evaluation Form on page 21. These are the skills (and the process) you'll want to strive toward.
2–3 minutes	<p>3. Topics: Before beginning, brainstorm some possible safety meeting topics. Each person selects one topic they are familiar with to use for the role play.</p>	Have someone record possible topics.

Time	Activity Instructions	Tips
20 minutes	<p>4. Conduct role plays:</p> <ul style="list-style-type: none"> • One supervisor/meeting facilitator • Two workers attending meeting • (If there's a 4th person, have them record and evaluate the meeting.) 	Switch roles every 4 or 5 minutes – Be sure everyone in the group gets a chance to play the leader/facilitator role.
15 minutes	<p>5. Debrief by discussing the Safety Meeting Evaluation Form as completed by observers. If you had no observer, complete the form together on each leader during this final debrief time as you discuss each item.</p>	Keep your evaluation as an outline of a good training meeting. Use this checklist after future meetings to remind you of the keys to an effective safety meeting.

MODULE 2: What Makes an Effective Safety Culture?

Safety Meeting Evaluation Form

DIRECTIONS: Use this form as a guide to create your own customized evaluation form to evaluate the effectiveness of your organizations' safety meetings.

	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree
Content of the Meeting					
1. The topic/focus was clearly important.	1	2	3	4	5
2. The discussion surfaced the key, relevant issues.	1	2	3	4	5
3. Adequate time was invested to cover the topic.	1	2	3	4	5
Comments: _____					

Delivery

4. The leader was prepared to address the topic.	1	2	3	4	5
5. Personal examples were shared to illustrate the points.	1	2	3	4	5
6. Actual equipment and tools were used to illustrate points.	1	2	3	4	5
7. Questions were encouraged and answered appropriately.	1	2	3	4	5
8. There was opportunity for hands-on application.	1	2	3	4	5
9. The meeting concluded by reinforcing positive points.	1	2	3	4	5
Comments: _____					

Results

10. Everyone got involved.	1	2	3	4	5
11. By the end everyone was on the same page.	1	2	3	4	5
Comments: _____					

Unsafe Conditions vs. Risky Actions

Now we are ready to focus our attention on the symptoms of an incident. We can differentiate between unsafe conditions and risky actions.

Unsafe Conditions

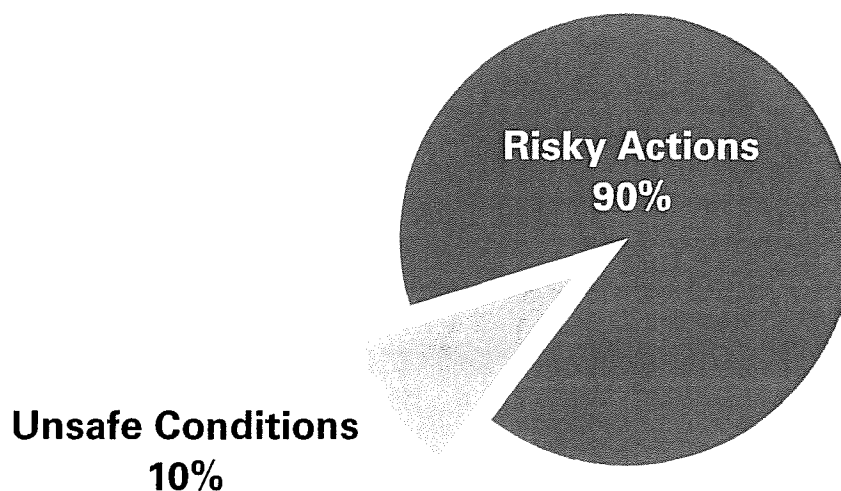
An unsafe condition is any physical hazard related to equipment, materials, structures or other physical elements of a worker's environment. Unsafe conditions may include:

- poor housekeeping
- lack of guarding
- poor maintenance
- defective equipment or tools
- improper material storage
- slip and fall hazards

Risky Actions

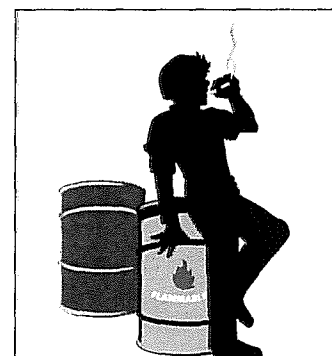
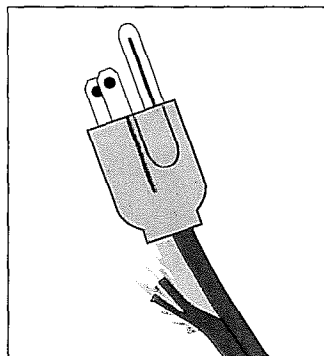
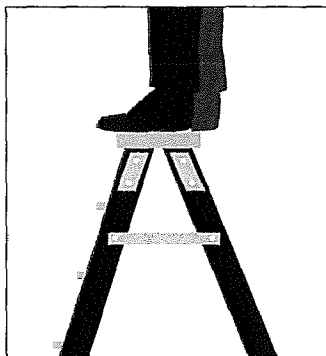
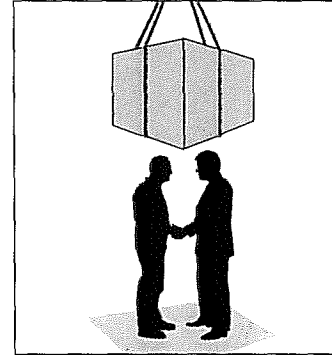
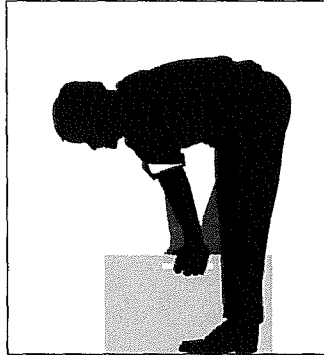
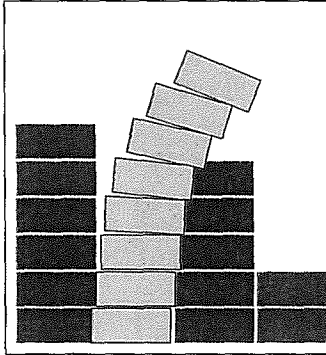
Over 90% of incidents result from risky actions. This includes any hazard caused by human action or behavior whether purposeful or not. Risky behavior can be attributed to:

- lack of adequate training
- improper technique (i.e. poor lifting technique)
- poor attitude (It can't happen to me! It's a stupid rule...)
- shortcut to save time
- lack of proper equipment and tools
- poor leadership



MODULE 2: What Makes an Effective Safety Culture?***Pause and Practice***

Under each picture, write Unsafe Condition or Risky Action.



Fact Finding Versus Fault Finding

Fault Finding

In ineffective safety cultures, supervisors may try to avoid their responsibilities by blaming employees for unsafe behavior. If you saw employees engaging in these risky actions, what attitude might develop about the employee?

This approach seldom results in positive worker change or change to safety systems.

Fact Finding

On the other hand, supervisors in effective safety cultures focus on the process rather than the individual to identify the true incident causes. These supervisors know that finding the facts is the only effective way to determine what changes must be made.



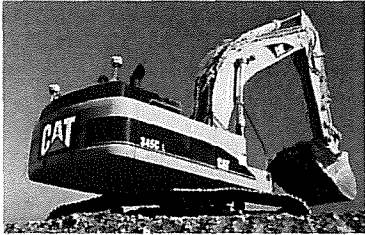
MODULE 2: What Makes an Effective Safety Culture?***Pause and Practice*****DIRECTIONS:**

Write **Fact** before those that are factual and **Fault** in the blank before those that are fault-finding.

- _____ The worker did not wear proper protective equipment.
- _____ The load was not properly tied down.
- _____ The worker was careless.
- _____ The injured employee fell over uncoiled hoses.
- _____ The injured worker was daydreaming.
- _____ Sam wasn't paying attention at the safety meeting.
- _____ The guard was not replaced over the belt.
- _____ Most workers are too lazy to work safely.

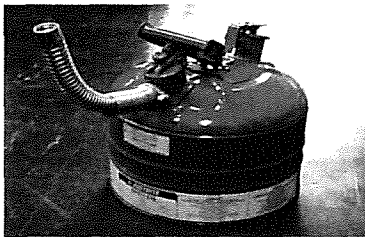
The Investigation Process

The investigation process focuses on four factors. All four should be fully explored in the course of investigating incidents and near misses.



1. Equipment

Sometimes incidents result from the improper use—and improper selection—of equipment. Also, equipment that has been improperly maintained can fail and cause an incident.



2. Materials

Incidents that result from contact with materials or from improper material handling techniques fall into this category. An example would be exposure to toxic fumes or a back injury caused by improper handling procedures.



3. People/Behavior

Only in safety cultures is behavior recognized as a root cause of an incident. The selection of workers and how they are later trained and motivated (leadership) are often root causes of incidents and near-misses.



4. The Safety System

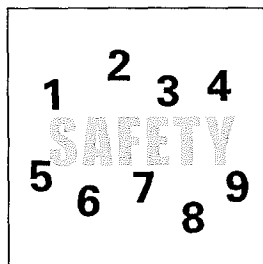
There may be something wrong with the organization's safety system. A Safety System is the collection of processes, procedures and policies that govern safety management.

MODULE 3: How to Engage and Involve Employees

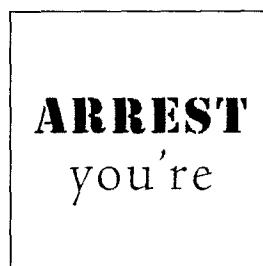
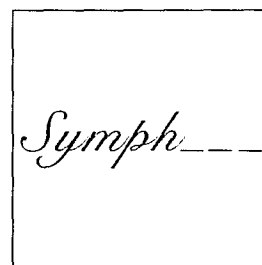
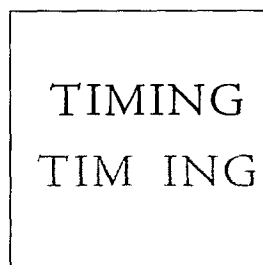
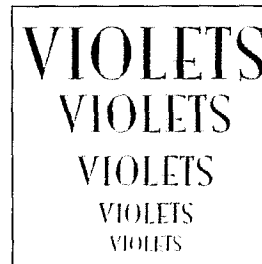
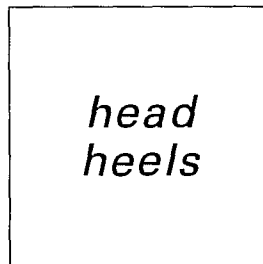
Better Together

DIRECTIONS:

Decipher as many of the following puzzles as you can. The first group contains word-pictures. Each one is a common phrase. The second set of puzzles involves word-number associations. The first answer is provided for you.

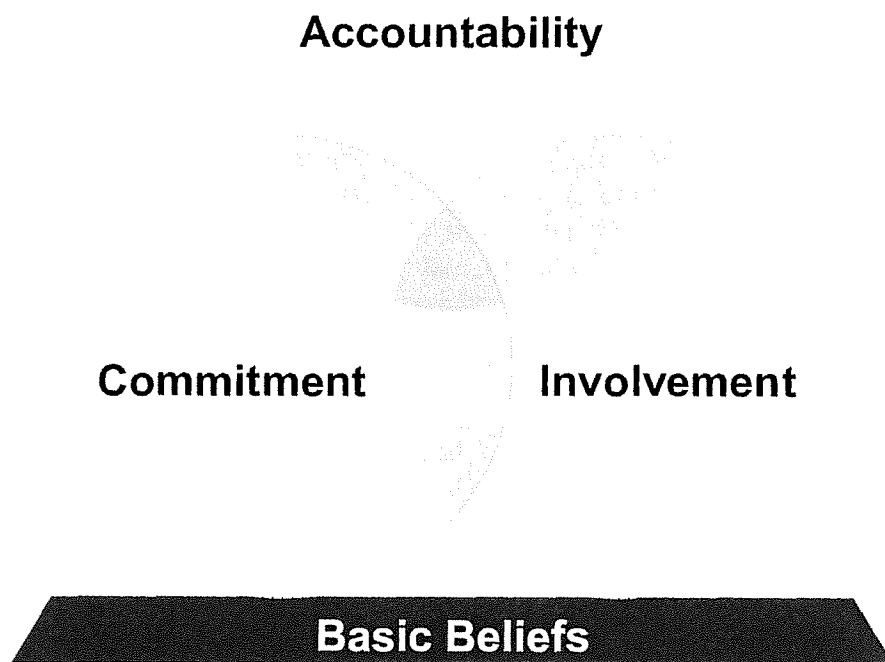


Safety in Numbers



1.	1 = R.A. in E.B.	<i>One <u>rotten apple</u> in every <u>barrel</u></i>
2.	2 = C in a P	<i>Two <u>cups</u> in a _____</i>
3.	3 = L.K. that L.T.M.	
4.	4 = S on a S.	
5.	5 = T on a C (including S. in Trunk.)	
6.	6 = Pockets on a P.T.	
7.	7 = Years of B.L. for B. a M.	
8.	8 = D. a W. (in the B. song)	
9.	9 = J. of the S.C.	
10.	10 = Y. in a D.	

Keys to Effective Safety Culture



Case Study: Exploring Accountability

Jim had just completed the morning job briefing with his crew. At that meeting he facilitated an important discussion about the special maintenance work to be completed during this twice yearly shutdown. In addition to looking at the procedures, the crew had a thoughtful discussion about what could go wrong, and how they would support each other's safety.

On his way back to the office, he is joined by Matt, his operations manager. "Hey, it looks like you're just finishing one of your safety meetings... Tell me how it went? Were you able to get more participation today with that technique we talked about last week?" Matt proceeds to ask several probing, open-ended questions about the safety plans for the maintenance day; then acknowledges Jim on his thoroughness. He ends the conversation by following-up on an incident investigation Jim is responsible for.

"Don't worry, I'll have that for you by Friday," Jim reassures his boss.

"That's great!" Matt continues, "And, I'll also need your stats on the number and topics of the safety job briefings you've completed before the management quarterly next week. You know my boss will be checking with all of us managers to ensure we're making progress on the safety goals we set at our annual retreat. I'm counting on you to make me look good!"

"No problem, boss. You know I've got your back!" Jim promises.

"Actually, I've got **your** back, and all the crews too." Matt replied. "This is about making sure every one of us goes home safe at the end of each and every day. That's what we're *really* after. These goals we set . . . they're the actions to help ensure this. Thanks for doing your part to keep safety at the forefront with your crew. I'll catch you later."

MODULE 3: How to Engage and Involve Employees

Who is being held accountable for Safety? How do you know?

What specific safety expectations have obviously been communicated previously?

What did you notice about the links between the various levels of the organization?

Four Steps of Accountability



MODULE 3: How to Engage and Involve Employees

Recognition Checklist

DIRECTIONS:

Most companies know about recognition, and apply it in some form. But, the secret is in HOW we recognize. Use this checklist to evaluate your current recognition approach.

For each recognition success factor, place a checkmark in the appropriate column:

- NO** = Not true in my area of responsibility, we generally do not do this or do this *poorly*.
- ?** = We *sometimes* do this; we are only partially/minimally following this practice.
- YES** = This is true in my area of responsibility; we are consistently doing this.

Recognition Success Factor	NO	?	YES
Employees Clearly Understand Expectations			
We define what we want from employees. We know what safe actions should be repeated (so we can communicate and reinforce the right behaviors).			
We make safety expectations clear to every employee. They understand the safe actions they are to take in all situations.			
We make reasonable safety expectations – we do not contradict them with other expectations (for example, production demands which encourage cutting corners); we provide time and safety equipment to support expectations.			
Forms of Recognition			
We use personal acknowledgement (one-on-one) frequently, delivered immediately on-the-spot, when we see employees working safely.			
We use public recognition of our hourly employees with caution, taking into consideration that frequently this form of acknowledgement embarrasses employees. NOTE: While most supervisors/managers appreciate this form of recognition, hourly employees frequently prefer personal acknowledgement.			
We use tangible recognition* (merchandise, food, contests, awards) when appropriate to reinforce model behavior over time (or as thanks for exceptional behavior in specific situation).			

Recognition Success Factor	NO	?	YES
Recognition Traits			
Recognition is timely (immediate whenever possible).			
Recognition is relevant – Feedback is focused on the specific topic of the conversation.			
Recognition is confirmed – Employees acknowledge the feedback has been received.			
Recognition is specific – The employee knows exactly what they did right.			
Recognition is sincere – Employees truly sense that what they are doing is important to the person above them. It never feels phony or pushed.			

***NOTE:** Use tangible recognition with care! When basing rewards only on RESULTS (lost-time injury rates) it's easy to inadvertently recognize the wrong behaviors. For example:

- The average across all workers – including those taking risks – is one lost-workday incident every 10 years. (Would you reward these employees for the 9 years when they were lucky?)
- Unsafe departments or crews often are rewarded for no lost-time injuries. They may work months or even years without a lost-time injury. (And, might they be hiding things just to get the recognition?)

Tangible rewards are not as effective as social recognition in changing behavior because they are not immediate, are not continuous, and have a short duration.

Using tangible recognition tied to injury reduction is being investigated by regulatory agencies. It may cause employees to NOT report injuries.

MODULE 3: How to Engage and Involve Employees

Role Play: Recognizing and Correcting

DIRECTIONS:

Form partners. Then follow the five steps below in order to practice both recognizing and correcting. Each partner will complete two role plays.

Step 1. Identify situations where you might recognize an employee for safe behavior, or correct an employee who is working in an unsafe manner.	
Recognizing Role Play	Correcting Role Play
<ul style="list-style-type: none"> • • • 	<ul style="list-style-type: none"> • • •
Step 2. Review the important steps to be sure you practice correctly. (Remember "Practice makes permanent!" Perfect practice makes perfect.)	
Recognizing Role Play	Correcting Role Play
<p>Timely (Immediate; in the moment if possible)</p> <p>Relevant – Specific and to the point</p> <p>Confirmed – Acknowledge that message was received</p> <p>Specific – The person needs to know WHAT they did right</p> <p>Sincere – No embarrassment or awkwardness</p> <p>*This needs to be NATURAL! (or become natural once you've gotten into the habit)</p>	<p>Timely (Immediate; in the moment if practical)</p> <p>Relevant – Specific and to the point</p> <p>Confirmed – Acknowledge that message wasn't received</p> <p>Specific – The person needs to know WHAT they did incorrect</p> <p>Sincere – No embarrassment or awkwardness</p> <p>Seek commitment to follow-through</p> <p>(Follow-up later to ensure compliance)</p>
Step 3. Role play the situation with your partner as if you were speaking to your employee.	

<p>Step 4. Following the role play, discuss with your partner how you did. Ask if they have any suggestions. Record your feedback below.</p>	
<p>Recognizing Role Play</p>	<p>Correcting Role Play</p>
<p>5. Repeat the process with your partner playing the supervisor role.</p>	

MODULE 3: How to Engage and Involve Employees

How Engaged Are My Safety Conversations?

DIRECTIONS:

Think of a recent safety conversation you had with an employee. Circle the appropriate number to indicate how the encounter went from poor (0) to excellent (5).

Poor 0	1	2	3	4	Excellent 5
Approach: Stern, critical, negative					Caring, supportive, positive
Insincere					Sincere
Telling (preaching)					Asking (facilitating)
Asked closed (one right answer) questions					Asked open, stimulating questions
Reaction: Other person got defensive, shut down					Other person engaged, opened up
Said it; got it over					Took time required; made it important
Others nearby pulled away, checked out					Others get interested and engaged
Other person felt stupid (condescending)					Engaged their brain (they feel needed)
Felt supervisor didn't understand					Real understanding, connection, empathy

MODULE 3: How to Engage and Involve Employees

Trying Hard . . . but Lacking Finesse

DIRECTIONS:

Often we attempt to say/do something with the best of intentions, but due to awkwardness (lack of finesse) it can come off wrong. Examine each situation to see how it might have been interpreted negatively by employees. Then suggest how this situation might have been managed differently to create a more positive perception.

Situation/Statement	
<p>I wanted to take a moment and thank each of you for your efforts this past month. In October, we only experienced two recordable injuries, both of which were minor injuries. Good job in safety.</p> <p>However, during the month we fell short by 145,000 tons of ore mined. It is imperative that in November we meet our production goal of 895,000 tons. I need everyone to do everything they can to ensure this goal is reached.</p>	
Negative Perception	Suggested Improvement

Situation/Statement	
I recognize everyone's efforts to work safely and appreciate all the near miss reports we've received. This shows me you're really paying attention. Let's see if we can bring these under control next month.	
Negative Perception	Suggested Improvement

MODULE 3: How to Engage and Involve Employees

Situation/Statement	
<p>We have some really good news. If we can go just 45 more days without an injury we will have gone seven months with an injury record that is at or below our industry average. I have talked it over with the facility manager and he will spring for beer and pizza at The Pub restaurant when we make this target. How about it team? Be extra careful and we can have a great celebration!</p>	
Negative Perception	Suggested Improvement

Make up YOUR OWN situation – Think of something from your company where a negative perception resulted. What was done?	
Negative Perception	Suggested Improvement

MODULE 3: How to Engage and Involve Employees

Action Planning: Develop Your Safety Culture

Use the knowledge learned in the S.T.A.R.T.™ program to put together a “game plan” for your department or crew. Keep in mind that a safety culture considers safety to be an integral part of operations.

Set Clear Expectations

Three of the most important areas of my personal safety accountability are:

I will hold my direct reports accountable for the following three safety responsibilities:

I will do the following to better ensure my employees clearly understand my safety expectations:

Training and Coaching

I will improve our training by:

I will make my safety meetings more effective and meaningful by:

MODULE 3: How to Engage and Involve Employees

Notice, Recognize, Investigate

As a supervisor, I will improve my recognition of my employee's safe performances by:

Three ways that I will improve my approach to investigating and correcting unsafe work are:

Support Accountability

The three ways that I will improve accountability for safety are:

Facilitate Meaningful Involvement

Three opportunities I will utilize to increase involvement of my employees in the safety process are:

MODULE 3: How to Engage and Involve Employees

Workshop Evaluation

Name (optional): _____ Date: _____

Location: _____

	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree
Please Rate the Program's Content & Structure					
1. The right topics were covered in this training.	1	2	3	4	5
2. The course was logically organized.	1	2	3	4	5
3. Individual topics were given even time/focus.	1	2	3	4	5
4. The overall time set aside was about right for the topic focus.	1	2	3	4	5
5. The training materials were high quality and useful.	1	2	3	4	5
6. Classroom exercises were useful in helping me learn the knowledge and skills presented.	1	2	3	4	5

Comments: _____

Please Rate the Trainer

7. The trainer was knowledgeable about the material.	1	2	3	4	5
8. The trainer kept it interesting and communicated information clearly at an understandable level.	1	2	3	4	5
9. The trainer welcomed and appropriately managed group participation, questions, and challenges.	1	2	3	4	5
10. The trainer established an overall atmosphere that helped me learn the course material.	1	2	3	4	5

Comments: _____

11. Please rate the program overall 1 2 3 4 5

Comments: _____

APPENDIX

Glossary of Terms

Here are several of the terms related to safety and the costs associated with safety incidents.

