

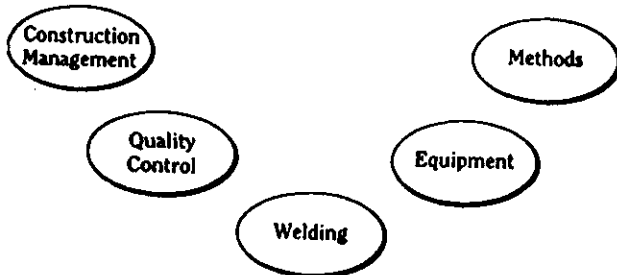
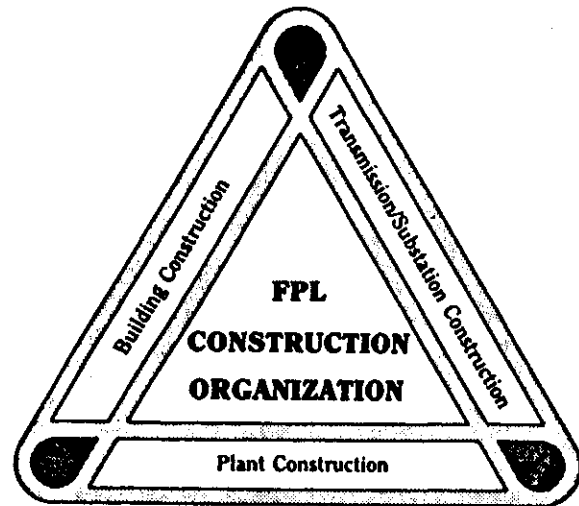
theme: TO SUSTAIN A DIRECT WORK
PERCENTAGE OF AT LEAST 40%

presenter: RONALD J. PAWLYK
MANAGER OF PLANT CONSTRUCTION

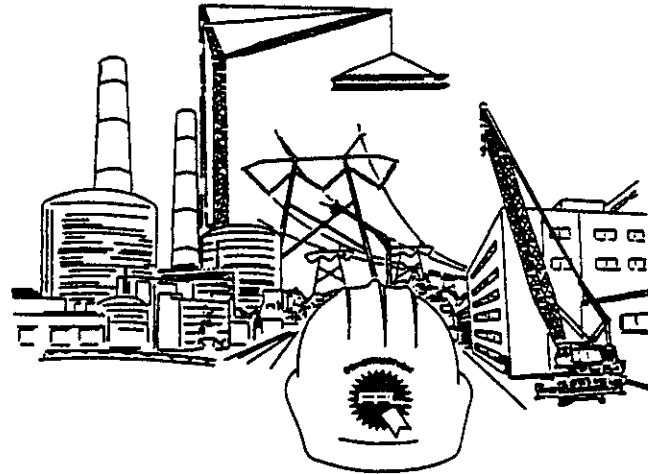
APPLICATION EXPERT COURSE (OCT '86 - JULY '87)

IMPROVEMENT THEME: TO SUSTAIN A DIRECT WORK PERCENTAGE OF AT LEAST 40%

OUTLINE OF OUR JOB



WE DIRECT SITE CONSTRUCTION ACTIVITIES TO ASSURE THAT THE INTERESTS OF FPL ARE PROTECTED.



AT OUR TWO NUCLEAR SITES, TURKEY POINT (PTN) AND ST LUCIE (PSL) WE DEVELOP THE INCENTIVE PORTION OF THE BACKFIT CONTRACTS AND ESTABLISH THE PERFORMANCE TARGETS WHICH ARE USED TO ADJUST THE CONTRACTOR'S FEE. OUR CUSTOMERS ARE NUCLEAR ENERGY AND PROJECT MANAGEMENT

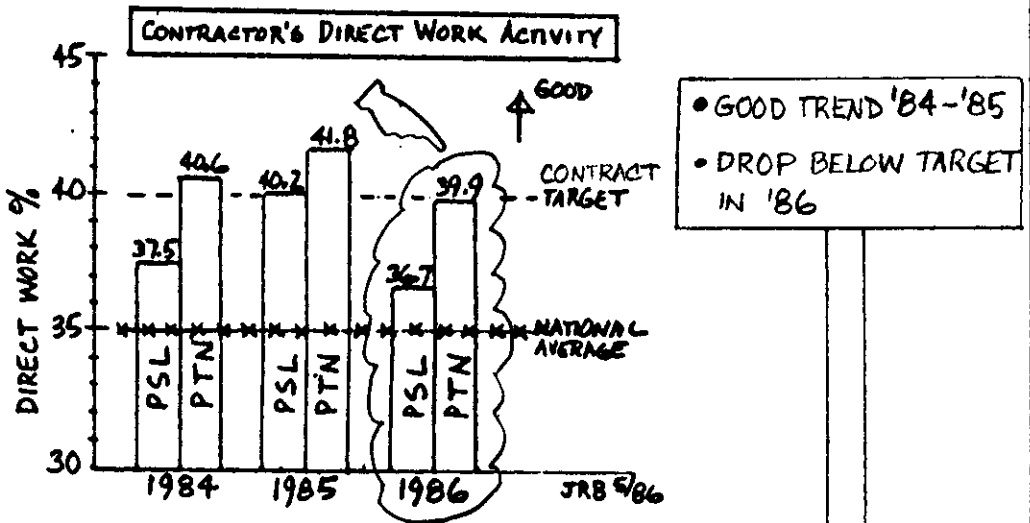
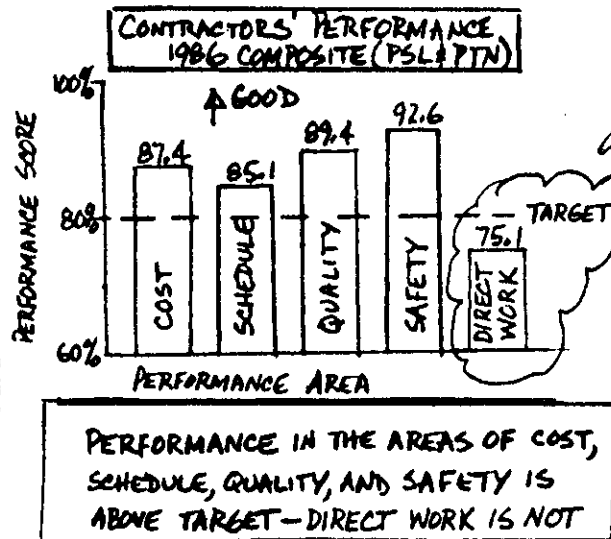
PART OF THE CONTRACTOR'S FEE IS AT RISK BASED ON CRAFT DIRECT WORK ACTIVITY WHICH IS MEASURED BY WORK SAMPLING STUDIES:

- CONDUCTED ON A QUARTERLY BASIS BY OUR METHODS GROUP
- EACH STUDY AVERAGES ABOUT 3500 INSTANTANEOUS RANDOM OBSERVATIONS
- SAMPLE CONFIDENCE LEVEL OF 95% AND ACCURACY OF AT LEAST $\pm 2\frac{1}{2}\%$

TO MEET OUR CUSTOMERS' VALID REQUIREMENTS, WE MUST MAXIMIZE THE CONTRACTORS' PERFORMANCE IN THE AREAS OF COST, SCHEDULE, QUALITY, SAFETY AND DIRECT WORK.

STEP 1-REASON FOR IMPROVEMENT

2



ACTIVITIES OBSERVED DURING A SAMPLE:

DIRECT WORK
USING TOOLS OR PHYSICAL EFFORT TO PERFORM JOB

OTHER PRODUCTIVE

- HANDLING TOOLS/MATERIAL
- TRANSPORTATION
- GETTING INSTRUCTION

NON-PRODUCTIVE

- PERSONAL BREAKS
- LATE STARTS/EARLY QUILTS
- WAITING
- TRAVEL EMPTY HANDED

Category	Industry Average 1985-1986	PSL & PTN 1985	PSL & PTN 1986
DIRECT WORK	34.6%	41.1%	38.9%
NON-PRODUCTIVE	35.7%	45.6%	50.4%
OTHER PRODUCTIVE	29.7%	13.3%	10.7%

- NON-PRODUCTIVE WORSE THAN INDUSTRY AVERAGE & TREND IS BAD
- 1.4 MILLION LABOR MANHOURS ANNUALLY
- COST AVOIDANCE EXCEEDS \$5.7 MILLION IF WE SUSTAIN 40% D.W. AND REDUCE NON PRODUCTIVE TO NATIONAL AVERAGE
- SUPPORTS OUR OBJECTIVE & OUR CUSTOMERS' OBJECTIVE OF REDUCING THE COST OF BACKFIT SERVICES

THEME: TO SUSTAIN A DIRECT WORK PERCENTAGE OF AT LEAST 40% BY REDUCING NON-PRODUCTIVE TIME.

