CRANES HIT POWER LINES

Electrocution #1 Crane killer USA

The greatest change in crane safety would be achieved by eliminating injuries resulting from powerline contact – a power line contact is not an accident but a reasonably foreseeable event.

Presentation to Safety Standards for Cranes and Derricks

Docket S-030

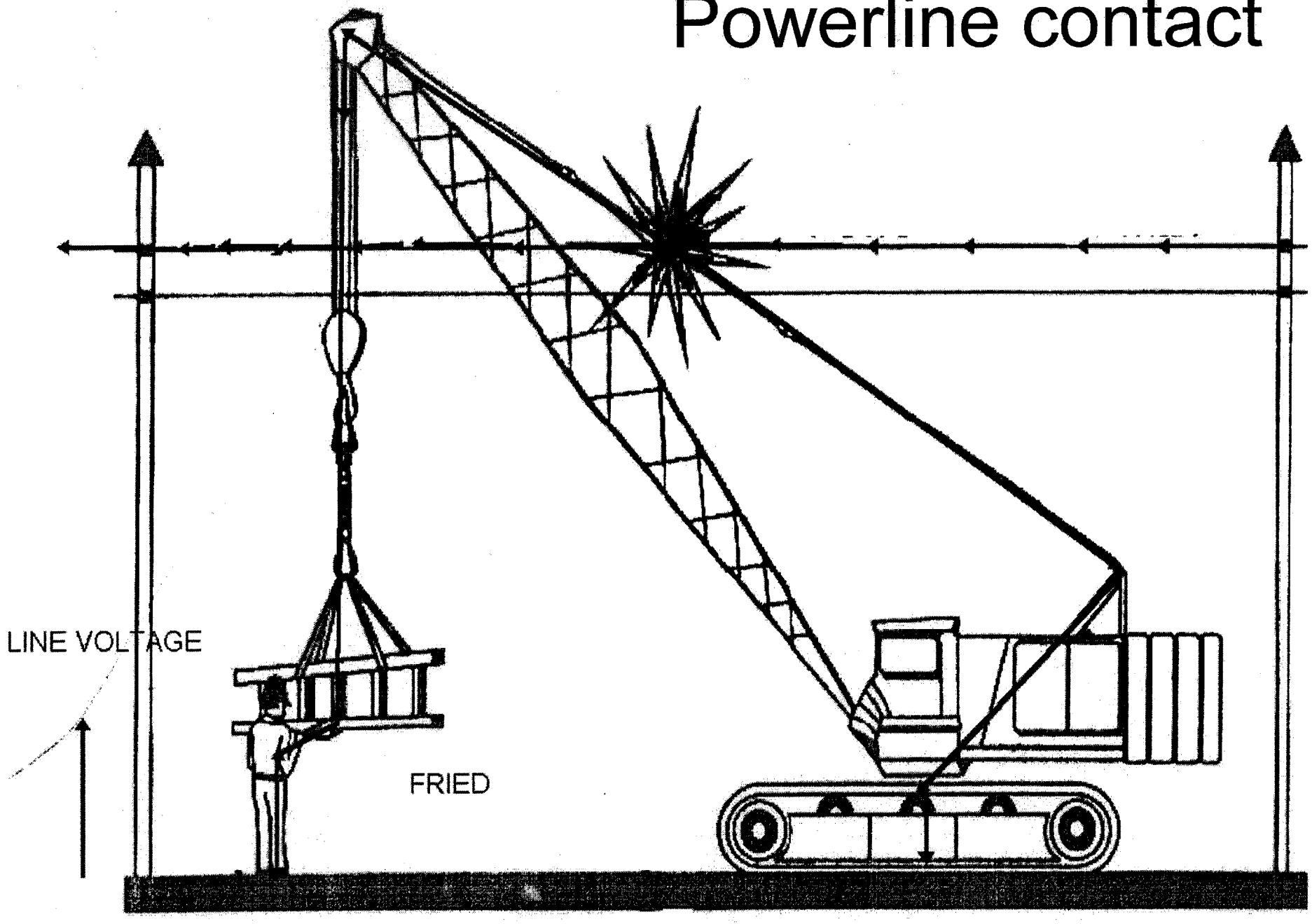
30 July 2003

Hugh Pratt, President, InsulatUS inc supporting the victims.