Accident	<ol style="list-style-type: none"> 1. An unforeseen and unplanned event or circumstance; 2. lack of intention or necessity
Injury	Damage or harm done to or suffered by a person or thing.
Incident	<ol style="list-style-type: none"> 1. A definite and separate occurrence; an event 2. An occurrence or event that interrupts normal procedure or precipitates a crisis
Costs Associated with Safety Incidents:	
Direct	Medical expenses incurred from injuries sustained in the incident and indemnity payments to injured workers while away from work. These costs are most often reimbursed by insurance.
Indirect	Other "non-billable" costs that result from internal systems adapting to the incident and its aftermath. These costs are most often uninsured, and therefore unrecoverable; they account for 70 to 90 percent of the true cost of an incident

Indirect Expenses Associated with Safety Incidents:	
Wage Costs for Injured Worker	<p><i>Wage cost of the injured worker including:</i></p> <ul style="list-style-type: none"> ▪ The day of the injury ▪ Subsequent days (other than those covered by workers' compensation) ▪ Additional time off required for continued medical attention after injured returns to work ▪ Costs connected with decreased productivity of the injured after returning to work
Wage Costs for Others	<p><i>Wage costs of others:</i></p> <ul style="list-style-type: none"> ▪ Time lost through work stoppage: Includes not only a shutdown that may occur, but also the time workers spend helping, talking, watching at the end of an incident site or afterwards ▪ Supervisor's lost time related to: Responding to the emergency, investigating the incident, writing the report, performing corrective/follow-up activities, safety discussions/meetings related to the incident, meeting(s) with manager(s) and other communications ▪ Replacements: Costs of training personnel to perform the injured employee's work, cost of different productivity levels between the injured employee and replacement(s), overtime required to catch-up on output
Property Damage	<p><i>Property Damage caused by an incident can lead to several hidden costs:</i></p> <ul style="list-style-type: none"> ▪ Cost of materials damaged, destroyed, or otherwise made unusable ▪ Cost of replacing, repairing, cleaning up damaged equipment, machinery, and tools ▪ Product(s) made defective by the incident ▪ Damages to the building, fixtures, and signs ▪ Cost of materials, tools, equipment, or machinery used to repair, replace, and clean up the above items ▪ Cost of personnel to clean up, replace, and repair

Appendix

Administrative Costs	<p><i>Administrative Costs that result from a safety incident include:</i></p> <ul style="list-style-type: none">▪ Management time: reviewing, investigating, and reporting the incident; researching, reviewing, implementing the corrective measures; reviewing, revising, communicating safety policies and procedures; if a court suit occurs, additional time related to satisfying judgments▪ Administrative personnel time processing safety/incident investigation forms and related information, such as hiring, processing, training new employee(s)▪ Extra utilities and cleanup associated with extra or overtime hours▪ Rentals required▪ Equipment, uniforms, supplies, tools, materials required for new employee(s)▪ Costs of shipping/receiving delays▪ Increases in workers' compensation costs▪ Legal costs and/or increases in liability insurance premiums
-----------------------------	--

S.T.A.R.T.: Assessment

DIRECTIONS:

Show what you've learned in this class by answering the following questions.

1. **Cross out** the items that are **NOT** part of an effective safety culture:
 - A. Workers understand the impact incidents have on the bottom line.
 - B. Safety goals and safety activities are established for supervisors.
 - C. Only direct costs are considered when analyzing incident costs.
 - D. Carelessness is one of the root causes of incidents.
 - E. Accidents and near misses are investigated.
 - F. Safety is an integral part of operations.
 - G. The safety director is accountable for all safety activities.

2. To run a successful operation requires careful management of the three pillars of a successful company. The three that supervisors need to be accountable for are:

3. Draw an **↑** or **↓** **arrow** to indicate which business elements increase or decrease with an effective safety culture.
 - A. ___ Direct and indirect costs
 - B. ___ Workers' compensation premiums
 - C. ___ Productivity
 - D. ___ Profit
 - E. ___ Legal costs
 - F. ___ Schedule delays
 - G. ___ Employee morale

Appendix

4. The *most important reason* companies should focus on safety is because of the financial impact.
True or False
5. Supervisors should focus on _____ rather than on _____ to create an effective safety culture.
- A. Safety Activities; Safety Results
 - B. Risky Behaviors; Unsafe Conditions
 - C. Safety Rules; Safety Engagement
6. There is a greater risk of injury within the first _____ of employment.
- A. Week
 - B. Month
 - C. 12 Months
 - D. 2 Years
7. Which of the following is **NOT** a principle you should follow when training a new employee?
- A. Integrate safety training with other aspects of new employee training and orientation.
 - B. Avoid hands-on participation to minimize the potential for injury.
 - C. During the initial learning period, the supervisor observes, clarifies and corrects procedures.
 - D. Provide follow-up training and/or periodically observe, provide feedback, and evaluate.
8. Training includes preparing the worker, presenting the job, involving the employee, and following up.
True or False

9. Which of the following are tips for holding an effective Safety Meeting?
- A. Hold regular meetings, preferably daily.
 - B. Focus discussion on a few key points or the work at hand.
 - C. Avoid using examples and stories that employees might recognize.
 - D. Use actual equipment or tools to illustrate your points.
 - E. Don't ask workers for input to save time.
10. Ninety percent of safety incidents are the result of Risky Behaviors.
True or False
11. The real root cause of most incidents is Unsafe Conditions.
True or False
12. A well-led safety investigation focuses on FACTS, and not on FAULTS.
Which of the following is NOT a fact?
- A. The worker did not wear proper protective equipment.
 - B. The load was not properly tied down.
 - C. The injured employee fell over uncoiled hoses.
 - D. The worker was careless.
13. A safety investigation process should include consideration of four areas.
List the four areas to investigate:

Appendix

14. Put a **star** in front of the statements that are part of a good accountability program.
- A. ___ Supervisors are evaluated on production and quality only.
 - B. ___ Safety expectations are defined, and include specific activities to be performed.
 - C. ___ Training is provided to ensure safe work methods are learned.
 - D. ___ The organization measures whether supervisors complete *safety activities*.
 - E. ___ Rewards are given to individuals and teams who work without injuries.
 - F. ___ Recognition is provided for completing safety activities.
15. Put a **star** in front of the statements that are TRUE about conducting safety investigations.
- A. ___ When an incident occurs, the most important step is to uncover who's at fault.
 - B. ___ Correcting root causes prevents incidents.
 - C. ___ Inspections should include observing behavior.
 - D. ___ The more frequent the unsafe behavior – the greater chance for an injury.
 - E. ___ Be sure to consider the equipment, materials, people/behavior and safety system.

16. As a supervisor in an effective safety culture I . . . (**Star** all that apply):

- A. Leave safety to the safety director.
- B. Manage by the “do-as-I-say,” not the “do-as-I-do” principle.
- C. Train new employees immediately.
- D. Observe employee behavior.
- E. Recognize safe behavior as a way to reinforce it.
- F. Never ignore an unsafe act.
- G. Correct a worker’s behavior through personal criticism and ridicule.
- H. Hold safety meetings once a year.
- I. Understand accountability.
- J. Always investigate incidents and near-misses.
- K. Investigate for root causes.

SAFELY HOME. EVERYONE. EVERY DAY.™

Caterpillar Inc.
1732 NW Quimby Street
Suite 225
Portland, OR 97209 US

800 537-8352

SAFETY.CAT.COM™
CATERPILLAR SAFETY SERVICES

WBK0197

Printed in USA

Copyright

CAT, CATERPILLAR, their respective logos, S.T.A.R.T., "Caterpillar Yellow" and the POWER EDGE trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission. © 2012 Caterpillar All Rights Reserved

Disclaimer

The material in this document is provided for informational purposes only and not as a comprehensive or exhaustive resource on this topic. This material has been compiled from a multitude of sources believed to be accurate, however, Caterpillar Inc. assumes no responsibility for the accuracy or currency of this information and encourages you to consult experts in this area for more information. In no event does the content of this document supersede any applicable local, state, or federal statutes or regulations.

CATERPILLAR®



EXHIBIT B

105 Reporting Employee Injuries

- a) Injuries, no matter how slight, shall be reported to the person in charge as soon as practical. All injuries shall be reported on an Owen Electric Cooperative employee injury report form. The completed form shall be forwarded to the employee's supervisor and then to the manager of safety.
- b) When professional medical services are necessary, a gatekeeper physician designated by Owen Electric Cooperative should be used whenever possible. Such injuries shall be reported to the employee's supervisor and/or Owen Electric Cooperative's manager of safety.
- c) In the event of an injury accident, no person shall communicate any information pertaining to the accident to any family member of the employee or to any other employee. A member of Corporate Services will notify the appropriate person that is listed as the employee's emergency contact. Information will be provided by a designated member of Corporate Services at the time true and accurate information is attained.
- d) Report of any incident not requiring immediate medical attention should be reported to your supervisor and the Manager of Safety at the end of the day.
- e) Upon notification of the incident, the accident investigation will begin immediately and will be completed within a week of the report, unless circumstances warrant further investigation. Included in this investigation would be the assessing of cause and the recommendation to keep this same incident from reoccurring.
- f) Approval of recommendations and communication of these recommendations will occur within one week after they are received by management.
- g) In case of serious or fatal accident to employees, appropriate action shall be taken promptly. The accident shall be reported immediately to department head, managers, and/or manager of safety.
- g)h) In the event of an incident that may cause the employee to lose focus of their job duties, management will remove the employee from safety sensitive functions for the remainder of the workday that the incident occurred. More time from safety sensitive functions will be ordered if determined to be needed by upper management.
- h)i) For additional information, refer to Owen Electric Cooperative's procedure on Accident Investigation.

Formatted: List Paragraph, No bullets or numbering

- b) Any defective, broken, and/or malfunctioning tool, vehicle and work equipment shall be placed "OUT-OF-SERVICE" and not used until repairs have been made and documented by the person making the repairs.

112 Taking Chances

- a) Before commencing any work that may be hazardous, care shall be taken to establish a safe procedure. When more than one employee is engaged in the same job, all employees concerned shall understand the procedures to be followed (job briefing). Under no circumstances shall safety be sacrificed for speed.
- b) Employees shall always try to place themselves in a safe and secure position.
- c) Any OEC employee that initially comes into a line construction or maintenance worksite shall notify the person in charge that they are on site. The person in charge shall ensure that the employee entering the worksite is familiar with the type work taking place and the potential hazards that are present. The employee entering the worksite shall print and sign the crew job briefing form.

Formatted: List Paragraph, Numbered + Level: 1 + Numbering Style: a, b, c, ... + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Tab after: 0.75" + Indent at: 0.75"

Formatted: Font: Century Gothic, 10 pt

113 Practical Jokes

- a) Employees shall not engage in practical jokes or "horseplay."

114 Machine Guarding / Lock out Tag out

*****NOTICE*** This procedure is designed to comply with OSHA 1910.147 and is not to be confused with the Owen Electric hold card procedure that complies with OSHA 1910.269.**

- a) All normally in service machines, radio transmitters, circuits, valves or any device in which the accidental engaging or startup could result in the release of any stored hazardous energy, shall be locked and tagged out of service while maintenance is being performed or if there is to be any alteration from normal operation.
- b) If two or more employees are working on the same device, each employee shall install his or her individual lock out.
- c) Absolutely no employees shall remove a lock out device that has been placed by another employee.
- d) Before a circuit or device is to be taken out of service, the employee who shall be responsible shall notify all other employees in which this process will

- q) When loading or unloading trucks or railroad cars, approved dock boards that are properly secured shall be used. The wheels of the truck or railroad car shall be blocked.
- r) Lift trucks shall be inspected before each use and a documented inspection monthly. Any damage, defects, or malfunction shall be reported. If lift truck is unsafe for operation, it shall be placed out of service and not used.
- s) Powered lift trucks shall yield to all pedestrian traffic. The lift operator shall lower loads to the ground and cease operations should unauthorized pedestrians approach the lift truck operating area.
- t) Seat belts shall be used by power lift operator at all times.

311 Cranes, Derricks, Hoisting Equipment

- a) Only authorized persons shall be permitted in the cab or on the equipment. Only those designated persons who are trained and qualified shall operate the hoisting equipment.
- b) No person shall be permitted to ride the hook, sling, or load of any hoisting equipment.
- c) Load limits, as specified by the manufacturer, shall not be exceeded under any circumstances.
- d) Outriggers shall be used if equipment is so equipped. Outriggers shall be set on pads when in use. Outriggers shall not be extended or retracted outside of clear view of the operator unless all employees are outside the range of possible equipment motion.
- e) Operating and maintenance procedures as specified by the manufacturer shall be followed.

The following are the minimum checks which shall be made daily before use:

1. All control mechanisms for maladjustment interfering with proper operation.
 2. All safety devices for malfunction.
 3. Deterioration or leakage in air or hydraulic systems.
 4. Hooks, hoist lines, slings, and load attachment devices.
 5. Fire extinguisher available (two 10 lb ABC).
- f) Before a lift is attempted, the lifting mechanism shall be level, firmly supported with the hoist line centered over the center of gravity of the load to be lifted.
 - g) No load shall be lifted until its weight has been determined.
 - h) For the first lift of each day, the load shall be test-lifted and the brakes checked (load lifted several inches and then tested).

- i) With every load, the slings and bindings shall be checked and shall be readjusted as necessary to ensure safety and stability.
- j) Signals to the equipment operator shall be given by one person designated to perform this test. The operator shall, however, obey a "Stop" signal given by anyone.
- ~~k) Lifting equipment, bucket and material handling trucks, digger/derrick line trucks, shall be bonded to the pole ground or system neutral, or considered energized and barricaded when used near energized equipment or lines, or where the equipment or extension of the equipment (such as during stringing or pole setting) could become energized through direct contact with lines or equipment or through induced current from nearby energized facilities. Screw type ground rods are prohibited. Employees may elect to barricade lifting equipment, bucket and material handling trucks, digger/derricks line trucks, instead of bonding to the best available ground. When there is a likelihood of a member of the public approaching trucks and equipment that could potentially become energized, the equipment shall be barricaded. In any case, the public shall be prevented from contacting equipment. When installing truck grounds, the employee installing the ground must use a hand line to raise and lower the ground.~~
- k) Vehicle chassis grounding shall be used unless the installation of such grounding equipment creates jobsite hazards which could result in an unsafe work environment for employees and/or public. In these conditions the employee in charge of the worksite may opt not to use chassis grounding to the system neutral. A fully driven ground rod or vehicle barricading may be utilized. This change in procedure shall be noted on job briefing form.
- l) When any part of a derrick or lifting device or any part of the load being hoisted is at or inside of the minimum approach distance for the voltage being worked (refer to OEC Safety Manual Table 507-1) the operator shall remain on the vehicle. Employees working on the ground shall not contact the vehicle or vehicles unless using rubber protective equipment (gloves and boots) insulated for the voltage being worked.)***NOTE***at this time the vehicle or vehicles shall be considered as energized. The crew leader or designated employee in charge shall be responsible for alerting crew members when this equipment is to be considered energized and also give the "ALL CLEAR" when equipment is clear of the minimum approach distance (refer to OEC Safety Manual table 507-1) and is safe to enter, exit and/or contact. Crews may also wish to barricade vehicles with traffic cones and caution tape.
- n) No employee shall be under a suspended load or inside the angle of a winch line. No employee shall stand or work near a cable, chain, or rope under tension unless the nature of their work requires it.
- o) Winch lines, ropes, or wire cables shall not be guided by hand when standing within reach of the drum or sheave.
- p) Wire rope loops shall be made by proper splicing or mechanical clamping of the tail section. Wire rope clips shall not be used to form eyes in wire rope bridles or slings.

Formatted: Font: Century Gothic, 10 pt
Formatted: List Paragraph, Numbered + Level: 1 + Numbering Style: a, b, c, ... + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Tab after: 0.75" + Indent at: 0.75"

Formatted: Font: Century Gothic, 10 pt
Formatted: Font: Century Gothic, 10 pt

Formatted: Font: Century Gothic, 10 pt
Formatted: Indent: Left: 0", First line: 0"

- d) L.P. fuel shall be stored in accordance with all applicable guidelines. Refer to OEC Safety Manual sec. 137

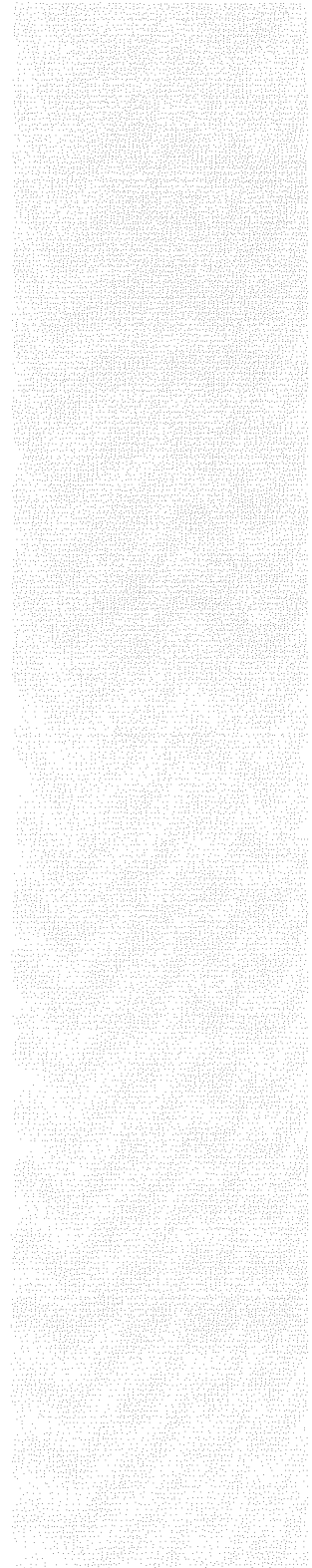
316 Utility All Terrain Vehicles (UTV's and ATV's)

- a) Vehicle roll over protection (ROPS) shall not be modified.
- b) Seat belts shall be used when vehicle is in motion.
- c) Employees shall only ride in seats provided by vehicles manufacturer when vehicle is in motion.
- d) All manufacturer's safety and operational recommendations shall be followed.
- e) Weight capacities shall not be exceeded.
- f) Only qualified employees shall operate these vehicles.
- g) Transporting cargo: Cargo shall only be transported in areas provided by manufacturer. All cargo must be properly secured.

317 Track Machine Operation

- a) Before operating track machine, operators shall assure themselves that they can operate the machine in a safe manner and follow manufacturer's recommendations as found in the operation manual in the cab of the machine.
- b) Service Planners should consider access to poles and lines when planning construction or redesign of existing lines as to minimize track machine use.
- c) The Distribution Supervisor shall determine that the jobsite is safe for the use of the machine and note any instructions for safe travel on the print.
- d) Specific safe operating procedures shall be noted on the job briefing form by the Crew Leader after those procedures are discussed with employees on jobsite.
- e) The employee in charge of the job shall walk out the route, and ensure its safety, prior to advancing the track machine.
- f) The operator shall wear seatbelt when the machine is being moved and have the cab door closed.
- g) Ensure that no person is near the machine before moving, especially on the downhill side.
- h) No passengers are allowed to ride on the machine when being moved.
- i) Never try to mount or dismount the machine while it is moving.

- j) Avoid changing directions on a slope as this can cause the machine to slip and possibly tip over. When changing directions is unavoidable, do so on a gentle slope with stable ground.
- k) Move up and down slopes, not sideways.
- l) Track machine shall be used in accordance with OEC Safety Rule 311 – Cranes, Derricks, Hoisting Equipment, and OEC Safety Rule 313 – Aerial Devices.



- f) Adequate grounds shall be placed on all dead-end structures and shall remain intact until jumpers are installed completing the circuit or shall be removed as the last phase of aerial cleanup.

616 Stringing Adjacent to Energized Lines

- a) Prior to stringing parallel to an existing energized transmission line, a competent determination shall be made to ascertain whether dangerous induced voltage buildups will occur, particularly during switching and ground-fault conditions. If such dangerous induced voltage may exist, the provisions of OEC Safety Manual 615 shall be followed.
- b) When stringing adjacent to energized lines, the tension stringing method or other methods that preclude unintentional contact between the lines being pulled and any employee shall be used.
- c) All pulling and tensioning equipment shall be effectively grounded.
- d) A ground shall be installed between the tensioning reel setup and the first structure in order to ground each bare conductor, sub-conductor, and overhead ground conductor during stringing operations.
- e) During stringing operations, each bare conductor, sub-conductor, and overhead ground conductor shall be grounded at the first tower adjacent to both the tensioning and pulling setup and in increments so that no point is more than two (2) miles from a ground.
- f) The ground shall be left in place until conductor installation is completed.
- g) Such grounds shall be removed as the last phase of aerial cleanup.
- h) Except for moving type grounds, grounds shall be placed and removed with an approved hot stick.
- i) Conductors, sub-conductors, and overhead ground conductors shall be grounded at all dead-end or catch-off points.
- j) A ground shall be located at each side and within 10 feet of working areas where conductors, sub-conductors, and overhead ground conductors are being spliced at ground level. The two ends to be spliced shall be bonded to each other.
- k) Work on dead-end towers shall require grounding on all de-energized lines.
- l) Grounds may be removed as soon as the work is completed, provided that the line is not left open circuited at the isolated tower at which work is being completed.
- m) When performing work from the structures, clipping crews and all others working on conductors, sub-conductors, and overhead ground conductors shall be protected by individual grounds at every work location.

617 Grounding – General

- a) General: Conductors and equipment shall be treated as energized unless all conditions are met:

1. Disconnected by means of a physical visible opening from any possible energy source.
 2. Tested for the presence of voltage with an approved testing device.
 3. Protective grounds installed on each side of work area within sight of work area if possible.
 4. Proper lockout/tagout procedures have been performed. Refer to OEC Safety Manual sec. 608
 5. Refer to Sec. 607 for working on de-energized lines and equipment.
- b) New construction: New lines and/or equipment shall be considered energized and worked as such unless the following conditions are met:
1. The lines or equipment are grounded and
 2. The hazard of induced voltage is not present, and adequate clearances or other means are implemented to prevent contact with energized lines or equipment and the new lines or equipment.
- c) Service drops (overhead and/or underground) previously energized shall be considered as energized unless the following conditions are met:
1. Disconnected by means of a physical visible opening from any possible energy source.
 2. Tested for the presence of voltage with an approved testing device.
 3. The hazard of induced voltage is not present, and adequate clearances or other means are implemented to prevent contact with energized lines or equipment and the service drop.
 4. Protective grounds may also be installed on service drops
 5. For service conductor installed as underbuild on primary or high voltage overbuild refer to 606 a.
- d) Communication conductors: Bare-wires communication conductors on power poles or structures shall be treated as energized lines unless protected by insulating materials.
- e) Voltage testing: De-energized conductors and equipment, which are to be grounded, shall first be tested for the presence of voltage with an approved testing device.
- f) Attaching and removing grounds:
1. When attaching grounds, the ground end shall be attached first, and the other end shall be attached and removed by means of insulated tools.
 2. When removing grounds, the grounding device shall first be removed from the line or equipment using insulating tools.

