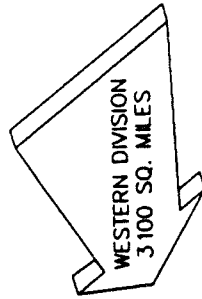
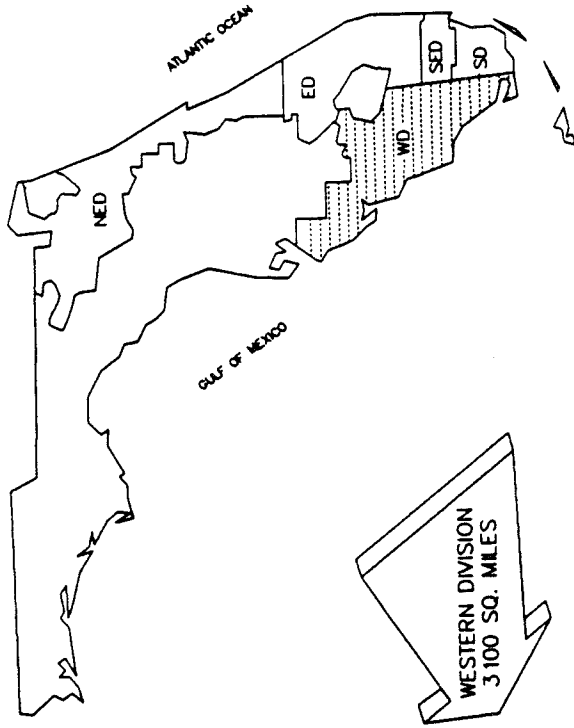


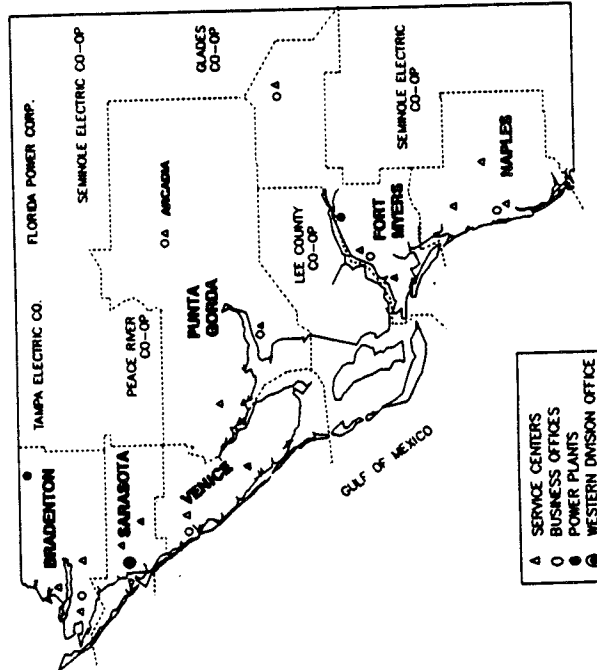
WESTERN DIVISION CONSTRUCTION SERVICES

WESTERN DIVISION GATE TEAM



NUMBER AND TYPES OF GATES IN THE WESTERN DIVISION

	TYPE OF GATE			TOTAL GATES BY TYPE
	ROLLING	CANTILEVER	SWING	
SERVICE CENTER (21)	18	6	18	42
SUBSTATION (70)	3	—	86	89
TOTAL GATES	21	6	104	131



TEAM PROJECT PLANNING WORKSHEET

THEME (PROB AREA) GATE RELATED INJURIES IN WESTERN DIVISION																	
TEAM NAME WTD SAFETY GATE TEAM						TEAM CODE 80273						IAM #					
TEAM LEADER JIM HANSON						TL PHONE # 332-9166						WORK LOCN 5030					
DURATION MO/YR APR. 89 THROUGH MO/YR (TOTAL MONTHS _____) SPONSOR																	

MTGS	1			2			3			4			5			6		
MNTH	DATE *FAC	MTG UNTS	% ATT	DATE *FAC	MTG UNTS	% ATT	DATE *FAC	MTG UNTS	% ATT	DATE *FAC	MTG UNTS	% ATT	DATE *FAC	MTG UNTS	% ATT	DATE *FAC	MTG UNTS	% ATT
JAN																		
FEB																		
MAR																		
APR	4/10	1 HR	100 %	4/14	4 HRS.	100 %	4/25	4 HRS.	100 %									
MAY	5/5	4 HRS.	100 %	5/9	7 HRS.	100 %	5/10	7 HRS.	80%	5/11	7 HRS.	80%	5/12	10 HRS.	80%	5/13	10 HRS.	80%
JUN																		
JUL																		
AUG																		
SEP																		
OCT																		
NOV																		
DEC																		

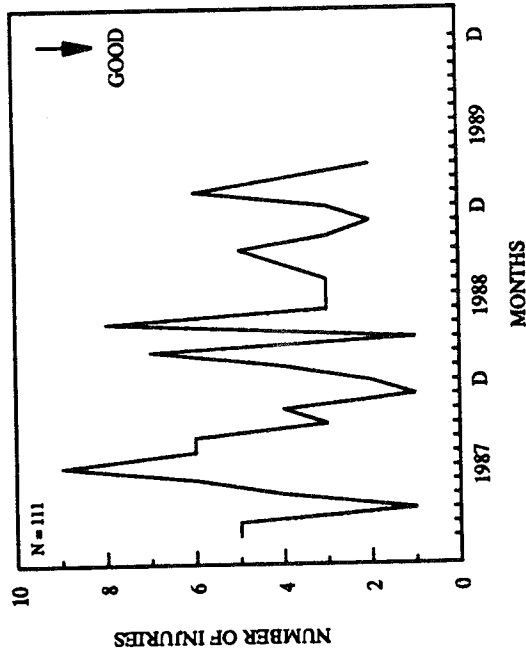
OUTLINE OF ACTIVITIES	SCHEDULE PROJECTED ACTUAL														COMMENTS
	DAY/MONTH	4/10	4/14	4/21	4/28	5/5	5/12	5/19	5/26	6/2	6/9	6/16	6/23	(HOW EACH STEP WAS DONE)	
	REASON FOR IMPROV.													PROVIDED BY WD SAFETY DEPT.	
	CURRENT SITUATION													BAR CHART	
	ANALYSIS													P.D.P.C., C.P.I. NIOSH HISTOGRAMS	
	COUNTER-MEASURES													MATRIX ACTION PLAN BARRIERS AND AIDS	
	RESULTS													LINE GRAPH HISTOGRAMS	
	STANDARDIZATION													QC, CHECK SHEET	
	FUTURE PLANS													MATRIX, BAR CHART ACTION PLAN	
	* SIGNIFIES PRESENTATION DATE		NOTES: FREELANCE BY CANDIE ROLL												
TEAM MEMBERS															

A. W. HAGAN
C. N. TROWER

J. W. MATTHIAS
L. R. BAILES, RESP. MGR.

FROM JANUARY 1987 TO MARCH 1989, THE WESTERN DIVISION EXPERIENCED 111 INJURIES RELATED TO THE WEIGHT OF THE MATERIAL/EQUIPMENT BEING USED.

INJURIES RESULTING FROM WEIGHT OF MATERIAL/EQUIPMENT WD 1987 - MARCH 1989



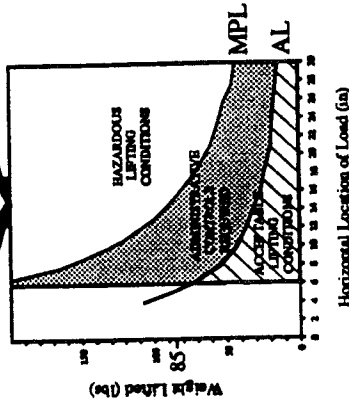
NAPLES DISTRICT 1989 SAFETY POLICY DEPLOYMENT STORY ADDRESSED INJURIES RELATED TO LIFTING THE WEIGHT OF HANDHOLE COMPONENTS. THROUGH QUARTERLY REVIEW BOARDS OF THIS STORY, NAPLES INTRODUCED A GUIDE FROM THE NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH (N.I.O.S.H.). THIS GUIDE WAS FOUND BY NAPLES TO BE VERY EFFECTIVE IN IDENTIFYING POTENTIAL HAZARDS IN THE WORK ACTIVITY INVOLVING HANDHOLES.

FT. MYERS BEGAN A STORY ON WORKING WITH MANHOLE LIDS. AS A MANHOLE LID IS EQUIPMENT OF HIGH WEIGHT, THE TEAM IN FT MYERS ALSO FOUND IT NECESSARY TO USE THE N.I.O.S.H. GUIDE.

REASON FOR IMPROVEMENT

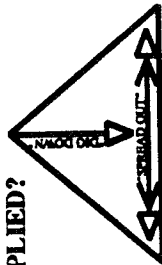
NAPLES 1989
HANDHOLES
COMPONENTS

FT MYERS
1989
MANHOLE
LIDS



WHERE ELSE CAN THE N.I.O.S.H. GUIDE BE APPLIED?

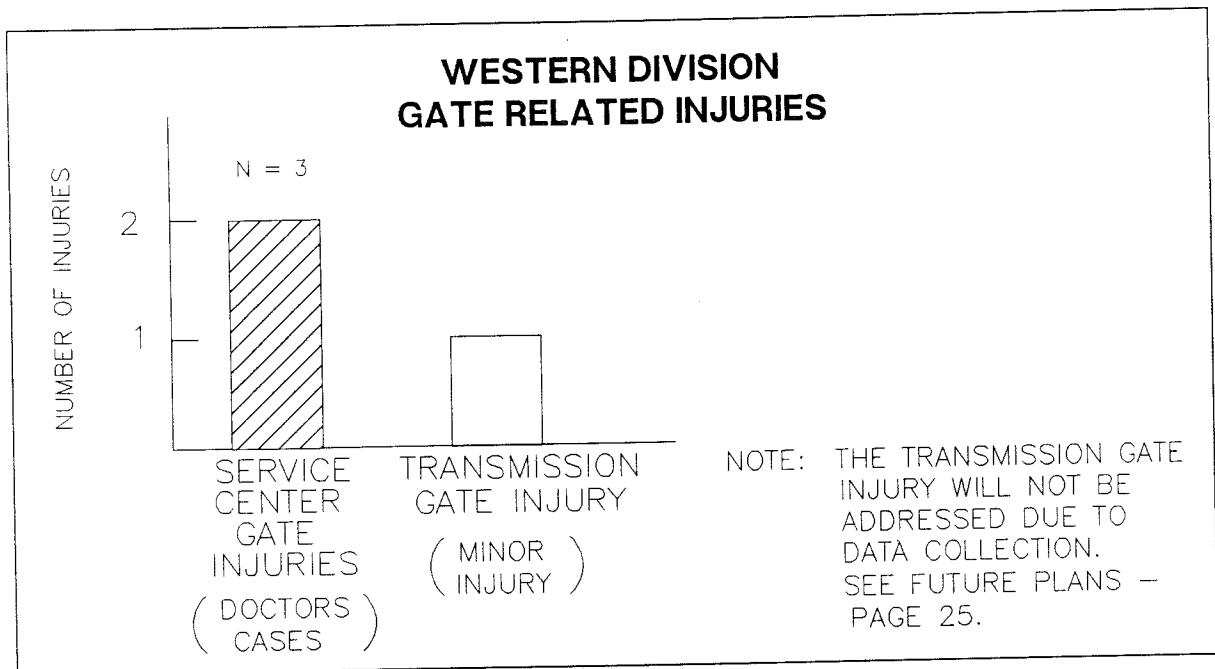
THE WD SAFETY DEPT. STRATIFIED ALL "WEIGHT" RELATED INJURIES FROM 1-1-87 TO 3-31-89 AND FOUND THE AREA OF OPPORTUNITY REPRESENTED BY THE FOLLOWING MATRIX. NEGOTIATIONS WERE THEN MADE WITH THE DISTRICTS.



MATRIX OF INJURIES ASSOCIATED WITH WEIGHTED OBJECTS
FOR WESTERN DIVISION 1987 - 1989

ITEM	MINORS (X 1)	DOCTOR CASES (X 2)	LOST TIME'S (X 3)	TOTAL INJURIES	SEVERITY	ASSIGNMENTS
1. EXTENDING STICKS	5	2	1	8	12	BRADENTON
2. POLERS	3	3	1	7	12	PORTA GORDA
3. CABLES	4	2	2	8	10	FT MYERS
4. INSULATORS	5	2	0	7	9	PORTA GORDA
5. CROSS ARMS	2	4	0	6	10	NAPLES
6. GROUND ROD DRIVER	1	3	0	4	7	BRADENTON
7. TOOL CONTAINERS	2	1	0	3	4	DIVISION CONST. SERVICES
8. WIRE REELS	2	2	0	4	6	SARASOTA
9. GATES	1	2	0	3	5	DIVISION CONST. SERVICES
10. METER CARRIERS	0	2	0	2	4	SARASOTA
TOTAL						111

CURRENT SITUATION



PROBLEM STATEMENT

IN 1988, THE WESTERN DIVISION HAD TWO SERVICE CENTER GATE RELATED DOCTOR CASES.