STEP 2-CURRENT SITUATION

DATA WAS COLLECTED FROM 23 WORK SAMPLING STUDIES CONSISTING OF ABOUT 80,000 OBSERVATIONS



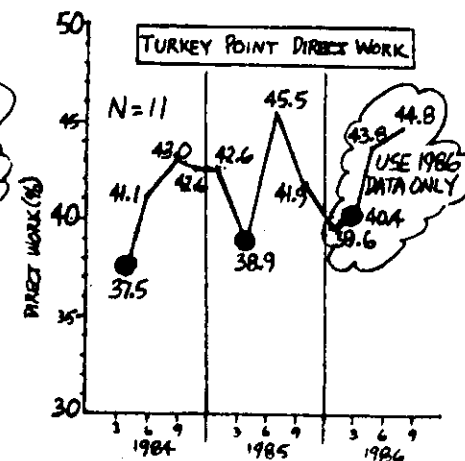
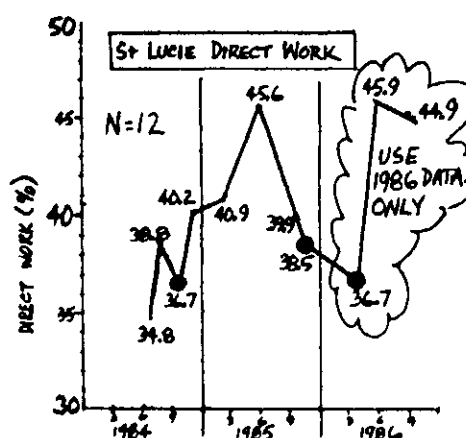
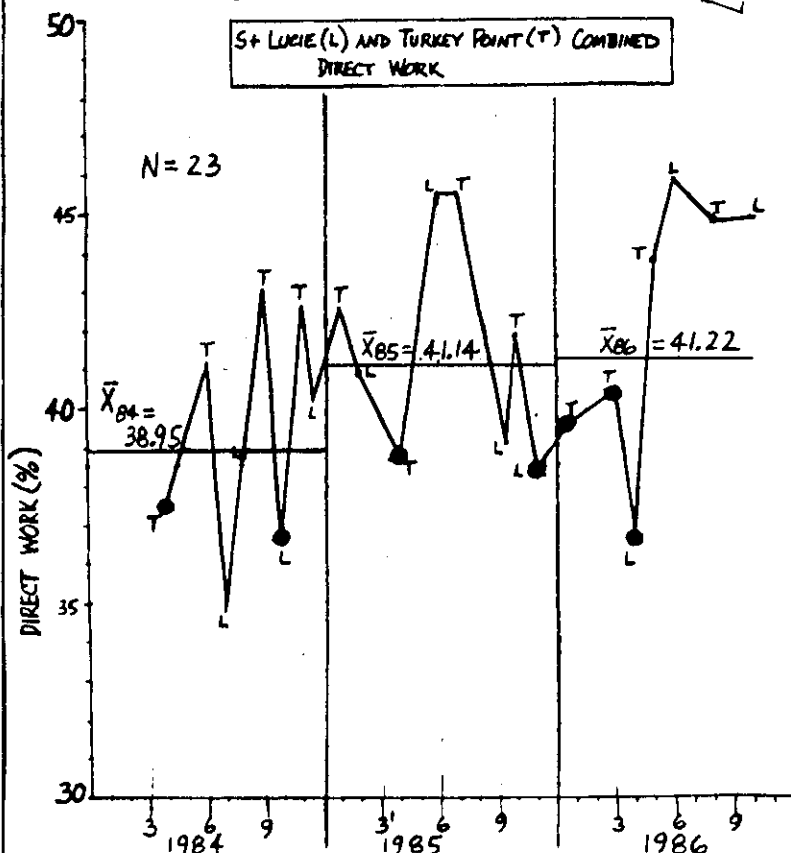
USING CONTINGUENCY TABLES WE ANALYZED TO SEE IF THERE ARE DIFFERENCES IN THE DATA ① BY YEARS ② BY SITES ③ BY OUTAGE/ NON-OUTAGE PERIODS

① TEST IF D.W. % FOR THE YEARS ARE THE SAME:

	ACTUAL				EXPECTED			
	1984	1985	1986	TOTALS	1984	1985	1986	TOTALS
D. W. OBS	10743	10084	11447	32,274	11146	9905	11223	32,274
OTHER OBS	16837	14425	16323	47,585	16434	14604	16547	47,585
TOTALS	27580	24509	27770	79,859	27580	24509	27770	79,859

$H_0: DW_{84} = DW_{85} = DW_{86} \quad \alpha = 5\% \quad H_1: \neq$
 SINCE $\chi^2_0 > \chi^2(2, .05)$, $37.37 > 5.99$ REJECT H_0
 THAT IS, THE DW% ARE NOT THE SAME OVER THE YEARS
 ∴ ANALYZE ONLY THE MOST CURRENT YEAR ('86)

② TEST IF DW % BY SITES ARE THE SAME:



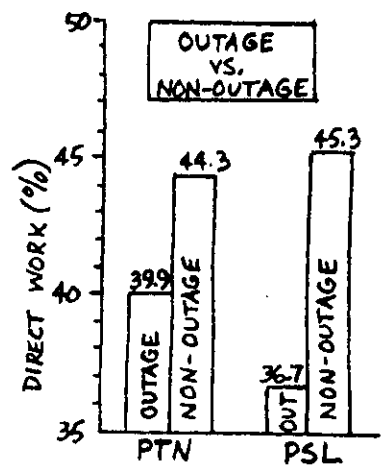
	ACTUAL			EXPECTED		
	PSL	PTN	TOTALS	PSL	PTN	TOTALS
D. W. OBS OUTAGE	1673	4923	6,666	2055	4611	6,666
D. W. OBS NON-OUT	1816	2965	4,781	1474	3307	4,781
OTHER OBS OUTAGE	2880	7518	10,398	3207	7191	10,398
OTHER OBS NON-OUT	2194	3731	5,925	1827	4098	5,925
TOTALS	8563	19207	27,770	8563	19207	27,770

$H_0: DW\% PSL = DW\% PTN \quad \alpha = 5\% \quad H_1: \neq$
 SINCE $\chi^2_0 > \chi^2(3, .05)$, $372.17 > 7.81$ REJECT H_0
 THAT IS, THE SITES ARE DIFFERENT ∴ ANALYZE EACH SEPARATELY

CURRENT SITUATION CONTINUED...

③ TEST IF DW % DURING OUTAGE AND NON-OUTAGE PERIODS ARE THE SAME:

$H_0: DW \%_{OUTAGE} = DW \%_{NON-OUTAGE} \alpha = 5\% H_1: \neq$



PTN	ACTUAL			EXPECTED		
	OUTAGE	NON OUTAGE	TOTALS	OUTAGE	NON OUTAGE	TOTALS
D.W. OBS	4993	2965	7,958	5184	2774	7,958
OTHER OBS	7518	3731	11,249	7327	3922	11,249
TOTALS	12511	6696	19,207	12,511	6696	19,207

$\chi^2(1,05) = 3.84$ FOR PTN; $\chi^2_0 = 34.47 > \chi^2 \therefore$ REJECT H_0
 FOR PSL; $\chi^2_0 = 64.357 > \chi^2 \therefore$ REJECT H_0

THERE ARE SIGNIFICANT DIFFERENCES BETWEEN OUTAGE & NON-OUTAGE

PSL	ACTUAL			EXPECTED		
	OUTAGE	NON OUTAGE	TOTALS	OUTAGE	NON OUTAGE	TOTALS
D.W. OBS	1673	1816	3,489	1855	1634	3,489
OTHER OBS	2880	2194	5,074	2698	2376	5,074
TOTALS	4553	4010	8,563	4553	4010	8,563

FOCUS ON OUTAGES:

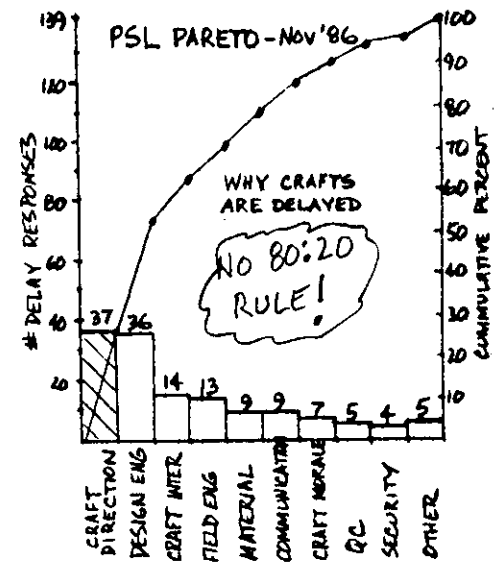
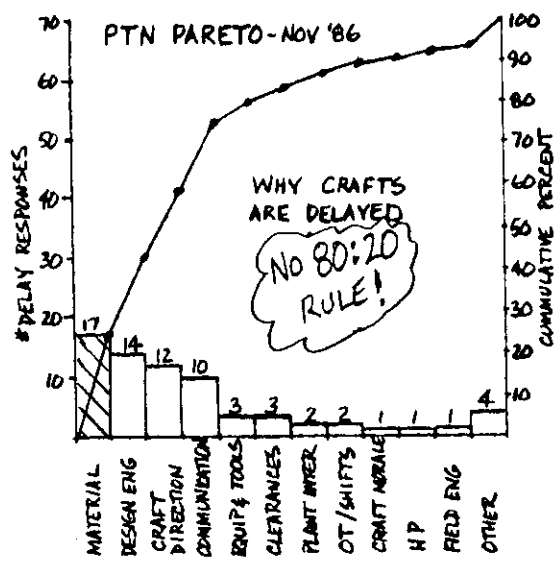
- NEVER ACHIEVED 40% D.W.
- CONSUMES OVER 1/2 THE ANNUAL MAN-HOURS
- CRITICAL TO REDUCE OUTAGE SCHEDULE & COSTS