- g) Grounds shall be placed between work location and all sources of energy and as close as practicable to the work location or grounds shall be placed at the work location (preferably within sight of work area). If work is to be performed at more than one location in a line section, the line section must be grounded and short-circuited at one location in the line section and the conductor to be worked on shall be grounded at each work location. The minimum distance shown in Table 507-1 and 6-2 shall be maintained from ungrounded conductors at the work location. If making a ground is impracticable or the conditions resulting therefrom would be more hazardous than working on lines or equipment without grounding, the grounds may be omitted and the line or equipment worked as energized using approved live-line methods.
- h) Testing without grounds: Grounds may be temporarily removed only when necessary for test purposes and extreme caution shall be exercised during the test procedures.
- i) Grounding electrode: When grounding electrodes are used, such electrodes shall have resistance to ground low enough to remove the danger to personnel or permit prompt operation of protective devices.
- j) Grounding to tower: Grounding to tower shall be made with a tower clamp capable of conducting the anticipated fault current.
- k) Ground lead: A ground lead, to be attached to either a tower ground or driven ground, shall be capable of conducting the anticipated fault current and shall have a minimum conductance of No. 2 AWG copper.
- l) Lifting equipment, bucket and material handling trucks, digger/derricks line trucks, shall be bonded to the pole ground or system neutral, or considered energized and barricaded when used near energized equipment or lines, or where the equipment or extension of the equipment (such as during stringing or pole setting) could become energized through direct contact with lines or equipment or through induced current from nearby energized facilities. Screw type grounds are prohibited. Employees may elect to barricade lifting equipment, bucket and material handling trucks, digger/derricks line trucks, instead of bonding to the best available ground. When there is a likelihood of a member of the public approaching trucks and equipment that could potentially become energized, the equipment shall be barricaded. In any case, the public shall be prevented from contacting equipment. When installing truck grounds, the employee installing the ground must use a hand line to raise and lower the ground.
- m) When utilizing chassis grounding with two or more vehicles at the same job site (within 50'), all vehicles shall be attached to the main grounding point independently. This procedure applies regardless of boom and/or pedestal insulation. (**NOTE** vehicle grounding cables shall not be raised or lowered: in the basket of an aerial lift, or held by an employee working from an aerial lift. When installing truck grounds, the employee installing the ground must use a hand line to raise and lower the ground.
- n) Vehicle chassis grounding shall be used unless the installation of such grounding equipment creates jobsite hazards which could result in an unsafe

work environment for employees and/or public. In these conditions the employee in charge of the worksite may opt not to use chassis grounding. Vehicle barricading may be utilized; this change in procedure shall be noted on job briefing form.

- o) When any part of a derrick or lifting device or any part of the load being hoisted is at or inside of the minimum approach distance for the voltage being worked (refer to OEC Safety Manual Table 507-1). The operator shall remain on the vehicle. Employees working on the ground shall not contact the vehicle or vehicles (unless using rubber protective equipment (gloves and boots) insulated for the voltage being worked). ***NOTE*** at this time the vehicle or vehicles shall be considered as energized. The crew leader or designated employee in charge shall be responsible for alerting crew members when this equipment is to be considered energized and also give the "ALL CLEAR" when equipment is clear of the minimum approach distance (refer to OEC Safety Manual table 507-1) and is safe to enter, exit and/or contact. Crews may also wish to barricade vehicles with traffic cones and caution tape.
- p) Grounds may be temporarily removed during tests. During the test procedure, each employee will use insulating equipment and shall be isolated from any hazards involved.
- q) Before any grounding is installed, lines and equipment shall be tested and found to be absent of nominal voltage, unless a previously installed ground is present.
- r) When a ground is to be attached to a line or to equipment, the ground end connection shall be attached first, and then the other end shall be attached by means of an approved 8' insulated stick.
- s) When a ground is to be removed the grounding device shall be removed from the line or equipment using an approved 8' insulated stick before the ground end connection is removed.
- t) When work is performed on cable at a location remote from the cable terminal, the cable may not be grounded at the cable terminal if there is a possibility of hazardous transfer of potential should a fault occur.

618 Single Point Grounding

- a) Owen Electric Cooperative does not utilize single point grounding at this time since recent testing has shown that it is not consistent with providing an equal potential zone.

619 Pole Hauling and Temporary Storage

- a) The trailing end of a load of poles shall be marked by a red flag and flashing red light during the day and a flashing red light at night. As an additional precaution, warning flags or lights may be placed in the center of long loads. An employee shall be used for flagging when necessary.
- b) If it becomes necessary to store poles at the location where they are to be set, they shall be so placed that they will not interfere with traffic.

4. Employees shall not attach grounds or install ground rods until energized conductors are secured and properly tied in.
 5. All employees within immediate work zone shall wear electricity insulated foot protection.
 6. When working down-line of a switching device with auto-reclosing capabilities the auto-reclosing mechanism shall be disabled (providing the device is equipped to do so and the device in question is the direct feed source of the line section being worked). This shall be reported to System Operator and a hold card issued (follow hold carding procedures).
- e) When pikes are used to hold poles in place while holes are being back filled, the pikes shall be firmly set in all directions and shall not be removed until the backfill is sufficient to hold the pole. When a pole is being "canted" or "hooked," the pikes shall be held.
 - f) Employees shall not stand or pass under a suspended load or adjacent to or over or under a loaded winch line.
 - g) Employees engaged in handling or working on poles shall wear suitable gloves and shall wear a shirt or jacket with the sleeves rolled down.
 - h) Only those employees who are trained and qualified shall operate the hoisting equipment.
 - i) The hoist equipment load limits as specified by the manufacturer shall not be exceeded under any circumstances.
 - j) Hoisting equipment shall have a load capacity chart and boom angle indicator in view of the operator.
 - k) When removing set poles, extreme caution shall be exercised to assure the hoisting equipment is not overloaded due to the weight of the pole and its adhesion to the ground. The use of pole jacks, tension load meters (dynamometer), a hoist device with sufficient lifting capacity, and/or loosening the earth around the pole along its entire depth shall be considered.
 - l) Hoisting equipment operators shall accept signals only from the employee specifically designated. The operator shall obey the stop signal given by anyone.
 - m) When poles are set, moved, or removed near exposed energized overhead conductors, the pole may not contact the bare (unguarded) conductors.
 - n) Exposure to pole coatings, pesticides, and preservers during touching, removing, and breaking poles may increase the risk of developing dermal abrasion to the skin from chemicals. Common chemicals used include pentachlorophenol, creosote, copper naphthenate or arsenicals. Direct contact with the poles shall be minimized or eliminated by use of gloves at all times. Long sleeves are recommended during the setting and removing of poles to minimize the amount of exposure through skin contact.

621 Derrick Trucks, Cranes, etc.

- a) With exception of equipment certified for work on the proper voltage, mechanical equipment shall not be operated closer to any energized line or equipment than the clearances set forth in Table 507-1 - 6.4.
- b) Lifting equipment, bucket and material handling trucks, digger/derricks line trucks, shall be bonded to the pole ground or system neutral, or considered energized and barricaded when used near energized equipment or lines, or where the equipment or extension of the equipment (such as during stringing or pole setting) could become energized through direct contact with lines or equipment or through induced current from nearby energized facilities. Screw type ground rods are prohibited. Employees may elect to barricade lifting equipment, bucket and material handling trucks, digger/derricks line trucks, instead of bonding to the best available ground. When there is a likelihood of a member of the public approaching trucks and equipment that could potentially become energized, the equipment shall be barricaded. In any case, the public shall be prevented from contacting equipment. When installing truck grounds, the employee installing the ground must use a hand line to raise and lower the ground.
- c) When utilizing chassis grounding with two or more vehicles at the same job site (within 50'), all vehicles shall be attached to the main grounding point independently. This procedure applies regardless of boom and/or pedestal insulation. (**NOTE**vehicle grounding cables shall not be raised or lowered in the basket of an aerial lift, or held by an employee working from an aerial lift. When installing truck grounds, the employee installing the ground must use a hand line to raise and lower the ground,
- d) Vehicle chassis grounding shall be used unless the installation of such grounding equipment creates jobsite hazards which could result in an unsafe work environment for employees and/or public. In these conditions the employee in charge of the worksite may opt not to use chassis grounding to the system neutral. A fully driven ground rod or vehicle barricading may be utilized. This change in procedure shall be noted on job briefing form.
- e) When any part of a derrick or lifting device or any part of the load being hoisted is at or inside of the minimum approach distance for the voltage being worked (refer to OEC Safety Manual table 507-1) of energized lines or equipment, the operator shall remain on the vehicle. Employees working on the ground shall not contact the vehicle or vehicles (unless using rubber protective equipment insulated for the voltage being worked.) ***NOTE***at this time the vehicle(s) shall be considered as energized. The crew chief or designated employee in charge shall be responsible for alerting crew members when this equipment is to be considered energized and also given the "ALL CLEAR" when equipment is clear of the minimum approach distance (refer to OEC Safety Manual table 507-1) and is safe to enter, exit and/or contact. Crews may also wish to barricade vehicle with traffic cones.
- f) When a derrick truck is used as an aerial platform in the vicinity of lines and equipment considered to be energized or that could become energized, an electrically insulated basket liner SHALL BE used.
- g) When a derrick truck is used as an aerial platform in the vicinity of lines and equipment considered to be energized or that could become energized, the fiberglass insulated section of the boom SHALL BE fully extended at all times the platform is in use.

Formatted: Not Highlight

Formatted: Not Highlight

- h) When a derrick truck is used as an aerial platform in the vicinity of lines and equipment considered to be energized or that could become energized, the boom winch line must be removed from the boom tip and stored on the winch drum.
- i) When the optional aerial platform is not in use it SHALL BE stored in a manner according to manufacturers recommendations.
- j) Winch lines or cables shall not be used as slings. All material, loads, etc to be lifted or pulled via hoist or winch shall be attached to winch/hoist cable by use of approved sling or chain. A winch or hoist line or cable shall not be connected to itself.

622 Fuses

- a) When fuses must be installed or removed with one or both terminals energized at more than 300 volts, tools or gloves rated for the voltage shall be used. When installing expulsion type fuses, employees shall wear safety glasses or safety goggles, head protection and shall stand clear of the exhaust path of the fuse barrel.
- b) Sand fuses shall not be installed or removed with equipment energized.

623 Rope (Synthetic Fiber-Manila)

- a) A rope shall not be overloaded or dragged over rough or sharp objects.
- b) Short bends over sharp edged surfaces should be avoided.
- c) Kinks shall be removed before any strain is put on rope.
- d) When not in use, ropes shall be dried, stored properly, and kept free from mechanical damage and excessive heat and dryness.
- e) Ropes shall be examined regularly for cuts, worn spots, burns, and rot. The ropes shall be untwisted at various places and inspected for poor fiber and dry out.
- f) The outward appearance of ropes shall not be accepted as proof of quality or strength
- g) The safe loads shall not be exceeded.
- h) Hand-lines shall be a minimum of ½-inch diameter and have a strength equivalent to ½-inch manila.
- i) All ropes shall be considered as conductive. Rope attached to any energized conductor or equipment shall be connected via an insulating link stick.

624 Substations

- a) Only those authorized to enter a substation shall be permitted to do so. All Owen Electric Cooperative employees shall notify the system operator when entering and leaving a substation.

- f) Lighted furnaces or blow torches should not be left unattended.
- g) Torches or furnaces must be kept at a safe distance from flammable materials.

810 General

- a) Before a URD transformer enclosure is opened, all unauthorized persons including private citizens shall be required to leave the work area and remain clear of all hazards involved in the work.
- b) Barricades shall be erected to serve as a warning to persons, other than employees, that hazards are present in the area.
- c) In any case, the public shall be prevented from coming in contact with the opened transformer or equipment.
- d) When removing or installing a "bayonet" type fuse, employees shall:
 1. Use proper PPE (rubber gloves, rubber sleeves, safety glasses, hard hat, and FR clothing).
 2. Use an approved "Hot Stick" to remove and install the bayonet.
 3. Vent equipment before releasing bayonet.
 4. Do not stand directly in front of the bayonet during the removal or installation process.

811 Opening and Closing Circuits

- a) Utility switching procedures, including Hold Carding and tagging practices, shall be followed when sectionalizing URD systems.
- b) When URD circuit has opened, the route of the circuit shall be patrolled for obvious hazards before the circuit is re-closed.
- c) An approved switching tool, rubber gloves, rubber sleeves, eye protection, electrical insulated footwear and approved FR/Arc rated clothing shall be used when switches (including secondary breakers and primary load-break elbows) in an energized circuit are opened or closed.
- d) Any URD primary circuit that is to be de-energized shall be opened with one or more load-break devices. De-energizing shall be done with a load-break elbow connector, load-break fuse cutout at the riser pole, load-break tool, or other approved load-break device.

812 Grounding

Note: A capacitance charge may remain in URD cable after it has been disconnected from the circuit and a static type arc can occur when grounds are applied to such cables.

- a) General: Conductors and equipment shall be treated as energized unless all conditions are met:
1. Disconnected by means of a physical visible opening from any possible energy source.
 2. Tested for the presence of voltage with an approved testing device.
 3. Protective grounds installed on each side of work area.
 4. Proper lockout/tagout procedures have been performed. Refer to OEC Safety Manual sec. 608
- b) New construction: New lines and/or equipment shall be considered energized and worked as such unless the following conditions are met:
1. The lines or equipment are grounded and
 2. The hazard of induced voltage is not present, and adequate clearances or other means are implemented to prevent contact with energized lines or equipment and the new lines or equipment.
- c) Service drops (overhead and/or underground) previously energized shall be considered as energized unless the following conditions are met:
1. Disconnected by means of a physical visible opening from any possible energy source.
 2. Tested for the presence of voltage with an approved testing device.
 3. The hazard of induced voltage is not present, and adequate clearances or other means are implemented to prevent contact with energized lines or equipment and the service drop.
 4. Protective grounds may also be installed on service drops.
- d) Refer to OEC Safety Manual sec. 617 for grounding procedures and requirements.
- e) When work is to be done on equipment or cables of an underground system, precautions to prevent backfeed shall be taken, including grounding or disconnecting of secondary conductors.

- f) De-energized cables to be worked on shall be grounded at a point as close to the work as possible.
- g) All underground cable and apparatus carrying current at voltages greater than 600 volts shall be de-energized and grounded before cables are cut into or spliced.
- h) All conductors of a circuit shall be de-energized when work is to be performed on any of them.
- i) Ground lead shall be capable of conducting the anticipated fault current and shall have a minimum conductance of No. 2 AWG copper.
- j) Lifting equipment, bucket and material handling trucks, digger/derricks line trucks, shall be bonded to the pole ground or system neutral, or considered energized and barricaded when used near energized equipment or lines, or where the equipment or extension of the equipment (such as during stringing or pole setting) could become energized through direct contact with lines or equipment or through induced current from nearby energized facilities. Screw type ground rods are prohibited. Employees may elect to barricade lifting equipment, bucket and material handling trucks, digger/derricks line trucks, instead of bonding to the best available ground. When there is a likelihood of a member of the public approaching trucks and equipment that could potentially become energized, the equipment shall be barricaded. In any case, the public shall be prevented from contacting equipment. When installing truck grounds, the employee installing the ground must use a hand line to raise and lower the ground.
- k) When any part of a derrick or lifting device or any part of the load being hoisted is at or inside of the minimum approach distance for the voltage being worked (refer to OEC Safety Manual Table 507-1) the operator shall remain on the vehicle. Employees working on the ground shall not contact the vehicle or vehicles (unless using rubber protective equipment (gloves and boots) insulated for the voltage being worked). ***NOTE*** at this time the vehicle or vehicles shall be considered as energized. The crew leader or designated employee in charge shall be responsible for alerting crew members when this equipment is to be considered energized and also give the "ALL CLEAR" when equipment is clear of the minimum approach distance (refer to OEC Safety Manual table 507-1) and is safe to enter, exit and/or contact. Crews may also wish to barricade vehicles with traffic cones and caution tape.

813 Excavations

Note: This section applies to all excavation work, not just URD operations.



EXHIBIT C

Temporary Ground Integrity Testing

Study conducted by the

Owen Electric Cooperative 2013 Safety Team

August 27, 2013

INTRODUCTION: As a follow up to detailed discussions during 2013 Safety Team (Team) meetings, a review of Erga (91 SM 312-9 PWRD) and Alcantara (EC&M 10/1/2006), the Team performed a limited study of the ability of a temporary, auger-type screw ground (see Photo 1) to provide a low-resistance path to ground. The purpose of this system is to provide a path to ground for an aerial device equipped, electrical utility vehicle in the event that some part of the vehicle becomes energized.

It has been the practice of Owen Electric Cooperative (OEC) to sometimes utilize a temporary ground of this type in lieu of “bonding” a utility vehicle directly to the system neutral or to an available pole ground wire. This method of grounding an aerial utility vehicle was put to the ultimate test on September 6, 2012. An OEC line worker made contact with the outrigger of an aerial utility vehicle at the same time another aerial vehicle –that was bonded to a common screw ground with this vehicle- made contact with a 7,200 V conductor.

While the line worker received an electrical shock and suffered minor injuries, the outcome could have been much worse had the screw ground not provided a relatively low-resistance path to ground. The Team decided to perform a brief, empirical study that focused on the impact that the variability of a specific soil’s type/conductivity would have on the effectiveness of a screw ground.

Two sites were selected for study. Ground Test Location #1 (see enclosed) was a three-phase structure on Highway 338 in Boone County. The site was directly across the highway from the Big Bone Lick State Park. Ground Test Location #2 was approximately 3.5 miles, west of #1, on Hwy 338.

PROCEDURE/RESULTS: The test procedure simulated a typical construction site where a crew would begin to prepare to work on an energized conductor, inside a zone where approach distances required “hot” status. No hot work was performed in the tests. The screw ground was inserted into the soil and connected directly to the system neutral. This configuration allowed the proper operation of the clamp-on ground testing device (AEMC 3731). The resistance of the pole ground was also measured at each location.

1. Location #1 soil content is listed on the attached page. The structure was located in an area of Eden Silty Clay Loam and Egam Silty Clay Loam.
 - a. The resistance of the pole ground was 28 Ω .

- b. The screw ground, fully inserted measured 19.8 Ω .
 - c. The guy anchor measured 8.1 Ω .
 - d. With the screw ground $\frac{1}{2}$ inserted, it measured 34.5 Ω .
2. Location #2 soil content is listed on the attached page. The structure was located in an area of Chavies Fine Sandy Loam.
- a. The resistance of the pole ground measured 109 Ω .
 - b. The screw ground, fully inserted measured 390 Ω .
 - c. The screw ground, $\frac{1}{2}$ inserted measured 290 Ω .
 - d. NOTE: The Team was able to easily remove the fully-inserted auger from the ground without and screw action. It easily pulled straight up through the sandy soil.

CONCLUSION: From the results shown, based strictly on soil type, there is a significant difference in the ability of a screw ground to provide an adequate level of protection as a standalone grounding system. The two locations were just a few miles apart. Location #1 provided what would be considered a reasonably low resistance to ground. However, just down the road, the Chavies Fine Sandy Loam at Location #2 provided very inferior and unacceptable resistance levels for the proper operation of a screw ground.

The results of this test and the Conclusion of Erga both point to the fact that a temporary screw ground can be an inconsistent, inadequate method for grounding aerial utility equipment. It is recommended that direct connection to the system neutral or the nearest available pole ground be used in every case where equipment grounding is required. Sept 20, 2013

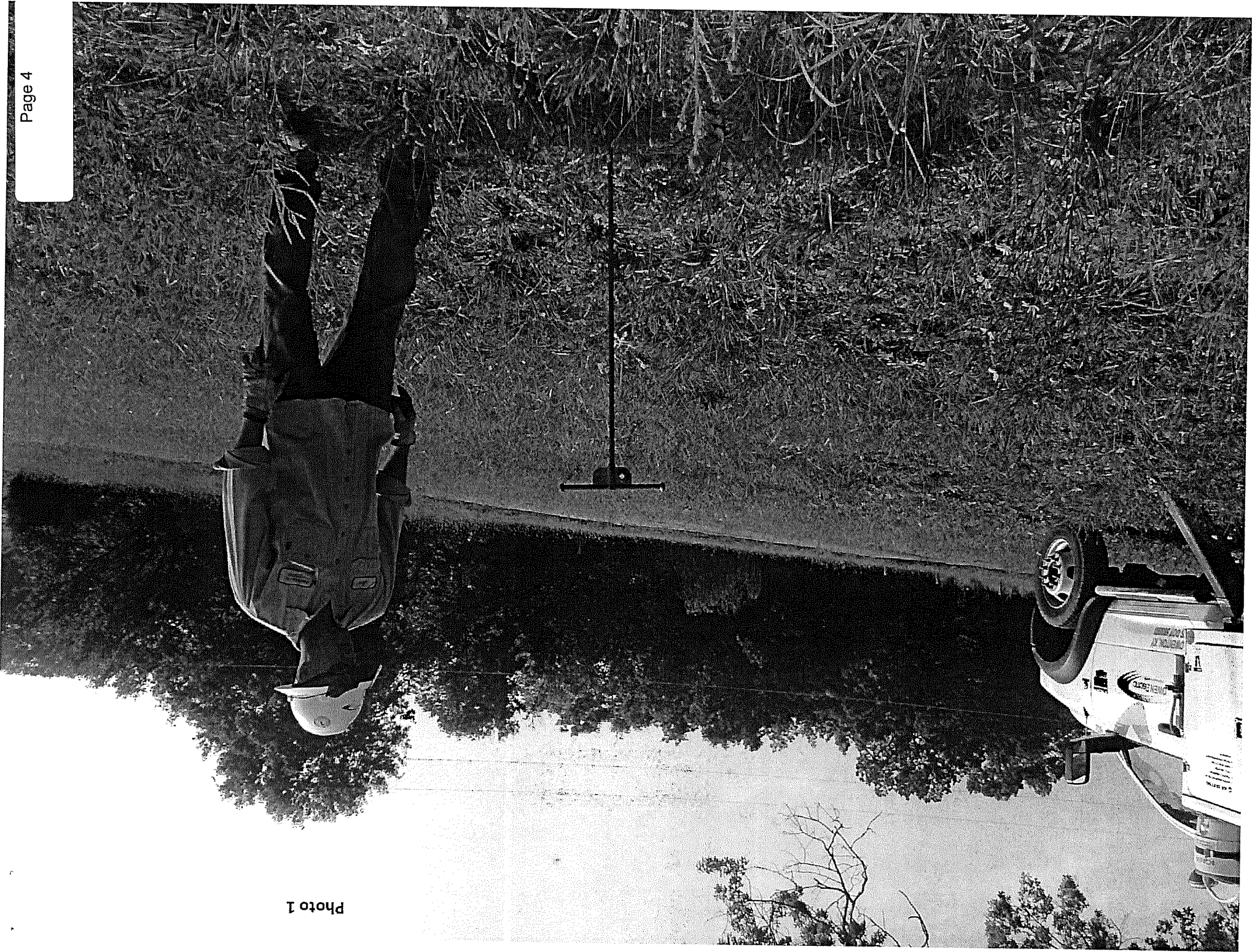


Photo 1

Ground Test Location #1

USDA Natural Resources Conservation Service **Web Soil Survey**

Contact Us | Subscribe | Archived Soil Surveys | Soil Survey Status | Glossary | Preferences | Link | Logout | Help

Area of Interest (AOI) | **Soil Map** | Soil Data Explorer | Download Soils Data | Shopping Cart (Free)

Printable Version | Add to Shopping Cart

Search

Basic Search
 Enter keywords: Search

Advanced Search
 Search

"Big Bone State Park": No match.