P's & Q's

- Perspective - USA
- Problem
- Perception
- Products
- Philosophy
- Prevention
- Profit
- Power/Politics

Powerline contact



Problem with powerline contact 1998 details

* 38 victims found from press cuttings alone.

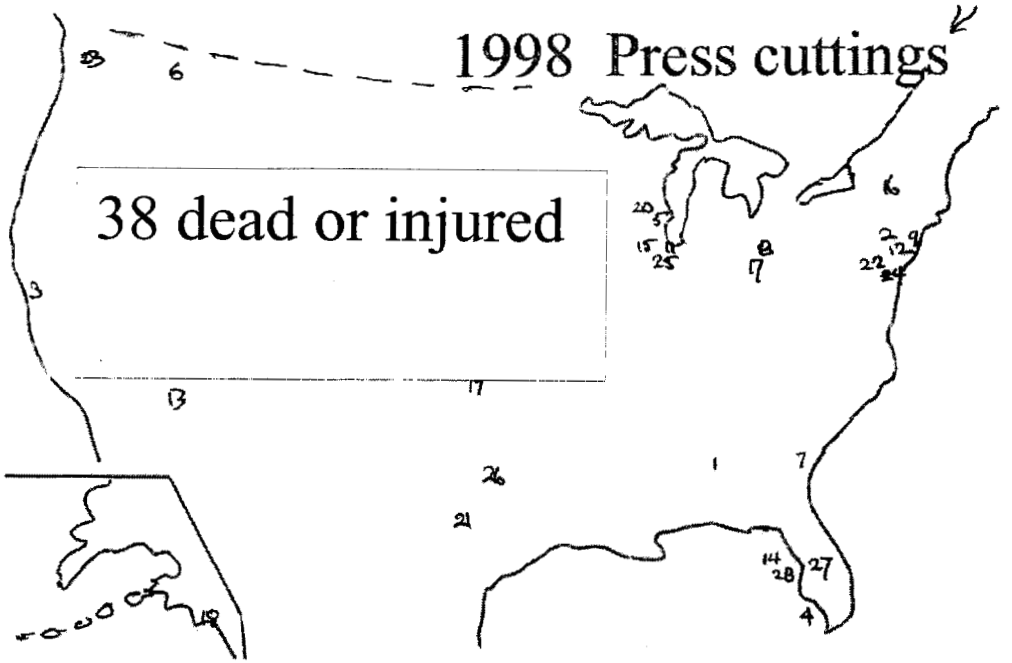
* 21 out of 90, 23%, Crane fatalities reported in Dept. of Labor statistics.

* 13 investigated by OSHA

* 17 casualties reported in press

*85% injured are riggers.

* 99% incidents under 25kV



Problem with powerline contact

1994-2001

1. 25% of all fatal crane accidents are electrocution.
2. Twice as likely to get electrocuted as squashed.
3. Average 19/year.
4. 3 times as many white men are electrocuted.
5. No women are electrocuted.
6. No age weighting.
7. Electrocution rate unchanged - OSHA 84/94 was 20/year

Conclusion: Employ young black women to drive cranes and as riggers. You are guaranteed not to kill them and they will brighten the construction site!

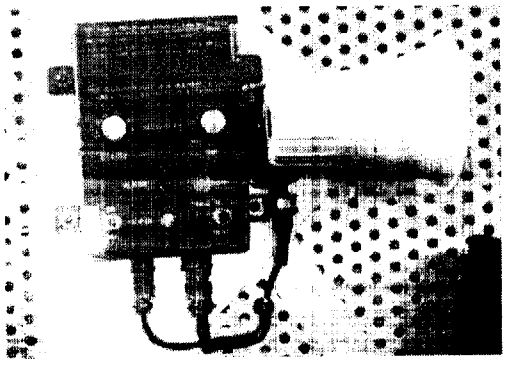
Perception of human factors

- Low public awareness that power lines are not insulated.
- Power lines are everywhere and are therefore easily overlooked.
- Impaired ability to judge distance of such a narrow object from the crane's boom.
- Crane operator's vision may be restricted and his concentration will tend to be on the load and ground personnel. Power lines may only be in his peripheral vision.
- Familiarity breeding contempt.