BASED ON INTERVIEWS AFTER THE LAST OUTAGES AND SUBSEQUENT FORMAL SURVEYS, CONTRIBUTING FACTORS WERE IDENTIFIED:

1. CAUSE SURVEY

IN TERMS OF THE LAST FEN OUTAGES YOU HAVE WORKED, PLEASE SCORE EACH OF THE FOLLOWING REASONS WHY CRAFTS ARE DELAYED:

CAUSE	LITTLE IMPACT			MOST FREQUENT IMPACT		
1. LACK OF PROPER EQUIPMENT/TOOLS	1	2	3	4	5	
2. INADEQUATE QC SUPPORT	1	2	3	4	5	
3. INSUFFICIENT FIELD ENGINEERING SUPPORT	1	2	3	4	5	
4. MATERIAL DELAYS/CONSTRAINTS	1	2	3	4	5	
5. SECURITY PROBLEMS	1	2	3	4	5	
6. HEALTH PHYSICS DELAYS	1	2				
7. LATE/INCOMPLETE DESIGN ENGINEERING	1	2				
8. INADEQUATE CRAFT DIRECTION	1					
9. WORK CLEARANCE DELAYS	1					
10. COMMUNICATION PROBLEMS (PAGE/RADIOS)	1					
11. LOW CRAFT MORALE						
12. PLANT INTERFACE PROBLEMS						
13. OVERTIME/SHIFT WORK						
14. OTHER CRAFT/DISCIPLINE INTERFERENCE						
15. OTHER (LIST SPECIFICALLY):						



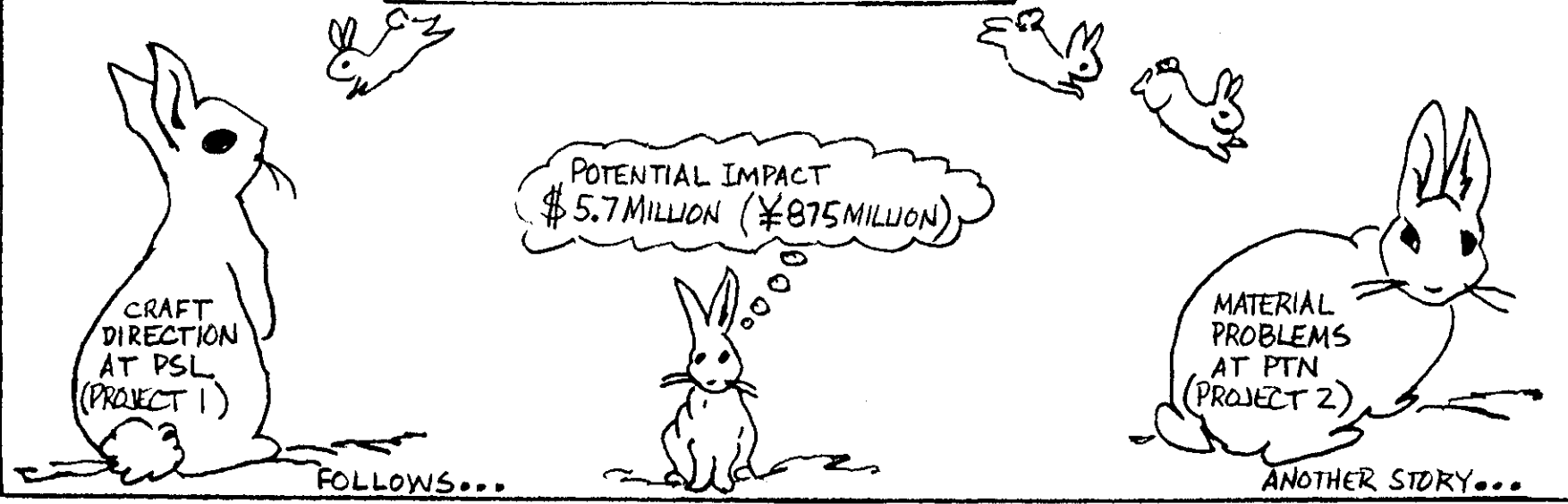
CURRENT SITUATION CONTINUED...

RESULTS SHOWED THAT MANY FACTORS ARE INVOLVED IN IMPROVING CRAFT PRODUCTIVITY AND CLARIFIED OUR 1987 POLICY DEPLOYMENT THEME WHICH BROKE DOWN INTO 2 SITE SPECIFIC PROJECTS -

CONSTRUCTION DEPARTMENT
IMPROVEMENT OPPORTUNITY SELECTION

ACTIVITY	SEVERITY	URGENCY	GROWTH	IMPORTANT CUSTOMER NEED	TOTAL SCORE	INDICATOR(S)	DFO	TAI	PROJECT	COMMENTS
Staffing	3	3	1	5	45	Staffing Level	2	4.1		Has decreased by 10% this year with workload - using contractors to fill short term peaks.
Craft Productivity	4	4	4	5	320	Craft Productivity	1	4.1	Project 1&2	Fell off from 40% - survey indicates supervision and material problems. Total impact over \$5 million
Customers' Needs						Customer	1,2	3.1	Project 4	Need to address weak areas in welding, contract administration and supervisory skills.
										Survey results and indicators favorable.

TO SUSTAIN A DIRECT WORK PERCENTAGE OF AT LEAST 40% BY REDUCING CRAFT NON-PRODUCTIVE TIME DURING OUTAGES FOCUSING ON...



STEP 3- ANALYSIS - PROJECT 1- CRAFT DIRECTION AT PSL

6

A SCHEDULE WAS DEVELOPED TO IMPLEMENT A PLAN PRIOR TO THE UPCOMING OUTAGE :

ACTIVITY	DEC	JAN	FEB	MAR	APR	MAY	JUN
ANALYSIS	■■■■						
COUNTERMEASURES		■■■■	■■■■	■■■■			
RESULTS				■■■■	■■■■		
STANDARDIZATION					■■■■	■■■■	
FUTURE PLANS						■■■■	■■■■

△ START OUTAGE 2-7

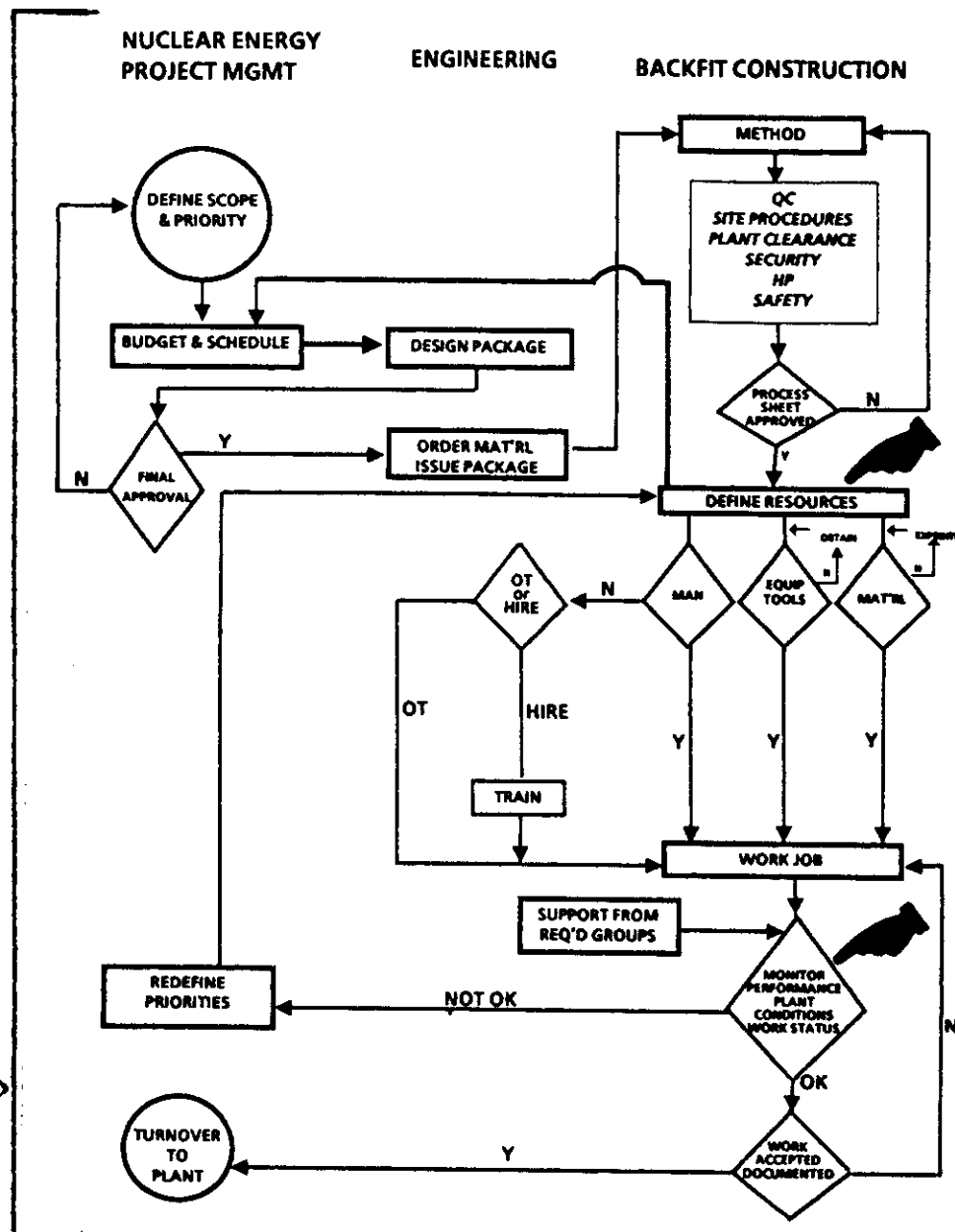
AND A QIP TEAM FORMED IN EARLY DECEMBER

TEAM LEADER	MIKE LAMP	CONST DEPT SUPT
FACILITATOR	DWIGHT CARLILE	PROJECT FIELD ENG REP
MEMBERS	FRANK HAYDEN	METHODS SUPV
	DAVE SCHCONOVER	PLAN/SCHED SUPV
	CHUCK HAMILTON	QC SUPV
	MARK FRIEDMAN	CATALYTIC FIELD SUPT
	FRED DAVIES	CATALYTIC FIELD ENG