Map Unit Legend

Boone, Campbell, and Kenton Counties, Kentucky (KY603)

Map Unit Symbol	Map Unit Name	Acres In AOI	Percent of AOI
EdD2	Eden silty clay loam, 12 to 20 percent slopes, eroded	0.0	0.0%
EdE2	Eden silty clay loam, 20 to 35 percent slopes, eroded	1.8	46.2%
Eg	Egam silty clay loam, (woolper 0 to 4 percent slopes)	2.0	53.2%
WoC	Woolper silty clay loam, 6 to 12 percent slopes	0.0	0.6%
Totals for Area of Interest		3.8	100.0%

Soil Map

Scale: (not to scale)

0 100 R

Ground Test Location #2

websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

USDA Natural Resources Conservation Service Web Soil Survey

Contact Us | Subscribe | Archived Soil Surveys | Soil Survey Status | Glossary | Preferences | Link | Logout | Help

Area of Interest (AOI) | **Soil Map** | Soil Data Explorer | Download Soils Data | Shopping Cart (Free)

Printable Version | Add to Shopping Cart

Search

Map Unit Legend

Boone, Campbell, and Kenton Counties, Kentucky (KY603)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AID	Alluvial land, steep, (wheeling, 25 to 30 percent slopes, rarely flooded)	0.1	14.2%
ChB	Chaviés fine sandy loam, 0 to 6 percent slopes	0.3	75.8%
Ln	Lindsay silt loam (0 to 3 percent slopes, occasionally flooded)	0.0	10.0%
Totals for Area of Interest		0.4	100.0%

Soil Map

Scale: 1:1000000



EXHIBIT D

**MINIMUM APPROACH
DISTANCE
MAD
NESC 2012**

MAD

- ▣ MAD is the minimum distance a qualified electrical worker must remain from an exposed energized conductor or equipment.

MAD

- ▣ Employees shall not approach (within reach or extended reach), any exposed ungrounded part normally energized except as permitted by this rule.

MAD

- ▣ The line or part is de-energized and grounded.
 - Per NESC Rule 444D
 - Per OEC Rule 617

MAD

- ▣ The employee is insulated from the energized line or part.
- ▣ Up to 36 kV, we can don rated rubber gloves or gloves and sleeves, eliminating the MAD for qualified electrical workers using the rubber glove work method.
 - Rubber Gloves
 - Rubber Sleeves
 - Insulating ToolsAre considered effective insulation from the energized line or part being worked on.

MAD

- ▣ The energized line or part is insulated from employee.
- Rubber cover up materials such as line hoses and blankets.
- Must be effectively covered.

MAD

- ▣ The employee is performing barehand live-line work according to NESC Rule 446.

- We do not perform barehand work.

MAD

- ▣ When rubber glove method is employed, rubber insulating gloves shall be worn whenever employees are within the minimum approach distance, supplemented by one of the following two protective methods:
 - The employee shall wear rubber insulating sleeves in addition to rubber gloves.
 - All exposed energized lines or parts, other than those temporarily exposed to perform work on, shall be covered with insulating protective equipment.

MAD

- ▣ Rubber glove work above 15kv requires the use of equipment to support and isolate the worker.
 - Bucket Truck
 - Work Platform (Baker Board)

MAD

Table 507-1. AC Live-Work Minimum Approach Distance
 (page 1 of 2)
 (See NESC Rule 441 in its entirety)

Voltage in Kilovolts Phase-to-Phase ^{2,3,4}	Distance to employee ¹			
	Phase-to-ground		Phase to phase	
	(m)	(ft-in)	(m)	(ft-in)
0 to 0.050 ²	Not specified		Not specified	
0.051 to 0.300 ²	Avoid contact		Avoid contact	
0.301 to 0.750 ²	0.32	1-1		
0.751 to 15	0.64	2-2	0.67	2-3
15.1 to 36.0	0.73	2-5	0.84	2-10
36.1 to 46.0	0.79	2-7	0.94	3-1
46.1 to 72.5	0.89	2-11	1.15	3-9

SAFETY MEETING MINUTES

PRESENTER: Tony Dempsey

TOPIC: Minimum Approach Distance

LOCATION: Headquarters

DATE: 10-22-13

TIME: 1:30 pm

EMPLOYEES

PRESENT: See Attached Roster

WHAT WAS DISCUSSED IN SAFETY

MEETING: Reach or Extended Reach. Cover with rubber blankets

& bases. Wear Rubber glove & sleeve up to 30 KV. Ground for ground

lock to lock
cradle to cradle. Rubber glove work above ~~15~~ 15 KV requires

bucket trucks. O to O 2'3" / O to ~~2~~ 2'2" up to 15 KV.

Make sure there is enough cover up on truck to do a job

supplier call for someone to bring more.

SAFETY TRAINING ROSTER OWENTON HQ

TOPIC: Minimum Approach Distance

INSTRUCTOR: Tony Dempsey

NAME	POSITION	SIGNATURE	DATE
Alexander, Aaron	Crew Leader	<i>Aaron Alexander</i>	10-22-13
Beckham, Cody	Journeyman Lineman	<i>Cody Beckham</i>	10-22-13
Boling, Shannon	FSR		
Canchola, Jude	Energy Advisor		
Criswell, Doug	Crew Leader	<i>Doug Criswell</i>	10-22-13
Duvall, Travis	Journeyman Lineman	<i>Travis Duvall</i>	10-22-13
Fitzgerald, Johnny	Journeyman Lineman	<i>Johnny Fitzgerald</i>	10-22-13
Gaines, Mitchell	Roving Warehouseman		
Gibson, Jeff	Mechanic		
Greene, Mark	Journeyman Lineman	<i>Mark Greene</i>	10-22-13
Greenlee, Matt	Service Technician	<i>Matt Greenlee</i>	10-22-13
Hearn, Josh	Distribution Sup.	<i>Josh Hearn</i>	10-22-13
Hill, Kevin	Journeyman Lineman	<i>Kevin Hill</i>	10-22-13
Howard, Scott	Journeyman Lineman	<i>Scott Howard</i>	10/22/13
Kingkade, Seth	FSR		
Lewis, Jamey	Warehouseman		
Lilly, John	Journeyman Lineman	<i>John Lilly</i>	10-22-13
Mason, Ricky	Journeyman Lineman	<i>Ricky Mason</i>	
Mckinley, Chris	Meter Technician		
Moore, Steve	Journeyman Lineman	<i>Steve Moore</i>	10-22-13
Osborne, Scott	Meter Technician		
Perkins, Jeff	Mechanic	<i>Jeff Perkins</i>	10-22-13
Tuggle, John	FSR		
Widener, Kenny	Crew Leader	<i>Kenny Widener</i>	10-22-13
Wilhoite, Tim	Service Technician		
Wright, Jeremy	Journeyman Lineman	<i>Jeremy Wright</i>	10-22-13

SAFETY MEETING MINUTES

PRESENTER: Tony Dempsey

TOPIC: Minimum Approach Distance

LOCATION: Arthur SC

DATE: 10-23-13

TIME: 8:00 AM

EMPLOYEES

PRESENT: See Attached Roster

WHAT WAS DISCUSSED IN SAFETY MEETING:

Employees shall not approach within reach or extended reach any exposed or grounded part normally energized. Exceptions include isolated/tested/grounded or insulated by two forms of protection from the energized line. All exposed energized lines or parts have to be covered up. ~~UP~~ MAD = 15 kVA = 2.2m Also the same up to 36 kV, sleeves are also used for brush contact only.

SAFETY TRAINING ROSTER ARTHUR SERVICE CENTER

TOPIC: Minimum Approach Distance

INSTRUCTOR: Tony Dempsey

NAME	POSITION	SIGNATURE	DATE
Alford, Jordan	Apprentice Lineman	<i>Jordan Alford</i>	10-22-13
Bach, Tony	Service Technician	<i>Tony Bach</i>	10-22-13
Back, Chris	Journeyman Lineman	<i>Chris Back</i>	10-22-13
Berkemeirer, Kenny	Service Technician	<i>Kenny Berkemeirer</i>	10-22-13
Brann, Alan	Service Technician		
Cheesman, Callen	Crew Leader	<i>Callen Cheesman</i>	10-22-13
Clemons, Danny	Crew Leader	<i>Danny Clemons</i>	10-22-13
Colligan, Charlie	Journeyman Lineman	<i>Charlie Colligan</i>	
Collins, Bryan	Journeyman Lineman	<i>Bryan Collins</i>	10-22-13
Dempsey, Chris	Journeyman Lineman	<i>Chris Dempsey</i>	10/22/13
Forsee, Brad	Apprentice Lineman	<i>Brad Forsee</i>	10/22/13
Glass, Orman	Field Supervisor	<i>Orman Glass</i>	10/22/13
Heeger, Jeremiah	Mechanic	<i>Jeremiah Heeger</i>	10-22-13
Hines, Matt	FSR		
Jones, Brian	Field Supervisor		
Juett, James	Journeyman Lineman	<i>James Juett</i>	10/22/13
Kincaid, Rodney	Crew Leader	<i>Rodney Kincaid</i>	
Martin, Jeff	FSR	<i>Jeff Martin</i>	10/22/13
Mulberry, Jerod	Apprentice Lineman	<i>Jerod Mulberry</i>	
Mullins, Andy	FSR	<i>Andy Mullins</i>	
Noel, Brian	Service Technician	<i>Brian Noel</i>	10-22-13
Peters, Simon	Journeyman Lineman	<i>Simon Peters</i>	10/22/13
Pickett, Nate	Service Technician		
Richardson, Larry	Service Technician		
Schmiade, Joe	Service Technician	<i>Joe Schmiade</i>	10-22-13
Taylor, Bruce	Crew Leader	<i>Bruce Taylor</i>	10-22-13
Tekulve, Dan	Journeyman Lineman	<i>Dan Tekulve</i>	10/22/13
Veirs, Brian	FSR		
Vonbokern, Bobby	Apprentice Lineman	<i>Bobby Vonbokern</i>	
Waichulis, Joe	Crew Leader	<i>Joe Waichulis</i>	10/22
Webster, Jimmie	Warehouseman	<i>Jimmie Webster</i>	
	<i>meconia</i>	<i>Jeff Webster</i>	10-22-13
	//	<i>Jeremiah Heeger</i>	10-22-13
	//	<i>Chris McKinley</i>	10-22-13

EXHIBIT E

In-Service Training for Digger Derricks

Terex Utilities



TUWI 1021, Rev A, 12-17-10

WORKS FOR YOU.™

***A Well-Trained Crew
Is a Safe and
Productive Crew***

Digger Derrick In-Service

Introduction

- The following presentation is intended to provide you with the basic procedures for operating your Terex Utilities Digger Derrick
- The Operator's Manual for your Digger Derrick must be read and understood prior to operating your Digger Derrick
- Participating in this Operational Training course does not qualify you to operate your equipment
 - You must receive instruction in accordance with your company policies and guidelines

©2010 Terex Utilities - All Rights Reserved

Terex Utilities reserves the right to change, improve, modify or expand features of its equipment at any time. Specifications, models or equipment are subject to change without notice, and without incurring any obligations to change, improve, modify or expand features of previously delivered equipment.



WORKS FOR YOU.™

Digger Derrick In-Service

Introduction

- Operators must be aware of and comply with all manufacturer's instructions and applicable OSHA / ANSI / NESC Safety Guidelines. *
- Operation of a Digger Derrick for lifting applications may require following OSHA Subpart CC for:
 - Operator training
 - Signal person qualifications
 - Rigger qualifications

*OSHA – Occupational Safety and Health Administration

ANSI – American National Standards Institute

NESC – National Electrical Safety Code



WORKS FOR YOU.[™]

Digger Derrick In-Service

Warnings and Instructions

- Directly impact safety

- **Danger**

- Indicates an imminently hazardous situation, which if not avoided, will result in death or serious injury



- **Warning**

- Indicates a potentially hazardous situation, which if not avoided, could result in death or serious injury



- **Caution**

- Indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury



- **Notice**

- Indicates a situation, which if not avoided, may result in equipment or property damage



Digger Derrick In-Service

Intended use

- This machine is intended, if properly equipped, to dig holes, set poles, and lift apparatus within the rated capacity as a lifting device.
- If equipped with personnel platform, the machine may be used to lift personnel along with tools to an aerial work site within the rated capacity.

Digger Derrick In-Service

Safety Guidelines

- Located in the Operator's Manual
 - General Safety Guidelines
 - Before Operation
 - During Operation
 - Operation with Personnel Platform Attached
 - Electrical Dangers
 - Accessories
 - Emergency Operation
 - Traveling
 - Maintenance

SAFETY GUIDELINES



GENERAL SAFETY GUIDELINES

1. The use of this Digger Derrick is subject to certain potential dangers that cannot be protected against by mechanical means. Only the exercise of intelligence, care, and common sense can eliminate these dangers. It is essential to have competent, careful operators who are physically and mentally fit, and thoroughly trained in the safe operation of this Digger Derrick. Learn, understand and practice safe use of all equipment and controls - before operating this Digger Derrick.
2. Never exceed the rated load capacity. Know the total weight of the object(s) to be handled. Stay within the limits shown on the load capacity chart.
3. When operating this Digger Derrick, if you become aware of any dangerous condition or hear any unusual noises such as grinding, cranking or grating sounds, STOP in position. DO NOT move or operate the Digger Derrick until the problem has been diagnosed and resolved.
4. Do not operate this Digger Derrick if any interlock or safety device is malfunctioning.
5. Do not bypass or remove any interlock or safety device.
6. Keep the vehicle free of obstructions that may interfere with the controls or personnel who may have to operate them in an emergency.
7. Do not operate if Digger Derrick is not functioning properly, or has leaks, get repaired before further use.
8. Perform all scheduled maintenance required.
9. Be sure all personnel know the proper procedure to follow in case of an emergency.
10. Do not operate the Digger Derrick in an electrical storm.
11. Never operate the Digger Derrick control while standing on the ground. Always operate controls while standing on the vehicle.
12. Hydraulic oil is flammable. A hydraulic leak may create a mist of oil, which is conductive and explosive.

Digger Derrick In-Service

Inspections

- Frequent and Periodic Inspections
 - Located in the Operator's and Maintenance Manual
- Regular inspection and maintenance program
 - Required to keep your digger derrick operating properly

FREQUENT AND PERIODIC INSPECTION INTERVALS

DAILY

1. Check controls at platform and lower controls for proper operation.
2. Inspect fall protection equipment and attachments.
3. Inspect visual and audible devices.
4. Check condition, cleanliness, and dryness of fiberglass components.
5. Visually check for missing or loose covers and guards.
6. Check for missing and illegible operational, warning, or instructional markings.
7. Visually check oil level in hydraulic reservoir.
8. Visually inspect for leaks in hydraulic system.
9. Check all areas for evidence of physical damage.
10. Visually check all cylinders for leaks.
11. Visually inspect all fasteners for tightness.
12. Visual inspection of all structural members; Digger Derrick, accessories, outriggers, subframe, and attachments, for cracks and permanent deformation.
13. Check for rotational obstructions.
14. Visual inspection of all electrical wires.
15. Inspect winch line, hook, and slings.
16. Visually inspect Auger Roll Up Cable.
17. Inspect for damaged or missing auger teeth.

90 DAYS (360 HOURS)

1. Replace return filter.
2. Visually inspect all sheaves and pins.
3. Lubricate all points per lubrication chart recommendations.
4. Daily Inspections.

180 DAYS (720 HOURS)

1. Check tightness of rotation bearing bolts, turntable to bearing, and bearing to pedestal for proper torque.
2. Daily and 90 days (360 hours) inspections.

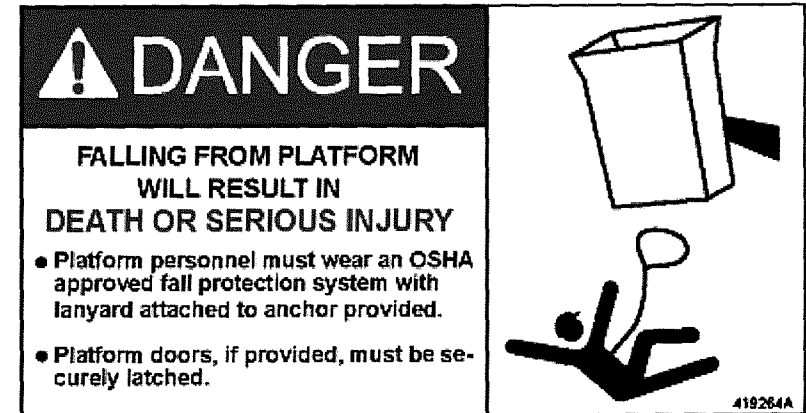
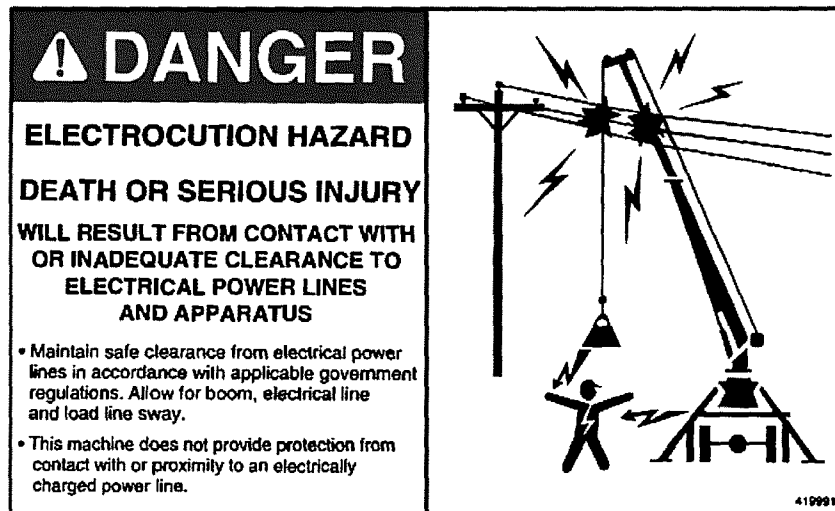
12 MONTHS (1,050 HOURS)

1. Inspect and lubricate PTO drive shaft to pump.
2. Take samples of hydraulic oil and test.
3. Check cylinder drift.
4. Perform visual inspection of all critical welds.
5. Perform dielectric test.
6. Check all hydraulic pressure adjustments for proper setting.
7. Daily, 90 days (360 hours), and 180 days (720 hours) inspections.

Digger Derrick In-Service

Safety Related Decals

- Operating this equipment without all safety and control decals in place can be hazardous
- Any missing or illegible decals must be replaced immediately before operation



Digger Derrick In-Service

Safety Alert Bulletins

- Safety Alert Bulletins will provide reminders of proper operation, hazards of improper use, and education on the hazards of Aerial Devices and Digger Derricks
 - Incorporated into the Operator's Manual
 - Available on the Terex Utilities website
 - <http://www.terexutilities.com>

Operation on Snow and Ice

Winter has its grip on many areas of the country, leaving snow and ice on the ground. Cold and snow cover does not stop line work. The damage from ice and snowstorms increase the workload and urgency to finish repairs. It also brings in new crews, who work long hours, to help restore power and repair damage from broken poles, downed wires, and fallen trees.

Do not jeopardize your safety by bypassing safe work practices. Safe work practices are even more important to follow when the crews are cold and tired. Your injury, death or equipment damage is not worth the time saved rushing to complete the work.

Operation on snow and ice add an additional problem due to the slippery conditions. Normal traction is greatly reduced. Just as you need to maintain traction to walk and drive, it is required to keep Digger Derricks and Aerial Devices in a stable position. Rotating and moving the booms may cause the truck to jerk and move. If the unit is not set up securely the truck can slide on ice and snow while operating.

When planning your work remember that driving in snow causes snow dust to be deposited on all surfaces. The outriggers and outrigger pads will get snow covered and slippery. Also, as you put pressure on snow, the snow packs down and turns to ice.

The person setting the unit up for operation has the entire responsibility for a stable position. The person on the site is the only one who can evaluate the conditions and terrain.

Proper set up requires:

- Outriggers do not slide on the outrigger pads during use.
- Outrigger pads do not slide on the ground during use.
- Set the parking brakes
- Chock wheels as required, to prevent movement down hill. Evaluate chock location to prevent the truck pivoting around one chock.
- Set units with one set of outriggers so all tires are on the ground.
- Evaluate the terrain to determine the most flat and level set up position.
- Set up truck so if the truck does move slightly, the result isn't catastrophic.
- Follow Operators manual for set up instructions. Do not place outriggers on ice as slippage may occur regardless of solid footing.

To properly set up you may need to:

- Remove snow and ice down to bare ground to prevent sliding and to evaluate the support available. Don't set outriggers on a manhole cover or the edge of a slope or drop off.
- Move as far as required into the street or road so if the truck does move, the tires and outriggers will not slide into the ditch or other hazards.
- Choose a location for the truck that gives the best stability for the work to be done.
- Come back later, to do the work, if the roads are not cleared sufficiently.
- Use traction aids under the tires and outriggers such as sand and gravel or mats.
- Operate the unit smoothly by "feathering" the controls, not jerking the levers.

Digger Derrick In-Service

Product Advisories

- Product Advisories
 - Product Advisories will alert owners and users about changes in the equipment.
 - The changes may be:
 - Updates you should consider for your equipment.
 - Product manual updates.
 - Revisions to Decals or instruction plaques.
 - Changes in standards that apply to Terex Utilities Products.
 - Available on the Terex Utilities website
 - <http://www.terexutilities.com>

Product Advisory

PA 1016-08

DATE: 1/04/08

REVISED:

TO: ALL DISTRIBUTORS, OWNERS AND USERS

SUBJECT: *TURNTABLE BEARING BOLT INSPECTION (ALL UNITS)*

Issue:

Inspection of turntable to bearing and pedestal to turntable bearing bolt torque. The fasteners connecting the upper rotating structure to the turntable bearing and the turntable bearing to the pedestal are very important fasteners that must be inspected and maintained periodically as specified in the Operators and Maintenance Manuals. If one or more bolts loosen or stretch, the loading is transferred to the adjacent bolts making them support more than their share of the load. Should the unit be allowed to operate in this manner the fasteners will eventually fatigue and failure occur.

Failure to properly inspect and maintain fasteners can result in failure of the fasteners and the booms falling.

Action:

To prevent failure of the turntable bearing fasteners they must be inspected at intervals specified in the Operator's and Maintenance Manuals for the unit. This requires:

- Daily visual inspection for loose or missing fasteners.
- Periodically verify the torque of all turntable bearing bolts.

Daily visual inspection is looking for:

- Missing or broken fasteners.
- Loose washers or gaps under fastener heads.
- Indications of looseness such as shiny areas on washer or mounting surfaces.

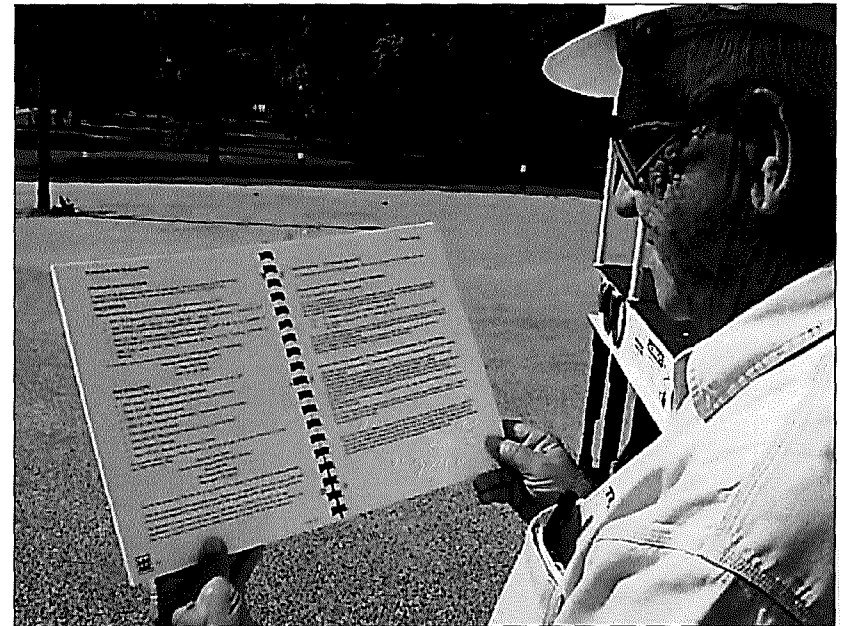
If any of the above are observed do not continue operation. Notify the appropriate people in your company and have the machine repaired, it is not safe to use. Check the torque on all bearing fasteners and correct as required.