GOAL

ELIMINATE ALL SERVICE CENTER GATE RELATED INJURIES BY 1/90.

ANALYSIS

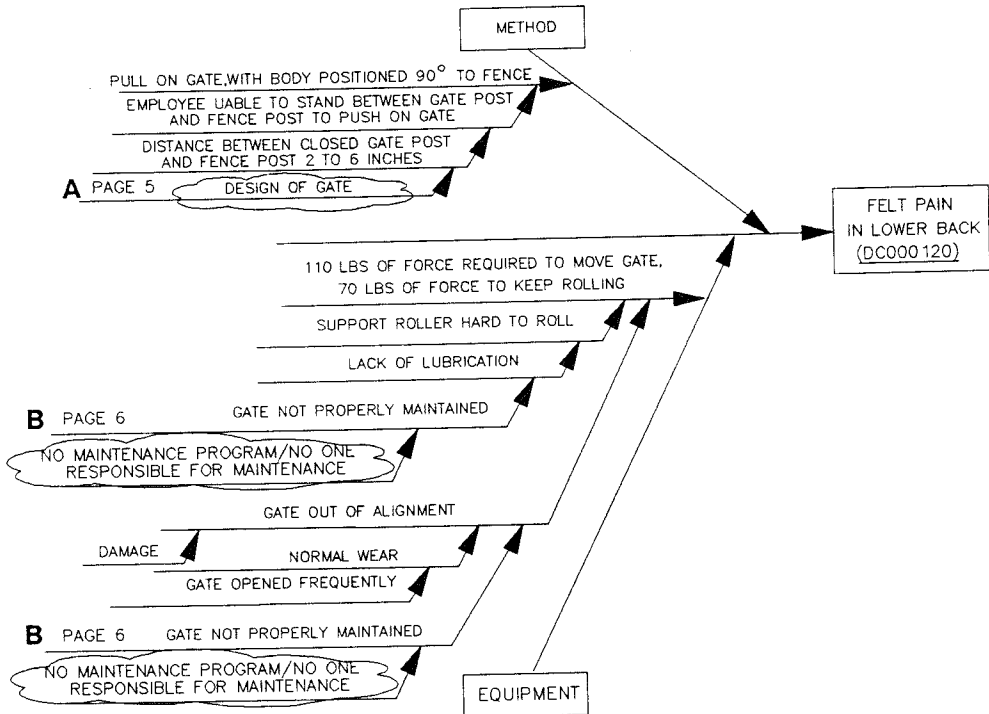
1988 GATE RELATED INJURIES

BY USING A COMPARATIVE PROCESS ANALYSIS CHART, WE WERE UNABLE TO SHOW A GAP IN THE PROCESS.

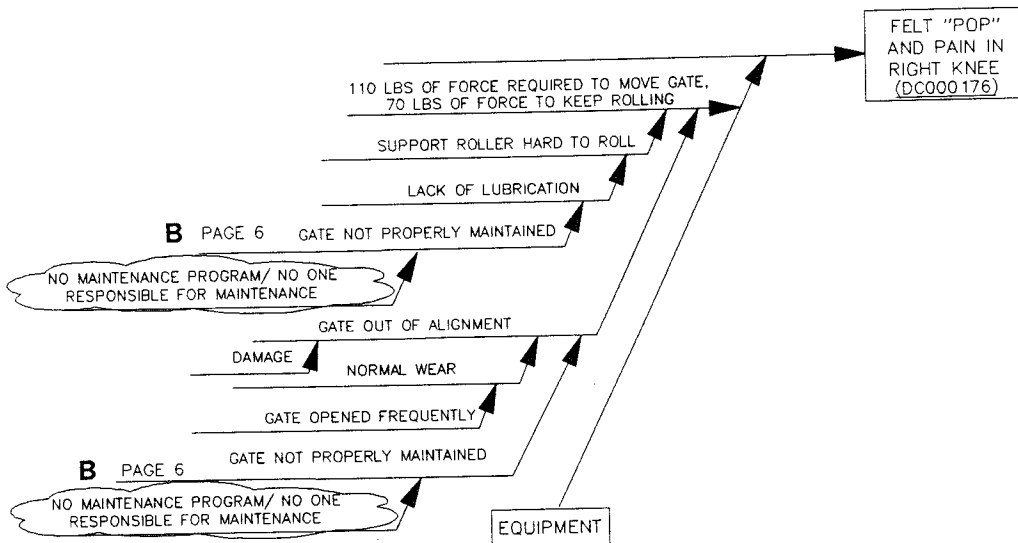
ANALYSIS

WE THEN DEVELOPED A CAUSE & EFFECT DIAGRAM TO FURTHER ANALYZE WHY INJURIES ARE OCCURRING UNDER THE PRESENT METHOD AND WITH THE PRESENT EQUIPMENT.

OPENING CANTILEVER GATE LABELLE SERVICE CENTER

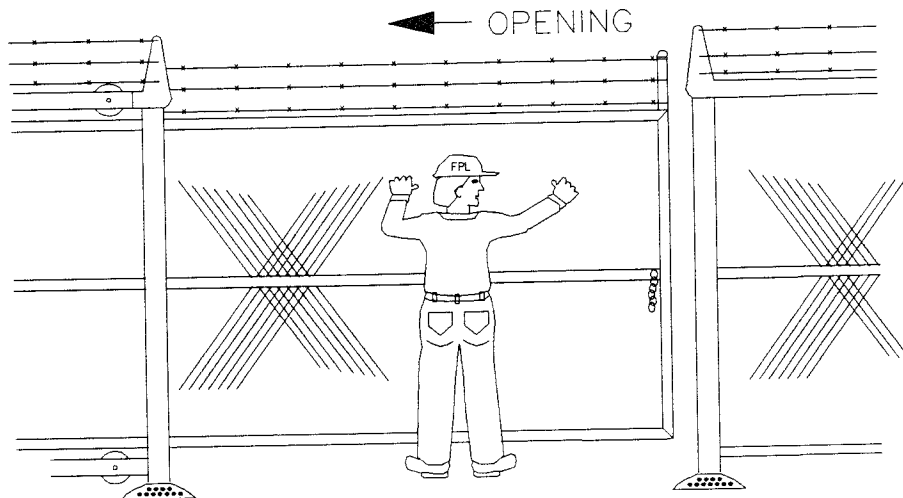


CLOSING CANTILEVER GATE LABELLE SERVICE CENTER



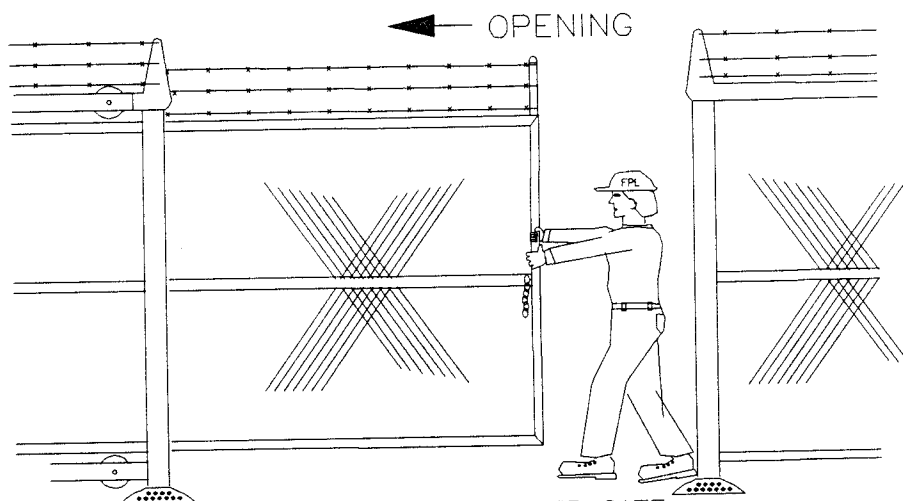
ANALYSIS

VERIFICATION OF POTENTIAL ROOT CAUSES POTENTIAL ROOT CAUSE "A" DESIGN OF GATE PAGE - 4



SIDE VIEW OF CANTILEVER GATE

STEP 1 - AFTER INTERVIEWING THE INJURED EMPLOYEE AND REENACTING THE ACCIDENT WITH THE INJURED, WE FOUND THE EMPLOYEE HAD TO TWIST HIS UPPER BODY TO PULL THE GATE OPEN THE FIRST 2 FEET AT THE TIME OF THE INJURY.



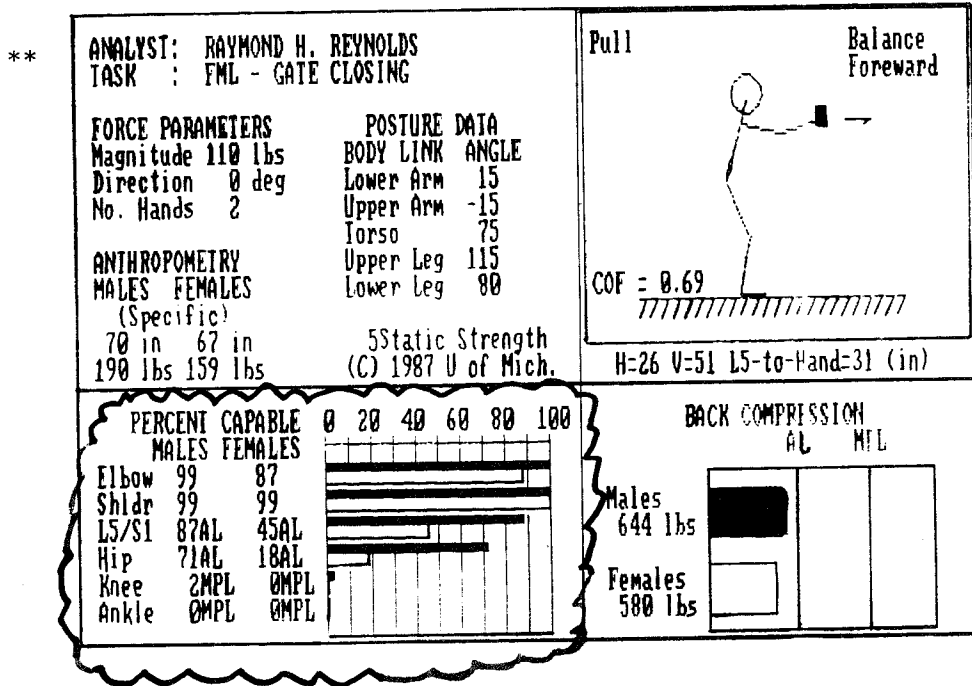
SIDE VIEW OF CANTILEVER GATE

STEP 2 - THE INJURED WALKED INTO THE 2 FOOT OPENING AND PUSHED THE GATE COMPLETELY OPEN.

THE FPL FENCE AND GATE VENDOR STATED THERE IS NO SPECIFIC METHOD TO OPEN AND CLOSE A GATE OR AN AVAILABLE HAND GRIP TO USE OTHER THAN THE CHAIN-LINK MATERIAL OR VERTICAL END POST.

ANALYSIS

BEFORE WE VERIFY POTENTIAL ROOT CAUSE "B" LETS LOOK AT THE 110 LBS OF FORCE REQUIRED TO OPEN THE GATE BY USING THE * 2D STATIC STRENGTH PREDICTION MODEL.



VERIFICATION OF POTENTIAL ROOT CAUSES

POTENTIAL ROOT CAUSE "B" NO MAINTENANCE PROGRAM/NO ONE RESPONSABLE, PAGE 4

- 1) WARREN TITTLE, BUILDING SERVICES SUPERVISOR VERIFIED THE FOLLOWING:
 - THE WESTERN DIVISION HAS "NO STANDARDS ON FORCE REQUIRED TO OPEN AND CLOSE GATES."
 - THE WESTERN DIVISION HAS "NO CONTRACT FOR SCHEDULED GATE MAINTENANCE."
- 2) UPON CONTACT WITH FP&L FENCE AND GATE VENDOR, HE ADVISED THE FOLLOWING:
 - "GATES SHOULD OPEN AND CLOSE WITH MINIMAL FORCE".
 - "GATES SHOULD REQUIRE ONLY MINIMUM MAINTENANCE".

THE VENDOR DESCRIBES MINIMUM MAINTENANCE AS: SPRAY ROLLERS WITH SPRAY TYPE PENETRATING LUBRICANT OR GREASE ROLLERS.