NOTE:
TO MAKE THIS TIGHT SCHEDULE THE TEAM COMMITTED TO MEET ON THEIR OWN TIME, AFTER HOURS, TWICE A WEEK!

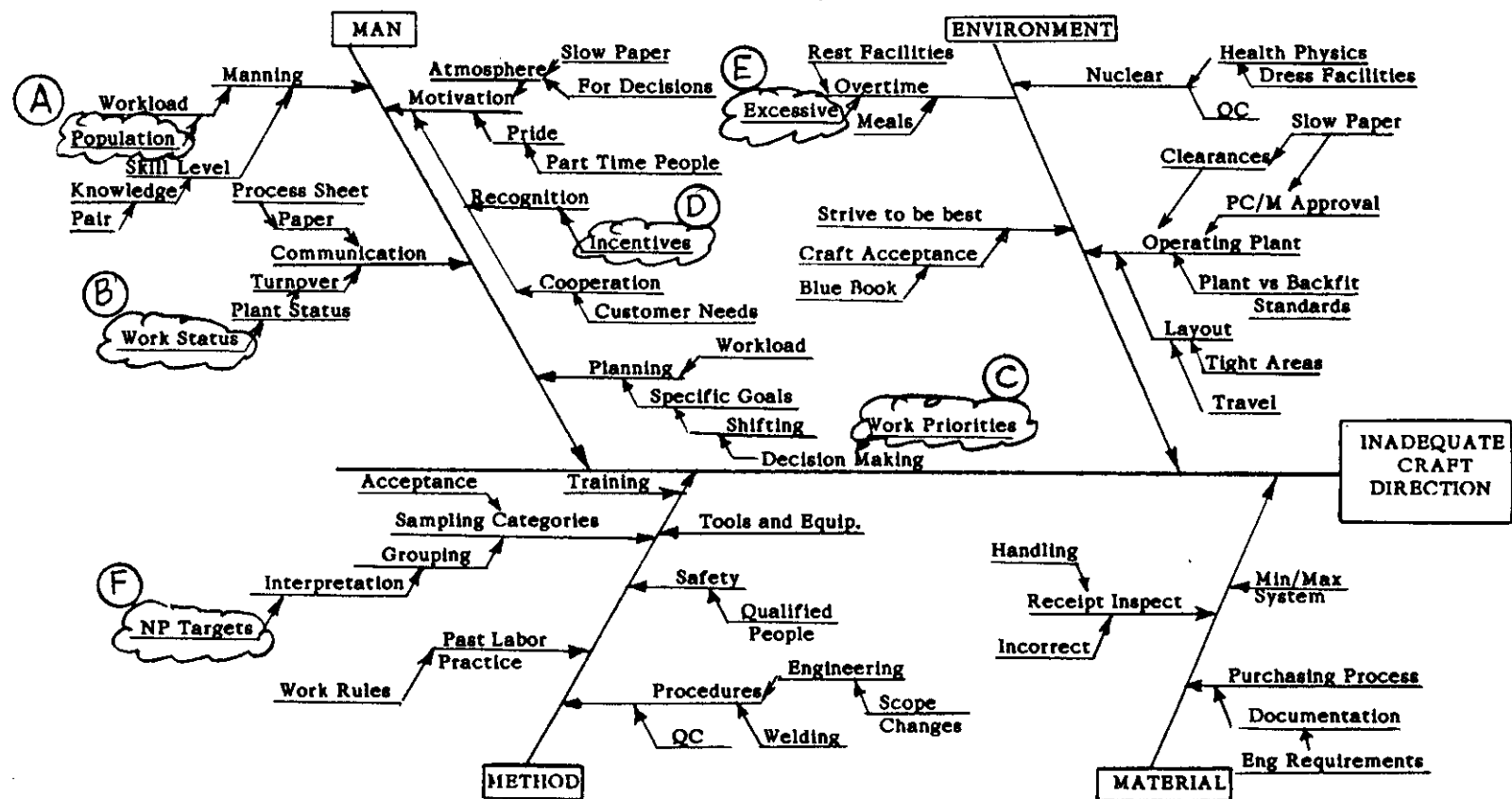
USING MIKE LAMP'S QIDW PROCESS FLOW CHART, CRITICAL STEPS INVOLVING CRAFT DIRECTION WERE IDENTIFIED



ANALYSIS CONTINUED...

7

A FISHBONE WAS THEN DEVELOPED FROM THE PROCESS, SURVEY RESULTS AND TEAM INPUT :



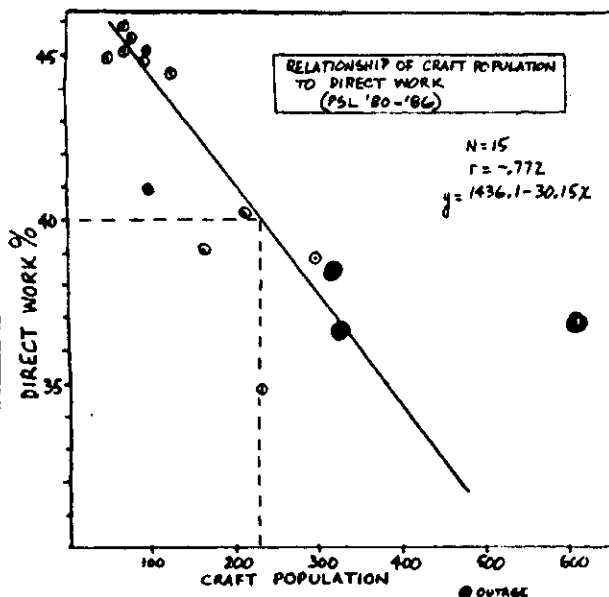
- (A) POPULATION/MANNING
- (B) COMMUNICATION OF WORK STATUS
- (C) PLANNING OF WORK PRIORITIES
- (D) MOTIVATION/INCENTIVES
- (E) EXCESSIVE OVERTIME
- (F) NON-PRODUCTIVE TARGETS

WERE IDENTIFIED AS FACTORS WHICH SEEMED TO HAVE A SIGNIFICANT EFFECT ON THE CHARACTERISTIC WHICH NEEDED FURTHER INVESTIGATION...

ANALYSIS CONTINUED...

8

(A) INVESTIGATING POPULATION/MANNING:

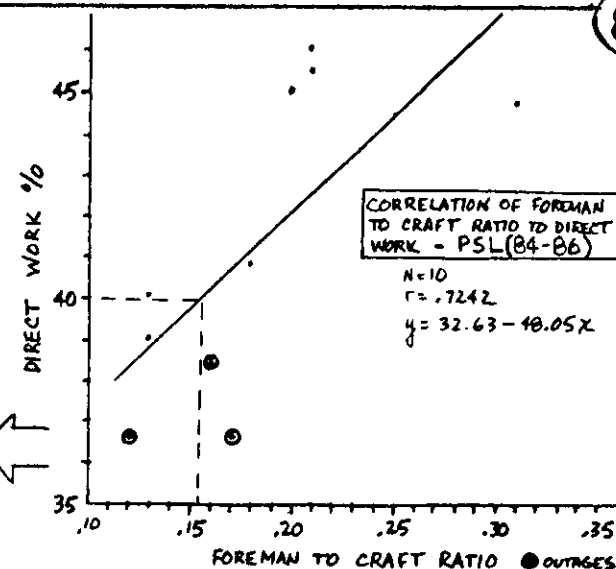


ABOVE 230 CRAFT CANNOT SUSTAIN 40% D.W.