The daily and periodic inspection also must include a visual inspection of all pins, retainers and other fasteners in addition to the turntable bearing fasteners.

Digger Derrick In-Service

OSHA and ANSI Safety Guidelines

- Operators must be aware of and comply with all manufacturer's instructions and applicable OSHA, NESC, and ANSI Safety Guidelines
- The Operator's Manual includes the contact details for obtaining the OSHA and ANSI standards and regulations
- www.osha.gov
 - Available on the OSHA website
- www.standards.ieee.org/nesc/
 - Available for purchase
- www.ansi.org
 - Available for purchase



Digger Derrick In-Service

Operator Must Use Personal Protective Equipment

- Use personal protective equipment as required by regulations such as:
 - OSHA
 - ANSI
 - NESC
 - Manufacturer's Operator's Manual
 - Your company safety manual



Digger Derrick In-Service

Wear Your Hard Hat and Glasses

- All crew members; operators and ground personnel must use:
 - Properly fitting and classification hard hat
 - Safety glasses
 - Proper footwear
 - Hearing protection as needed



Digger Derrick In-Service

Operator Must Use Personal Protection Equipment

- Wear rubber gloves with leather protectors
- Wear rubber sleeves
- Install insulating line hose and blankets
- Wear proper clothing
- Always maintain proper clearance distance from energized lines
- Ground personnel must wear rubber gloves and/or insulating shoes, if guiding a load or pole in the vicinity of energized lines



Digger Derrick In-Service

Read Manuals Prior to Operating Your Equipment

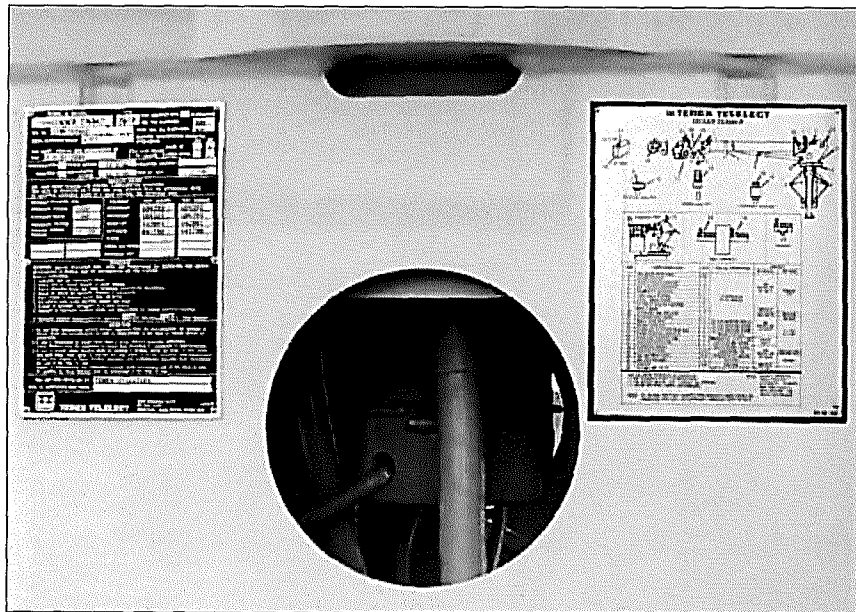
- The Operator's Manuals have been designed to provide you with the instructions needed to properly and safely operate your digger derrick
- The Operator's Manuals must be read and understood prior to operating your digger derrick



Digger Derrick In-Service

Informational Placards

- ID Placard
 - Unit serial number
 - Qualification voltage
 - Platform capacity



NAME & MODEL		YEAR	UNIT EQUIPPED WITH <input type="checkbox"/> PLATFORM(S)	
			LBS. PER PLATFORM	
SER. NO.		TOTAL LBS. ALL PLATFORMS		
RATED PLATFORM HEIGHT		EQUIPPED WITH MATERIAL HANDLING ATTACHMENT		
		YES <input type="checkbox"/> NO <input type="checkbox"/>		
THIS DEVICE COMPLIES WITH REQUIREMENTS OF, ANSI		(See Load Charts for capacity)	BOOM TIP <input type="checkbox"/>	
		LOWER BOOM <input type="checkbox"/>		
NON-INSULATED <input type="checkbox"/>	DESIGN VOLTAGE	INSULATING CATEGORY		
INSULATED <input type="checkbox"/>	QUALIFICATION VOLTAGE	DATE OF TEST		
CAPACITY RATING				
SEE LOAD CHART PLATE(S) FOR SPECIFIC CONFIGURATION CAPACITIES UNIT MUST BE OPERATED ON A FIRM AND LEVEL SURFACE WITH THE OUTRIGGERS, WHEN SO EQUIPPED, EXTENDED DOWN TO A SOLID FOOTING. USE OUTRIGGER PADS.				
MAXIMUM PRESSURE (PSI)		CYLINDER	PART NUMBER	PART NUMBER
HYDRAULIC SYSTEM		OUTRIGGERS		
HYDRAULIC WINCH		OUTRIGGERS		
PNEUMATIC SYSTEM		BOOM LIFT		
CONTROL SYSTEM VOLTAGE		EXTENSION		
		ELBOW		
		LOWER LIFT BOOM		
		HYDRAULIC LIFT		
OPERATION				
WARNING: BEFORE OPERATING UNIT, READ AND UNDERSTAND ALL OPERATING AND SAFETY INFORMATION IN MANUAL AND ALL INFORMATION ON THIS PLACARD.				
General Instructions:				
1. Lubricate unit per lubrication chart.				
2. Check unit for visible defects or loose objects.				
3. Check insulated boom and other insulating material for cleanliness.				
4. Check all decals for legibility. Replace if necessary.				
5. Start engine or engage power take off (PTO).				
6. Set vehicle park brake securely before operation.				
7. Extend all hydraulic outriggers to a solid footing.				
8. Operate all hydraulic controls slowly and deliberately for smooth platform function.				
9. Minimum ambient temperature for operation <input type="text"/> °F. Maximum <input type="text"/> °F. (See Manual)				
ATTENTION				
1. Do not alter components without written approval from the manufacturer. All updates in effect, (both the manufacturer as well as ANSI/OSHA) at the time of rebuild should be performed.				
2. If unit is rebuilt by entity other than a Terex Telect approved distributor, Terex Telect must be contacted to insure that mounting is completed to specifications.				
3. If unit is resold, Terex Telect must be notified in writing, within 60 days, of new owner and what steps were taken to instruct the new owner as to the operation and maintenance of the unit. Copies of Terex Telect operators and maintenance manuals must accompany the unit at the time of sale.				
Copies of maintenance and inspection records must accompany unit at the time of sale. All updates by Terex Utilities must be completed at the time of sale.				
THIS UNIT WAS INSTALLED BY: _____				
DATE OF COMPLETED UNIT TESTS: _____				
TEREX			500 Oakwood Road PO Box 1150 Watertown, South Dakota 57201 USA	

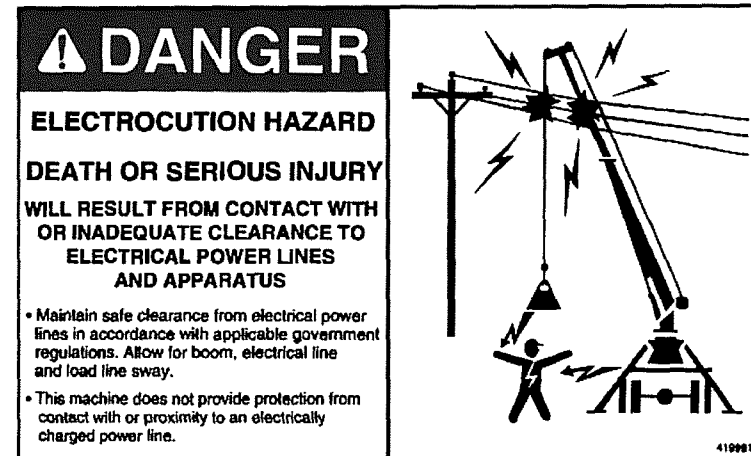
Digger Derrick In-Service

Be Sure Decals Are Legible

- Refer to Operator's Manual for correct decal location



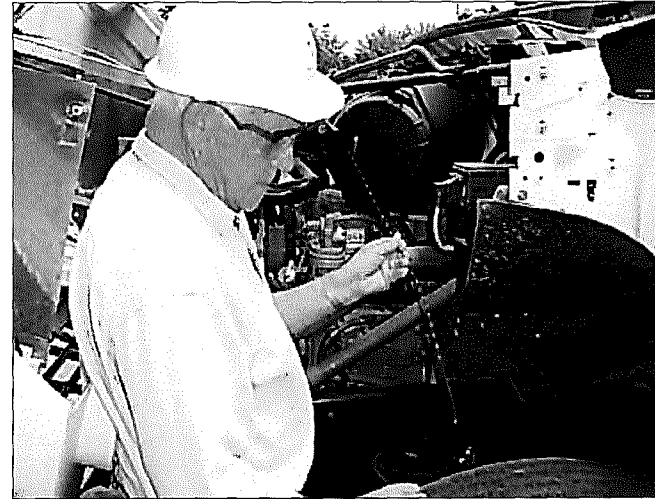
- If a decal is damaged or missing, it must be replaced



Digger Derrick In-Service

Before Leaving Garage

- Inspect fluid levels and air levels
 - Chassis check examples
 - Engine oil
 - Transmission oil
 - Radiator fluid
 - Tire pressure and tire condition
 - Various belts
 - Always check for fluid leaks
 - Refer to Chassis Manual for complete list of proper levels and specifications of materials
 - Comply to any additional items on your company policy checklists



Digger Derrick In-Service

Before Leaving Garage

- Inspect fluid levels
 - Digger Derrick
 - Hydraulic oil – check oil level indicator with boom and outriggers fully stored
 - Keep area around reservoir clear of clutter and debris



Digger Derrick In-Service

Before Leaving Garage

- Inspect safety equipment
 - D.O.T. triangles and other signal devices on board
 - Fire extinguisher properly charged
 - Other safety equipment in accordance with your company policies
 - Vehicle level indicators
 - Horn at lower control stations



Digger Derrick In-Service

Always Wear Your Seat Belts

- Driver and passengers must always wear seat belts while vehicle is in motion
- Adjust mirrors to provide optimum visibility
- Adjust seat for proper fit
- Refer to chassis manual for complete chassis operation instructions
- Only the seating areas within the cab are suitable for use during travel



Digger Derrick In-Service

Watch Your Step

- Be sure of footing
- Use grab handles and steps appropriately
- Keep steps and deck clear for control access
- Access systems must be maintained and not altered



Digger Derrick In-Service

Review Pre-Operational Procedures

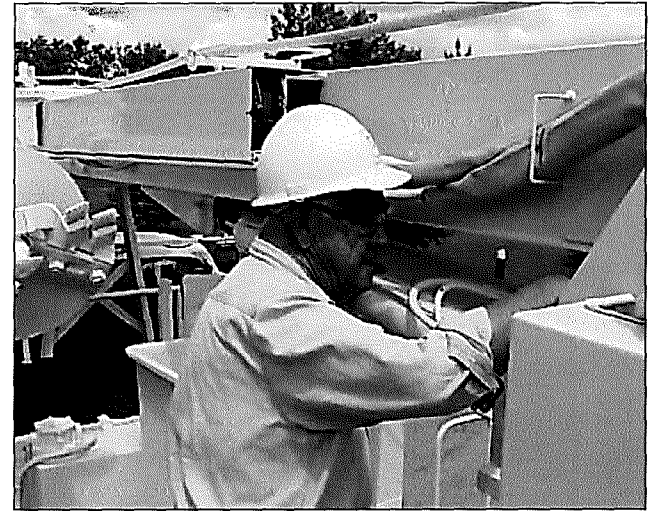
- Prior to operating your digger derrick, review recommended pre-operational procedures found in the Operator's Manual



Digger Derrick In-Service

Prior to Operation

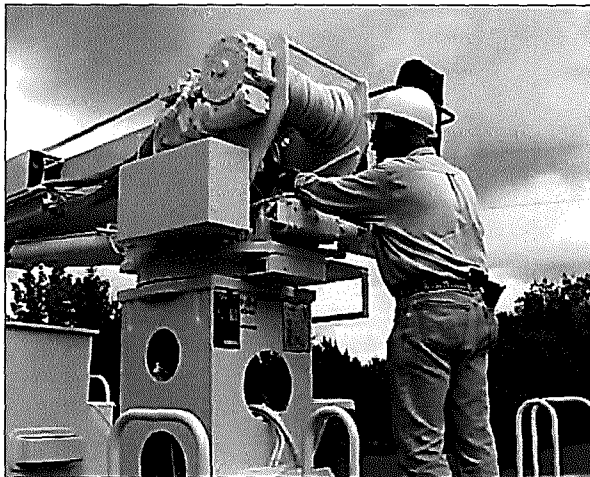
- Visually inspect digger derrick components
 - Inspect daily for:
 - Pin wear or pin out of position
 - Fiberglass damage on boom or platform(s)
 - Loose covers
 - Oil leaks
 - Loose fittings and fasteners
 - Hoses rubbing
 - All other checks per the manuals and applicable guidelines



Digger Derrick In-Service

Prior to Operation

- Visually inspect digger derrick components
 - Inform your supervisor of any items requiring maintenance
 - If an inspection turns up a deficiency
 - A qualified person must immediately determine if the deficiency constitutes a safety hazard
 - If the deficiency is a safety hazard, the equipment must be taken out of service until it is corrected
 - The deficiency and corrective action must be recorded in writing and maintained for a minimum of 5 years



Digger Derrick In-Service

Prior to Operation

- Inspect digger derrick controls
 - Inspect all controls daily for:
 - Proper operation
 - Proper function
 - Legible decals



WORKS FOR YOU.™

Digger Derrick In-Service

Plan Your Job in Advance of Equipment Setup

- Before starting a new job, include all personnel in a tailgate session to communicate the specific details of each job
- Detailed, clear communications among line crew personnel are critical when working on the job site



Digger Derrick In-Service

Plan Your Job in Advance of Equipment Setup

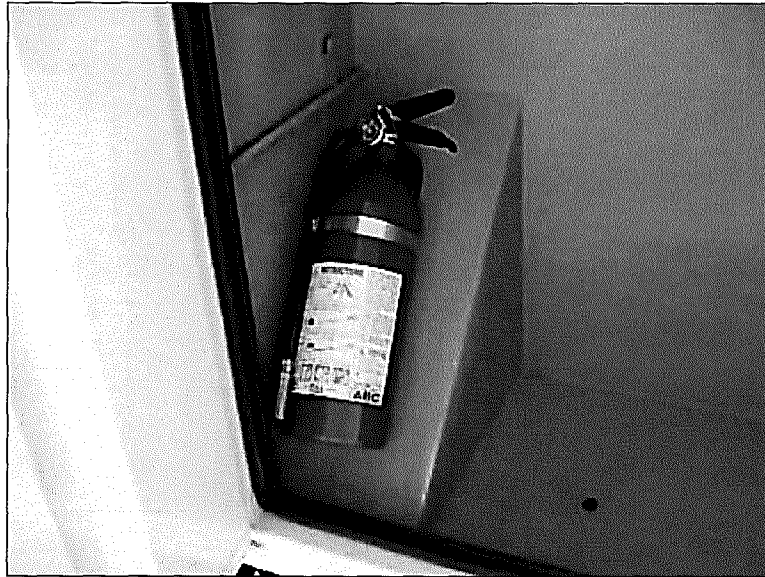
- Know your boom reach distances to setup properly and safely
 - Consider boom travel lengths and centerline of rotation
 - Consider load to be lifted and load chart ratings
 - Know the weight you are lifting
 - Do not pull poles or objects anchored in the ground with the winch



Digger Derrick In-Service

Be Aware of Potential Job Site Fire Hazards

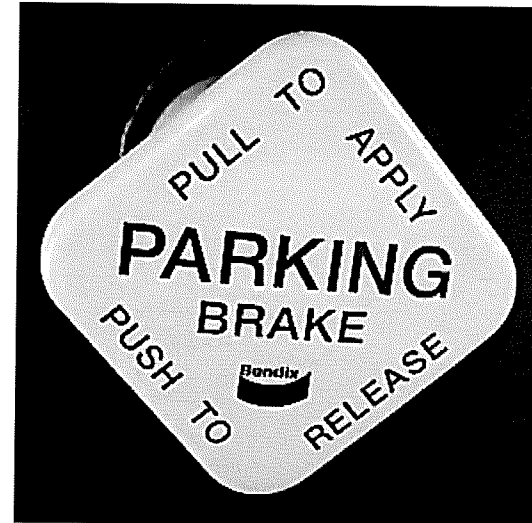
- A truck engine and exhaust system can generate high temperatures
 - Be aware the truck exhaust system can set grass and debris on fire
- Know where your fire extinguisher is located
- Check your fire extinguisher daily, before leaving the garage



Digger Derrick In-Service

Set Truck Parking Brake

- Place transmission in neutral
- Set chassis parking brakes before leaving chassis cab
 - PTO will not operate unless parking brake is set



Digger Derrick In-Service

Understand What Parts of the Boom are Insulated and Non-Insulated

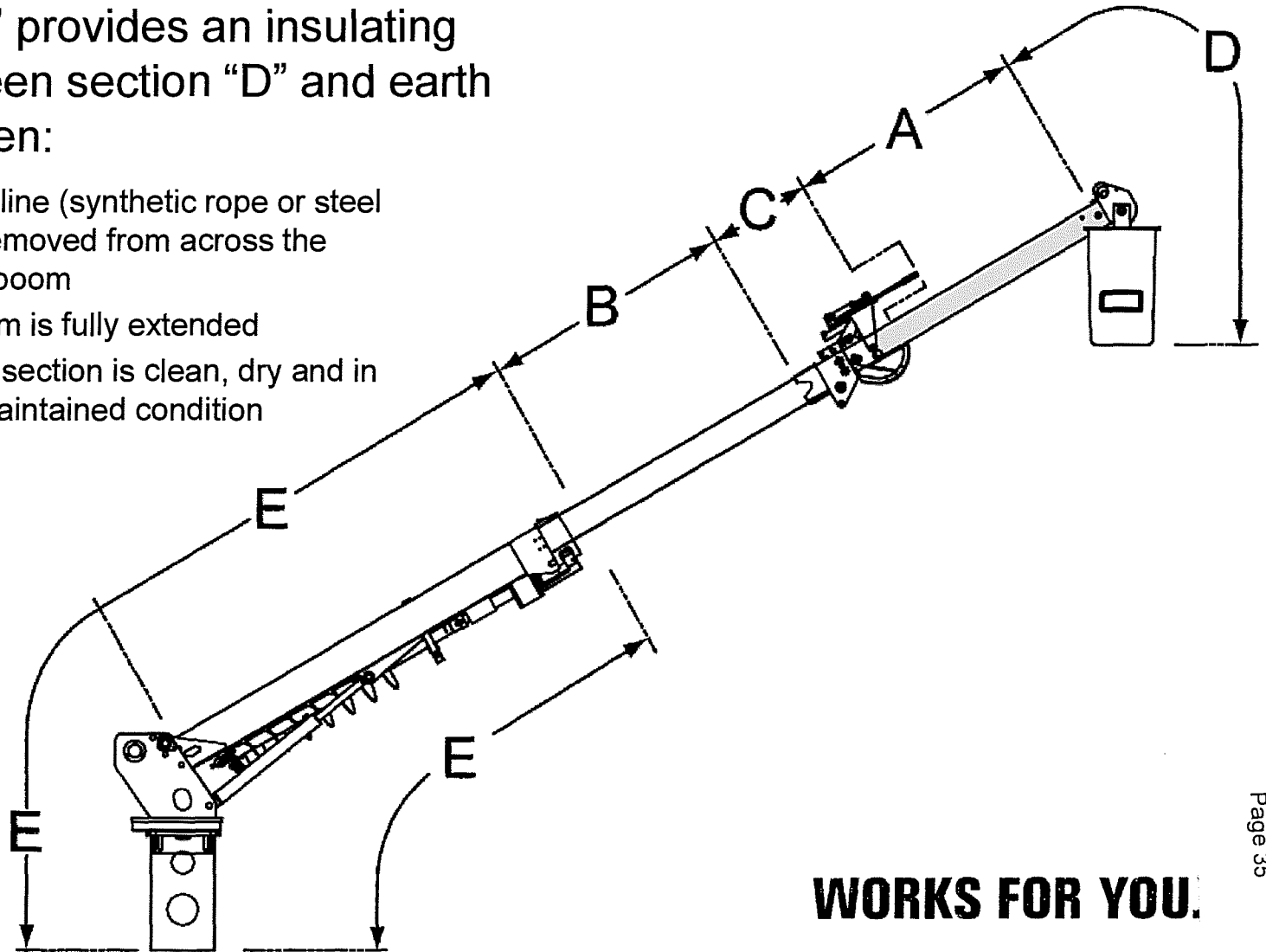
- Insulated boom must be maintained and dielectrically tested per ANSI A92.2 standards
- A synthetic winch line is not considered insulated
 - It will become wet, dirty and therefore conductive
- Follow your company policy, when using the platform attachment near energized lines



Digger Derrick In-Service

What is Insulated

- Section "A" provides an insulating area between section "D" and earth ground when:
 - The winch line (synthetic rope or steel cable) is removed from across the fiberglass boom
 - Upper boom is fully extended
 - Fiberglass section is clean, dry and in properly maintained condition

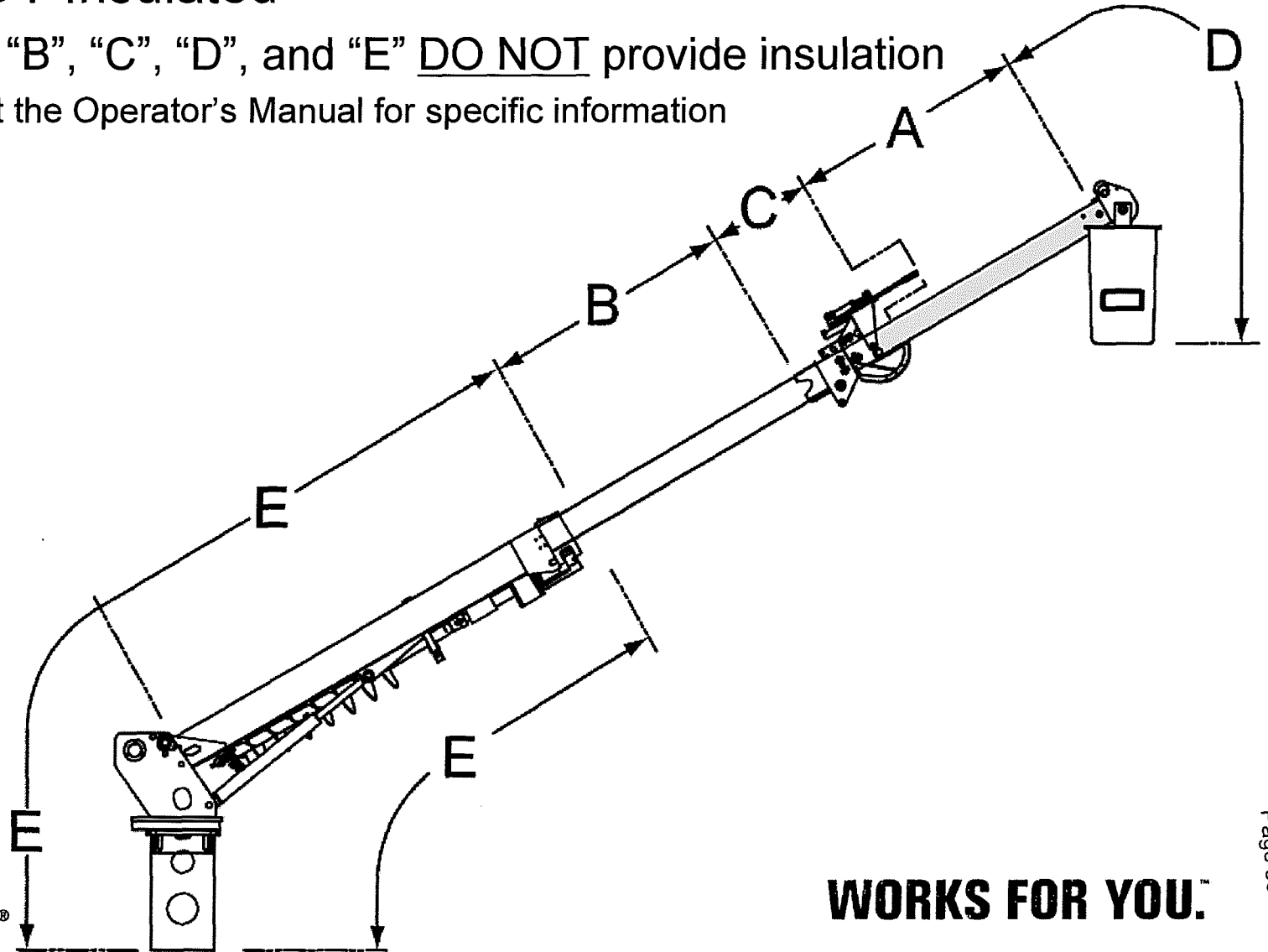


WORKS FOR YOU.