* PROGRAM WORKED BY RAYMOND H. REYNOLDS - FT. MYERS

** SOFTWARE PRODUCT OF CENTER FOR ERGONOMICS, THE UNIVERSITY OF MICHIGAN

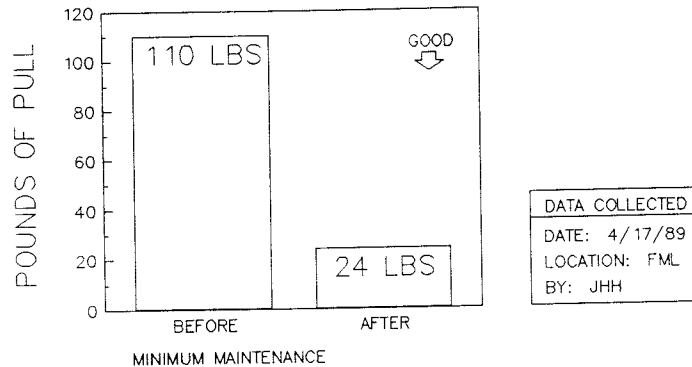
ANALYSIS

CONTINUATION OF VERIFICATION OF POTENTIAL ROOT CAUSE "B" NO MAINTENANCE PROGRAM/NO ONE RESPONSABLE FOR MAINTENANCE

TO VERIFY THAT PROPER MAINTENANCE WAS NOT BEING PERFORMED. TEAM PERFORMED MINIMUM MAINTENANCE ON GATE WHERE INJURY OCCURED.

LABELLE S/C

POUNDS OF PULL TO OPEN AND CLOSE CANTILEVER GATE

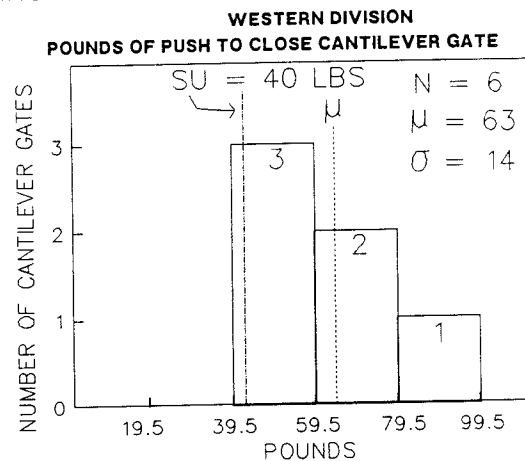
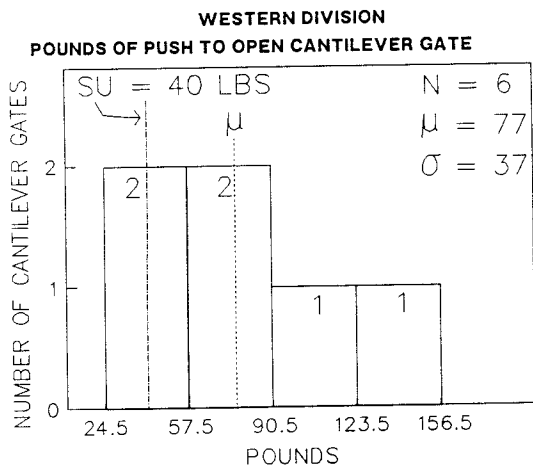


BY USING THE 2D STATIC PROGRAM WE DETERMINED THAT 40 LBS OF PULL WAS THE HIGHEST WE COULD PERFORM AND STAY BELOW THE ACTION LIMITS.

WITH 40 LBS SET AS A LIMIT, DOES THIS PROBLEM EXIST THROUGHOUT THE DIVISION?

WESTERN DIVISION

OPENING AND CLOSING CANTILEVER GATES

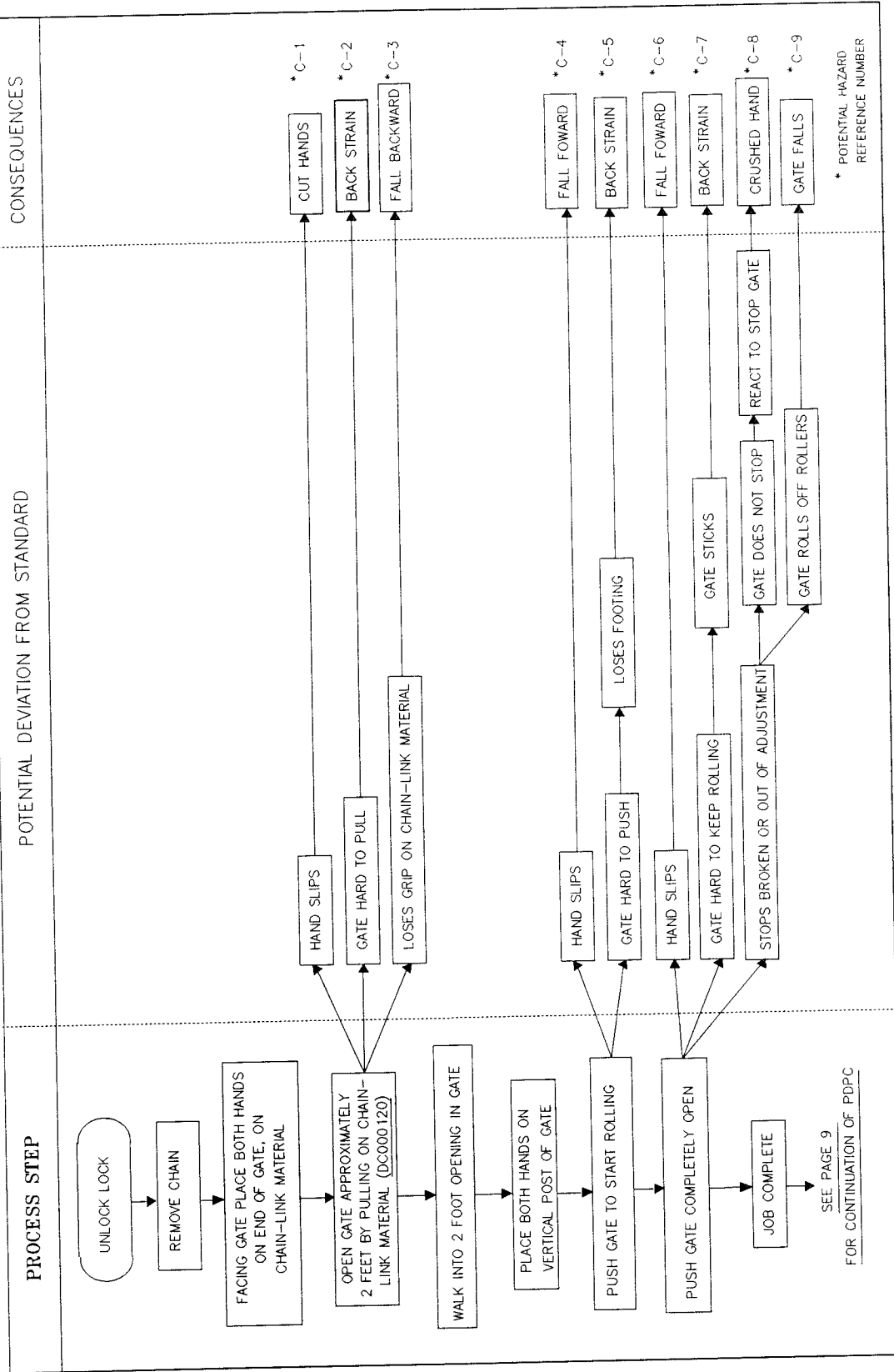


YES, WE NEED TO APPLY COUNTERMEASURES TO ALL CANTILEVER GATES IN THE WESTERN DIVISION. PAGE 19

BUT IS THIS THE ONLY AREA OF POTENTIAL HAZARDS? BEFORE WE APPLY COUNTERMEASURES, LETS APPLY P.D.P.C. TO THE PROCESS TO DETERMINE OTHER POTENTIALLY HAZARDOUS OUTCOMES.

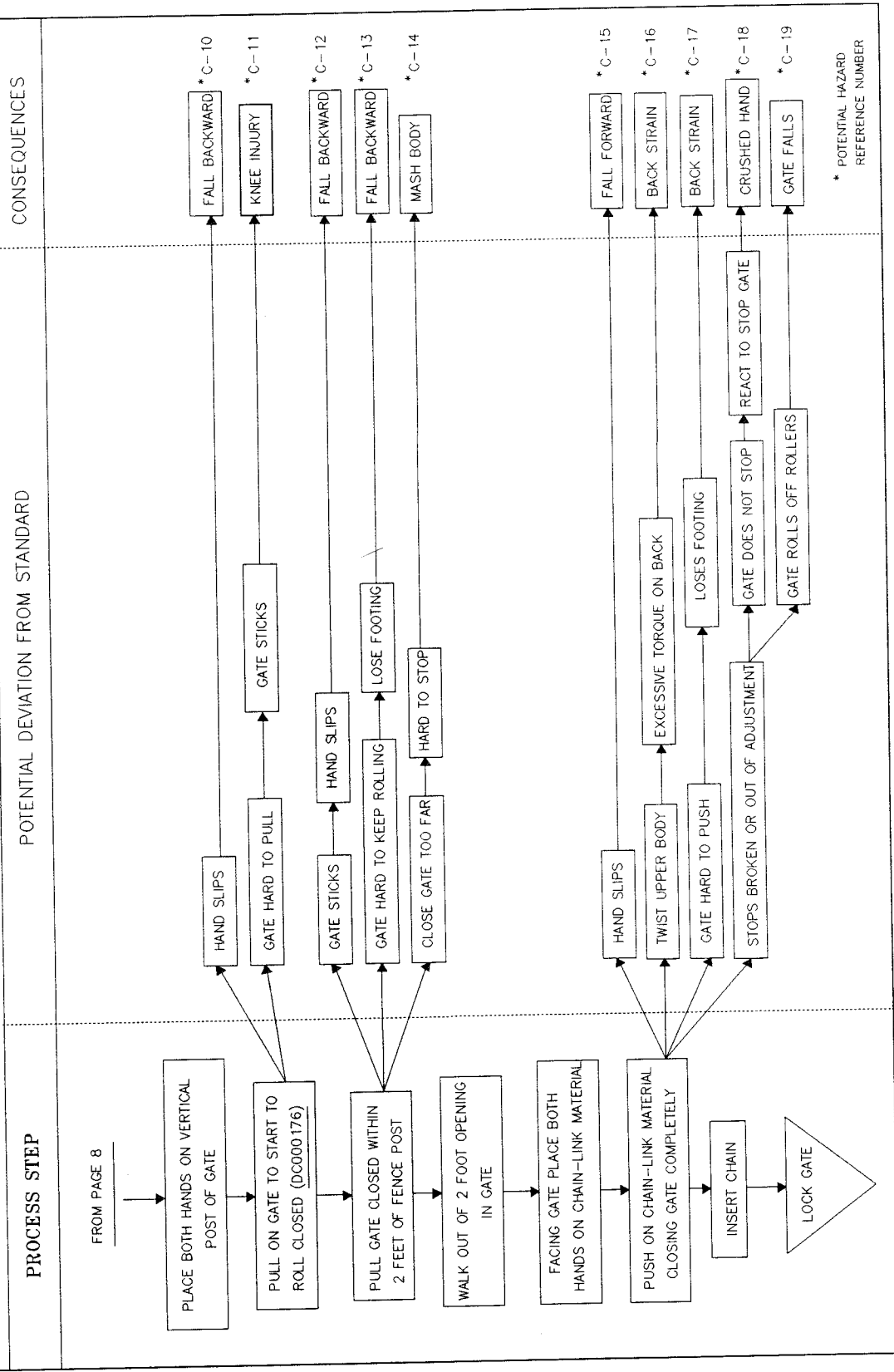
ANALYSIS

PDPC OF OPENING AND CLOSING CANTILEVER GATE



ANALYSIS

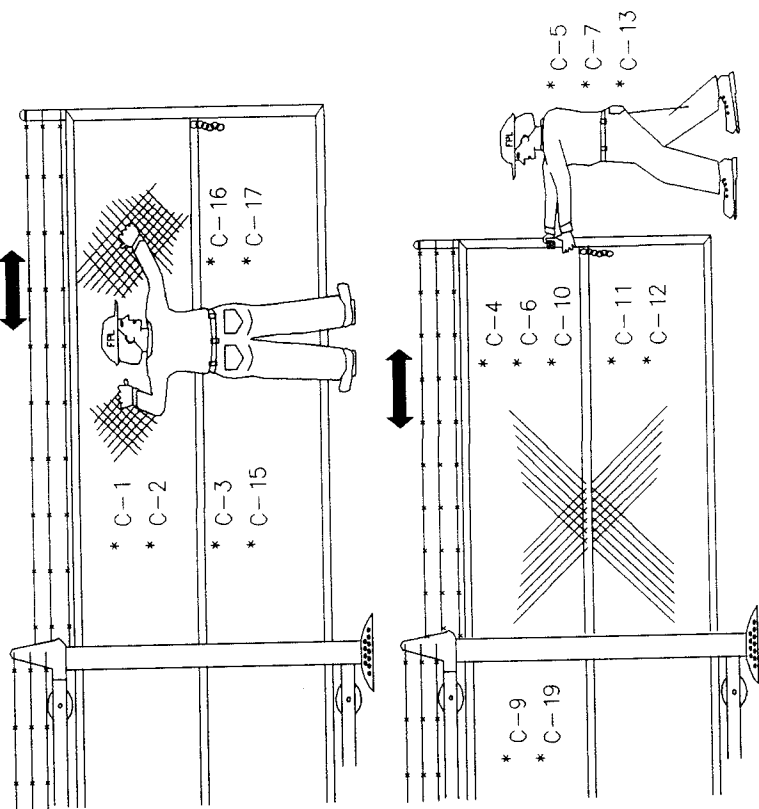
PDPC OF OPENING AND CLOSING CANTILEVER GATE