ALL OUTAGES HAVE 300 OR MORE CRAFT

UPCOMING OUTAGE PROJECTED AT 432

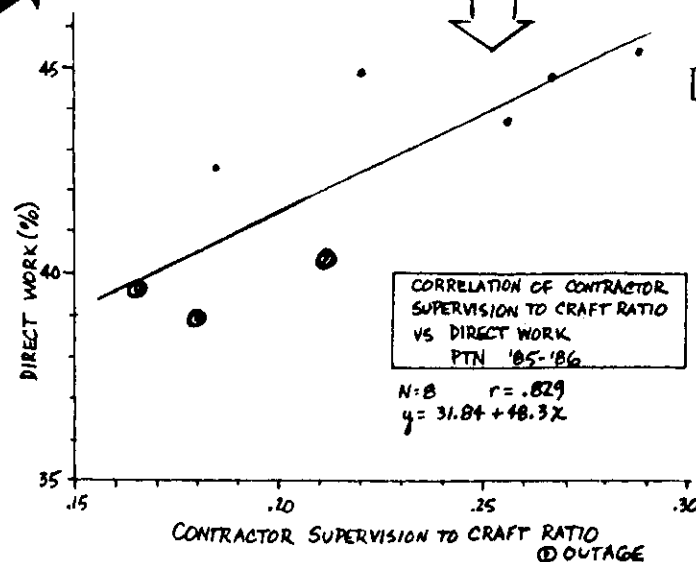
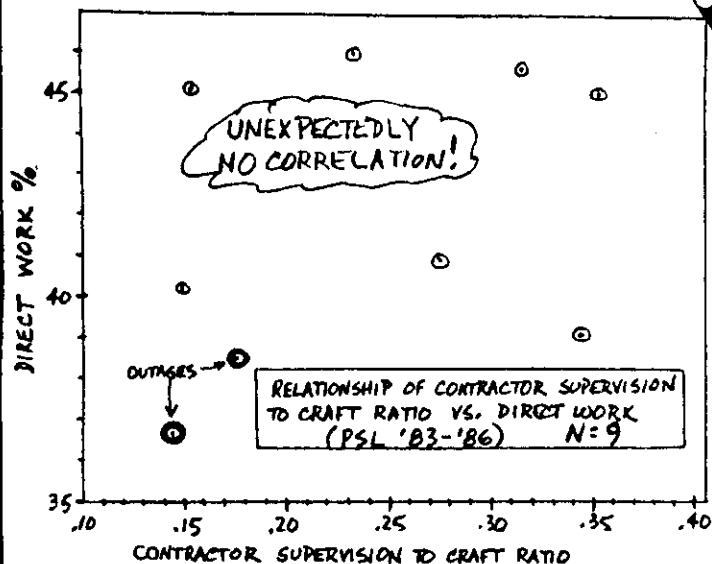
MAINTAIN RATIO OF .15 (1 TO 6) TO SUSTAIN 40% D.W.



THIS APPEARS CONTRARY TO OUR SENSE! WORK IS SUPPOSED TO GET DONE THRU CONTRACTOR SUPERVISION, THEY ARE OUR LINK IN-

- PLANNING
- COMMUNICATING WORK STATUS
- WORK ASSIGNMENT
- MAINTAINING PRIORITIES

APPARENTLY THEY ARE NOT INSTRUMENTAL IN MAKING THINGS HAPPEN! IS THIS UNUSUAL? LOOK AT PTN



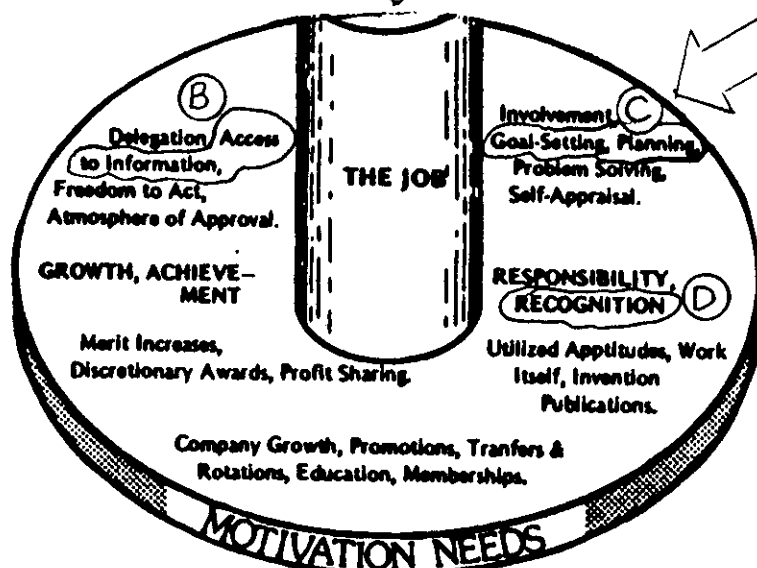
GOOD CORRELATION!

CONFIRMS THAT WE HAVE A CRAFT DIRECTION PROBLEM AT PSL!

ANALYSIS CONTINUED...

INVESTIGATING (B) - COMMUNICATION OF WORK STATUS
(C) - PLANNING OF PRIORITIES
(D) - MOTIVATION/INCENTIVES

FROM ODT TRAINING, THESE FACTORS RANK HIGH IN SUPERVISOR PERFORMANCE



*From 'Who Are Your Motivated Workers?';
M. Scott Myers, HBR, Jan.-Feb., 1964.

ALTHOUGH DIFFICULT TO SUPPORT WITH HARD DATA CORRELATION, THE TEAM RECOGNIZED THAT THESE FACTORS ARE POTENTIAL ROOT CAUSES AT PSL



MANAGEMENT ACTION PROGRAM:
Leadership Principles

Exhibit MM-6 (T)

Page 1 of 1

Topic: MOTIVATION AND MORALE

FPL MOTIVATION RESEARCH RESULTS

Ranking of Selected Factors as Motivators by:

- | | |
|--|------------------------------------|
| A. GO/Division MAP Participants | B. Power Plant Participants |
| 1. Recognition (2) | 1. Recognition (9) |
| 2. Responsibility (8) | 2. Challenge (17) |
| 3. Work Itself (7) | 3. Work Itself (4) |
| 4. Challenge (18) | 4. Responsibility (11) |
| 5. Achievement (11) | 5. Achievement (13) |
| 6. Advancement (4) | 6. Advancement (7) |
| 7. Nature of Supervision (1) | 7. Nature of Supervision (1) |
| 8. Autonomy/Freedom (12) | 8. Autonomy/Freedom (10) |

NOTICE THE
#1 DEMOTIVATOR

*Factors ranked in order, based on input from 550 GO/Division-based MAP participants (A), and 89 Plant-based participants, including Foremen (B).

**Number in parentheses indicates rank as a DEMOTIVATOR.

INTERESTING FOOTNOTE-LABOR RESPONDS DIFFERENTLY:

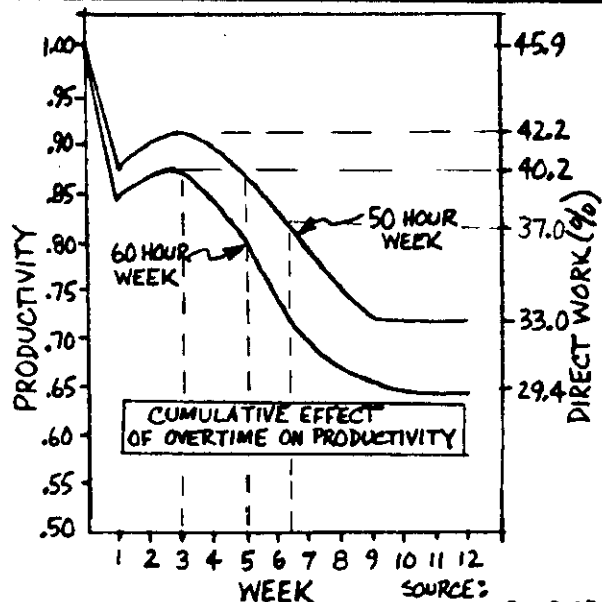
MOTIVATORS	LABOR	DE-MOTIVATORS
1. Pay		1. Material Availability
2. Work Itself		2. Disrespectful Treatment
3. Orientation Program		3. Communication Breakdown
4. Safety		4. Incompetent Personnel
5. Craft Relations		5. Tool Availability
6. Overtime		6. Project Confusion
7. Suggestions Solicited		7. Unsafe Conditions
8. Open House/Project Tour		8. Rework
9. Well Planned Project		9. Lack of Recognition
10. Goals Defined		10. Crew Discontinuity

(Source: The Business Roundtable)

ANALYSIS CONTINUED...

