UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Title: BRIEFING BY COMMONWEALTH EDISON - PUBLIC MEETING

Location: Rockville, Maryland

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2 NUCLEAR REGULATORY COMMISSION

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4 BRIEFING BY COMMONWEALTH EDISON

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6 PUBLIC MEETING

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9 Nuclear Regulatory Commission

10 Conference Room 1F-16

11 White Flint Building One

12 11555 Rockville Pike

13 Rockville, Maryland

14

15 Monday, May 13, 1996

16

17 The Commission met in open session, pursuant to

18 notice, at 1:58 p.m., Shirley A. Jackson, Chairman,

19 presiding.

20

21 COMMISSIONERS PRESENT:

22 SHIRLEY A. JACKSON, Chairman of the Commission

23 KENNETH C. ROGERS, Commissioner

24 GRETA J. DICUS, Commissioner

25

1 STAFF SEATED AT THE COMMISSION TABLE:
2 JOHN C. HOYLE, Secretary of the Commission
3 KAREN D. CYR, GENERAL COUNSEL
4 FOR COMMONWEALTH EDISON:
5 JAMES J. O'CONNOR, Chairman and Chief Executive
6 Officer
7 THOMAS MAIMAN, Senior Vice President, Nuclear
8 Division
9 HAROLD KEISER, Vice President, Chief Nuclear
10 Operations Officer
11 J. STEVEN PERRY, Vice President, Dresden Station
12 Site
13 TIMOTHY J. O'CONNOR, Operations Manager, Dresden
14 Station
15 PRESTON D. SWAFFORD, Maintenance Superintendent,
16 Dresden Station
17 RAJIV S. KUNDALKAR, Site Engineering Manager,
18 Dresden Station
19 ALSO PRESENT:
20 FRANK SPANGENBERG
21 STEVE BARRETT
22 JOHN HARLACH
23 BILL RAKES
24 TONY BRINKLEY
25

1 P R O C E E D I N G S

2 CHAIRMAN JACKSON: Good afternoon. This is
3 Commissioner Dicus.
4 The purpose of this meeting is for Commonwealth
5 Edison to brief the Commission on the status of efforts to
6 improve performance at Dresden Station, but I would say the
7 complete system since the last briefing in November.
8 Your presentation is of particular interest since
9 the Commission continues to be concerned about
10 Commonwealth's nuclear facilities, particularly the progress
11 being made at the Dresden Station, but even at some of the
12 others, in establishing lasting and effective programs that
13 will result in sustained improved performance.
14 We are anxious to hear the status of your progress
15 in that area.
16 Although the staff has reported improvements in
17 Dresden's performance, you continue to face longstanding
18 challenges in several significant areas, including worker
19 skills, work management and planning, the backlog of
20 equipment deficiencies, radiation protection and material
21 condition.
22 I must say that in reviewing other stations'
23 performance in the system, including Quad Cities, LaSalle,
24 the same kinds of themes run through.
25 These challenges and the progress being made in

1 meeting your goals for improvement are areas that the
2 Commission would like to have addressed at this briefing.
3 I understand that copies of your presentation are
4 available at the entrance to the meeting.
5 Commissioners, do you have any comments?
6 COMMISSIONER DICUS: No.
7 COMMISSIONER ROGERS: No.
8 CHAIRMAN JACKSON: If not, Mr. O'Connor, you may
9 proceed.
10 MR. J. O'CONNOR: Thank you very much, Chairman
11 Jackson, Commissioner Rogers, Commissioner Dicus.
12 We very much appreciate the opportunity to appear
13 before you this afternoon to discuss our nuclear program,
14 with special emphasis on activities related to our Dresden
15 Station.
16 When we were here last November, you challenged us
17 to make substantial step changes in our site's performance.
18 We did accept that challenge and have made substantial
19 progress. Today, we are here to address the areas of
20 interest that you identified in your letter of March 22,
21 1996.
22 As I mentioned last Fall, I feel very strongly,
23 along with our Board, in our commitment to have all of our
24 plants operate in a superior manner, both from a safety as
25 well as a reliability standpoint. We are prepared to

1 support those efforts so that there will be no doubt that
2 all six of our sites are resourced in a manner that will
3 permit steady improvement.
4 Toward this end, our Board in March approved an
5 additional allocation of $73 million towards operational
6 support for 1996 and an additional $19 million in capital
7 dollars to support an accelerated schedule of improvement
8 across all our sites.
9 These expenditures followed an in depth evaluation
10 by all of our sites. I hope you will agree that these
11 actions demonstrate our willingness to walk the talk. At
12 the same time, we recognize that promises, programs and even
13 dollars are not in themselves adequate measures of
14 performance, that it is results that really count.
15 Today, we are prepared to discuss the results of
16 our efforts at Dresden since we last met.
17 Among the comment people joining me today are Tom
18 Maiman, Senior Vice President for the Nuclear Division. Tom
19 has a proven track record in nuclear and fossil stations, as
20 well as our commercial divisions. With Tom is Harry Keiser,
21 who is the Chief Nuclear Operating Officer responsible for
22 the day to day operation of all six of our nuclear stations,
23 and Harry's experience and strong record of accomplishment
24 and energy make him a valuable addition to our nuclear
25 leadership team.