ANALCON2.DRW

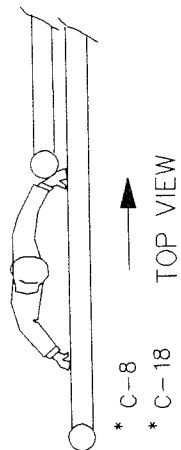
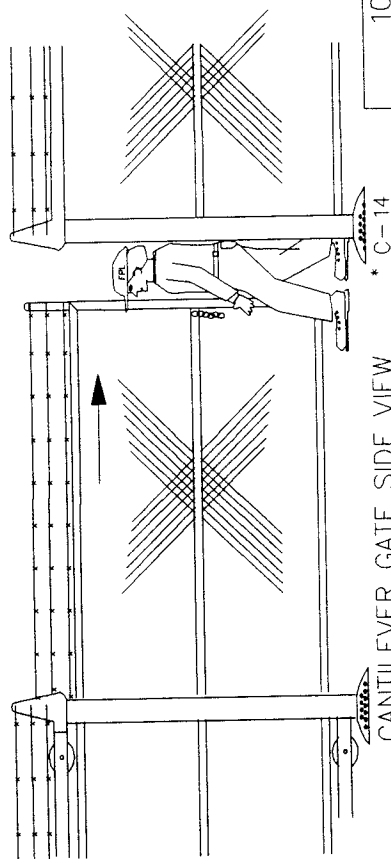
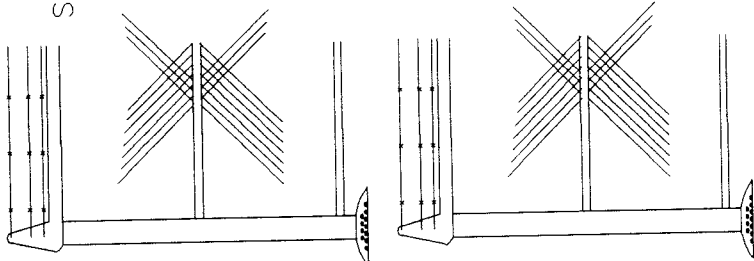
ANALYSIS

WHERE POTENTIAL HAZARDS EXIST OPENING AND CLOSING CANTILEVER GATES



SEE PAGE

11, 12



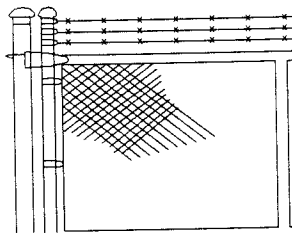
* POTENTIAL HAZARD
REFERENCE NUMBER

ANALYSIS

POTENTIAL HAZARD SUMMARY OPENING AND CLOSING CANTILEVER

- | | |
|---------------------|---------------------|
| C-1. CUT HANDS | C-11. KNEE INJURY |
| C-2. BACK STRAIN | C-12. FALL BACKWARD |
| C-3. FALL BACKWARD | C-13. FALL BACKWARD |
| C-4. FALL FORWARD | C-14. MASH BODY |
| C-5. BACK STRAIN | C-15. FALL FORWARD |
| C-6. FALL FORWARD | C-16. BACK STRAIN |
| C-7. BACK STRAIN | C-17. BACK STRAIN |
| C-8. CRUSHED HAND | C-18. CRUSHED HAND |
| C-9. GATE FALLS | C-19. GATE FALLS |
| C-10. FALL BACKWARD | |

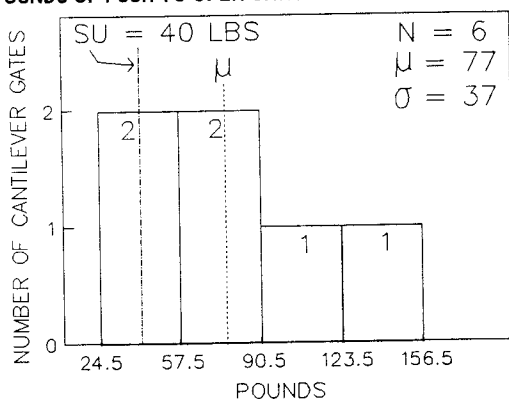
POTENTIAL HAZARD C-1



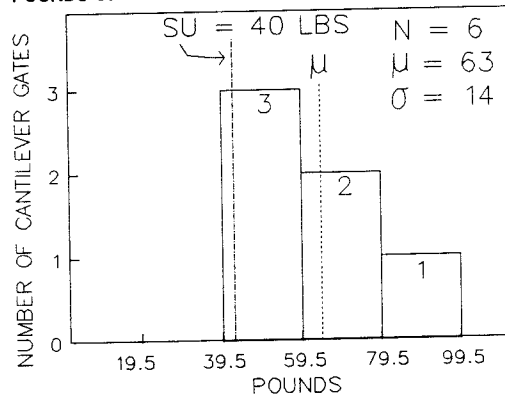
FPL STANDARDS CALL FOR CHAIN LINK MATERIAL TO BE COATED WITH HOT DIPPED GALVANIZING. INSPECTIONS REVEAL THAT THIS COATING RESULTS IN A ROUGH FINISH WHICH SHOULD BE HANDLED ONLY WHEN WEARING WORK GLOVES.

POTENTIAL HAZARDS: C-2, C-3, C-15, C-16, C-17 (SEE BELOW)

WESTERN DIVISION POUNDS OF PUSH TO OPEN CANTILEVER GATE

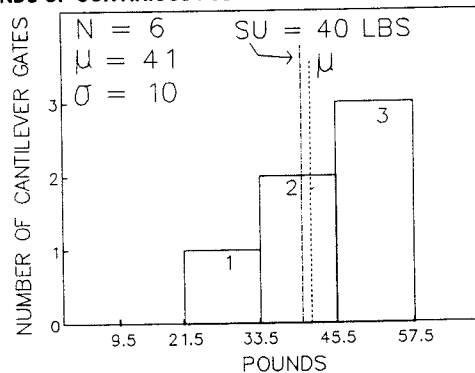


WESTERN DIVISION POUNDS OF PUSH TO CLOSE CANTILEVER GATE



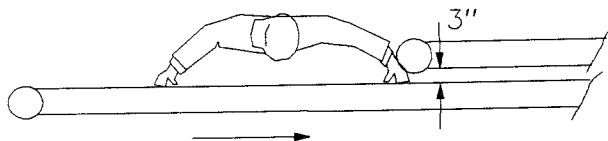
POTENTIAL HAZARDS: C-4, C-5, C-6, C-7, C-10, C-11, C-12, C-13

WESTERN DIVISION POUNDS OF CONTINUOUS PULL ON CANTILEVER GATE



BY APPLYING THE 2D STATIC STRENGTH PREDICTION MODEL TO ALL FUNCTIONS OF OPENING AND CLOSING CANTILEVER GATES, WE FOUND ALL FORCES TO BE ABOVE THE 40 LBS. LIMIT.

POTENTIAL HAZARDS: C-8, C-18



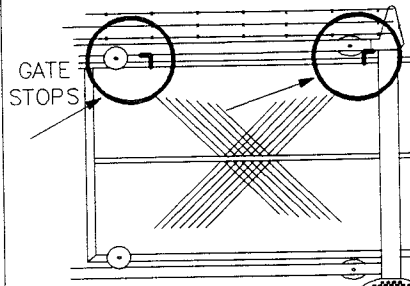
BY USING THE RAMSEY/SLEEPER ARCHITECTURAL GRAPHIC STANDARD ON ACCESSIBILITY, THE AVERAGE HAND IS 3.5" WIDE.

ANALYSIS

POTENTIAL HAZARD SUMMARY OPENING AND CLOSING CANTILEVER

- | | |
|---------------------|---------------------|
| C-1. CUT HANDS | C-11. KNEE INJURY |
| C-2. BACK STRAIN | C-12. FALL BACKWARD |
| C-3. FALL BACKWARD | C-13. FALL DACKWARD |
| C-4. FALL FORWARD | C-14. MASH BODY |
| C-5. BACK STRAIN | C-15. FALL FORWARD |
| C-6. FALL FORWARD | C-16. BACK STRAIN |
| C-7. BACK STRAIN | C-17. BACK STRAIN |
| C-8. CRUSHED HAND | C-18. CRUSHED HAND |
| C-9. GATE FALLS | C-19. GATE FALLS |
| C-10. FALL BACKWARD | |

CONTINUATION OF VERIFICATION OF POTENTIAL HAZARDS POTENTIAL HAZARD C-9, C-19



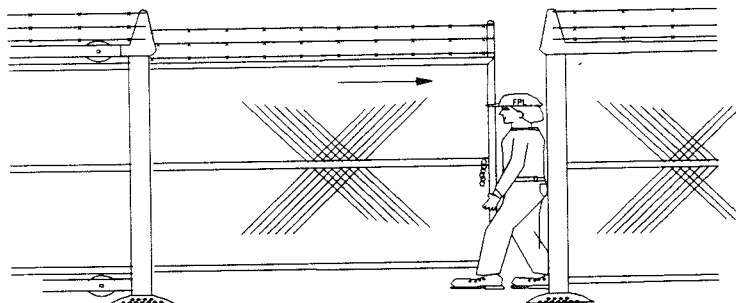
STOPS MISSING OUT OF ADJUSTMENT	STOPS OK
-----	6

N = 6

ALL CANTILEVER GATES
IN WESTERN DIVISION

CONCLUSION: HAZARD DOES NOT EXIST

POTENTIAL HAZARDS: C-14



CANTILEVER GATE SIDE VIEW

13" MINIMUM SET BY GRAPHIC STANDARDS ON ACCESSIBILITY. ONLY 2"-6" CLEARANCE WHEN GATE CLOSED.



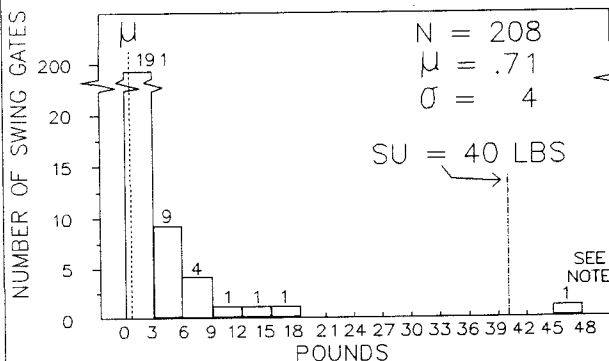
BEFORE WE APPLY COUNTERMEASURES TO CANTILEVER GATES (PAGE 19), ARE THERE ANY OTHER TYPES OF MANUALLY OPERATED GATES IN THE WESTERN DIVISION WE CAN APPLY OUR KNOWLEDGE OF GATES TO? UPON INVESTIGATION WE FOUND TWO OTHER TYPES OF GATES.