Digger Derrick In-Service

What is NOT Insulated

- Sections “B”, “C”, “D”, and “E” DO NOT provide insulation
 - Consult the Operator’s Manual for specific information



WORKS FOR YOU.™

Digger Derrick In-Service

During Operation

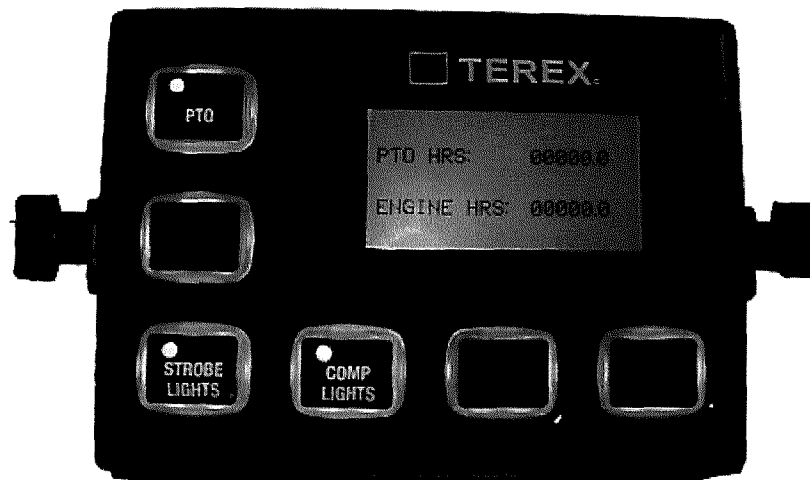
- Be aware of potential obstructions to the boom
 - Observe surroundings prior to operating
 - Observe potential interference due to boom and tail swing getting to and working the job
 - Maintain minimum approach distance from energized lines



Digger Derrick In-Service

Cab Control Operations

- Master control switch (if present)
 - Must be switched to **ON**
 - May be combined with the PTO switch
 - This switch energizes the stop/start system and throttle option systems



Digger Derrick In-Service

Cab Control Operations

- Warning light switch (if present)
 - Must be switched to **ON**
 - This switch energizes the warning light system
 - Follow your company policies



Digger Derrick In-Service

Cab Control Operations

- Power Take Off (PTO)
 - Always place transmission in park/neutral and set parking brake before leaving vehicle cab
 - PTO may be engaged by a pull cable or a switch
 - Follow PTO manufacturer's operating instructions to operate PTO properly
 - Be sure PTO decals are located in the cab
 - Driving with the PTO engaged may damage components and chassis



Digger Derrick In-Service

Block the Tires with Wheel Chocks

- Wheel chock storage varies with body configuration
 - Under the deck
 - In the sides of the line body
 - In body compartments
- Wheel chocks can be made from various types of materials



Digger Derrick In-Service

Block the Tires with Wheel Chocks

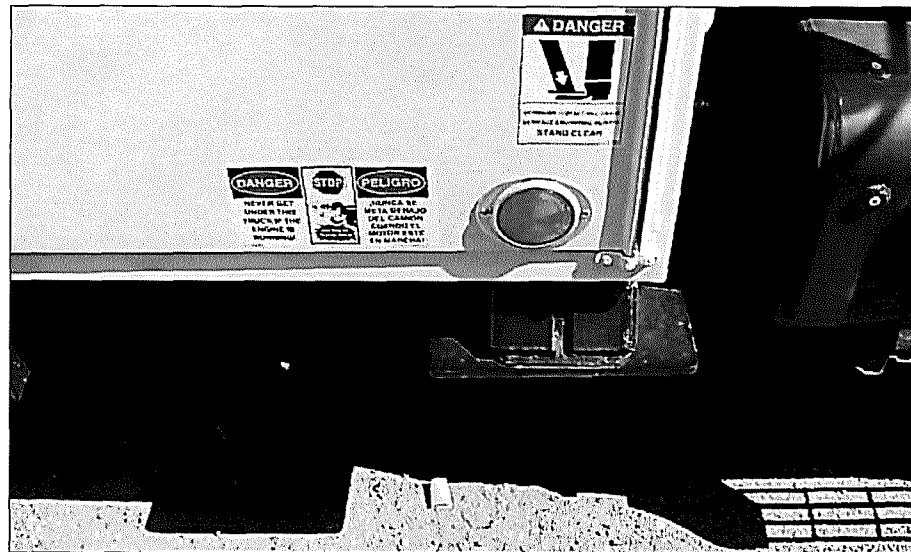
- Place wheel chocks according to your company policy
- Chock wheels to prevent movement
 - Evaluate chock location to prevent the truck pivoting around one chock.



Digger Derrick In-Service

Be Aware of Obstacles in the Path of the Outriggers

- Outriggers must have a flat, firm surface to set upon
- If outriggers are set on a curb with the vehicle in the street, the outrigger spread is reduced and the balance point is affected, restricting the load capacity to that side
- All ground personnel must stand clear of outriggers when lowering
 - outrigger motion alarms must be operational



Digger Derrick In-Service

Setting the Outriggers

- Operator is responsible to set outriggers to assure proper setup
 - Use level indicators on unit for set up
- Operator must assess if ground conditions can support the load
 - Pad and crib as required by ground conditions
- Operator must watch the outrigger while in motion



! DANGER

OVERTURNING HAZARD

DEATH OR SERIOUS INJURY

May result from overturning machine

For material handling, lifting operations the Digger Derrick must be level.

- Lift capacity is determined in a level position of the truck.
- If the truck is not-level the capacity is reduced

For lifting people, in a boom tip platform, the truck must be at less than a 5 degree slope.

- This unit has been tested for stability on a maximum slope of 5-degrees.
- Working on slopes that exceed 5 degrees may result in truck tipping over.

472256

Digger Derrick In-Service

Setting the Outriggers

- Units with 2 Outriggers
 - Tires must remain on the ground with the truck suspension providing equal support on each side of each axle



Digger Derrick In-Service

Setting the Outriggers

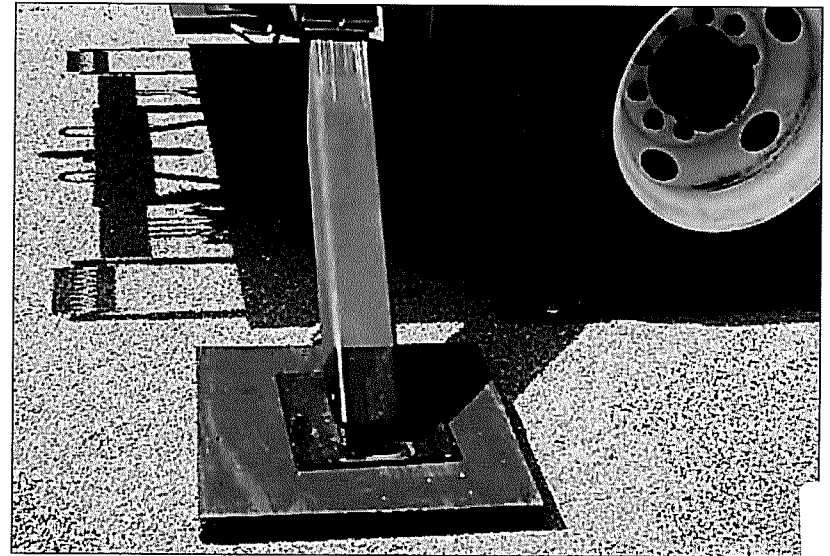
- Units with 4 Outriggers
 - Set both outriggers closest to the pedestal first
 - Then set remaining outriggers



Digger Derrick In-Service

Setting the Outriggers

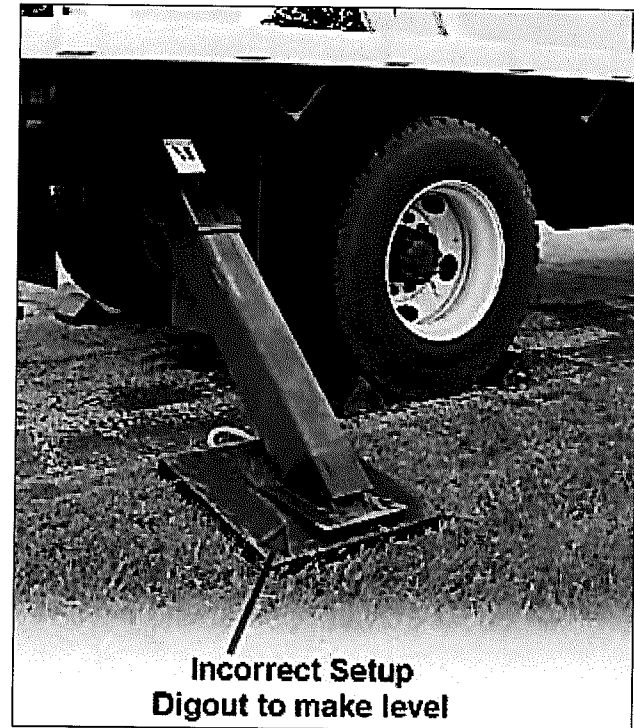
- Always use outrigger pads
 - Increase the surface area
 - Spread out the pressure on the ground
- Always center outriggers on the pads



Digger Derrick In-Service

Setting the Outriggers

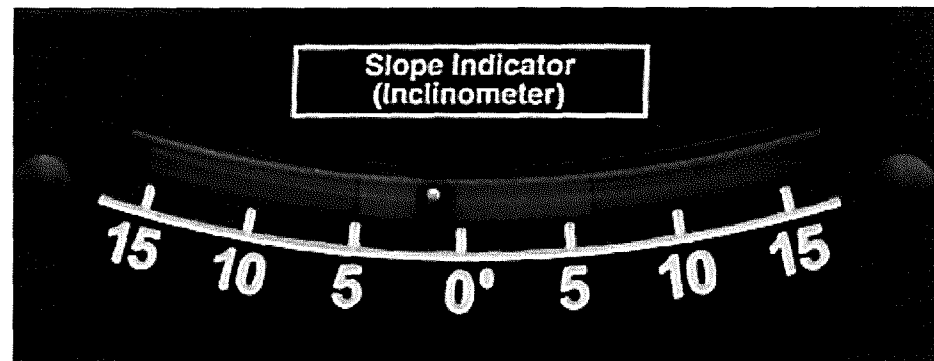
- When necessary, dig out or block up any outriggers
 - To achieve full stability and full contact with the ground
- Snow and ice conditions require extra caution when setting up



Digger Derrick In-Service

Stability

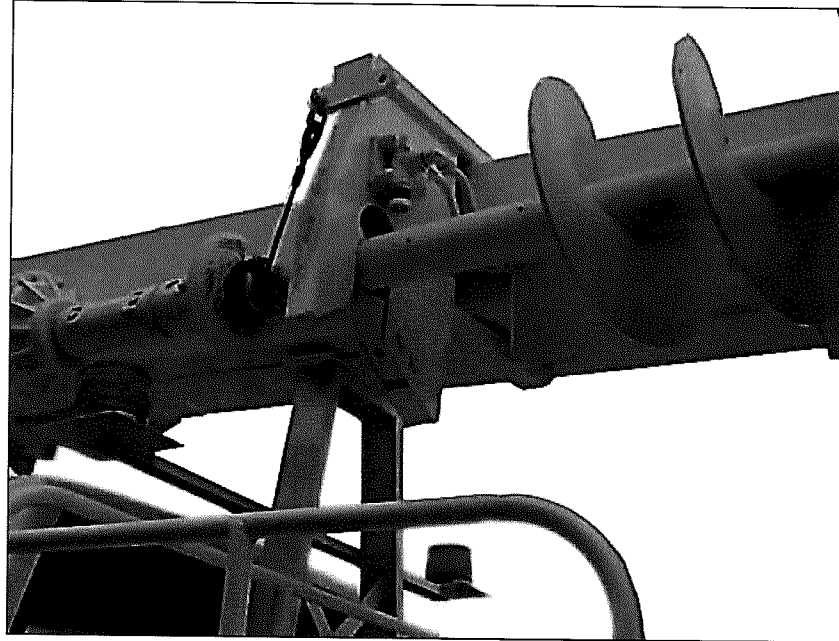
- Operation on slopes of 5° or less
 - Stability tests are performed to 5° only as an aerial device
 - Stability tests are performed at 0° as a lifting device
 - Lifting capacity is affected if the unit is not level
 - Consult your level indicators for truck slope before and after setup
- Refer to your specific unit Operator's Manual for proper setup



Digger Derrick In-Service

Ground and/or Barricade Your Truck

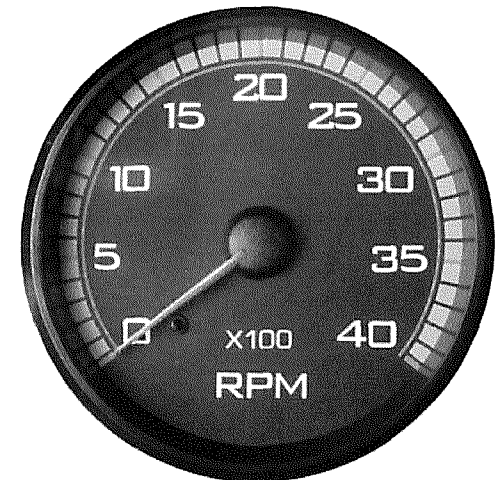
- Follow your specific company policies for grounding and barricade procedures
 - Traffic control in work area
 - Do not operate over open traffic lanes
- Verify lighting system operation for traffic and pedestrian awareness
- All cable must be unrolled and laid out flat



Digger Derrick In-Service

Do Not Overspeed the Engine or Hydraulic Pump

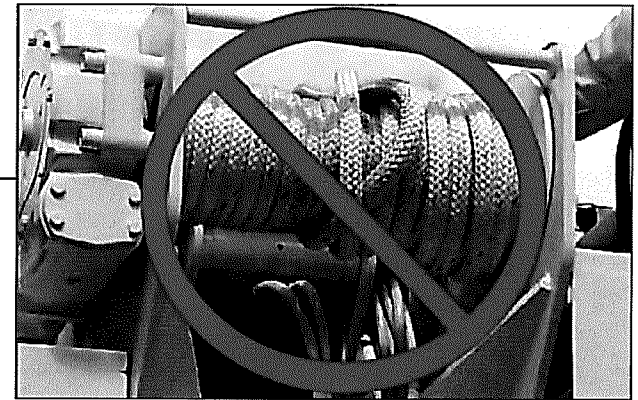
- Know the proper RPM levels for idle engine speed and high engine speed
 - Refer to unit Maintenance Manual for settings
- Approach all work areas at lower engine speed for smooth boom operation
- Feather the controls for smooth operation; starting and stopping
- Running the engine at high RPM levels can cause excessive oil heat which can damage the hydraulic system



Digger Derrick In-Service

Lifting Loads with a Digger Derrick

- Winch line must be wrapped properly on the winch drum
 - No bird nests or loops allowed
 - Maintain a minimum of 4 wraps on the drum
 - Loads exceeding single line capacity require multi-parting (see load chart)



Be Aware of Single Line Lifting Capacity

BOOM ANGLE IN DEGREES	FULLY RETRACTED				2ND SECTION EXTENDED				TEREX TELELECT		DIGGER DERRICK COMMANDER 4042 PG WINCH Sample	
	LOAD RADIUS IN FEET	SHEAVE HEIGHT IN FEET	LOAD CAPACITY		LOAD RADIUS IN FEET	SHEAVE HEIGHT IN FEET	LOAD CAPACITY		LOAD RADIUS IN FEET	SHEAVE HEIGHT IN FEET	LOAD CAPACITY	
			ZONE A	ZONE B			ZONE A	ZONE B			ZONE A	ZONE B
80	3.6	26.2	21600	21600	5.0	34.0	15690	15890				
75	4.9	25.7	17240	17240	7.0	33.5	12050	12050				
60	8.7	23.8	11420	11420	13.0	30.7	7300	6490				
45	11.8	20.9	9000	7170	17.8	26.5	4680	3720				
30	14.5	17.2	6570	5290	21.4	21.2	3360	2680				
15	15.8	13.1	5630	4480	23.5	19.2	2620	2250				
0	18.0	8.6	5500	4390	24.0	8.6	2720	2190				
-20	14.6	3.3	3410	3410	22.1	0.0	1730	1730				
BOOM ANGLE IN DEGREE	3RD SEC. EXT. - 2ND SEC. RET.				2ND & 3RD SEC. EXTENDED				4TH SEC. EXTENDED			
	LOAD RADIUS IN FEET	SHEAVE HEIGHT IN FEET	LOAD CAPACITY		LOAD RADIUS IN FEET	SHEAVE HEIGHT IN FEET	LOAD CAPACITY		LOAD RADIUS IN FEET	SHEAVE HEIGHT IN FEET	LOAD CAPACITY	
			ZONE A	ZONE B			ZONE A	ZONE B			ZONE A	ZONE B
80	4.6	34.3	17180	17180	8.0	42.2	13200	13200				
75	6.7	33.6	12610	12610	8.8	41.5	9600	9600				
60	12.6	31.1	7680	6920	16.8	38.1	5490	4370				
45	17.7	27.0	5050	4020	23.4	32.7	3150	2510				
30	21.4	21.8	3690	2940	28.4	25.6	2230	1780				
15	23.7	15.8	3130	2490	31.4	17.9	1850	1470				
0	24.3	9.4	3020	2400	32.3	9.4	1780	1400				
-20	22.5	1.1	2020	2020	30.0	-1.8	1120	1120				

TEREX TELELECT

CAUTION: IF DERRICK IS MOUNTED IN ANY WAY OR REMOUNTED, TEREX TELELECT MUST BE INSTALLED. ALL CAPACITIES SHOWN WILL BE AFFECTED.

DIGGER DERRICK COMMANDER 4042 PG WINCH

Sample

CAUTION: MULTIPLE PART LINES ARE REQUIRED FOR LOADS ABOVE 5000 LBS. SYNTHETIC OR ROTATION RESISTANT WIRE ROPE MUST HAVE 4000 LBS. BREAKING STRENGTH AND 2% MAXIMUM STRETCH AT 500 LBS. SAFE WORKING LOAD. WIRE ROPE OTHER THAN ROTATION RESISTANT MUST HAVE 2000 LBS. BREAKING STRENGTH.

CAPACITIES ARE BASED ON AN UNLOADED VEHICLE WEIGHT OF NOT LESS THAN 22000 LBS. AND ARE PERCENT OF TIPPING LOADS. ALL OUTRIGGERS MUST BE EXTENDED AND SET FIRMLY ON THE GROUND BEFORE OPERATING THE DERRICK. DERRICK MUST BE MOUNTED ACCORDING TO TEREX TELELECT INSTALLATION INSTRUCTIONS.

WARNING: ALWAYS REFER TO UPPER CONTROL LOAD CHART FOR OPERATION FROM BOOM TIP CONTROLS.

REF: E04F-7712

OPTIONS: F8G HYD 3RD MK1
AUG 18 TRANS TPP

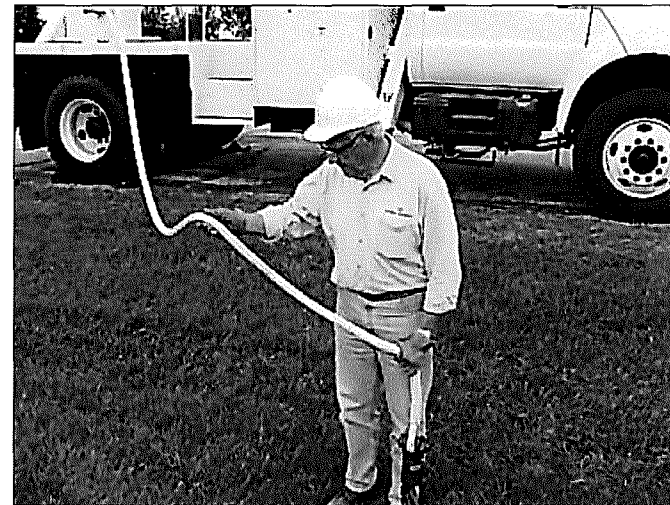


WORKS FOR YOU.