1 Since we have been requested to respond to a
2 number of issues, specifically related to Dresden, I would
3 now like to ask Steve Perry, who is the Site Vice President
4 at Dresden Station, to describe the performance at that
5 station.
6 MR. PERRY: Chairman Jackson, Commissioners, thank
7 you for inviting us here to talk about Dresden. I'd like to
8 introduce the people I brought with me.
9 On my immediate left here is Tim O'Connor. Tim is
10 the Operations Manager at the Dresden Station. He is
11 responsible for all reactor operations, non-licensed and
12 licensed operators report to him. He is also responsible
13 for chemistry and radioactive waste. Tim reports to the
14 Plant Manager.
15 On his left is Preston Swafford. Preston is the
16 Maintenance Manager at the Dresden Station. He is
17 responsible for the execution of all maintenance that occurs
18 at the station. The Commonwealth Edison as well as
19 contractor maintenance technicians all report to Preston.
20 Preston also reports to the Plant Manager.
21 On his left is Rajiv Kundalkar. Rajiv is the
22 Engineering Manager at the station. He is responsible for
23 engineering support of the plant, for the design control
24 modifications and all of the ComEd and contractor engineers
25 at the station report to Rajiv. Rajiv reports directly to

1 me.

2 All of these individuals will say something about
3 themselves when it comes to their time to talk, but I will
4 tell you, in my opinion, these are first class managers.
5 They have excellent nuclear instincts. They are leaders at
6 the site. They are functioning well as a team. They bring
7 a lot of energy to the place which is catching. They are
8 changing the attitudes at the station. I think you can form
9 your own opinions as you hear them speak.

10 I also have a number of other individuals who I
11 brought here and I would like to introduce them. First is
12 Frank Spangenberg, who is responsible for external relations
13 with the Nuclear Regulatory Commission, with INPO and
14 others. Frank reports to me. Steve Barrett has been my
15 Radiation Protection Manager. I have John Harlach, who is
16 my Master Mechanic, who is in charge of all the mechanics on
17 the site. Bill Rakes is a General Foreman and Tony Brinkley
18 is a First Line Supervisor.

19 I brought them so they could observe firsthand and
20 bring back what they hear and see today, but also if the
21 occasion arises and you want to ask deeper into the
22 organization then those here at the table, they are
23 available.

24 All of us are going to try and give you a balanced
25 view of where we are at Dresden today. I will tell you that

1 I am pleased with the significant improvement I have seen in
2 Dresden and particularly over the last six months. Both
3 units are running, running well. Overall, people
4 performance and attitude has been trending up for a number
5 of months, but in particular, it is accelerating in the last
6 several months.
7 What we talk about here and especially since we
8 are focusing on what we said we were going to do in this six
9 months will be slanted to the positive side. We also have a
10 pride of authorship there.
11 Before we start, I must say that despite this
12 positive report that you will hear, we fully understand the
13 magnitude and depth of the problems that we are still facing
14 at the site. Don't think that we don't understand that
15 because we are talking about some positive things here.
16 With that, if we could turn to slide five, please.
17 [Slide.]
18 MR. PERRY: This is a synopsis of the letter which
19 you sent to us on March 22, remembering your comments to us
20 several times, we are going to focus principally on the
21 results. That is what the bulk of what we talk about today
22 will be.
23 You also asked five other questions which I've
24 listed here. I will answer the second bullet and the last
25 bullet there, but I will do that at the end. Mr. O'Connor

1 has already talked to the resources being applied at the
2 bottom and Preston Swafford and Rajiv Kundalkar will address
3 the other two issues as they go into it.
4 Next slide, please.
5 [Slide.]
6 MR. PERRY: Last November, we told you that we
7 would accomplish a number of things. We listed 23 actions
8 that we would accomplish and we did all 23 of those actions.
9 One of them was in fact a measurement. We stated that we
10 would conduct an error free start up of Unit 2 after the
11 refueling outage, and we did that. The operations
12 performance was flawless.
13 We also had 22 performance targets that we set for
14 ourselves, some of which measure the actions. Others were
15 different from that. We met 15 of those 22.
16 I am going to characterize what that means to me.
17 What I tell my people is if we set hard targets, challenging
18 targets, tough targets, and achieve 75 percent of those, we
19 have performed in an outstanding fashion. If we were to
20 achieve 50 percent, that would be so-so. If we were to get
21 much higher than 75 percent, it would bring into question
22 whether or not we had tough and challenging standards.
23 What we have done here is we have achieved 68
24 percent of the standards we set for ourselves. We missed 75
25 percent by two. It was not outstanding, but clearly, I