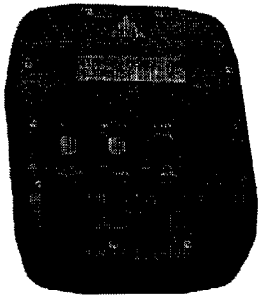
Despite a considerable a body of regulations issued by both OSHA & NIOSH with such factors in mind accidents occur every week.

Proximity warning devices

Sigalarm inc



HPV Systems inc



1 antenna

'dead zones'

6 Antennae

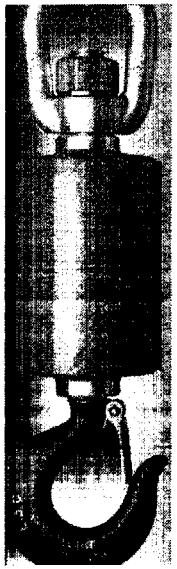
More sensors =

Greater probability of failure?

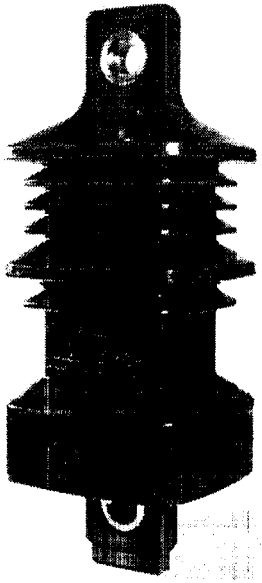
Insulating links

Miller Products inc

Hirtzer inc



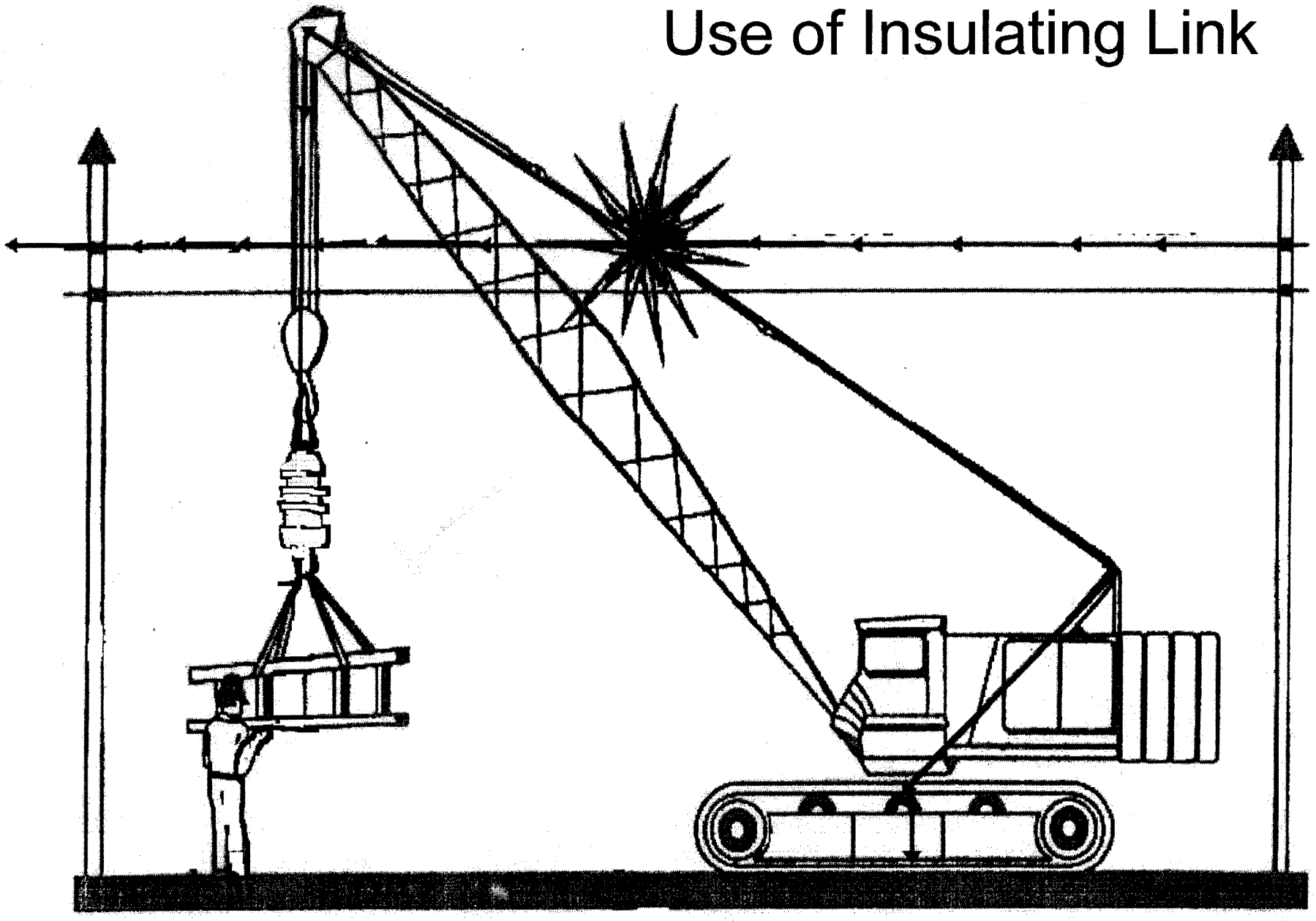
Insulatus inc.