Digger Derrick In-Service

Inspect Winch Line and Slings

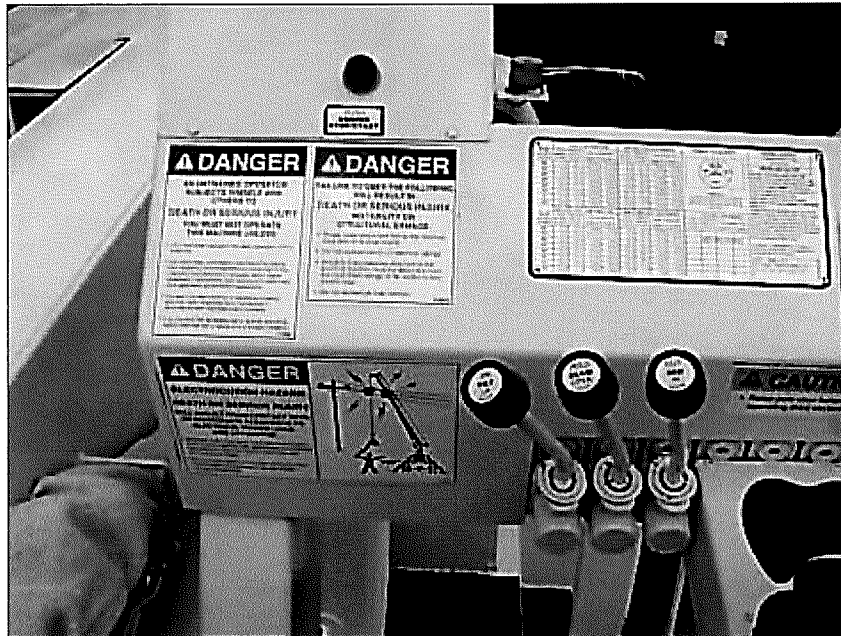
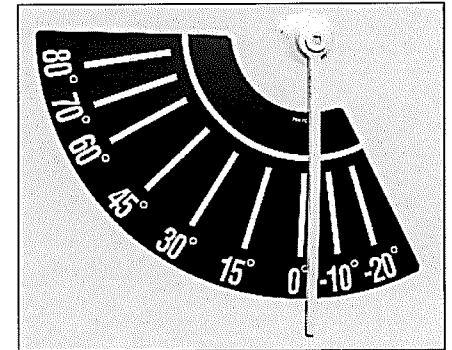
- Inspect winch line daily for cuts, abrasions, and condition
- Use only hooks with a safety latch
- Lifting apparatus must be labeled for working load limit
- Inspect hooks and slings for wear, cuts, abrasions or broken strands
- Notify a qualified person if any deficiencies are found
 - Replace load line with equivalent capacity



Digger Derrick In-Service

Lifting Loads with a Digger Derrick

- Know your lifting capacity based upon load chart
- Know the weight of the load you are lifting
- Always keep loads as close to ground as possible



Digger Derrick In-Service

Be Aware of Overhead Obstructions When Lifting

- Don't forget the boom tip when lifting
- Maintain minimum approach distance from power lines
- Be aware of trees, buildings, and other obstructions in boom path



Digger Derrick In-Service

Lifting Loads

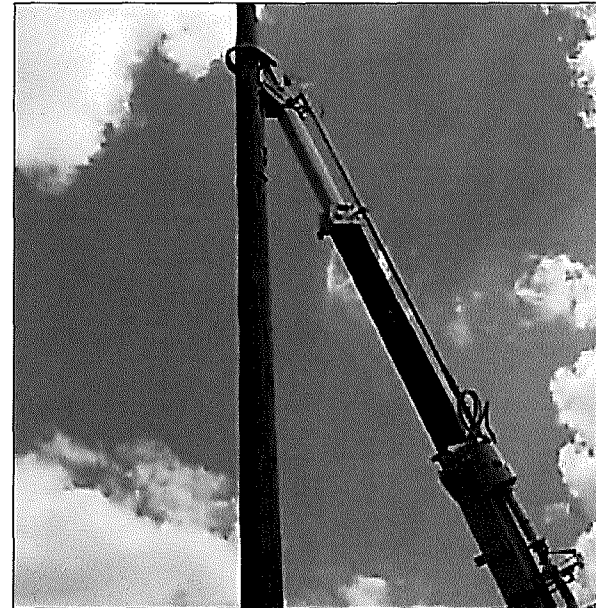
- Stay at idle engine speed when lifting heavy loads



Digger Derrick In-Service

Know the Limitations of Your Digger Derrick

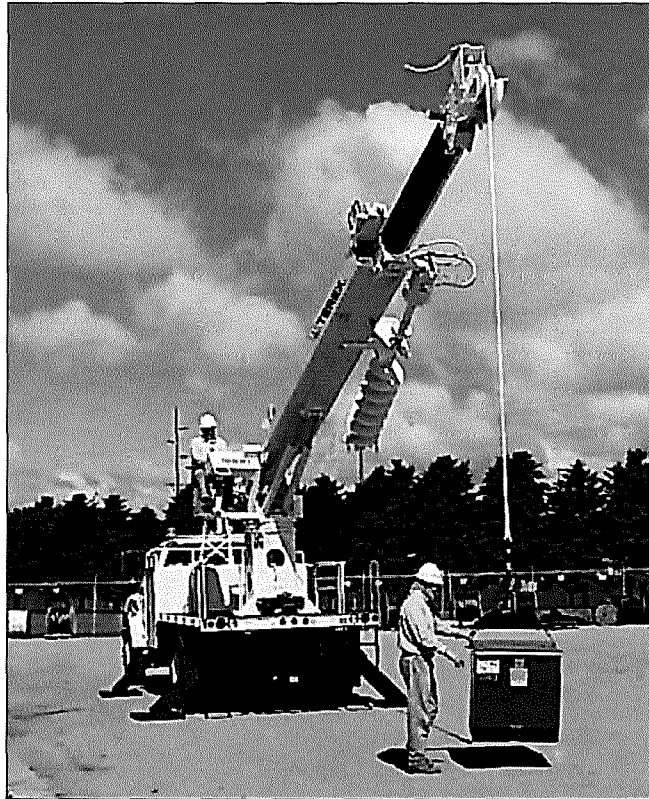
- Lift only known suspended loads
 - Do not lift loads attached, frozen, or embedded
- Always use a sling, do not hook load line back on to itself
- Do not attempt to pull poles with your digger derrick boom or winch
 - Use a pole puller
 - Use boom to guide poles only



Digger Derrick In-Service

Lifting Loads with a Digger Derrick

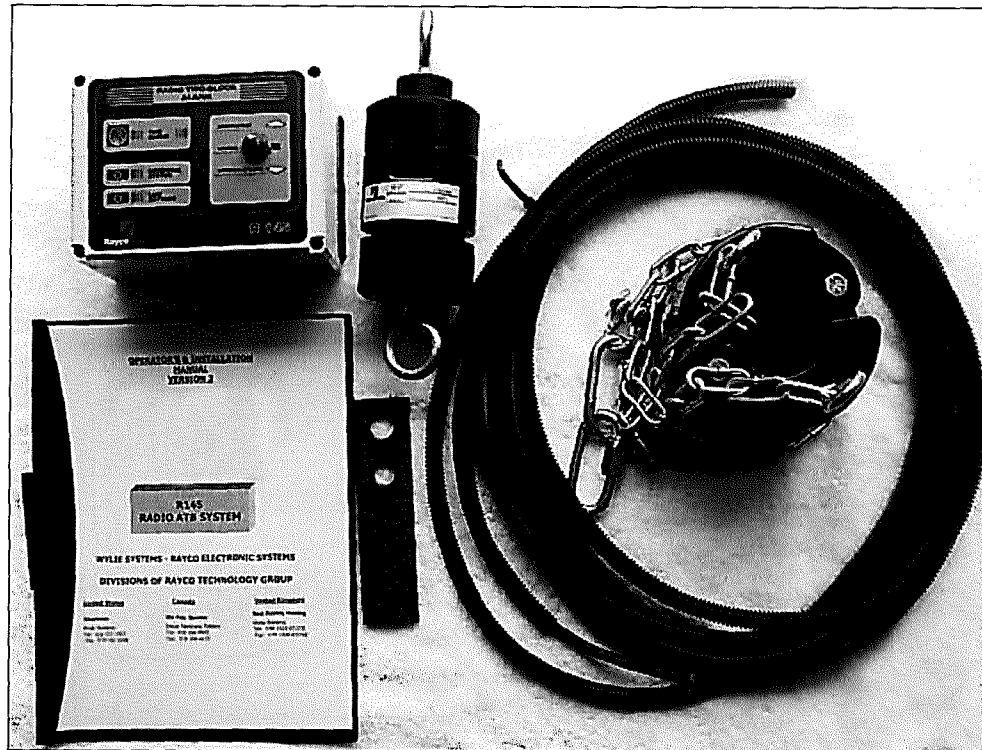
- Lift the load vertically, do not side-load
 - Keep the winch line vertical at all times, to assure proper control of the load you are lifting



Digger Derrick In-Service

Anti Two-Block (if equipped)

- Used to prevent hook from contacting boom tip
- Stops operation of winch up, extend, and boom down



Digger Derrick In-Service

Auger Storage System

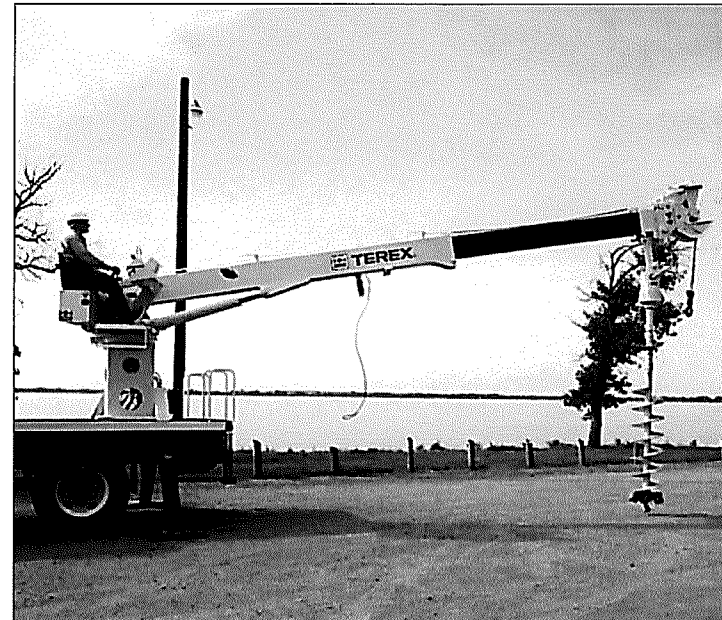
- When not being used, the auger is stored along the main boom
- Auger over stow valve can aid the operator to prevent over-winding of the roll-up cable
 - Inspect the roll-up cable and storage components daily
- Raise the boom to 45° when storing and un-storing auger
 - Keep wind-up cable in proper position on auger when storing and unstoring
- Keep area clear of auger travel arc



Digger Derrick In-Service

Digging Holes

- Auger
 - In stowed position, the auger is locked to the main boom section
 - When auger is down, it is locked to the end of the 2nd boom section
 - Allowing for adjustments to the digging radius



Digger Derrick In-Service

Digging with a Digger Derrick

- Digging is performed with auger located on 2nd section
- Deeper holes can be made by extending the auger extension shaft



Digger Derrick In-Service

Setting Poles

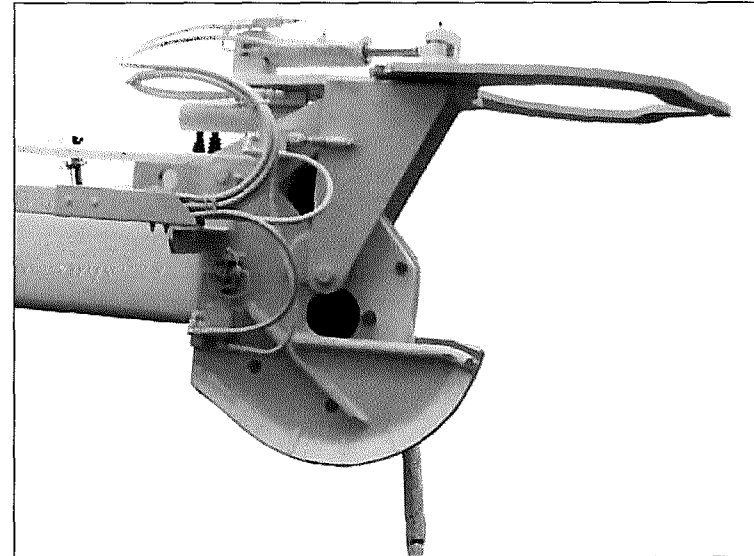
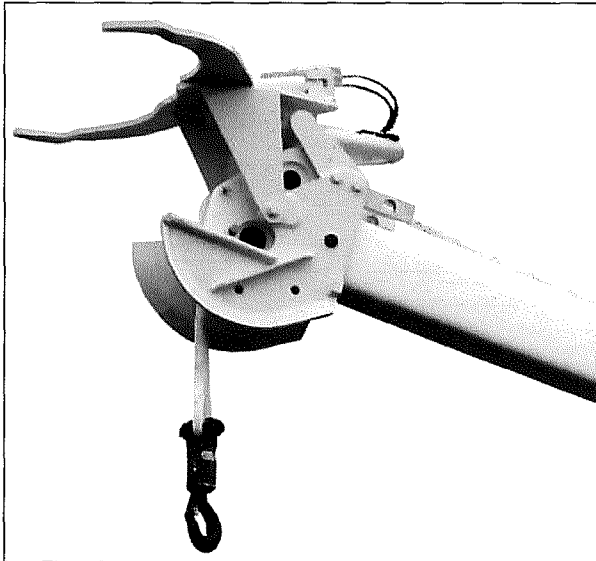
- When lifting poles
 - Keep winch line vertical
 - Use the pole claws (if equipped) to guide the pole at the boom tip
 - Do not clamp firmly, pole claws are a guide only



Digger Derrick In-Service

Tilting Pole Claws (if equipped)

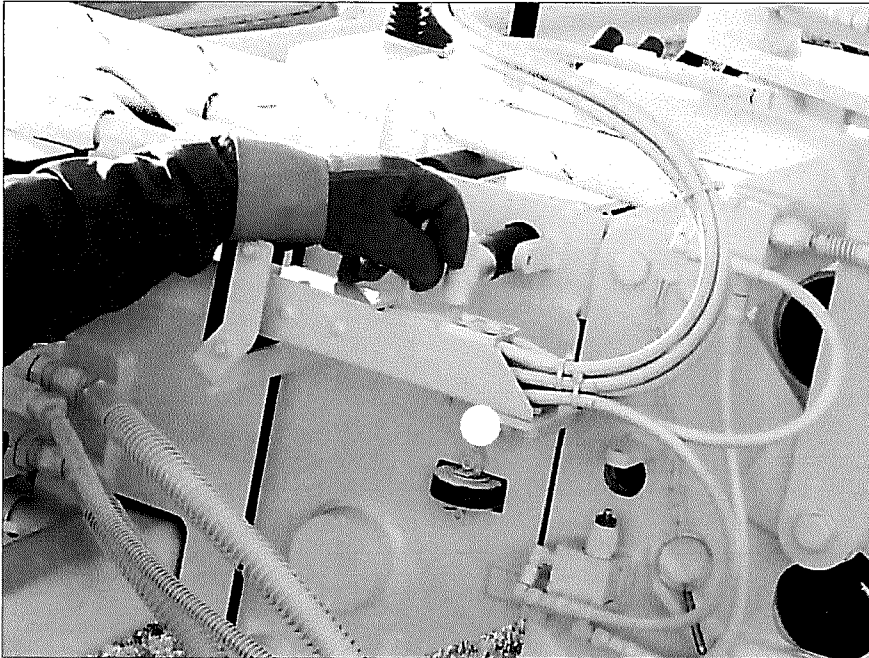
- Tilting pole claw assembly is used to control poles
 - Used to control and plumb the pole
 - Can be used for wood, concrete or steel poles
- Pole claw is not to be used to lift pole
 - Only guide and control pole



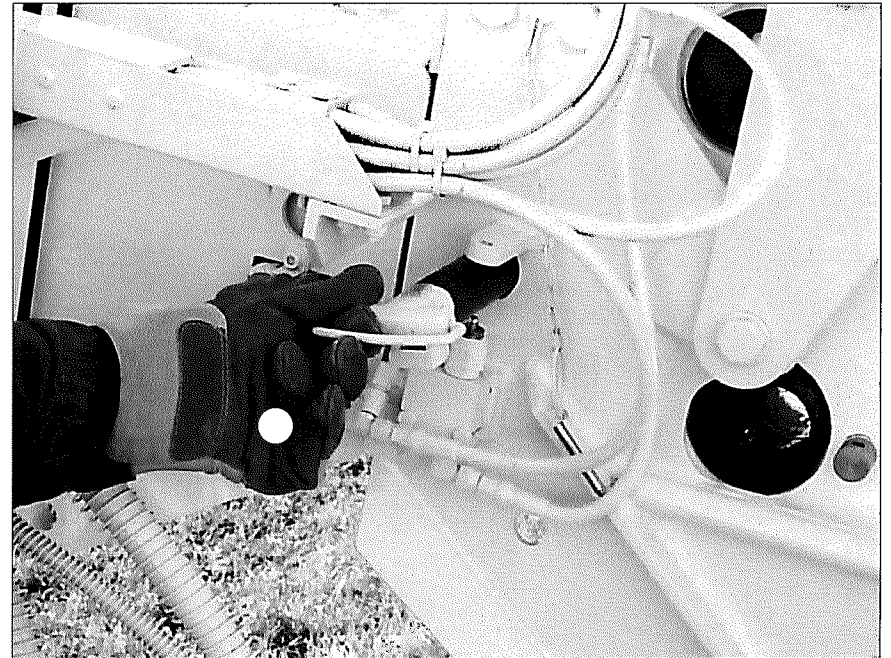
Digger Derrick In-Service

Transferable Tilting Pole Claws

- Transferring tilting pole claws is done by simple, one-pin transfer



Pinning to 2nd



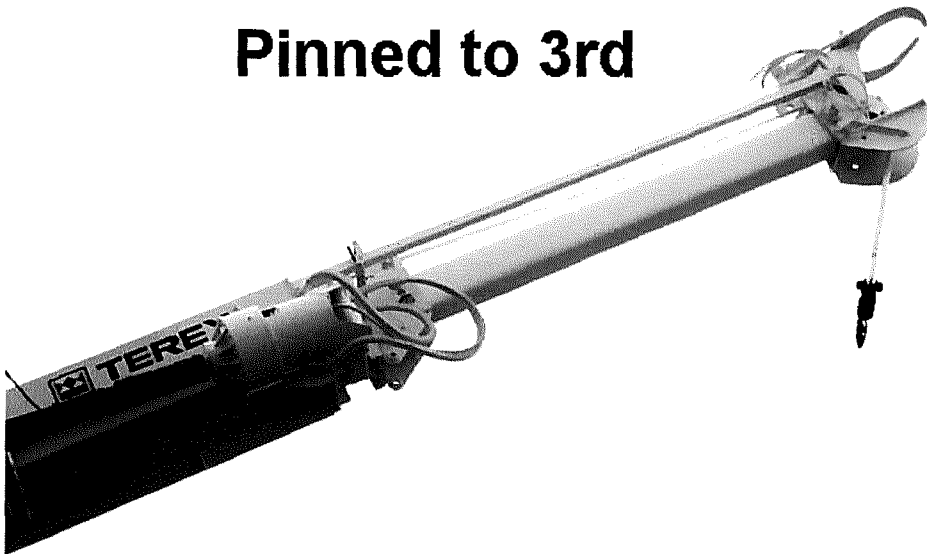
Pinning to 3rd

Digger Derrick In-Service

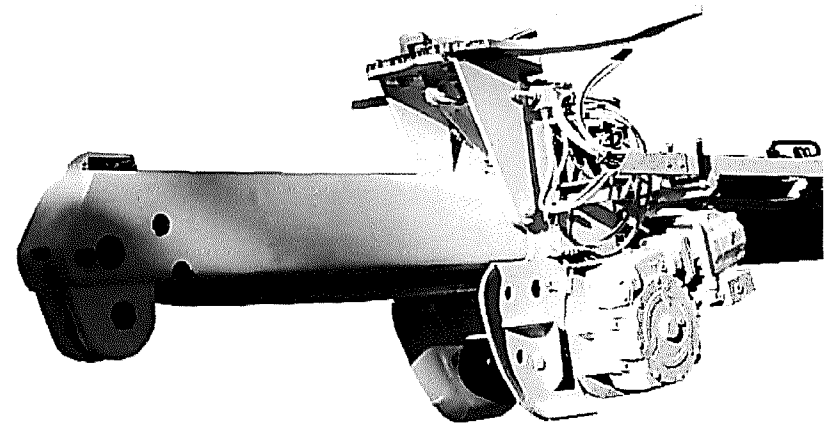
Transferable Tilting Pole Claws (if equipped)

- Tilting pole claws can transfer from 2nd to 3rd sections
- When tilting pole claws are pinned to 2nd boom section
 - The 3rd fiberglass section can be extended with reduced metal at boom tip
 - 3rd will not extend unless claws are in the fully up position

Pinned to 3rd



Pinned to 2nd



Digger Derrick In-Service

Fiberglass Platform

- Fiberglass platforms are available for boom tip applications
 - Shown securely stored in bed area of line body for transport and storage
 - Vinyl platform cover shown in right photo



Digger Derrick In-Service

Digger Derrick with Platform Applications

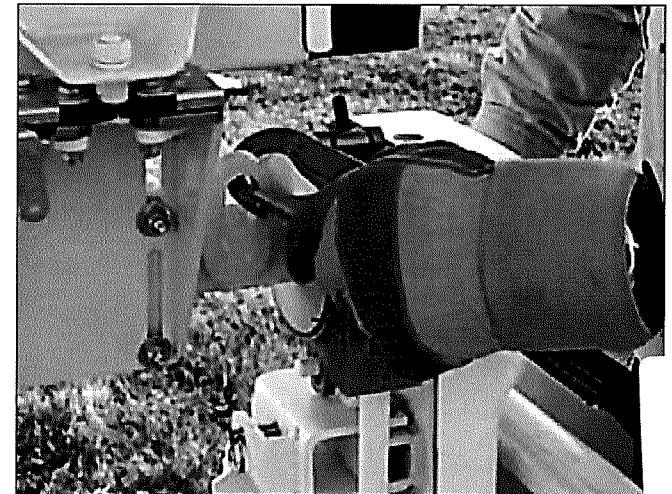
- The gravity-leveled platform can be attached to the fiberglass 3rd boom section



Digger Derrick In-Service

Always Wear Your Safety Harness When in Platform

- Perform pre-operational daily inspections of safety harness, lanyard and lanyard attachments
- Lanyard must be attached to the lanyard anchor provided
- Store safety harness and lanyard in safe, dry location

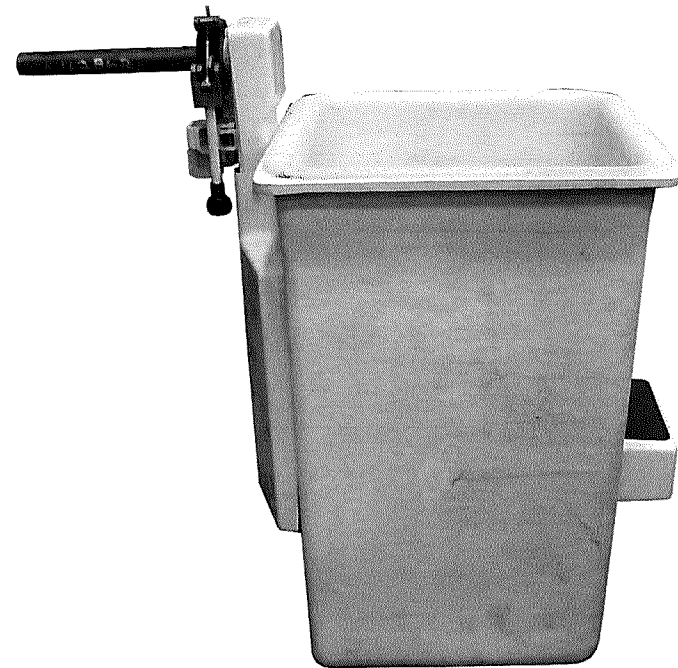


WORKS FOR YOU.™

Digger Derrick In-Service

Using a Digger Derrick for Aerial Device Applications

- The platform is gravity leveled
- Maximum boom insulation is 46 KVAC
- Platform is not insulating without a liner