1 think, over this period of time, a very good performance.
2 Of the seven that we missed, two we missed by a
3 hair. Two we showed improving trends over 1995, but missed
4 the target. On three of them, we had no discernable
5 improvement over our performance in 1995. We will discuss
6 each one of these in detail as we go through the
7 presentation.
8 I look at these performance measures, these 22, in
9 a different way, and I can divide them up into two types.
10 One type is just getting items done, working off a backlog,
11 for example. About half of these were of that character.
12 We did all of those. There are another kind that involve
13 changing the culture of people and then getting them to
14 perform and you measure their performance. There were in
15 fact ten of those. In seven of the ten, we either met the
16 goal we set for ourselves or showed measurable improvement
17 over our performance in 1995, seven out of ten.
18 I am going to have Tim O'Connor first talk about
19 operations and about performance measures. It is
20 unfortunate for Tim that we have given him most of the
21 performance measures that we didn't achieve, so he will be
22 discussing those things. If you will bear with it, we will
23 get through all of the three individuals that are going to
24 talk and you will be able to form an overall picture of
25 where we are.

1 With that, Tim O'Connor.

2 MR. T. O'CONNOR: Chairman Jackson, Commissioners,
3 my name is Tim O'Connor. I'm the Operations Manager, as
4 mentioned earlier. I'm responsible for personnel associated
5 with operations of Unit 2 and Unit 3, the Rad Waste Group,
6 Fuel Handling, Chemistry and Environmental Compliance.

7 I've been assigned to Dresden for approximately
8 four years and in the last 12 months, I have seen and been
9 part of the most significant change while at Dresden. The
10 focus has been to change the habits and the practices of our
11 people, to change the thinking of our people by establishing
12 standards that are equal to or better than the industry. We
13 are focusing on results as a measure of performance as
14 individuals and as a station.

15 I will present today performance results in the
16 area of operations, human performance for the station and
17 radiation protection.

18 Next slide, please; eight.

19 [Slide.]

20 MR. T. O'CONNOR: As you may recall, Chairman
21 Jackson, in late 1995, you visited Dresden Station, and at
22 that point in time, Unit 3 had returned from a forced outage
23 which was focusing on repairs to our low pressure turbine
24 blades. Also during that period of time, we took those
25 occasions to resolve longstanding equipment issues and

1 operator challenges.

2 Just a couple to mention has been the restoration
3 of redundancy to some systems or simply restoring a defense
4 and depth to our non-safety related systems. One system had
5 been out of service for almost 15 years. Also, we took this
6 opportunity to resolve some operator challenges, that being
7 with level control with our feed water system, which we now
8 have automatic features during transient conditions, which
9 previously we had not in all cases.

10 We had a very deliberate error free start up back
11 in October of 1995, and since that period of time, we have
12 exceeded 180 days of continuous operation with a better than
13 90 percent average capacity factor since that start up.

14 The unit is not showing any significant signs of
15 material condition degradation and is demonstrating
16 reliability and our operators are confident in that plant.

17 Next slide, please.

18 [Slide.]

19 MR. T. O'CONNOR: Unit 2 has recently returned
20 from its refueling outage in early April of this past year,
21 1996. Also, during this particular refueling outage, there
22 was considerable focus on improving safety margin, resolving
23 longstanding equipment issues, and reducing operator
24 challenges.

25 Preston Swafford will mention some of those items

1 in the material condition presentation. I would like to
2 touch on just a couple.
3 First is our station blackout diesel generators
4 are now operable on Unit 2. This restores additional AC
5 power in the event of a loss of off-site power. Also,
6 significant effort has been put to our feed water system,
7 both in the control system and in the valves themselves.
8 Thus, giving us complete automatic features which Dresden
9 has never had previous to this point in time.
10 CHAIRMAN JACKSON: Repeat that, please, what you
11 just said.
12 MR. T. O'CONNOR: Our feed water -- there has been
13 considerable effort put into our feed water control system
14 and valves, and the work that has been performed this last
15 outage has provided us automatic controls that we have not
16 had in previous years.
17 CHAIRMAN JACKSON: Thank you.
18 MR. T. O'CONNOR: This start up on Unit 2 is
19 significant to Dresden, not only because it is the start up
20 of a reactor, but also because we are now entering into dual
21 unit operations. Therefore, considerable effort and
22 controls were put in place to assure that we had error free
23 start up.
24 Assessments and overall readiness efforts were put
25 in place to assure physical system readiness, individual