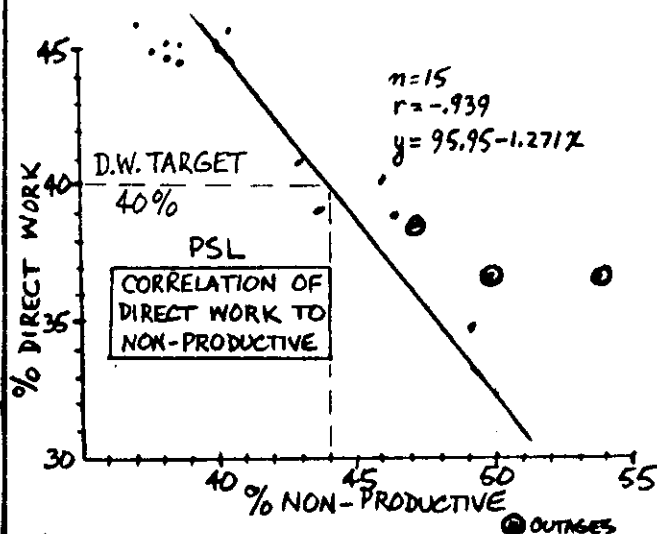
10

INVESTIGATING (E) EXCESSIVE OVERTIME

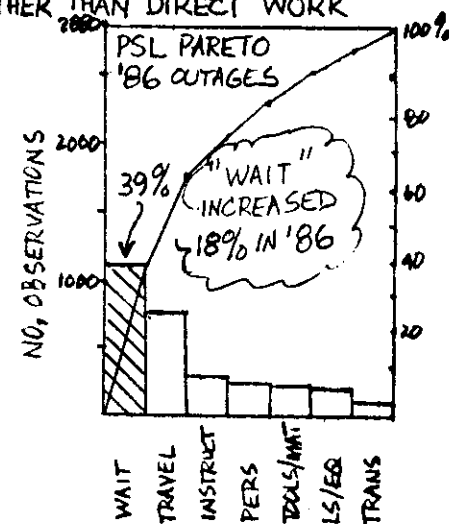
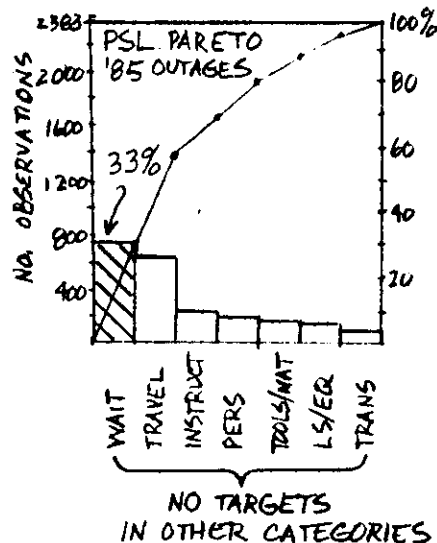


CANNOT SUSTAIN 40% D.W. AFTER 3-60 HR WEEKS OR 5-50 HR WEEKS DURING THE '85 FALL OUTAGE A QIP TEAM IMPLEMENTED 3-8 HR SHIFTS WHICH RESULTED IN THE HIGHEST D.W. RECORDED FOR AN OUTAGE (38.5%)

INVESTIGATING (F) NON-PRODUCTIVE TARGETS



PSL PARETO OF ACTIVITIES OTHER THAN DIRECT WORK



MEETING TARGETS IN THESE OTHER CATEGORIES WILL HELP ACHIEVE OUR D.W. TARGET

ANALYSIS CONTINUED...

ROOT CAUSE EVALUATION MATRIX

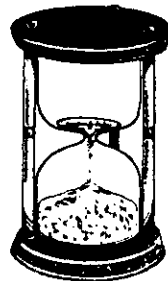
POTENTIAL ROOT CAUSE	HOW VERIFIED	FREQUENCY	IN OUR CONTROL?	IMPACT	THIS OUTAGE?	EFFORT REQD	OTHER
(A) Population/Manning o High Craft Population o Low Foreman/Craft Ratio o Supervision/Craft Ratio	Correlation Analysis ↓	High	Partial	High	No	Max	Projected 432 above 230 DW
		High	Partial	High	Maybe	Med	Maintain .15
		?	Partial	?	?	Med	No Correlation
(B) Communication of Work Status*	Survey	High	Yes	High	Yes	Min	Shift Turnover
(C) Planning of Priorities *	↓	High	Yes	High	Yes	Min	Changing Plant Conditions
(D) Motivation/Incentives*		High	Yes	High	Yes	Min	
(E) Excessive Overtime		High	Partial	High	No	Max	Minimize Match Plant Hours Dual Outages (PTN)
(F) Non-Productive Targets*	Program Review	Med	Yes	Med	Yes	Min	

* CAUSES TO ADDRESS

STEP 4-COUNTERMEASURES

WITH THE OUTAGE ONLY A FEW WEEKS AWAY, THE TERM DECIDED TO DEVELOP COUNTERMEASURES FOR (B) (C) (D) (F) WHILE CONTINUING TO MONITOR THE OTHERS FOR POTENTIAL ACTION DURING THE NEXT FALL OUTAGE

STRUCTURE TREES WERE USED TO IDENTIFY POSSIBLE SOLUTIONS



(B)
COMMUNICATION
OF
WORK STATUS

Better
Shift
Turn-over

Proper
Motivation
to do good
turn-over

Sufficient
non-manual
face to face
turn-over

Awareness of
field conditions

Time to do a
proper turn-over

Knowledge of
turn-over
requirements

(D)
Incentive program

Family
site visit
Monetary
Letters

As low as practical
Include whoever is required
Know valid requirements
At work site

Form for plant conditions

Standardized
turn-over

Pay overtime
to do

Motivation

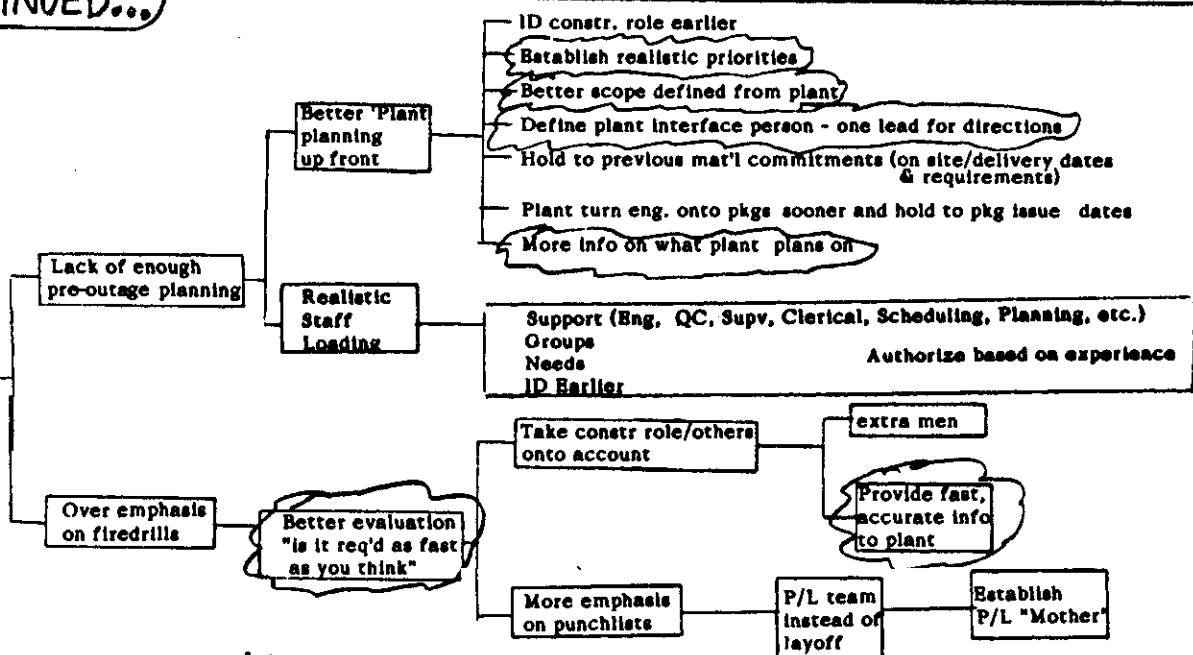
Daily goals set
Problems identified
Actions identified
Schedule support
Open-up hard hat
Project Goals

COUNTERMEASURES CONTINUED...

12

C PLANNING OF PRIORITIES (CHANGING PLANT CONDITIONS)

WE THEN DEVELOPED A SELECTION
MATRIX TO COMPARE SOLUTIONS



CAUSE	Solution	Dollars To Implement	Are Involved Departments Committed	% of Problem Solved	Can Team Implement	Other
D	Incentive	Low	Yes	High Morale	Yes	Unionism Hardspot - "co-employer"
B	Sufficient Turn-over	Very Low	Yes	Very Large	Yes	In Field Turnover, known valid Requirements
	Awareness of field Conditions	Low	Yes	Medium	Yes	Form to be Developed Plant Must be as Accurate As Possible.
C	Better Plant Up Front Planning.	Low	PLT-? BKFT-Yes	Very Large	No	Is Plant Aware/Care of Heartburn Caused? * Bubble Up! DISCUSS WITH MGMT-OK
	More Timely Staff Loading	Med/Low	Some	Large	No	Results in Heavy Overtime * Bubble Up! DISCUSS WITH MGMT-TOO LATE
	Better Evaluation of "RUSH" jobs or "Fire Drills"	Low	PLT-? BKFT-Yes	Medium	No	Backfit can ask Right Questions * Bubble Up! DISCUSS WITH MGMT-OK
	Punch List Team	Low-Med	BKFT-Yes Others-Problem	Low	Yes	Strong Outage Help DROP!
F	Non-Productive Targets	Very Low	Yes	Medium-Low	Yes	Helps set goals and identify problem areas.

COUNTERMEASURES CONTINUED...