1. ROLL GATES 2. SWING GATES

PAGE 13

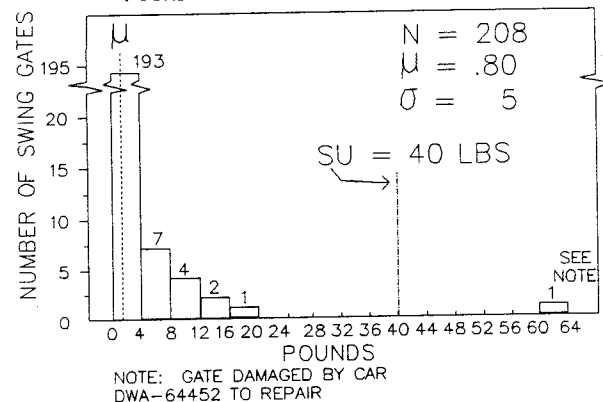
WESTERN DIVISION

POUNDS OF PULL TO OPEN SWING GATE



WESTERN DIVISION

POUNDS OF PULL TO CLOSE SWING GATE

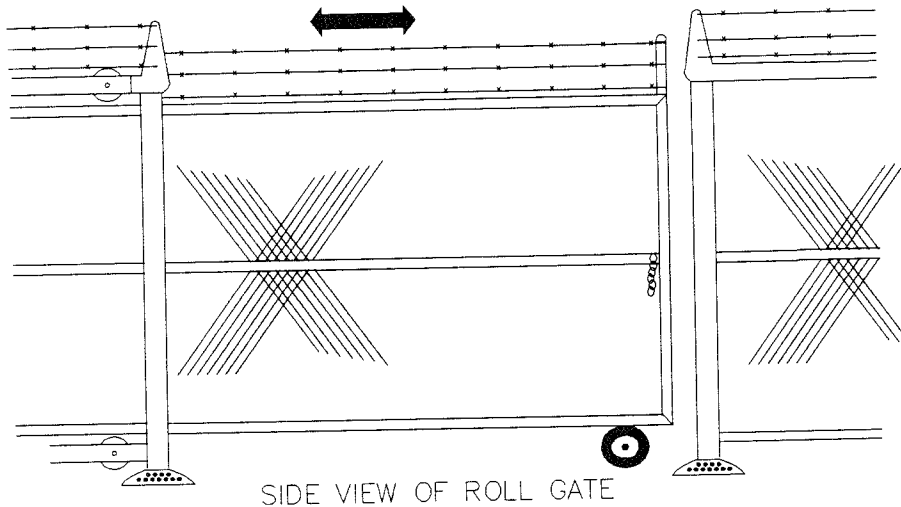


BY APPLYING 2D STATIC STRENGTH PREDICTION MODEL TO ALL THE SWING GATES IN THE DIVISION, WE FOUND THE FORCE REQUIRED TO OPEN AND CLOSE A SWING GATE WELL BELOW THE 40 lbs. LIMIT.

NO ACTION IS NECESSARY

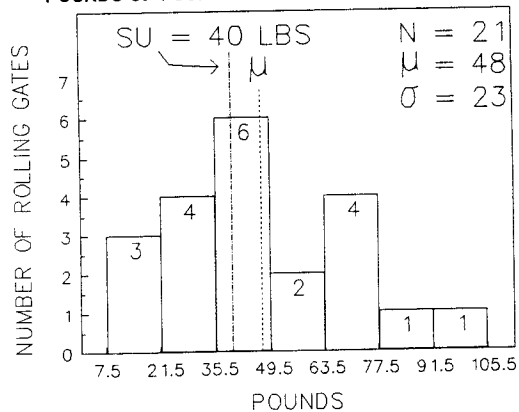
ANALYSIS

ROLLING GATES

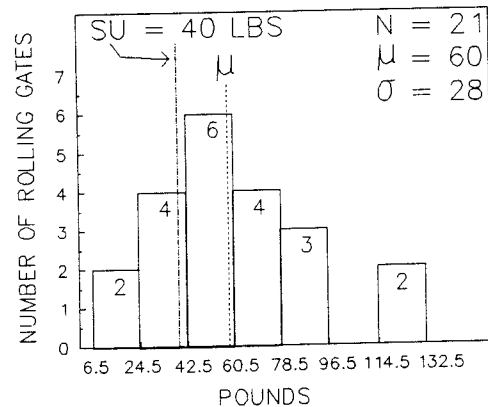


IN COMPARING THE ROLL GATE TO THE CANTILEVER GATE, THE ONLY DIFFERENCE IN THEIR GATE CONSTRUCTION IS THE ROLL GATE HAS A SUPPORT WHEEL.

WESTERN DIVISION
POUNDS OF PUSH TO OPEN ROLLING GATE



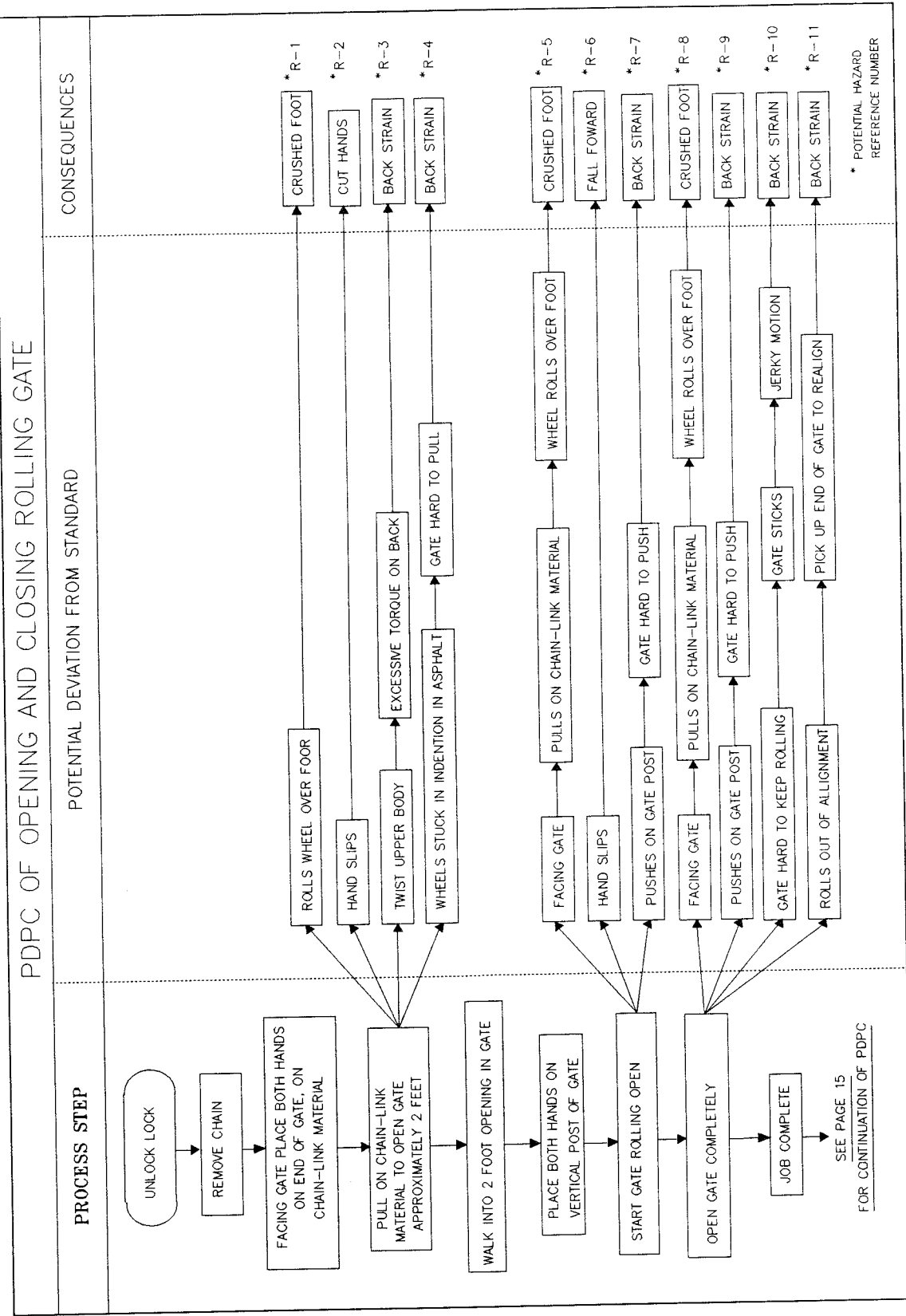
WESTERN DIVISION
POUNDS OF PULL TO CLOSE ROLLING GATE



AGAIN, BY APPLYING 2D STATIC STRENGTH PREDICTION MODEL TO ALL THE ROLL TYPE GATES IN THE WESTERN DIVISION, WE FOUND AS IN THE CANTILEVER GATES THAT WE WERE ABOVE THE 40 LB LIMIT. BUT AS BEFORE, IS THIS THE ONLY AREAS OF POTENTIAL HAZARDS?

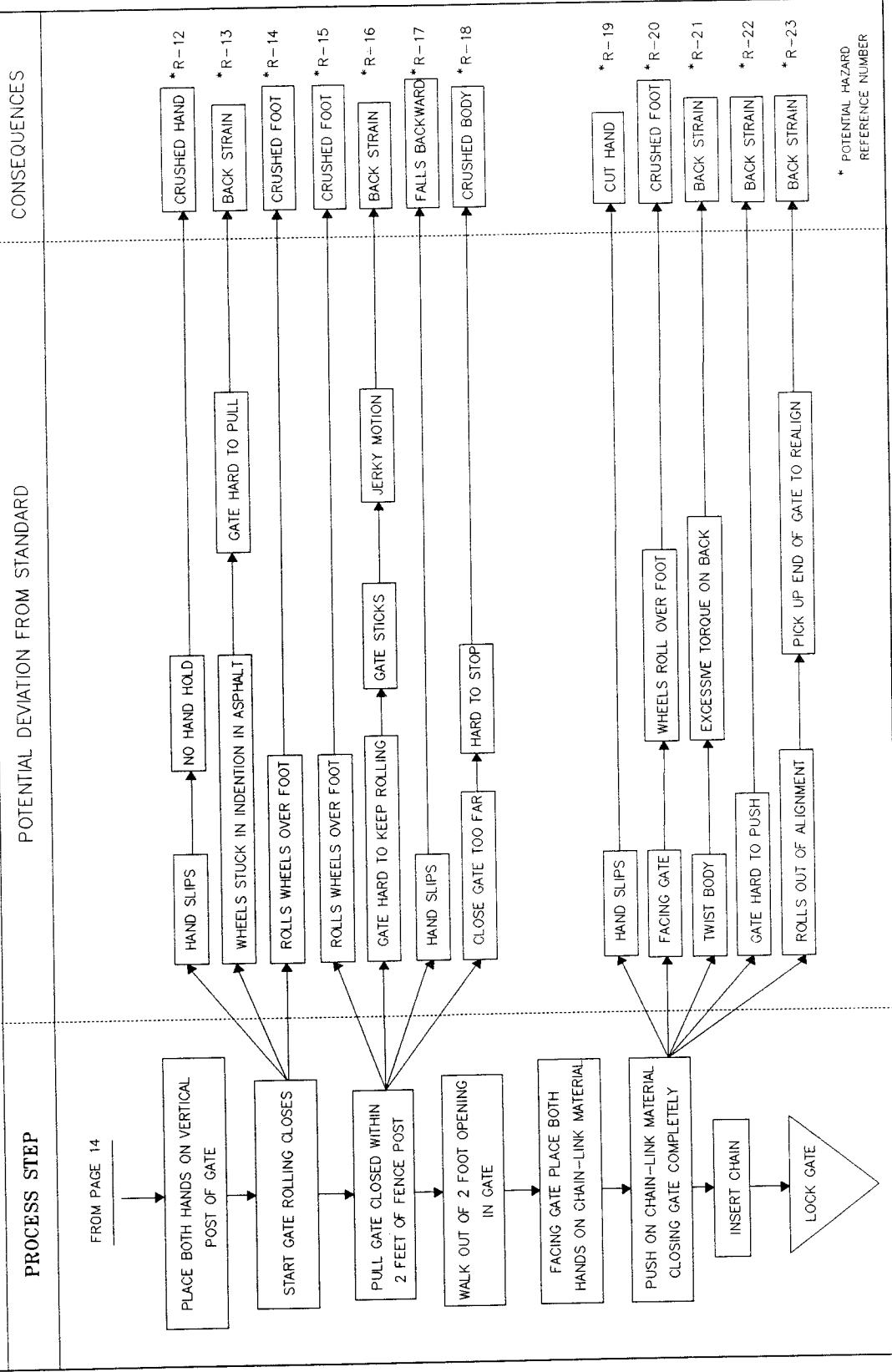
BEFORE WE APPLY COUNTERMEASURES LETS APPLY P.D.P.C. TO THE PROCESS OF OPENING AND CLOSING ROLL GATES. (PAGE 14)