1 readiness and crew readiness, with during the start up and
2 critical activities, senior management oversights being
3 performed of our operators to assure that performance levels
4 were up to the highest possible levels.
5 Again, we had a deliberate error free start up on
6 Unit 2.
7 Next slide, please; ten.
8 [Slide.]
9 MR. T. O'CONNOR: In the area of our operations
10 workforce, we have had a step change in our licensed
11 operators. Specifically, the overall control room
12 professionalism and operations of our control room
13 personnel. That was a target in 1995 and we have been able
14 to achieve a higher level of performance with those
15 operators.
16 We routinely bring in outside industry peers, non-
17 ComEd personnel, to evaluate us, to assure that we are
18 meeting those standards and to bring new ideas to continue
19 to raise those standards. In fact, at this point in time,
20 we have been benchmarked not only by our ComEd stations, but
21 also by non-ComEd stations in terms of how our control room
22 is operating, because other stations wish to achieve the
23 same kind of results.
24 In the area of non-licensed operators, this is a
25 specific focus in 1996. The same structure and philosophies

1 that were successful with the licensed operator is now being
2 applied to our non-licensed operators. We are seeing
3 improvement, although those operators are not yet at the
4 same standards and levels of performance as our control room
5 personnel.
6 CHAIRMAN JACKSON: What metrics do you use to
7 measure performance?
8 MR. T. O'CONNOR: The standards that I use are
9 performance evaluations on weekly exams, both written and
10 physical field observations, to determine whether those
11 personnel are performing to the standards in the field.
12 CHAIRMAN JACKSON: Commissioner Dicus, do you have
13 a question?
14 COMMISSIONER DICUS: Yes. You have achieved
15 improvements in the control room operators in how they are
16 functioning but not outside the control room, if I
17 understand that. You haven't gotten the same level.
18 Were the improvements in both groups or the
19 training for both groups done about the same time or did you
20 focus on the control room and then to the others? I'm
21 trying to get at why there is a difference.
22 MR. T. O'CONNOR: In the middle part of 1995,
23 human performance errors in the control room was a
24 predominant area of focus because of the numbers of errors,
25 and the focus by Dresden was specifically on the control

1 room operators. The non-licensed operators at that point in
2 time were not showing the same kind of problems with
3 performance.
4 This year, the focus is now with the non-licensed
5 operators, and as you will see in a slide later, some of the
6 performance data dictates that is where the focus should be.
7 That was not at the same time.
8 MR. PERRY: I will just add to that, to give it a
9 different viewpoint. Clearly, the most important area of
10 the plant is the main control room. We recognized that we
11 had material condition problems that could challenge the
12 plant, and if we did not have operators who were
13 professional, conservative and had a good approach as to how
14 they solved problems, that combination is not a good
15 combination, so we put a lot of effort in the control room
16 area as a first line of defense.
17 MR. T. O'CONNOR: Next slide, please; 11.
18 [Slide.]
19 MR. T. O'CONNOR: In operator re-qualification
20 exams, a target that was established for April 30 for
21 ourselves was to have a pass rate greater than or equal to
22 95 percent. As you can see in this particular graph,
23 Dresden Station finished with a 97 percent pass rate. We
24 achieved our goal.
25 Next slide, please.

1 [Slide.]

2 MR. T. O'CONNOR: In the area of Operations
3 Department, human performance, we had a specific target of
4 April 30 to be less than or equal to four events for the
5 first quarter of 1996. We have not achieved this goal as of
6 yet, although as you can see, we are seeing a declining
7 trend in human performance errors, but still, much needs to
8 be done.

9 CHAIRMAN JACKSON: How does that compare with
10 industry performance?

11 MR. T. O'CONNOR: My experience and in talking to
12 my counterparts, both in Edison and some friends of mine
13 external to Edison, we are still well below where the best
14 are. If you are looking for a specific number, in operation
15 space, three or four a year.

16 CHAIRMAN JACKSON: I guess what I am really trying
17 to understand is how do you set your goals, how do you know
18 what is a good goal and how do you benchmark yourselves with
19 the rest of the industry, particularly with the best
20 quartile of that industry.

21 MR. T. O'CONNOR: Clearly, I'm using those values
22 that I have mentioned for benchmarking myself and we are
23 transitioning from step change to step change to step
24 change, to reach those particular targets.