- **Failed to perform when wet/dirty**
- **No monitoring of performance**
- **60/120t max load**
- **Miller Ch 11 & not paying creditors.**

- **Performs in all conditions**
- **On board diagnostics with data logging & alarms.**
- **Endorsed by SRS**
- **Partnership program with St. Pauls**

Use of Insulating Link



Philosophy

Law says – 'do not touch'

'do not speed'

Accidents Do Happen……." Death is Inevitable……."

"Life carries On……." "Prevention is Better Than Cure"

Myths – 'use of safety devices causes accidents' for example – seat belts

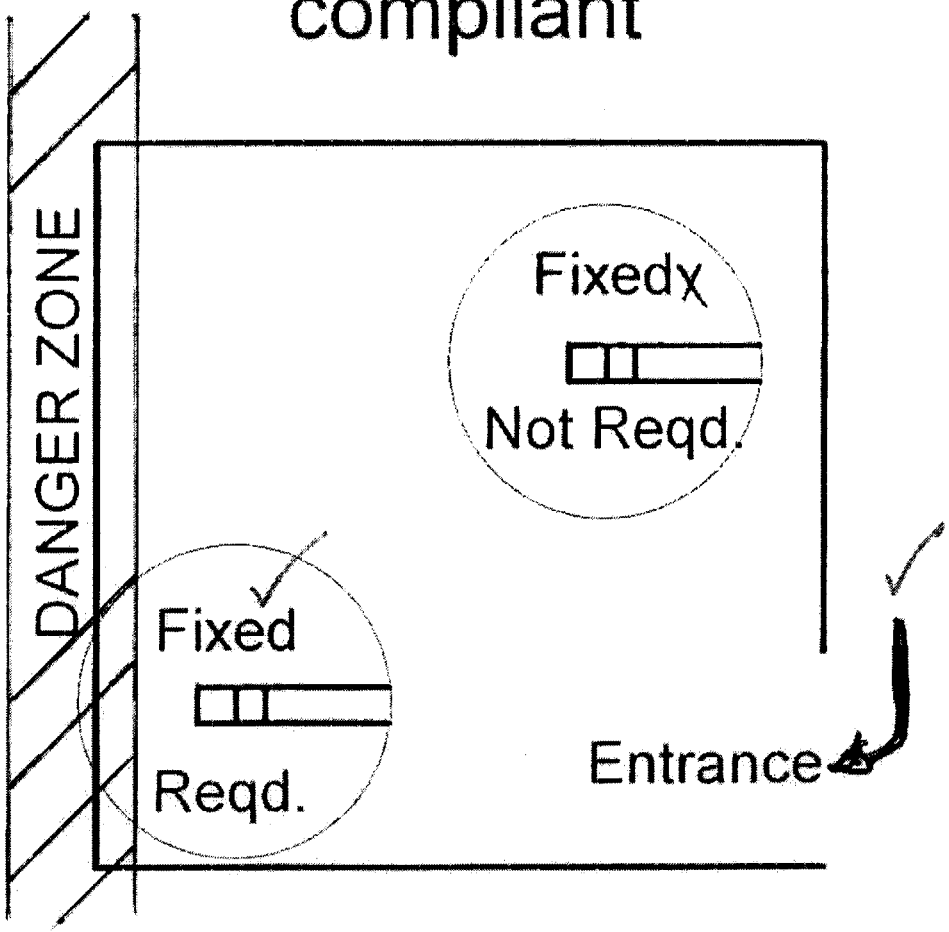
Principal - Do you prefer to know if you are going to die or saved from dieing?