Digger Derrick In-Service

Before Leaving the Job Site - Check

- Outriggers completely raised
 - Pads and chocks stored
- Boom fully retracted and stored into boom rest
- Master Switch / PTO and cab control switches returned to “OFF”
- Hand tools properly stored
- Platform properly stored
- Secure loads following your company guidelines
- Bucket cover secured over bucket
- Barricades stored



Digger Derrick In-Service


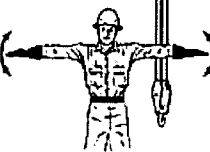

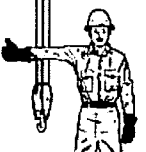
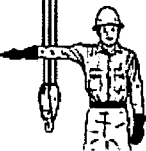

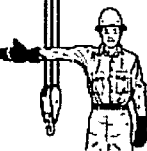
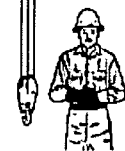



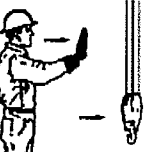
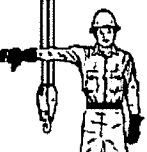
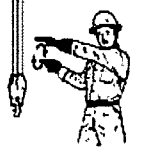
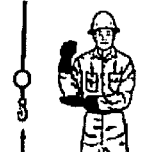




Always Wear Your Seat Belts

- Driver and passengers must always wear seat belts while vehicle is in motion
- Adjust mirrors to provide optimum visibility
- Adjust seat for proper fit
- Refer to chassis manual for complete chassis operation instructions
- Only the seating areas within the cab are suitable for use during travel



Digger Derrick In-Service

Hand Signals

 <p>STOP With arm extended horizontally to the side, palm down, arm is swung back and forth</p>	 <p>EMERGENCY STOP With both arms extended horizontally to the side, palms down, arms are swung back and forth</p>	 <p>HOIST With upper arm extended to the side, forearm and index finger pointing straight up, hand and finger make small circles</p>	 <p>RAISE BOOM With arm extended horizontally to the side, thumb points up with other fingers closed</p>	
 <p>SWING With arm extended horizontally, index finger points in direction that boom is to swing</p>	 <p>RETRACT TELESCOPING BOOM With hands to the front at waist level, thumbs point at each other with other fingers closed</p>	 <p>RAISE THE BOOM AND LOWER THE LOAD With arm extended horizontally to the side and thumb pointing up, fingers open and close while load movement is desired</p>	 <p>DOG EVERYTHING Hands held together at waist level</p>	 <p>LOWER With arm and index finger pointing down, hand and finger make small circles</p>
 <p>LOWER BOOM With arm extended horizontally to the side, thumb points down with other fingers closed</p>	 <p>EXTENDED TELESCOPING BOOM With hands to the front at waist level, thumbs point outward with other fingers closed</p>	 <p>TRAVEL/TOWER TRAVEL With all fingers pointing up, arm is extended horizontally out and back to make a pushing motion in the direction of travel</p>	 <p>LOWER THE BOOM AND RAISE THE LOAD With arm extended horizontally to the side and thumb pointing down, fingers open and close while load movement is desired</p>	 <p>MOVE SLOWLY A hand is placed in front of the hand that is giving the action signal</p>
 <p>USE AUXILIARY HOIST (WHIPLINE) With arm bent at elbow and forearm vertical, elbow is tapped with other hand. Then regular signal is used to indicate desired action</p>	 <p>CRAWLER CRANE TRAVEL, BOTH TRACKS Rotate fists around each other in front of body; direction of rotation away from body indicates travel forward; rotation toward body indicates travel backward</p>	 <p>USE MAIN HOIST A hand taps on top of the head. Then regular signal is given to indicate desired action</p>	 <p>CRAWLER CRANE TRAVEL, ON TRACK Indicate track to be locked by raising fat on that side. Rotate other fist in front of body in direction that other track is to travel</p>	 <p>TROLLEY TRAVEL With palm up, fingers closed and thumb pointing in direction of motion, hand is jerked horizontally in direction trolley is to travel</p>



TEREX

A Well-Trained Crew is a Safe and Productive Crew

SAFETY MEETING MINUTES

PRESENTER: Dereke Jernigan - TerexTOPIC: Digger DERRICKLOCATION: WaltonDATE: 10-20-13TIME: 8:15 Am

EMPLOYEES

PRESENT: See attached sheet.

WHAT WAS DISCUSSED IN SAFETY

MEETING: Always pre inspect the digger derrick before
use. Always a fall protection system in the truck machine bucket.
inspect all tools and safety devices before use. use third fiberglass
stage. Know your weight limit on the boom. Do not exceed
the limits. Keep winch line clean. ~~and~~ check for bad
spots in rope and replace if needed. Do not forget
to use parking brake. One stage on the derrick is
insulated. Roll the rope back up and only have 3' (fiberglass)
stage ~~out~~. Know the pole hooks are not insulated. If winch
is out then it does away with your insulated stage. Make
sure outriggers are set up on solid ground. Also leave
the tires on the ground. Stay within 5° to operate
the digger derrick. Make sure the stilts are all down
with pass used and equally touch. ~~and~~ ~~also~~ ~~do~~
keep load close to ground.

SAFETY TRAINING ROSTER ARTHUR SERVICE CENTER

TOPIC: Derrick Boom Training

INSTRUCTOR: Dereke Jernigan

NAME	POSITION	SIGNATURE	DATE
Alford, Jordan	Apprentice Lineman	<i>Jordan Alford</i>	10-22-13
Bach, Tony	Service Technician	<i>Tony Bach</i>	10-22-13
Back, Chris	Journeyman Lineman	<i>Chris Back</i>	10/22/13
Berkemeirer, Kenny	Service Technician	<i>Kenny Berkemeirer</i>	10/22/13
Brann, Alan	Service Technician		
Cheesman, Callen	Crew Leader	<i>Callen Cheesman</i>	10-22-13
Clemons, Danny	Crew Leader	<i>Danny Clemons</i>	10-22-13
Colligan, Charlie	Journeyman Lineman	<i>Charlie Colligan</i>	
Collins, Bryan	Journeyman Lineman	<i>Bryan Collins</i>	
Dempsey, Chris	Journeyman Lineman	<i>Chris Dempsey</i>	10/22/13
Forsee, Brad	Apprentice Lineman	<i>Brad Forsee</i>	10/22/13
Glass, Orman	Field Supervisor	<i>Orman Glass</i>	10/22/13
Heeger, Jeremiah	Mechanic	<i>Jeremiah Heeger</i>	10-22-13
Hines, Matt	FSR	<i>Matt Hines</i>	10-22-13
Jones, Brian	Field Supervisor		
Juett, James	Journeyman Lineman	<i>James Juett</i>	10/22/13
Kincaid, Rodney	Crew Leader	<i>Rodney Kincaid</i>	10-22-13
Martin, Jeff	FSR	<i>Jeff Martin</i>	10-22-13
Mulberry, Jerod	Apprentice Lineman	<i>Jerod Mulberry</i>	10/22/13
Mullins, Andy	FSR	<i>Andy Mullins</i>	
Noel, Brian	Service Technician	<i>Brian Noel</i>	10-22-13
Peters, Simon	Journeyman Lineman	<i>Simon Peters</i>	10/22/13
Pickett, Nate	Service Technician	VACATION	
Richardson, Larry	Service Technician		
Schmiade, Joe	Service Technician	<i>Joe Schmiade</i>	
Taylor, Bruce	Crew Leader	<i>Bruce Taylor</i>	10-22-13
Tekulve, Dan	Journeyman Lineman	<i>Dan Tekulve</i>	10/22/13
Veirs, Brian	FSR		
Vonbokern, Bobby	Apprentice Lineman	<i>Bobby Vonbokern</i>	
Waichulis, Joe	Crew Leader	<i>Joe Waichulis</i>	10/22
Webster, Jimmie	Warehouseman		
		<i>Jeff Gibson</i>	10-22-13
		<i>Jeremiah Heeger</i>	10-22-13
		<i>Chris McConley</i>	10-22-13

SAFETY MEETING MINUTES

PRESENTER: Dereke Jernigan - TerexTOPIC: Digger Derrick BoomsLOCATION: HeadquartersDATE: 10-22-13TIME: 1:45 pm

EMPLOYEES

PRESENT: See Attached Roster

WHAT WAS DISCUSSED IN SAFETY

MEETING: Intro, inter OSHA rules, warnings & construction(stickers) on trucks & equipment (Danger, warning ect.) Safety guidelines & inspections. Don't walk around (wires, ropes, fluids, ect.)Proper truck setup. Clean solid ground under outriggers & levelAFE to operate. Operation Playcards (pressing location ect.)Again ^{Decals} ~~stickers~~ & warning & operating signs & stickers on equipment!For extensphere triangles safety equipment. Clear walkways &work areas. Check all controls & fluids. Proper work area & equipmentsetup: Parking brake & engine in neutral before getting out. Choked areaarea is the end fiber glass. Keep fiber glass clean/dry. Maintain minimum approach distance. Don't forget to use wheel chocks. Obstacles in the way of outriggers (side walk rocks people feet) walk off the back when possible. Get the outrigger solid & level. Build up outrigger pads if needed. Ground truck or dunnage. Don't over rev trucks. Lifting load chart lift with 3rd stage not 2nd. Keep ~~the~~ ^{wire} line straight & clean. Keep loads low to ground & straight away ^{wire} from side load. Proper rigger storage at 45° when storing. Pole claw transfer from 2nd stage to 3rd.

SAFETY TRAINING ROSTER OWENTON HQ

TOPIC: Derrick Boom Training
INSTRUCTOR: Dereke Jernigan

NAME	POSITION	SIGNATURE	DATE
Alexander, Aaron	Crew Leader	<i>Aaron Alexander</i>	10-22-13
Beckham, Cody	Journeyman Lineman	<i>Cody Beckham</i>	10-22-13
Boling, Shannon	FSR		
Canchola, Jude	Energy Advisor		
Criswell, Doug	Crew Leader	<i>Doug Criswell</i>	10-22-13
Duvall, Travis	Journeyman Lineman	<i>Travis Duvall</i>	10-22-13
Fitzgerald, Johnny	Journeyman Lineman	<i>Johnny Fitzgerald</i>	10-22-13
Gaines, Mitchell	Roving Warehouseman		
Gibson, Jeff	Mechanic		
Greene, Mark	Journeyman Lineman	<i>Mark Greene</i>	10-22-13
Greenlee, Matt	Service Technician	<i>Matt Greenlee</i>	10-22-13
Hearn, Josh	Distribution Sup.	<i>Josh Hearn</i>	10-22-13
Hill, Kevin	Journeyman Lineman	<i>Kevin Hill</i>	10-22-13
Howard, Scott	Journeyman Lineman	<i>Scott Howard</i>	10/22/13
Kingkade, Seth	FSR		
Lewis, Jamey	Warehouseman		
Lilly, John	Journeyman Lineman	<i>John Lilly</i>	10-22-13
Mason, Ricky	Journeyman Lineman	<i>Ricky Mason</i>	
Mckinley, Chris	Meter Technician		
Moore, Steve	Journeyman Lineman	<i>Steve Moore</i>	10-22-13
Osborne, Scott	Meter Technician		
Perkins, Jeff	Mechanic	<i>Jeff Perkins</i>	10-22-13
Tuggle, John	FSR		
Widener, Kenny	Crew Leader	<i>Kenny Widener</i>	
Wilhoite, Tim	Service Technician		
Wright, Jeremy	Journeyman Lineman	<i>Jeremy Wright</i>	10-22-13

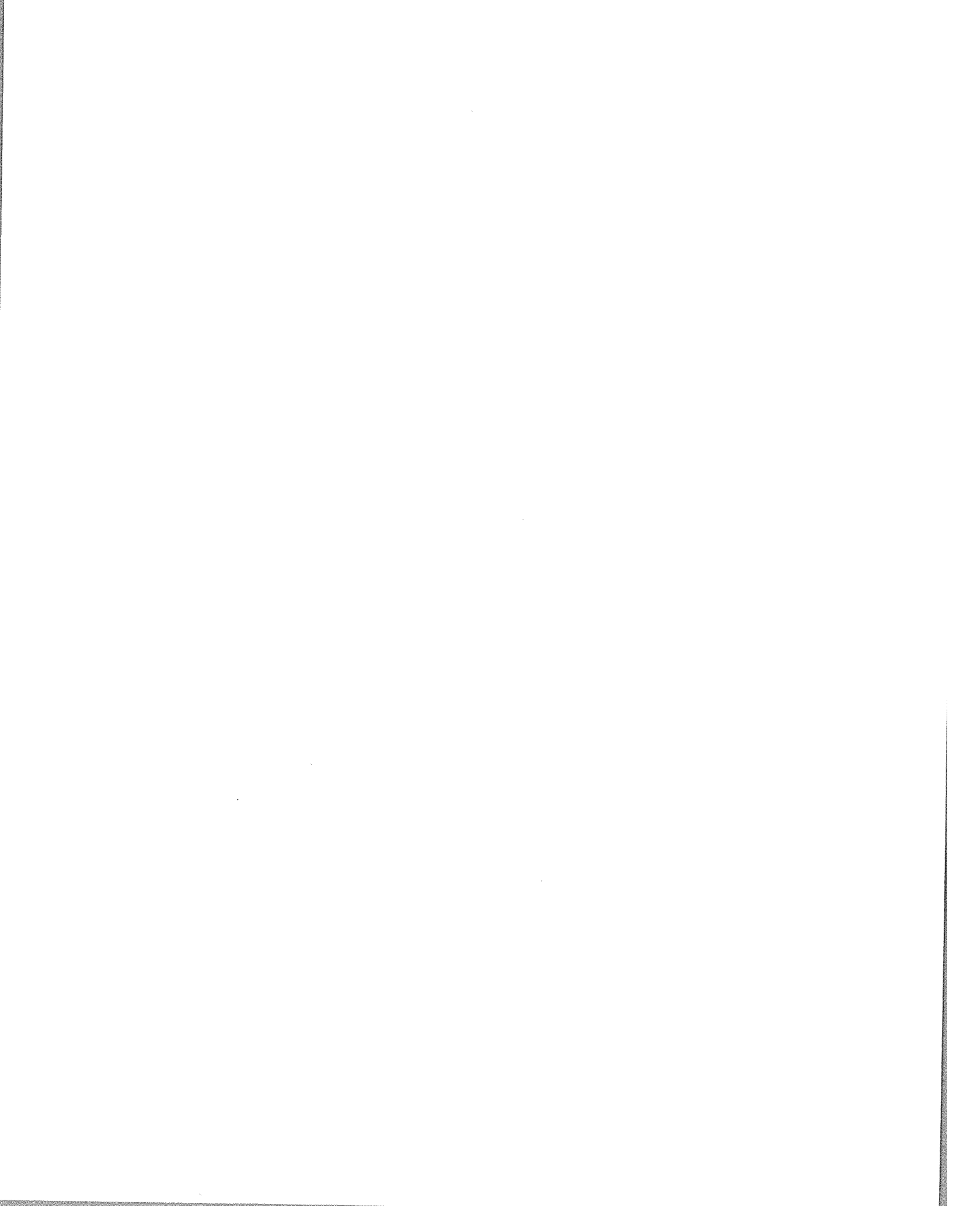


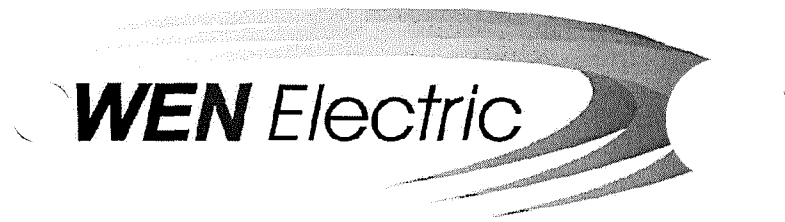
EXHIBIT F



OWEN *Electric*

Employee Day

October 14th, 2013



Caterpillar Safety Services Findings

- *The assessment found a very strong and effective safety culture.*
- *All employees that were interviewed were very engaged and informed of safety activities and results.*
- *Leadership was seen as being very competent, caring and aggressive to maintain and improve safety performance.*
- *All employees, including hourly, salaries and management, should be commended for their efforts.*

The logo for OWEN Electric features the company name in a bold, sans-serif font. 'OWEN' is in all caps, and 'Electric' is in title case. The text is positioned to the left of a stylized, dark, curved graphic that resembles a swoosh or a partial circle, with a lighter, textured background behind it.

OWEN Electric

Caterpillar Safety Services Strengths

- *No apprehension to report safety concerns or to approach a fellow employee about an unsafe act or condition.*
- *There is a strong “family” environment in the workplace.*
- *Each employee cares about the safety of their co-workers*
- *No one seemed threatened when asked to correct a behavior or unsafe condition.*
- *Hazards are corrected almost immediately after being reported.*

The logo for OWEN Electric features the word "OWEN" in a bold, black, sans-serif font, followed by "Electric" in a smaller, italicized, black, sans-serif font. The text is positioned to the left of a stylized, dark grey, swoosh-like graphic that curves from the top left towards the bottom right.

OWEN Electric

Caterpillar Safety Services Strengths

- *Facility and equipment maintenance personnel are very responsive.*
- *Extra effort is put forth by management to include office and administrative personnel regarding safety performance, updates or changes to safety procedures and the introduction of new hazards.*
- *Upper management is perceived to have an “open-door” policy where concerns can be heard, confidentiality maintained and corrective action will be taken.*

Caterpillar Safety Services Strengths

- *Upper management is perceived that a safe working culture needs to be valued just as production, repairs, and customer service.*
- *Equipment and Facility maintenance personnel have created a culture of “correct” by letting all employees know that they can be approached about any hazardous condition and it will be addressed.*
- *Most employees “feel privileged “ to be working in an environment where there is so much care for the employees well-being.*



OWEN Electric

Caterpillar Safety Services Strengths

- *Management is perceived to “walk the talk” and they are quick to correct hazards themselves rather than delegating to someone else.*
- *Near misses, safety hazards and incidents are shared immediately with all employees. All employees welcome this communication*
- *There are extensive efforts underway each day to understand the level of visitor/contractor traffic, locations and work performed. There is no hesitation by any employee to correct a visitor's behavior/actions related to safety.*

The logo for WEN Electric features the text "WEN Electric" in a bold, sans-serif font. The word "WEN" is in a larger, bolder font than "Electric". The text is positioned on the left side of a stylized, curved graphic that resembles a lightning bolt or a power line, with a gradient from light to dark grey.

Caterpillar Safety Services Strengths

- *The on-site safety professional is well respected and looked to as a resource to assist employees working safe.*
- *Safety walk-throughs are conducted and any conditions needing correction are shared either the same day or the following day, This creates a high degree of accountability and all employees spoke highly of this process.*

The logo for OWEN Electric features the company name in a bold, sans-serif font. The word "OWEN" is in all caps, and "Electric" is in title case. To the right of the text is a stylized, dark grey graphic element that resembles a swoosh or a tail fin, tapering to the right.

Caterpillar Safety Services Opportunities

The following opportunities for improvement exist:

- *Employees mentioned that supervisors inconsistently use proper recognition for good safety performance. Recognition by leaders is the last “step” in the safety accountability model. This indicates personnel are not sure what performance to recognize and/or how to do so in a meaningful manner with respect to safety.*
- *Increase the frequency of informal upper management visits to the field operation. This is a useful tool to communicate to desire to improve the safety culture at Owen Electric Cooperative.*

The logo for OWEN Electric features the company name in a bold, sans-serif font. The word "OWEN" is in all caps, while "Electric" is in title case. The text is positioned to the left of a stylized, horizontal, oval-shaped graphic that has a gradient from light to dark, suggesting a lens or a stylized 'O'.

Caterpillar Safety Services Opportunities

- *Many employees believe risks involved are sometimes overlooked to get the job done, implying that hazard controls are sometimes optional or unclear and that productivity sometimes trumps safety. This perceived weakness can be improved by supervisors and leaders attending the START workshop.*

The logo for OWEN Electric features the word "OWEN" in a bold, sans-serif font, followed by "Electric" in a smaller, italicized sans-serif font. The text is set against a background of several overlapping, curved, shaded bands that create a sense of motion or a stylized 'O' shape.

Caterpillar Safety Services Recommendations

Suggested Continuous Improvement Team training such as:

- *Increase Management safety presence in the field.*
- *Address that risks are commonly overlooked in order to get the job done.*
- *Develop training processes on new equipment or job procedures.*



OWEN Electric

Caterpillar Safety Services Recommendations

- *Improve the incident and accident process, ensuring all employees are communicated upon ways to avoid the reoccurrence of the incident, accident or near miss.*
- *Improve monthly and annual safety meeting content.*
- *Enable safety accountabilities at all levels of the organization.*
- *Develop training to ensure practical safety communication including recognition and correction for safety performance.*

The logo for OWEN Electric features the company name in a bold, sans-serif font. The word "OWEN" is in all caps, and "Electric" is in title case. The text is positioned to the left of a stylized, horizontal, teardrop-shaped graphic that has a gradient from light to dark grey and a white swoosh on its right side.

OWEN *Electric*

- Questions? Comments?

A Touchstone Energy[®] Cooperative





EXHIBIT G

OWEN ELECTRIC COOPERATIVE

Making Employees Part of the Decision-making Process

OWEN Electric

A Traditional Electric Cooperative



Overview

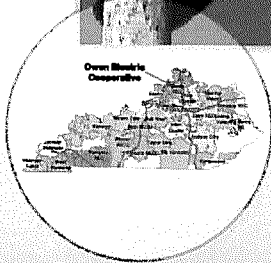
- Number of Employees — 132
- Number of Members — 36,680
- Headquarters — Owen, KY
- Miles of Line — 3,380

Participating Employees & CEO

Bryan Collins
 Tony Dempsey
 Travis Duvall
 Brian Jones
 Joe Waichulis
 Rusty Williams
 Mark Stallons (CEO)

Statewide Association

Kentucky Association of Electric Cooperatives



Successfully Changing a Traditional Work Practice

The Issue

- Linemen falling from poles is common in our work
- 2008 & 2009, two Owen employees have fallen and received injuries
- We identified exposure to falling off poles as a serious risk to injury

What we did

- April 2010 — assembled a team of linemen with a facilitator to evaluate available fall restricting devices
- Nov. 2010 — all linemen sampled and rated each device
- Jan. 2011 — ordered fall arrest equipment and double d-ring belts for each lineman
- March 2011 — conducted training with employee involvement
- May 2011 adopted 100% utilization of fall arrest equipment as a new work practice
- Provide continual follow up and feedback

The Results

- Complete acceptance of a change to a long standing work practice with complete ownership
- Significantly reduced risk of injury due to falling off a pole
- No reported injuries since inception

Making Affected Employees Part of the Decision-making Process