25 Next slide, please.

1 [Slide.]

2 MR. T. O'CONNOR: An evaluation of the human
3 performance issues break down in these categories. I have
4 simply separated them from field activities to non-field
5 activities. I would like to point out that the biggest
6 dominators of our human performance issues are with our non-
7 licensed operators at this point in time, and our out of
8 service program.

9 Next slide, please.

10 [Slide.]

11 CHAIRMAN JACKSON: Do you feel that those issues,
12 that extra training and so on that you talked about, with
13 the non-licensed operators, are the right things to do to
14 bring those contributions to significant events down on the
15 part of the licensed, the standards training, performance
16 training, testing training and systems training and this
17 conservative decision making seminar?

18 MR. T. O'CONNOR: Yes, I do.

19 CHAIRMAN JACKSON: How do you translate the
20 metrics that you talked about generally in terms of
21 performance to how it is really going to impact this magenta
22 part of the circle here?

23 MR. T. O'CONNOR: With results that I was able to
24 accomplish with the licensed operators, the methodologies
25 that you just described are the same things that positively

1 worked with the control room operators, and the issues are
2 very similar with the non-licensed personnel.
3 Therefore, I believe that I will get the same
4 results with the non-licensed personnel by applying those
5 same principles.
6 CHAIRMAN JACKSON: Commissioner Dicus?
7 COMMISSIONER DICUS: What was the time frame that
8 you collected these data?
9 MR. T. O'CONNOR: This is the first quarter of
10 1996.
11 CHAIRMAN JACKSON: At this point, you don't know
12 if it has all really sunk in or not, to know that you will
13 really get the improvement that you want to see?
14 MR. T. O'CONNOR: I am seeing some measure of
15 results in terms of improvements but additional time will be
16 necessary in order to prove that magenta section reduces.
17 Next slide, please.
18 [Slide.]
19 CHAIRMAN JACKSON: Tell me what kind of
20 significant events you feel that the non-licensed operators'
21 improvement would eliminate?
22 MR. T. O'CONNOR: Independent verification in out
23 of service tag outs in the plant, equipment manipulations.
24 Those are the kinds of things that we are focusing on.
25 Those have been the areas of weakness that we have seen in

1 the last 12 months.

2 CHAIRMAN JACKSON: Are you able to identify any

3 particular plant events with those sorts of areas that need

4 to be improved? For instance, what I am going to ask you

5 later is the fact that you still do seem to have a fair

6 number of significant events. One could argue, and that is

7 true for all of you who are planning to talk today, and that

8 is one could argue that if you do all these things and you

9 say we are doing this, this and this, and we have trained

10 this many people, you know, people do this and they get

11 scores and they have had this seminar and they have done

12 that, but in the end, where the rubber meets the road is

13 just that.

14 I've had this kind of discussion with other

15 plants, where we are in the green here, we are in the green

16 here, we are in the green here, but we are in the red as far

17 as significant events.

18 That is really what I am trying to get at, you

19 know, knowing that what you are doing has a direct effect on

20 events in the plant, because otherwise you can train people

21 and that could be a metric. You can have seminars, and that

22 can be a metric. In the end, if the plant doesn't perform,

23 that is the ultimate metric, is it not?

24 MR. T. O'CONNOR: Yes, it is.

25 CHAIRMAN JACKSON: What I am trying to get at is

1 trying to understand how the particular performance metrics
2 that you are putting into place track to what seems to cause
3 the significant events.
4 MR. KEISER: In one sense, the chart, because it
5 is a pie chart, it is always going to have a hole.
6 CHAIRMAN JACKSON: That is why I am offering you
7 the opportunity to fill in those holes for me.
8 MR. KEISER: One point he had made earlier was
9 that the focus on the control room operators, which in this
10 terminology would be the NSO, you see that is the smallest
11 component on the chart. He is saying the activities
12 embarked on with the NSO's was successful, and embarking on
13 the same activities with a non-licensed operator would show
14 a change in that chart. We would use the chart as a
15 feedback.
16 CHAIRMAN JACKSON: It is too soon to know at this
17 point?
18 MR. KEISER: Yes, ma'am.
19 MR. PERRY: We are seeing some effects already and
20 one of them you just saw and we will show you another couple
21 of them. I would go back to the control room operators. We
22 track errors and mistakes they make by crew every month. We
23 analyze it or Tim analyzes it and looks at it and we are
24 doing the same thing in the non-licensed operators.
25 In fact, in the one particular area here with out