A warning device tells the driver, usually OK, that he is about to hit a powerline and fry the rigger.

Prevention

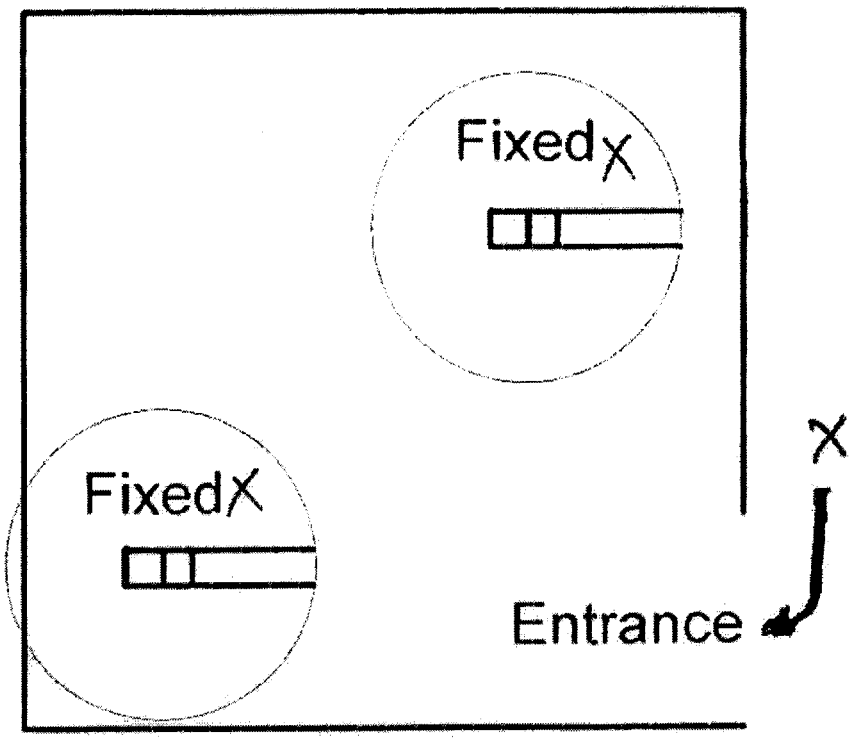
Jobsite A

All mobile cranes insulating links compliant

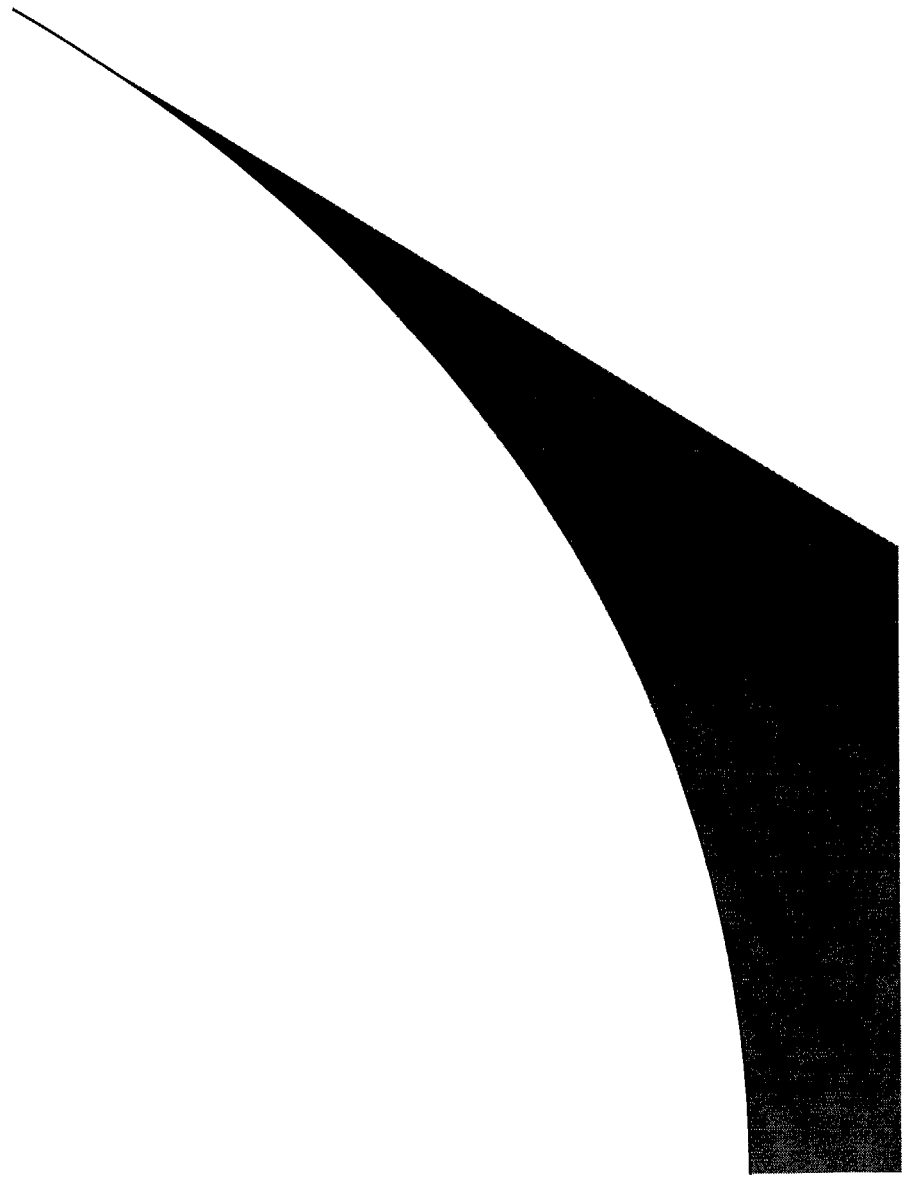


Jobsite B

All cranes insulating links not required



Possibilities



Profit & Loss

- Minimum cost $70 per week per crane
- Purchase cost 3% of crane cost
- Air bag about 3% of total pickup/van cost

$2-$25m , dead or alive , if sued

OR

$ 350,000 Workers compensation

Any Questions?

Assumptions for insurance company

Number of Claims per Year	1
Average Claim Size	$ 1,500,000
Deductible on claim	$ 1,000,000
Unprotected Cranes	150
i.e 30 off 10t; 68 off 25t; 38 off 55t; 15 off 100t	
Legal Costs per year	$ 0
Reinsurance costs	$ 0