13

BARRIERS & AIDS
WERE
INVESTIGATED

FOR SOLUTIONS TO
D - MOTIVATION

FOR SOLUTIONS TO
B - COMMUNICATION

BARRIERS

- 1) Short time to do
- 2) Union resistance
- 3) Money to finance

MATCHING BARRIERS TO AIDS

1,4,7,8
9

AIDS

- A) Initial problem small
- B) Has management commitment
- C) Improve motivation for everybody (cascading effect)
- D) Appeals to competitive nature
- E) Aids craft to ownership (Involve in Program design)
- F) Bridges gap between owner/

BARRIER

1. Human element
2. Communicative skill
3. Time to do
4. Knowledge of job
5. Amount
- 6.

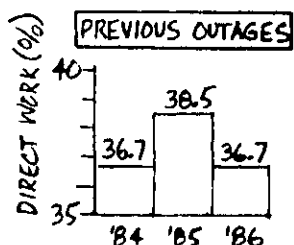
AIDS

1. Management commitment
2. Aid communication
3. Makes job easier
4. Personnel utilization

ACTION
PLAN
FINALIZED

CAUSE	WHAT	WHO	WHEN	WHERE	REMARKS
B Communication of work Status	o Formal turnover log o Face to Face turnover	Friedmann Friedmann	1/27 During outage	Turnover meeting Workplace	Includes plans/goals All appropriate people
C Planning of Priorities	o Key mgmt assigned to shifts o Plant condition status form	Parks/Burgin Schoonover	During outage 2/3	Site Plant meeting	Burgin assigned 2nd shift To all appropriate people
D Motivation/Incentives	o Overtime for turnover o Incentives: o Jackets o Pictures o Site T.V. o Letters	FPL Author. (Parks) FPL-Catalytic	During outage During outage:		Key supervisors/foreman implement early - ask what they want
F Non-Productive Targets	o Establish Targets	Hayden	1/27	Juno Beach	Review historical data

EXPECTED
TARGETS
SET



- AVERAGED 37.3 %
- HIGHEST WAS 38.5% (3-8 HR SHIFTS)
- ANYTHING ABOVE 38.5% WOULD BE GREAT!

CRAFT POPULATION

- PROJECTED PEAK 432
- CAN EXPECT 33.3% DIRECT WORK PER CORRELATION ON PAGE 8

FOREMAN TO CRAFT RATIO

- POSSIBLE TO HIT 40% DIRECT WORK IF WE MAINTAIN 1 FOREMAN TO 6 CRAFT PER CORRELATION ON PAGE 8

OVERTIME

- DOUBLE SHIFT (5-10'S)
- 6 1/2 WEEKS
- CAN EXPECT 37% DIRECT WORK PER CORRELATION ON PAGE 10

IN REAL LIFE, VERY TOUGH TO DETERMINE WHICH IS MORE INFLUENTIAL!

THE TEAM REACHED CONSENSUS THAT IF WE ACHIEVED 38.7 % DIRECT WORK OUR ACTIONS WOULD BE DEEMED SUCCESSFUL

IMPLEMENTATION

OUTAGE
BEGAN AS
SCHEDULED
2-7-87

PLANS IN PLACE
AND WORKING

FACE TO FACE TURNOVER

INCENTIVE PROGRAM

PAID OT FOR TURNOVER

KEY MGMT ON 2ND SHIFT

SHIFT TURNOVER LOG

CWO: _____ PC/M: _____ SHIFT: 1 2
(Circle One)

FROM: _____ TO: _____
(Shift Supervisor) (Next Shift Supervisor)

***** USE ONE SHEET FOR EACH CWO *****

1) List Specific Accomplishments From Your Shift:

2) List Specific Objective For The Next Shift:

3) List Any Engineering Changes Submitted Or That Need:

4) List Any Particular Material/Tool Needs: (ie-loc needs for next shift, ect.)

5) State Any Delays Encountered:

6) Identify Scope Changes Submitted:



INTER-OFFICE CORRESPONDENCE

TO: Backfit Personnel

FROM: Backfit Planning

SUBJECT: Outage Status - Day _____
Shift _____

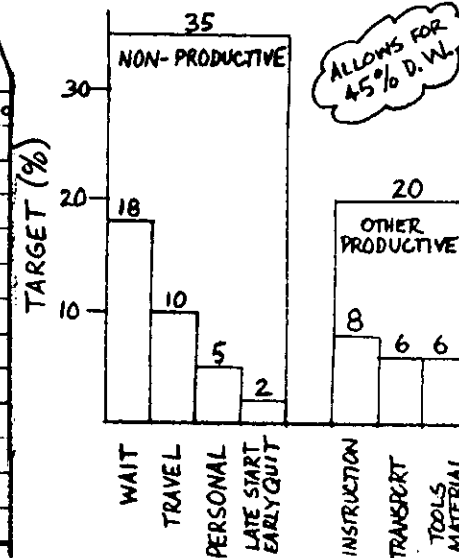
Unit #1 Outage Status _____ Hours _____ as of _____
Hours.

Current Scheduled Critical Path -

Backfit Scheduled Critical Activities -

Major Scheduled Outage Occurrences This Shift -

SAMPLING CATEGORY TARGETS



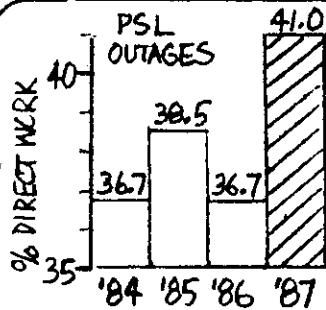
STEP 5-RESULTS

RESULTS OF STUDIES CONDUCTED 2/17, 2/18, 3/4, 3/5, 3/6 - 9053 OBSERVATIONS
38 PAGES OF ANALYSIS BY SHIFT, CRAFT, AREA, ETC. $\pm 1.0\%$ SAMPLE ACCURACY, 95% C.L.

41.0%
DIRECT
WORK

15

SIGNIFICANT IMPROVEMENT?



USING TEST OF PROPORTIONS, $H_0: P_1 = P_2$, $H_1: P_1 > P_2$, $K_{.05} = 1.645$ (ONE SIDED TEST)

COMPARE TO PREVIOUS OUTAGE
WORKED ON SHIFT BASIS:

$$P_1 = \frac{3709}{9053} = .4097, P_2 = \frac{1493}{3876} = .3852$$

$$P = \frac{3709 + 1493}{9053 + 3876} = .4024$$

$$u_0 = 2.6028 > K_{.05} \therefore \text{REJECT } H_0$$

TEST STATISTIC

$$u_0 = \frac{P_1 - P_2}{\sqrt{P(1-P)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

COMPARE TO OTHER OUTAGES
WORKED ON OVERTIME BASIS:

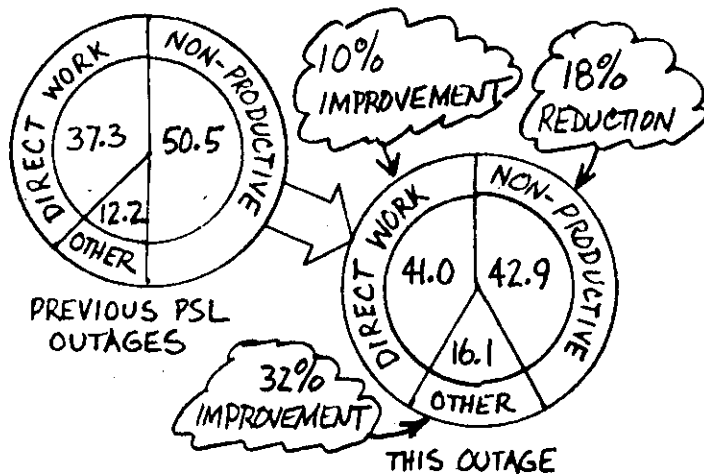
$$P_1 = .4097, P_2 = \frac{3394}{9243} = .3672$$

$$P = \frac{3709 + 3394}{9053 + 9243} = .3882$$

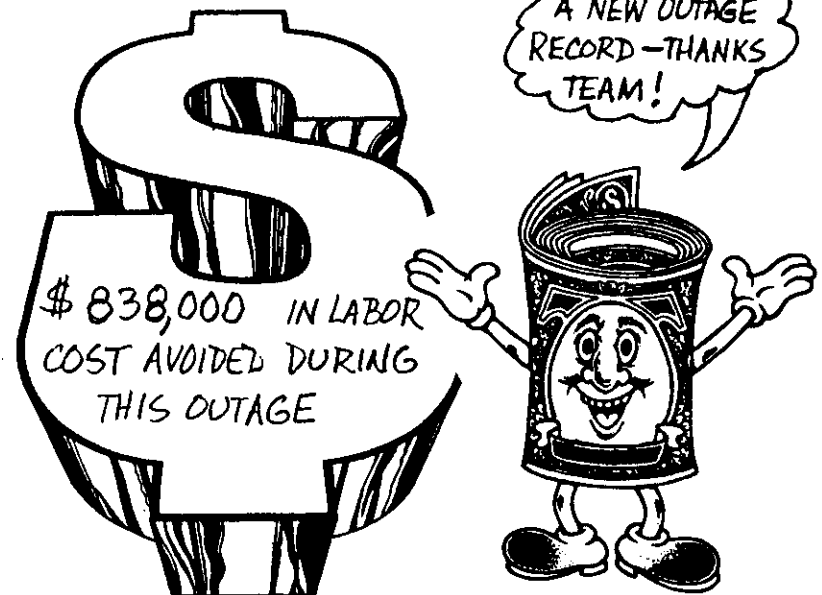
$$u_0 = 5.8977 > K_{.05} \therefore \text{REJECT } H_0$$

IN BOTH COMPARISONS THERE ARE SIGNIFICANT IMPROVEMENTS!