1 of service, we are doing that and found out what we did
2 wasn't good enough and we re-approached the problem and put
3 in different corrective actions and did make a measurable
4 effect. You can see that on the next chart, I believe.
5 CHAIRMAN JACKSON: I guess what I am trying to say
6 is you are looking at, for instance, you mentioned crew
7 performance. Are you able to track the occurrence of
8 certain significant events to certain performances or lapses
9 of performance on the part of crews of non-licensed
10 operators?
11 MR. PERRY: Yes.
12 CHAIRMAN JACKSON: That is what I am trying to get
13 you to talk to me about. It is those that you feel that are
14 being addressed by the various things that you delineated
15 earlier, to be tracking in fact whether by having this set
16 of improvement activities, whether that has direct impact
17 first on the behavior that you feel links to the significant
18 events, and separately on the occurrence of the significant
19 events themselves. You are actually doing that tracking?
20 Those are your ultimate performance metrics?
21 MR. T. O'CONNOR: Yes, Chairman Jackson.
22 CHAIRMAN JACKSON: All right. Thank you.
23 MR. T. O'CONNOR: Slide 14, please.
24 [Slide.]
25 MR. T. O'CONNOR: This is another target measure.

1 We had an expectation of being less than or equal to one out
2 of service event by April 30 of this year. As you can see,
3 we have seen a significant reduction and we had one month
4 where that was achieved. However, we did not achieve it in
5 April. Therefore, we are not considering this a success at
6 this point.
7 Your comment earlier about non-licensed operators
8 and are we tracking events, this is an example that I used
9 in order to formulate what types of performance training we
10 should be looking at in evaluating, to change the behavior
11 and practices of our people. At this point, we are seeing
12 success, at least in this area.
13 Next slide.
14 [Slide.]
15 MR. T. O'CONNOR: In the area of operations self
16 assessment, there has been a significant effort to develop
17 and implement ongoing self assessment programs within the
18 Operations Department. This did not exist 12 months ago.
19 Some of the items that you see below in the slide are just
20 specific focus areas that Dresden operating-wide managers
21 are doing on a routine basis.
22 We are finding weaknesses and the most recent one
23 that has been performed within the last two weeks was in the
24 area of the out of service program, specifically because it
25 has been an area of weakness, and we made substantial

1 changes in the late February time frame, and we wanted to
2 measure effectiveness at this point.
3 Also, during that particular assessment, we
4 involved our bargaining unit employees to participate with
5 that evaluation, so they could get a better appreciation and
6 sense of what we are trying to accomplish.
7 CHAIRMAN JACKSON: How did that in fact go?
8 MR. T. O'CONNOR: It went very well. I think that
9 in general they saw things from a different perspective than
10 previously.
11 CHAIRMAN JACKSON: Have you seen any change as a
12 consequence in performance?
13 MR. T. O'CONNOR: I'm not sure I understand your
14 question. The operators -- in the individuals, yes. As a
15 collective group, it is a little early to tell yet.
16 The next couple of slides will be in the area of
17 station human performance. Slide 16 is personnel error
18 LER's. We had a specific target by April 30 for the first
19 quarter of this year to be at zero personnel error LER's.
20 We did not make this particular goal.
21 Next slide, please.
22 [Slide.]
23 MR. T. O'CONNOR: This slide is a station event
24 free clock, as we call it. It is days between events. This
25 is something that was generated at Dresden Station. It is a

1 relatively new measure and it is something that our other
2 ComEd stations are also using.
3 We had a specific target to be at 40 days between
4 events. To date, we have not reached that particular goal.
5 We are at about 25 days at this point from the last event.
6 Our top so far has been about 31 days.
7 This is a very challenging and aggressive goal for
8 our people. I'd like to point out that many items that are
9 included in this are a very low threshold of issues. Some
10 can be out of service issues. Some can be material that was
11 found outside the protective area, items like that. These
12 are not all considered to be significant safety issues.
13 Next slide, 18.
14 [Slide.]
15 MR. T. O'CONNOR: I'd like to talk a little bit
16 about radiation protection. The slide you have before you
17 simply points to historical representation of the history of
18 Dresden over the last 12 years. Dresden Station is showing
19 an improving trend in collective radiation exposure for the
20 station. However, we are still in the fourth quartile by
21 comparison to the industry. Much work needs to be done in
22 this area.
23 CHAIRMAN JACKSON: How far are you away from the
24 industry mean?
25 MR. T. O'CONNOR: I'm sorry. I don't know the

1 exact value. Steve?

2 MR. BARRETT: Chairman Jackson, I believe we are

3 about --

4 MR. KEISER: For BWR's, the first quartile is

5 around 250 man Rem, 225.