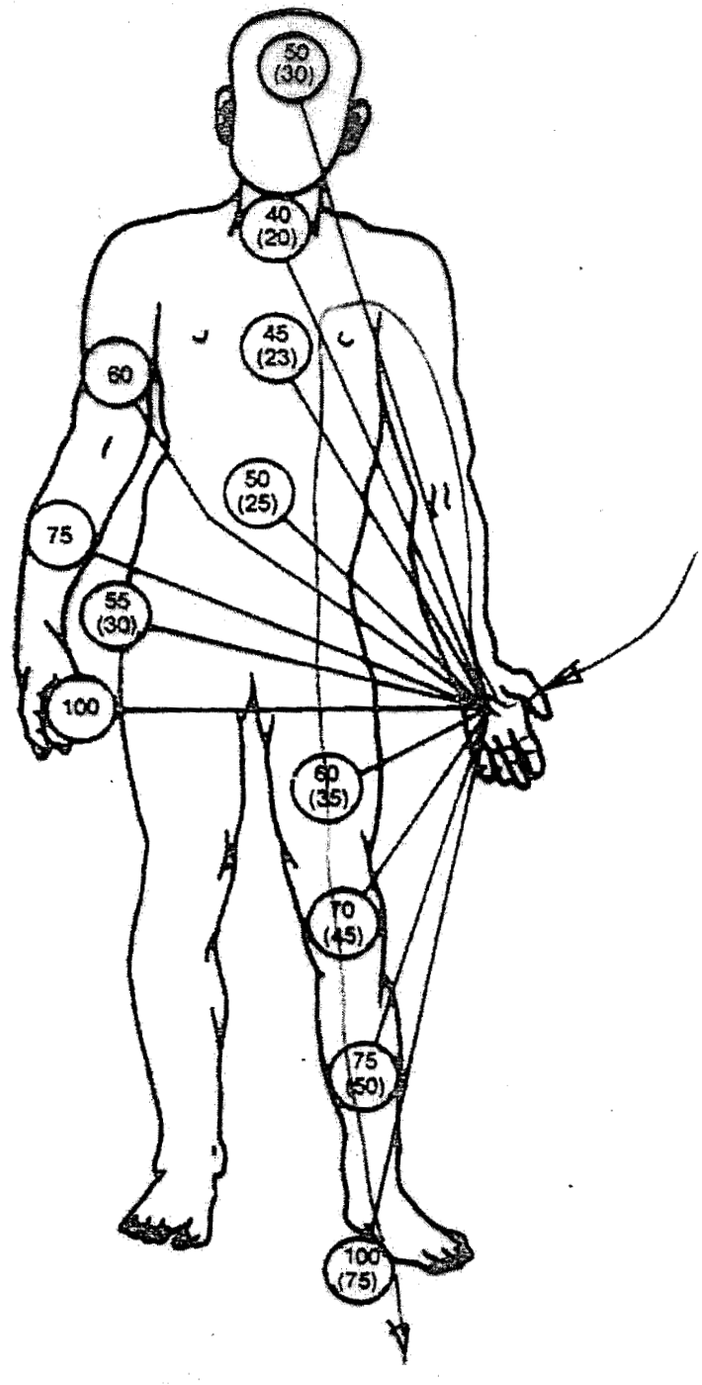
Exposure of Insurance company

CLAIMS	1
ANNUAL CLAIM VALUE	$ 15,000,000
DEDUCTABLE	$ -1,000,000
LEGAL COSTS	$ 550,000
EXPOSURE	**$ 14,550,000**

SAVINGS ON COSTS PER YEAR

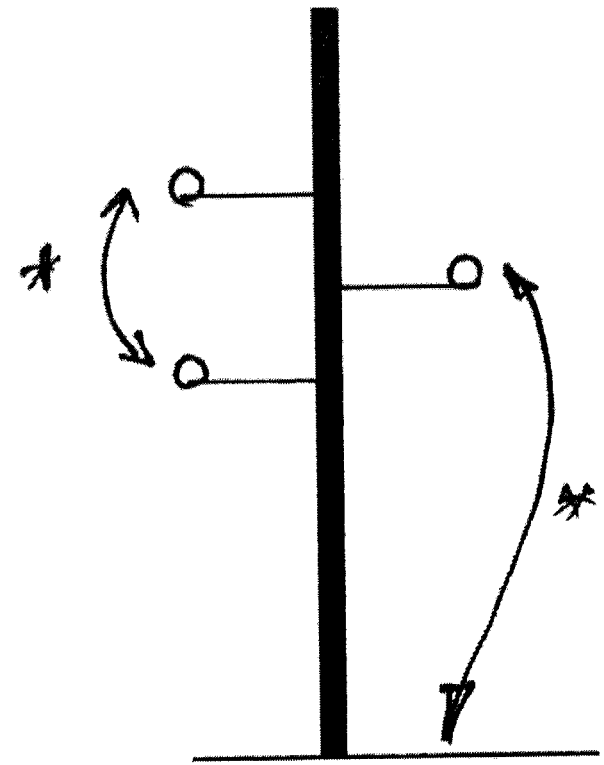
COSTS		
SUPPLYING LOAD INSULATORS		$ 488,132
SAVINGS		
REINSURANCE COSTS	$ 0	
LEGAL COSTS	$ 0	
TOTAL SAVINGS	$ 0	
TOTAL COSTS		$ 488,132
NET COST	**$ 488,132**	