OVERALL



IMPACT



STEP 6-STANDARDIZATION

- ACTIONS TAKEN ARE NOW STANDARD PRACTICE DURING FUTURE PSL OUTAGES
- WILL REPLICATE THE CATEGORY TARGETS AND SURVEY AT PTN - SINCE THE PROBLEM AT PTN IS DIFFERENT, COMPLETE REPLICATION MAY NOT BE APPROPRIATE

STEP 7-FUTURE PLANS

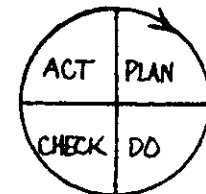
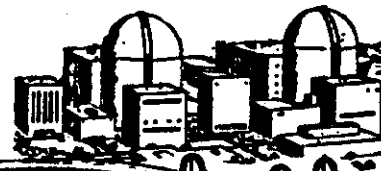
- RESURVEY PSL TO SEE IF "INADEQUATE CRAFT DIRECTION" IS STILL THE PROBLEM - ADDRESS OTHER PROBLEMS THAT SURFACE
- PERFORM STUDY DURING NEXT PSL OUTAGE TO CONFIRM THAT 40% D.W. IS BEING "SUSTAINED"

- CONTINUE TO ADDRESS THE PRODUCTIVITY GAP BETWEEN OUTAGE & NON-OUTAGE PERIODS AS FUTURE POLICY DEPLOYMENT PROJECTS WITH TEAM INVOLVEMENT

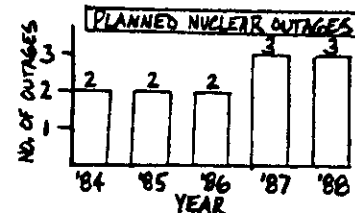
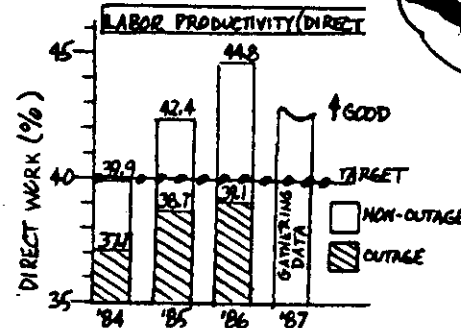
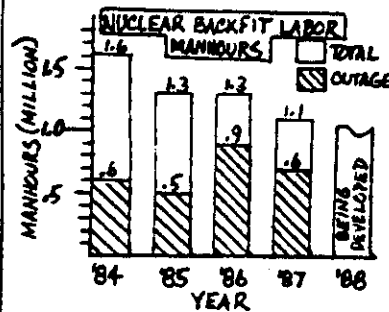
REASON FOR IMPROVEMENT

BACKGROUND

OVER \$40 MILLION ARE SPENT EACH YEAR BY OUR MAJOR BACKFIT CONTRACTORS AT THE NUCLEAR SITES. LABOR COSTS REPRESENT \$27 MILLION OR 68% OF THE TOTAL.



INDICATORS



IMPACT

- OVER HALF THE MANHOURS ARE SPENT DURING OUTAGES
- 3 OUTAGES AGAIN IN '88
- THE PRODUCTIVITY GAP BETWEEN OUTAGE & NON-OUTAGE PERIODS IS INCREASING

DECISION OF THEME

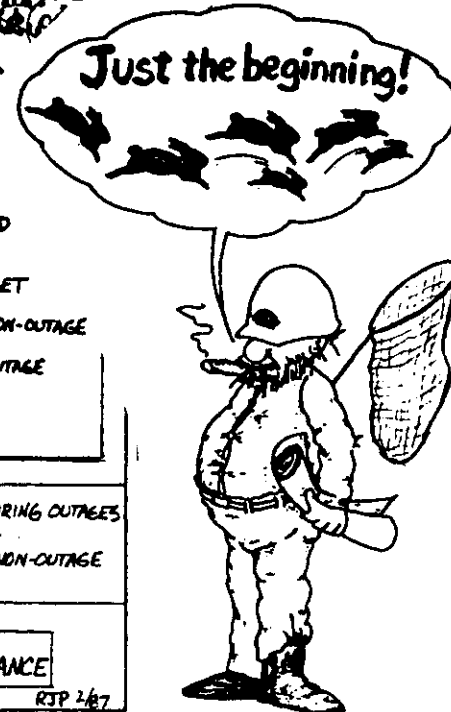
IMPROVE OUTAGE LABOR PERFORMANCE

RE: 87 P.D.#1

RTP 2/87

REFLECTIONS

IF WE CAN GET SUCH DRAMATIC RESULTS WITH A FEW SIMPLE ACTIONS, IMAGINE WHAT IS POSSIBLE IF WE ADDRESS THE HARDER ISSUES SUCH AS CRAFT POPULATION, OVERTIME, FOREMAN RATIOS, ETC!



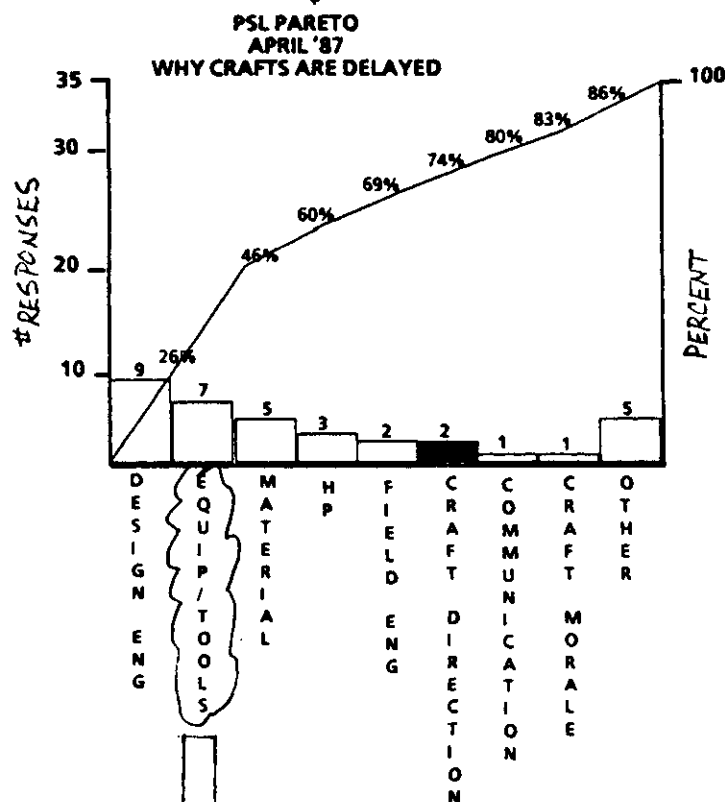
EPILOGUE

17

FINAL COST TO IMPLEMENT COUNTERMEASURES WAS \$ 34,123

RESULTS OF RESURVEY INDICATE "CRAFT DIRECTION" WAS SATISFACTORILY ADDRESSED AND IS NO LONGER A CONCERN

FORMAL STANDARDIZATION IS DOCUMENTED



OUR '88 PROJECT WILL FOCUS IN THIS AREA TO IMPROVE OUTAGE LABOR PERFORMANCE

"HAWTHORNE EFFECT"??

NOT ACCORDING TO OUR LATEST STUDIES -
MAY '87 - PSL NON-OUTAGE ⇒ 50.8 % DIRECT WORK
JUNE '87 - PTN DUAL OUTAGES ⇒ 45.1 % DIRECT WORK
BOTH NEW RECORDS !!

FPL FLORIDA POWER & LIGHT COMPANY		PERFORMANCE INCENTIVE FPL VERSION 7-1-87 TO 12-31-87		OGP 34-1 Rev. 0 Date 6-18-87 Page 1 of 12
1.0 PURPOSE To specify the method by which the Contractor's performance will be evaluated and to determine the amount of the award or penalty to be applied to the Contractor's Fixed Fee.				
2.0 SCOPE The procedure describes the program annual basis, as delineated in Contract between Florida Power & Light Company effective 7/1/86.				
3.0 REFERENCE 3.1 Supplementary Plant Manual Florida Power & Light Company effective 7/1/86.				
4.0 ATTACHMENT 4.1 Sample Formula 4.2 C.W.O. Schedule Summary for				
5.0 DEFINITION OF TERMS 5.1 FPL Incentive Determination Project General Manager to 5.2 Categories - Elements against 5.3 Performance Rating - Contrasting of the fixed fee to be adj. 5.4 Criteria - Specific standards 5.5 Target - Represents the 50%				
6.0 PREREQUISITES 6.1 None.				
During Outage Outages, we employ additional supervision and craftsmen to accommodate the additional work load assigned to Rootkit. In an effort to better coordinate and manage the work force/work activities, each Field Supervisor will perform the following activities on each working, each shift: - Complete a job review/status with the on-coming shift. Remove the appropriate personnel are involved. The review should include status of work, any paperwork required, special instructions, etc. - Complete the attached "Shift Turnover Log" for the on-coming shift. Include items previously initiated and completed this shift, items for the on-coming shift to complete, and problem areas. - If scheduled items are not completed, determine the reason for the non-performance and correct any problems that may exist. These efforts will better ensure that outage jobs are coordinated in a more effective manner and will help develop teamwork.				