ANALYSIS



ANALYSIS

PDPC OF OPENING AND CLOSING ROLLING GATE

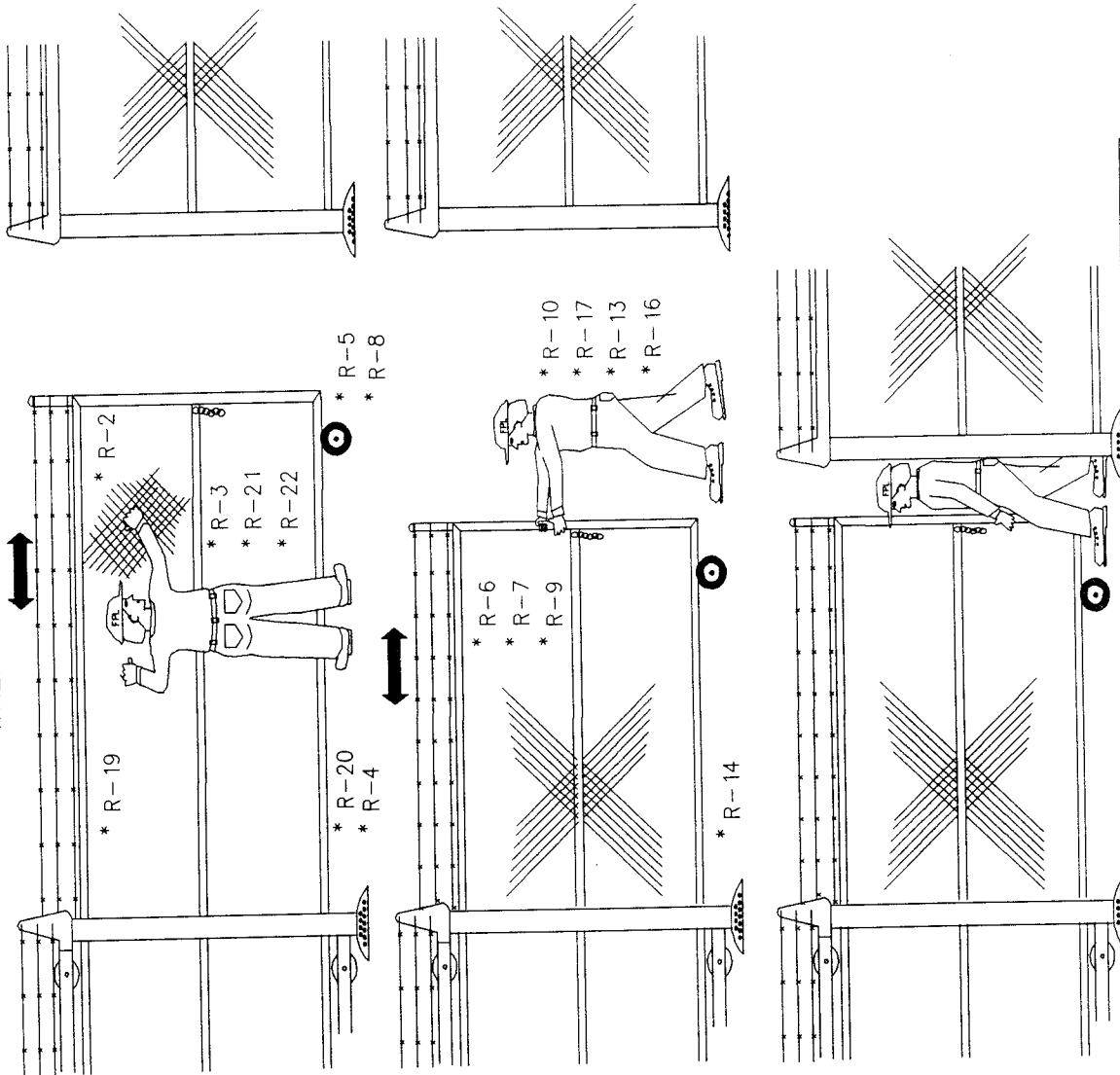


ANAL-ROL-2

ANALYSIS

WHERE POTENTIAL HAZARDS EXIST OPENING AND CLOSING ROLLING GATES

SEE PAGE
17, 18



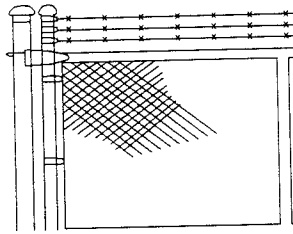
* POTENTIAL HAZARD
REFERENCE NUMBER

ANALYSIS

POTENTIAL HAZARD SUMMARY OPENING AND CLOSING ROLLING GATE

- | | |
|---------------------|----------------------|
| R-1. CRUSHED FOOT | R-13. BACK STRAIN |
| R-2. CUT HAND | R-14. CRUSHED FOOT |
| R-3. BACK STRAIN | R-15. CRUSHED FOOT |
| R-4. BACK STRAIN | R-16. BACK STRAIN |
| R-5. CRUSHED FOOT | R-17. FALLS BACKWARD |
| R-6. FALL FORWARD | R-18. CRUSHED BODY |
| R-7. BACK STRAIN | R-19. CUT HAND |
| R-8. CRUSHED FOOT | R-20. CRUSHED FOOT |
| R-9. BACK STRAIN | R-21. BACK STRAIN |
| R-10. BACK STRAIN | R-22. BACK STRAIN |
| R-11. BACK STRAIN | R-23. BACK STRAIN |
| R-12. FALL BACKWARD | |

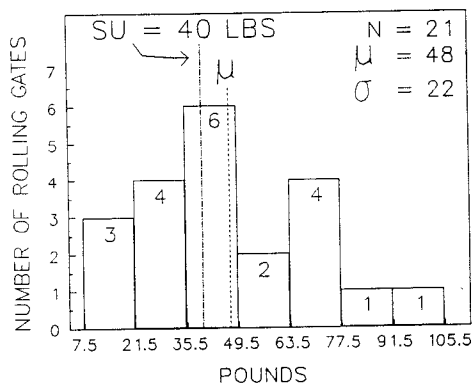
POTENTIAL HAZARD R-2



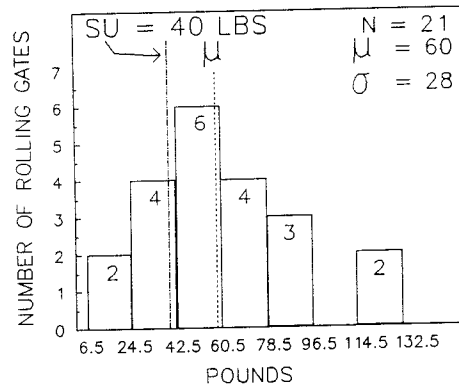
FPL STANDARDS CALL FOR CHAIN LINK MATERIAL TO BE COATED WITH HOT DIPPED GALVANIZING. INSPECTIONS REVEAL THAT THIS COATING RESULTS IN A ROUGH FINISH WHICH SHOULD BE HANDLED ONLY WHEN WEARING WORKING GLOVES.

POTENTIAL HAZARDS: R-3, R-4, R-13, R-21, R-22, R-23 (SEE BELOW)

WESTERN DIVISION POUNDS OF PUSH TO OPEN ROLLING GATE

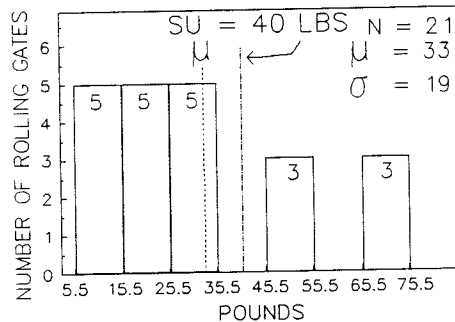


WESTERN DIVISION POUNDS OF PULL TO CLOSE ROLLING GATE



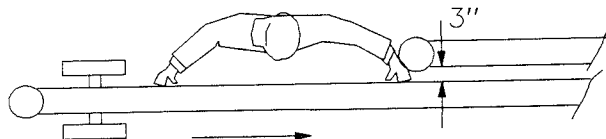
POTENTIAL HAZARDS: R-6, R-7, R-9, R-10, R-16, R-17, R-18

WESTERN DIVISION POUNDS OF CONTINUOUS PULL ON ROLLING GATE



BY APPLYING THE 2D STATIC STRENGTH PREDICTION MODEL TO ALL FUNCTIONS OF OPENING AND CLOSING ROLLING GATES, WE FOUND ALL FORCES TO BE ABOVE THE 40 LBS. LIMIT.

POTENTIAL HAZARD: R-12



BY USING THE RAMSEY/SLEEPER ARCHITECTURAL GRAPHIC STANDARD ON ACCESSIBILITY, THE AVERAGE HAND IS 3.5" WIDE.

ANALYSIS

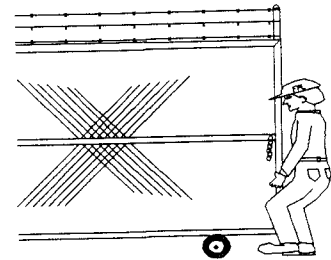
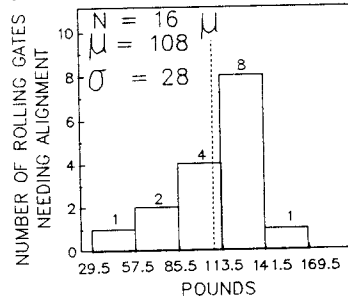
POTENTIAL HAZARD SUMMARY OPENING AND CLOSING ROLLING GATE

- | | |
|---------------------|----------------------|
| R-1. CRUSHED FOOT | R-13. BACK STRAIN |
| R-2. CUT HAND | R-14. CRUSHED FOOT |
| R-3. BACK STRAIN | R-15. CRUSHED FOOT |
| R-4. BACK STRAIN | R-16. BACK STRAIN |
| R-5. CRUSHED FOOT | R-17. FALLS BACKWARD |
| R-6. FALL FORWARD | R-18. CRUSHED BODY |
| R-7. BACK STRAIN | R-19. CUT HAND |
| R-8. CRUSHED FOOT | R-20. CRUSHED FOOT |
| R-9. BACK STRAIN | R-21. BACK STRAIN |
| R-10. BACK STRAIN | R-22. BACK STRAIN |
| R-11. BACK STRAIN | R-23. BACK STRAIN |
| R-12. FALL BACKWARD | |

VERIFICATION OF POTENTIAL HAZARDS

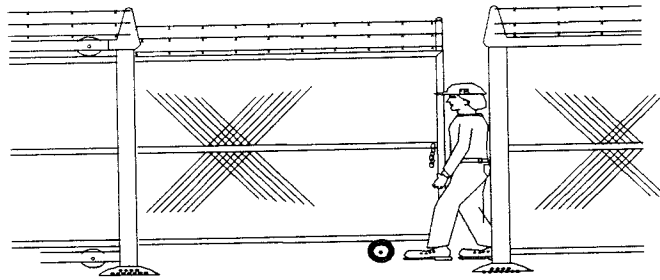
POTENTIAL HAZARD R-11, R-23

WESTERN DIVISION POUNDS OF LIFT TO ALIGN GATE TO FENCE



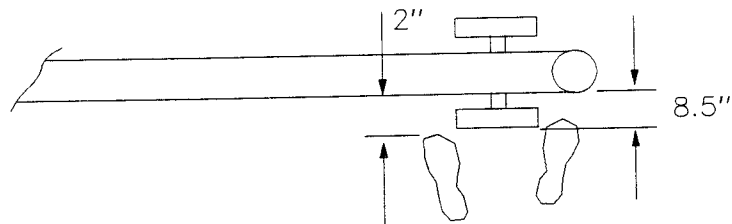
BY USING THE 2D STATIC STRENGTH PREDICTION MODEL THE WEIGHT TO ALIGN GATE FELL ABOVE THE ACTION LIMIT.

POTENTIAL HAZARDS: R-18

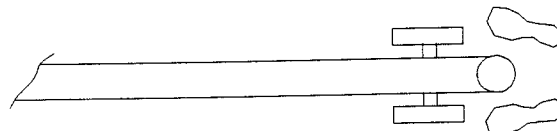


13" MINIMUM SET BY GRAPHIC STANDARDS ON ACCESSIBILITY. ONLY 2"-6" CLEARANCE WHEN GATE CLOSED.

POTENTIAL HAZARDS: R-1, R-5, R-8, R-14, R-20



POTENTIAL HAZARD: R-15



DISTANCE FROM END OF GATE TO CENTER OF AXLE IS 2" TO 10".
WHEN PULLING GATE OPEN, FEET ARE 2" TO 6" IN FRONT OF WHEELS.