6 MR. BARRETT: Chairman Jackson, we are about 175

7 person Rem per unit away from that. This year, if we meet

8 our goal, we will move up to the top quartile of the bottom,

9 still poor performance, but we are balancing -- improving

10 the radiological condition against exposure. We are

11 cleaning up a lot of rooms that is taking a lot of person

12 Rem to do.

13 CHAIRMAN JACKSON: You have a special project or

14 focus on that; is that correct?

15 MR. BARRETT: Yes.

16 MR. T. O'CONNOR: Next slide, 19.

17 [Slide.]

18 MR. T. O'CONNOR: Another specific target that we

19 had set for ourselves for April 30 was to be less than or

20 equal to 25 contamination events. We have achieved that

21 goal. We had 17 to date. Again, you can see the historical

22 performance of Dresden. The last couple of years are

23 showing a decreasing trend.

24 In the area of radioactive material control, in

25 late 1995, there was identified material that was not

1 properly controlled, which Dresden Station personnel
2 essentially shut down the site and did a complete survey of
3 the plant, utilizing personnel from other stations as well.
4 The collective sum of items that were identified
5 was in excess of 450 items. A significant effort has been
6 put in place with the use of a variety of levels in the
7 organization and as pointed out, a multi-discipline team, to
8 implement corrective actions to change that particular
9 trend.
10 There are continuing sweeps that are in progress.
11 That was one of the corrective actions in order to be
12 proactive and to assure that the corrective actions that we
13 have implemented are achieving the results that we expect.
14 To date, we have seen a 95 percent reduction in items that
15 in the past were found not properly controlled.
16 CHAIRMAN JACKSON: Let me ask you a question,
17 going back on this whole subject of station exposure history
18 and the distance from the goal. Have you identified some
19 top area or items or areas or things you must do to go down
20 by 175 person Rem? What do you have to do to get there and
21 how low do you think it is realistic for you to expect to be
22 able to go?
23 MR. BARRETT: I forgot to introduce myself last
24 time. I'm Steve Barrett. One of the big things that we
25 definitely have to do is improve the radiological material

1 condition. We have some rooms -- we have a target of worse
2 areas in the plant. We have recently taken on the reactor
3 building equipment drain tank room. We took over 15 person
4 Rem to restore that. The other major area is in the area of
5 refueling outages. We have to do shorter outages and less
6 re-work. We will fall more in line with the rest of the
7 industry.
8 CHAIRMAN JACKSON: That is not an unrealizable
9 goal for you?
10 MR. BARRETT: I do not believe it is an
11 unrealistic goal for us.
12 COMMISSIONER DICUS: Do I understand you are
13 assigning the responsibilities for the high exposures on
14 prolonged outages and contaminated areas that people were
15 working in?
16 MR. BARRETT: We have taken a very aggressive
17 stance in putting in lead shielding. You may recall, we re-
18 posted the plant from 5 millirem per hour to 2.5 millirem
19 per hour. Our people realized that they were standing in
20 what we would consider higher dose rates than they should
21 be. We still have maintained that. We have put up a lot
22 more lead shielding and we are getting a lot more
23 cooperation from the workers moving in and out of radiation
24 protection areas much faster than they did in the past.
25 We have established cameras in the steam sensitive

1 areas, where before we had sent operators in to look for
2 valves. We have done a lot in that area as well.
3 We do have a high source and Preston will talk a
4 little about zinc injection that we are doing and
5 replacement of the reactor water piping.
6 MR. PERRY: There are a couple of specifics that
7 we mentioned to you when you were at the station in
8 December, that we had at the beginning of 1995, 82 hot spots
9 and we had eliminated 42 of them and were after the rest of
10 them. I was particularly impressed that the insulation that
11 we have around the reactor recirculation piping in our dry
12 well, we put lead blankets inside this insulation so that it
13 provides shielding and it has knocked down the radiation
14 levels in the dry well during outages considerably.
15 We took a pretty good sized dose to do that, to
16 make that installation the first time because it is very,
17 very heavy to lift this. It will have a long term
18 beneficial effect.
19 We made the modifications in Unit 2 this time to
20 add zinc, pacified zinc, and that should reduce the amount
21 of cobalt activity we see in the plant as well.
22 We are putting a big effort in this area.
23 MR. KEISER: Dresden has a high source term and a
24 compact design, and we couple that with our material
25 condition items, it makes it very difficult for us to make