Electrocution path



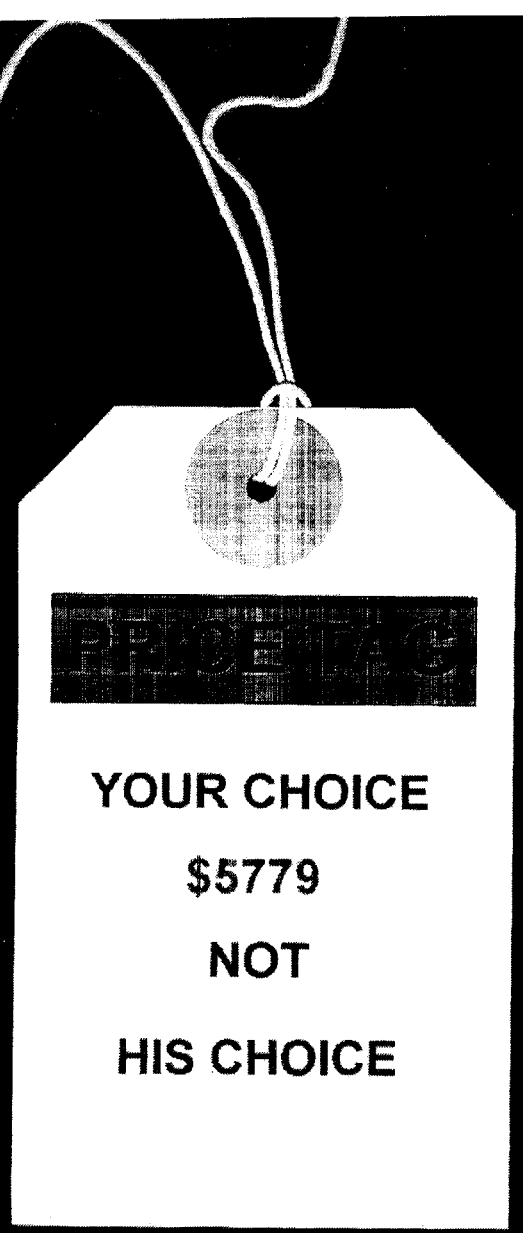
Phase to phase kV	Phase to ground kV
12.5	7.2
38	20
69	39
138	80
345	200
765	440

1 Territory
2 Top of pole



Power pole volts

Tags


YOUR CHOICE
$5779
NOT
HIS CHOICE

DEAD
$2 million
OR
ALIVE
$25 million

WORKER ELECTROCUTED IN CONSTRUCTION SITE ACCIDENT

MARCO ISLAND, FLORIDA - Naples Daily News September 1998

- Martin Wrest, 53, of Cardinal St. in Naples was helping to unload concrete pilings from a flatbed truck at a construction site off South Heathwood Drive at 8:30 a.m.
- As one of the pilings was being lifted the crane's metal cable brushed an overhead power line.
- Wrest, who was touching a chain connected to the crane cable, was electrocuted.
- Wrest, an employee of Marco Marine Construction Co., was rushed to the Healthcare Center about a half-mile away where he was pronounced dead.
- The crane operator, Norman Martin, wasn't injured.
- The County & OSHA investigated the death.

Insulated Link specifications

- Support loads up to 100 tons with a substantial safety factor.
- Protect against voltages commonly found on US power lines, up to 25,000 Volts RMS.
- Guarantee no more than minimal current transmission (<0.7 mA) in any conceivable climatic condition.
- Continue to sustain the same current protection even when subject to extreme levels of dirt.
- Maintain working performance year after year.
- Self-test daily to identify breakdown due to extreme abuse and provide a fail-safe alarm.
- Provide a permanent record of electrical strikes or usage abuse.

The role of technology Offers considerable assistance:

- Computer simulations allow a unit to be designed to give levels of protection never previously available.
- Microprocessor technology permits built in automatic test procedures for daily validation.
- Sophisticated power devices ensure that testing, recording and alarm features remain 100% functional for two years beyond their permitted warranty period.
- High voltage testing facilities enable extended simulation of extreme climatic conditions - dense fog, high saline levels, substantial surface contamination - to ensure no loss of protection.
- Timing devices to require users to comply with annual inspection and data download requirements.

End