COUNTERMEASURES

COUNTERMEASURES MATRIX

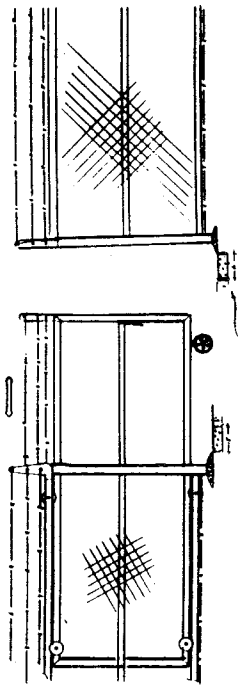
DIVISION PROJECT	REMAINING HAZARDS	INITIAL COST	ANNUAL RESOURCES	NEW PROBLEMS CREATED	TOTAL	LOW IS GOOD
CONVERT ROLL & CANTILEVER GATES TO ELECTRIC CANTILEVER GATES	C-19 GATE FALLS	4	3	2	24	↓
REMOVE ROLL & CANTILEVER GATES INSTALL SWING GATES	R-8 & R-18 CRUSHED HAND	4	1	2	8	
MODIFY/MAINTAIN EXISTING GATES	0	3	1	1	3	
SCALE IN \$						
1. 0-1000						1-LOW
2. 1000-3000						2-MEDIUM
3. 3000-10,000						3-HIGH
4. 10,000+						

MAINTAIN

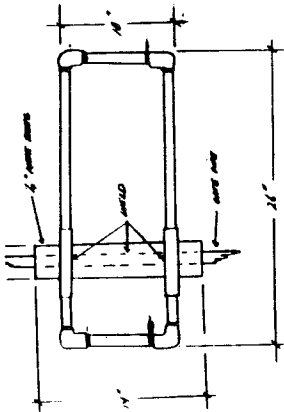
MODIFY

PAGE 24

MODIFY EXISTING GATES

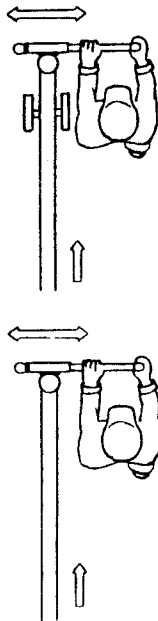


PAD TO PREVENT WHEELS FROM SINKING IN GRADE



UNIT TO SLIDE BACK AND FORTH TO SERVE BOTH SIDES OF GATE

END VIEW



TOP VIEW

CANTILEVER GATE

ROLL GATE

2D STATIC STRENGTH PREDICTION MODEL SHOWS PUSH IS BETTER THAN PULL

COUNT

COUNTERMEASURES

ACTION PLAN: DIVISION GATE TEAM ☐ PROPOSED ☒ ACTUAL * COMPLETED

1989																							
ACTIVITY	WHO	WHERE	APRIL (BY WEEK)				MAY (BY WEEK)				JUNE (BY WEEK)				MONTH								
			1	2	3	4	1	2	3	4	1	2	3	4	5	6	7	8	9	10	11	12	
FORCE REQUIREMENTS TO OPEN AND CLOSE GATES	TEAM	ALL																					
TRIAL IMPLEMENTATION PERFORM MINIMUM MAINTENANCE	TEAM	SS,FMG,FML																					
TRACKED TEST LOCATION	TEAM	SS,FMG,FML																					
DEVELOP GATE HANDLE (DESIGN)	JIM & LARRY	WDO																					
TRIAL IMPLEMENTATION INSTALL TEST HANDLES AT 3 LOCATIONS: SS,FMG,FML	TEAM	SS,FMG,FML																					
DETERMINE COST FOR ELECTRIC GATE AND SWING GATE	TITTLE	WDO																					
DETERMINE COSTS FOR ROLLER REPLACEMENT AND CONCRETE PADS/HANDLE INSTALLATION	AL & CARL	WDO																					
PERFORM MINIMUM MAINTENANCE AT ALL LOCATIONS	JIM & JACK	WESTERN DIVISION																					
INSTALL 2 CONCRETE PADS PER ROLLING GATE	CON-TRACTOR	LOC'S WITH ROLLING GATES																					
VENDOR TO MANUFACTURE GATE HANDLE	CON-TRACTOR	SARASOTA																					
INSTALL GATE HANDLE	CON-TRACTOR	WESTERN DIVISION																					
SECURE CHAIN TO GATE	CON-TRACTOR	WESTERN DIVISION																					
REPLACE ROLLING GATES WITH SWING GATES	CON-TRACTOR	WHIDDEN & ORANGE RIVER SUBSTATIONS																					
DEVELOP TRAINING ON OPERATION OF GATE HANDLE	TEAM	WESTERN DIVISION																					

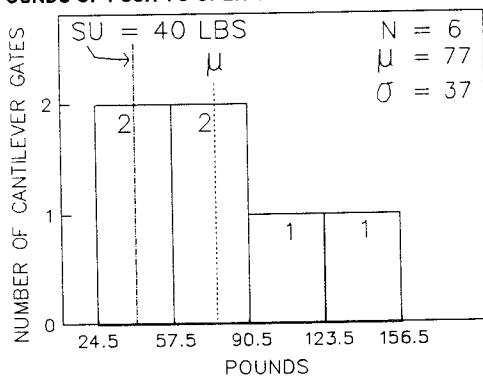
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RESULTS

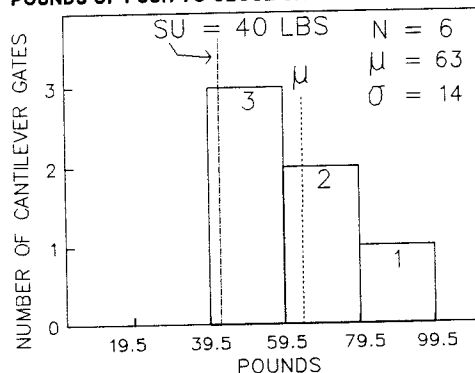
BEFORE AND AFTER MINIMUM MAINTENANCE ON CANTILEVER GATE

WESTERN DIVISION
POUNDS OF PUSH TO OPEN CANTILEVER GATE

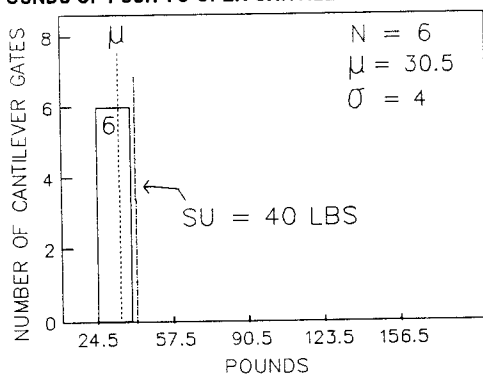


BEFORE

WESTERN DIVISION
POUNDS OF PUSH TO CLOSE CANTILEVER GATE

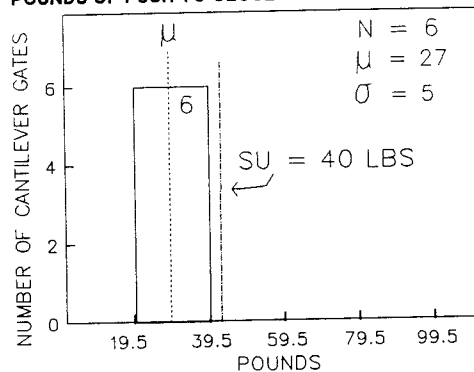


WESTERN DIVISION
POUNDS OF PUSH TO OPEN CANTILEVER GATE



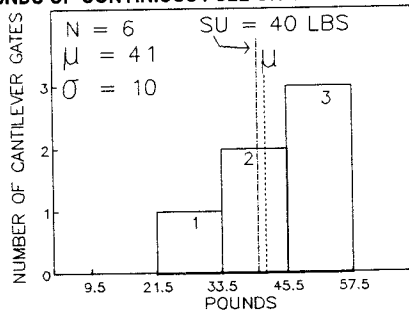
AFTER

WESTERN DIVISION
POUNDS OF PUSH TO CLOSE CANTILEVER GATE



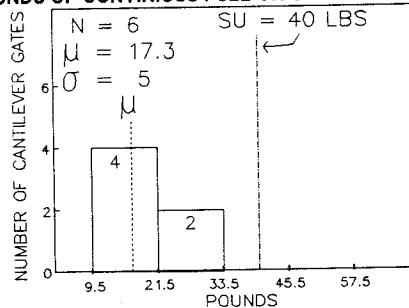
WESTERN DIVISION
POUNDS OF CONTINUOUS PULL ON CANTILEVER GATE

BEFORE



WESTERN DIVISION
POUNDS OF CONTINUOUS PULL ON CANTILEVER GATE

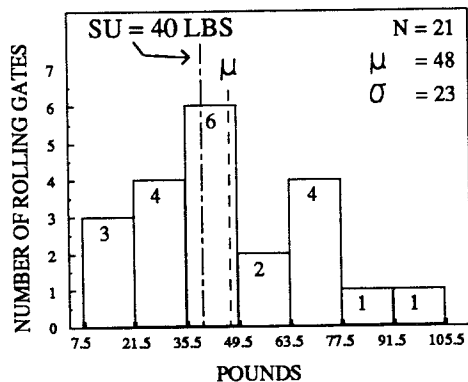
AFTER



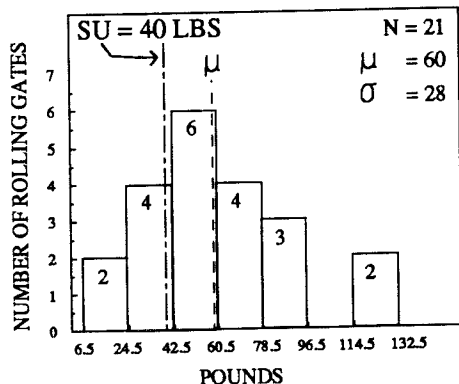
RESULTS

BEFORE AND AFTER MINIMUM MAINTENANCE ON ROLLING GATE

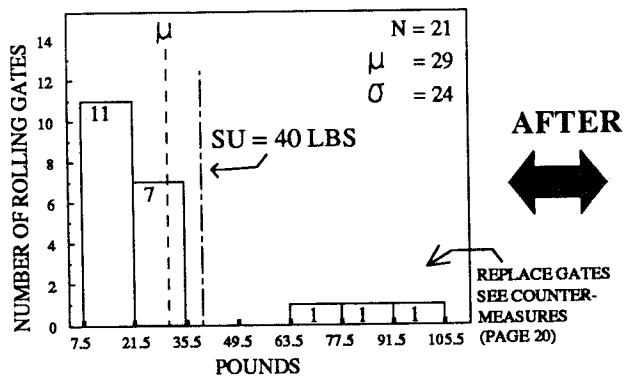
WESTERN DIVISION
POUNDS OF PUSH TO OPEN ROLLING GATE



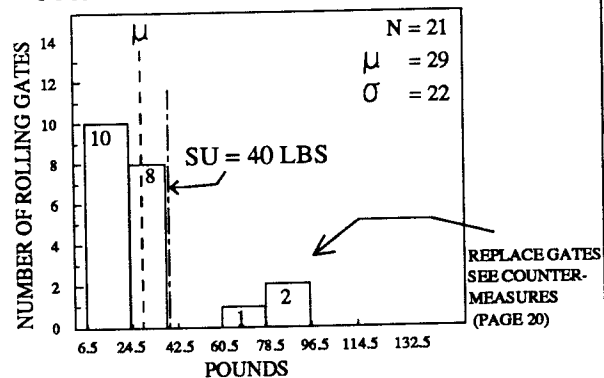
WESTERN DIVISION
POUNDS OF PULL TO CLOSE ROLLING GATE



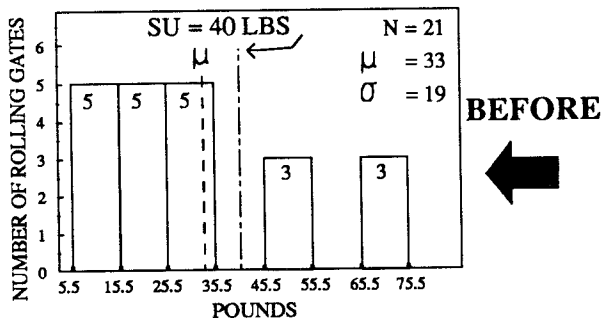
WESTERN DIVISION
POUNDS OF PUSH TO OPEN ROLLING GATE



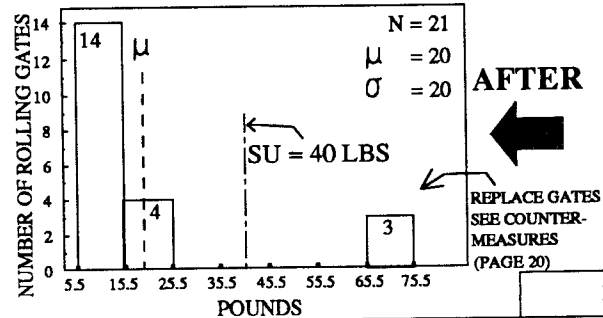
WESTERN DIVISION
POUNDS OF PULL TO CLOSE ROLLING GATE



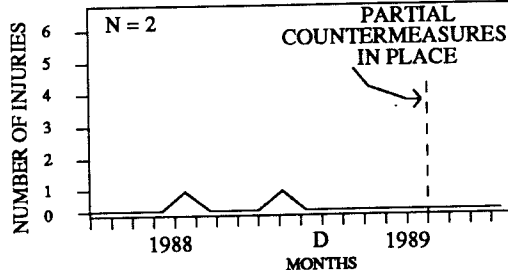
WESTERN DIVISION
POUNDS OF CONTINUOUS PULL ON ROLLING GATE



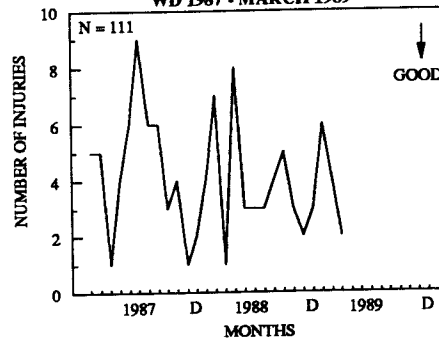
WESTERN DIVISION
POUNDS OF CONTINUOUS PULL ON ROLLING GATE



SERVICE CENTER/SUBSTATION GATE RELATED INJURIES
WESTERN DIVISION APRIL 1988 - MAY 1989



INJURIES RESULTING FROM WEIGHT
OF MATERIAL/EQUIPMENT
WD 1987 - MARCH 1989



STANDARDIZATION

OLD PROCESS

NEW PROCESS

PROCESS OBJECTIVE: OPEN CANTILEVER GATE		CLOSING CANTILEVER GATE		OPENING AND CLOSING CANTILEVER GATE	
SUGGESTED METHOD	INTERNAL CONSIDERATIONS	SUGGESTED METHOD	INTERNAL CONSIDERATIONS	SUGGESTED METHOD	INTERNAL CONSIDERATIONS
	STANDARDS OR PROCEDURES		STANDARDS OR PROCEDURES		STANDARDS OR PROCEDURES
	ACTUAL		ACTUAL		ACTUAL
UNLOCK GATE REMOVE CHAIN STANDING FACING GATE PLACED BOTH HANDS ON END OF GATE, ON CHAIN-LINK MATERIAL OPEN GATE APPROXIMATELY TWO FEET BY PULLING ON CHAIN-LINK MATERIAL WALK INTO TWO FOOT OPENING IN GATE PLACE BOTH HANDS ON VERTICAL POST OF GATE PUSH GATE TO START ROLLING PUSH GATE COMPLETELY OPEN GATE OPEN		PLACE BOTH HANDS ON VERTICAL POST OF GATE PULL ON GATE TO START TO ROLL GATE CLOSED PULL GATE CLOSED WITHIN TWO FEET OF FENCE POST WALK OUT OF TWO FOOT OPENING IN GATE FACING GATE PLACE BOTH HANDS ON CHAIN-LINK MATERIAL PUSH ON CHAIN-LINK MATERIAL CLOSING GATE COMPLETELY INSERT CHAIN LOCK GATE	NONE	UNLOCK GATE REMOVE CHAIN PULL HANDLE TOWARD BODY STAND BEHIND GATE HANDLE AND PUSH GATE COMPLETELY OPEN JOB COMPLETE PULL HANDLE TOWARD BODY STAND BEHIND GATE HANDLE AND PUSH GATE COMPLETELY CLOSED INSERT CHAIN LOCK GATE	
	110 LBS OF PULL TO START GATE ROLLING		110 LBS OF PULL TO START GATE ROLLING		< 40 LBS OF PUSH TO OPEN GATE
	70 LBS OF PUSH TO KEEP GATE ROLLING		70 LBS OF PUSH TO KEEP GATE ROLLING		< 40 LBS OF PUSH TO OPEN GATE

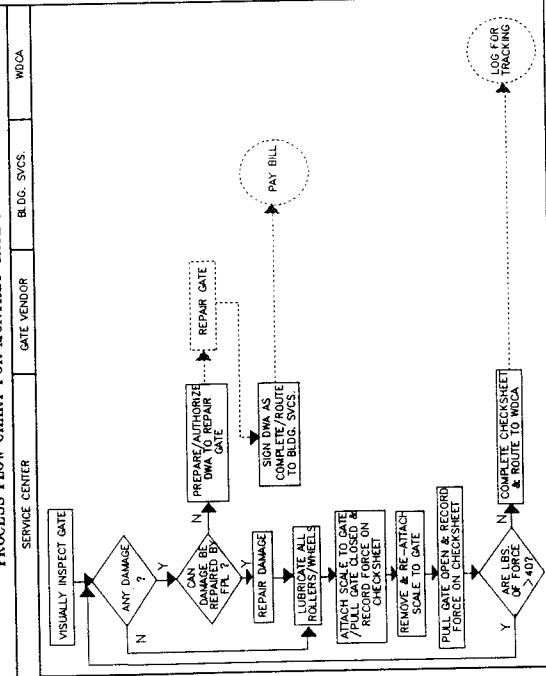
STANDARDIZATION

MONTHLY GATE INSPECTION

WORK LOCATION _____ DATE _____
 INSPECTOR _____
 CHECK OFF OR COMPLETE WHERE APPROPRIATE:
 1) LUBRICATE ALL BEARINGS, WHEELS AND MOVING PARTS. _____
 2) CLEAR GATE PATH OF ANY DEBRIS, EQUIPMENT, ETC. _____
 3) CLOSE: LBS. START _____ LBS. CONTINUOUS _____
 4) OPEN: LBS. START _____ LBS. CONTINUOUS _____
 5) IS GATE TRACKING PROPERLY AND ALIGNED FOR OPEN OR CLOSED POSITION? _____
 6) CHECK OVERALL APPEARANCE OF GATE _____
 7) SEND COMPLETED CHECKSHEET TO WDOA/WOO.
 NOTE: IF LBS. EXCEED 40 LBS. MAX., REPORT TO SUPERVISOR FOR IMMEDIATE REPAIR.

LASC _____ DATE _____ DWA # IF APPLICABLE _____
 COMMENTS: _____

PROCESS FLOW CHART FOR MONTHLY GATE MAINTENANCE



FILLED OUT BY SERVICE CENTER

MONTHLY STATUS OF CANTILEVER AND ROLLING GATE IN WESTERN DIVISION

LOCATION	6	7	8	9	10	11	12	1	2	3	4	5
SARASOTA	89	89	89	89	89	89	89	89	89	89	89	89
VENICE												
BRADENTON												
CORTEZ												
FT. MYERS												
FT. MYERS GLADIOLUS												
FT. MYERS LABELLE												
FORT. MYERS ORTIZ												
NAPLES BONITA												
NAPLES GOLDEN GATE												
PUNTA GORDA												
NAPLES SVC. CTR.												
PUNTA GORDA FRANKLIN												
ARCADIA												

LEGEND	
○ GREEN	= LESS THAN 35 LBS
○ YELLOW	= MORE THAN 35 LBS, LESS THAN 40 LBS
○ RED	= MORE THAN 40 LBS

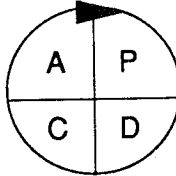
TRACKING AND FOLLOW UP BY W.D.C.A.

FUTURE PLANS

ACTION PLAN PROPOSED ACTUAL * COMPLETED

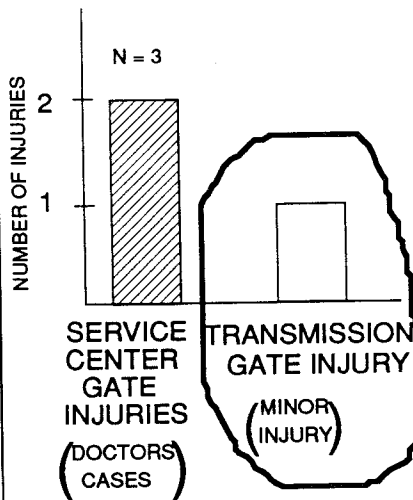
	WHO	WHERE	MONTH									
			4/89	5/89	6/89	7/89	8/89	9/89	10/89	11/89	12/89	1/90
DEVELOP TRANSMISSION GATE CHECKSHEET	TEAM		*									
SEND TRANSMISSION GATE CHECKSHEET TO SERVICE CENTER	AL HAGAN	SS/ES FM/ES		*								
COLLECT DATA ON TRANSMISSION GATES	TRANS. INSPECTOR WDCA	WESTERN DIVISION										
CURRENT SITUATION TRANSMISSION GATES	TEAM	WESTERN DIVISION										
TRACK RESULTS OF GATE PROJECT	TEAM	WESTERN DIVISION										

● ANALYZE DATA IF TARGET EXCEEDED



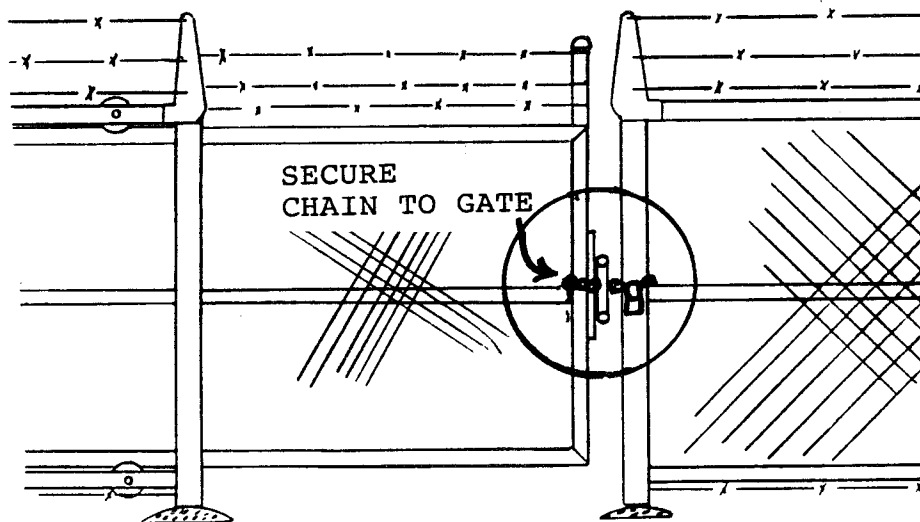
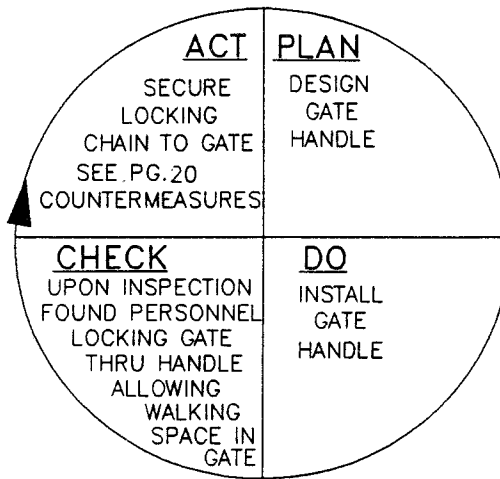
MATRIX OF INJURIES ASSOCIATED WITH WEIGHTED OBJECTS
FOR WESTERN DIVISION 1987 - 1989

ITEM	MINORS (X 1)	DOCTOR CASES (X 2)	LOST TIME'S (X 3)	TOTAL INJURIES	SEVERITY	ASSIGNMENTS
1. EXTENDO STICKS	5	2	1	8	12	BRADENTON
2. POLES	3	3	1	7	12	PUNTA GORDA
3. CABLE	4	2	2	8	10	FT MYERS
4. STEEL CROSS ARMS	2	4	0	6	10	NAPLES
5. INSULATORS	5	2	0	7	9	PUNTA GORDA
6. GROUND ROD DRIVER	1	3	0	4	7	BRADENTON
7. TOOL TRAYS	2	1	0	3	4	DIVISION CONST. SERVICES
8. WIRE REELS	2	2	0	4	6	SARASOTA
9. GATES	1	2	0	3	5	DIVISION CONST. SERVICES
10. METER CARRIERS	0	2	0	2	4	SARASOTA

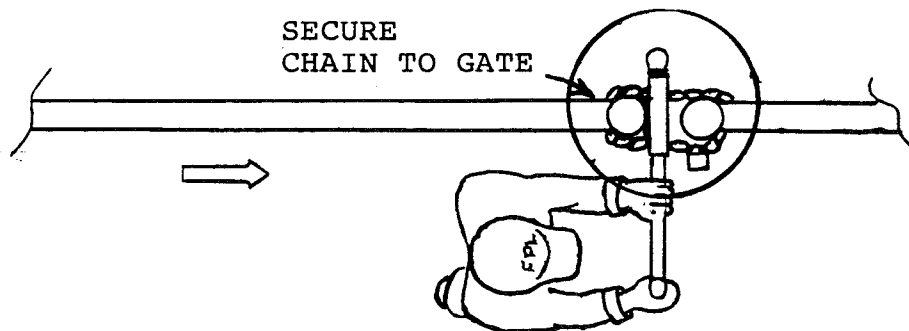


MATRIX.WD bjr 4-15-88

FUTURE PLANS



CANTILEVER GATE SIDE VIEW



TOP VIEW