1 dramatic improvement in radiation exposure where we see any.
2 CHAIRMAN JACKSON: What is the source of your high
3 source term?
4 MR. KEISER: It is years of operation.
5 CHAIRMAN JACKSON: There are things that in the
6 end, you don't know that you will ever be able to totally
7 eliminate, is that what you are telling me?
8 MR. KEISER: That's correct.
9 MR. T. O'CONNOR: In summary, the plant material
10 condition is improving. That is demonstrated by our
11 reliable run and the regaining of confidence that our
12 operators are having by the plant responding as expected.
13 Step change has been achieved in the behavior and
14 the practices of our operators in the control room.
15 However, as I said before, we still have work to do in order
16 to gain the same results with our non-licensed operators.
17 I believe in self assessment, as a means for
18 essential continuous improvement, and we do have processes
19 in place that are functioning that have not been in the
20 past, our department line managers own those processes and
21 they are actively involved, because that is where true
22 change takes place.
23 My focus is on the leadership of driving
24 accountability down to the first line supervisors and the
25 worker level, coaching them and developing to the same

1 standards that I hold myself to and the expectations are a
2 key focus for me, and I believe that is how we will sustain
3 long term change at Dresden.
4 Thank you. Preston Swafford will now speak on
5 material condition.
6 MR. SWAFFORD: Thank you, Chairman Jackson,
7 Commissioners. My name is Preston Swafford. I'm the
8 Maintenance Superintendent at the Dresden Station. I am
9 responsible for all craftsmen on-site. I have been with
10 ComEd for approximately five months. Prior to Dresden, I
11 have worked with the management teams associated with
12 turning around three other watch list nuclear power plants.
13 I would like to share a few observations about the
14 personnel at Dresden today.
15 Similarities do exist with those other three
16 stations at their point in time where change began to occur
17 rapidly. The personnel are recognizing that there are
18 problems at Dresden. They are beginning to report these
19 problems as well as acting on them more aggressively.
20 The energy level is rising in both the management
21 and bargaining groups. This increase appears to be coming
22 from the energization of the first line supervisors. They
23 are responding to the responsibility and accountability
24 being given to them.
25 The skill levels within the Maintenance

1 Department, however, is below the industry average. This is
2 recognized by the management team as well as many of the
3 craftsmen themselves.
4 The individuals are expressing sincere interest in
5 turning this around. It is up to me to facilitate this
6 improvement.
7 Next slide, please; 22.
8 [Slide.]
9 MR. SWAFFORD: In 1996, Dresden had a focus to
10 significantly improve the material condition at Dresden. We
11 will do this through improving the work management process,
12 through improving the engineering support to those
13 processes, and by reducing re-work.
14 Next slide, please.
15 [Slide.]
16 MR. SWAFFORD: Recent key material condition
17 accomplishments. Three of the ten worst plant areas cleaned
18 by April 30. We met this goal. We took the Unit 3 reactor
19 building equipment drain tank room, as one example, and
20 removed 39 bags of trash from this particular room. We
21 reduced overall dose rates through de-conning and
22 hydrolysing and other maintenance activities from 2 to 400
23 MR general area down to 20 to 60 MR general area. We have
24 repaired equipment in that room that had not worked in many,
25 many years.

1 The Unit 3 high pressure coolant injection room.
2 We placed into model space. This room is now considered
3 fully functional for operations. They can do all activities
4 they need to do in their street clothes in this particular
5 area.
6 The Unit 2/3 acid-caustic area is another area on
7 both turbine buildings, where abandoned equipment had been
8 left in place for quite some time. We removed all that
9 equipment and the hazards associated with that equipment.
10 CHAIRMAN JACKSON: There is no more abandoned
11 equipment?
12 MR. SWAFFORD: There is no more abandoned
13 equipment in that particular area. Now, we have returned it
14 to near model space as well and Operations for the first
15 time can get in there and operate any valves that may be in
16 that particular area.
17 We also completed the Unit 2 core shroud repairs.
18 The Unit 2 reactor water clean up piping and heat exchanger
19 modification was completed. This entailed removing heat
20 exchangers and other associated piping that were
21 significantly contaminated and significantly degraded.
22 Operations now can operate that equipment in a manner they
23 have never been able to do or at least not for quite some
24 time.
25 [Slide.]

1 MR. SWAFFORD: In addition, next slide, 24, we
2 installed the Unit 2 zinc addition modification. This was
3 just mentioned briefly. The intent of zinc is to create a
4 pacification layer on the piping and slough off Cobalt 60,
5 thus reducing station exposure. We are taking it one step
6 further and we are going to be using depleted zinc to again
7 reduce the Zinc 65 component and again reduce overall
8 station exposure.
9 We completed the Unit 2 station blackout
10 modification. The other part of this is tied to Unit 3 and
11 that will be completed in the Fall.
12 The 89-10 effort is complete on Unit 2, with the
13 exception of three valves that we need to dynamically test.
14 These valves will be done in June, on the next scheduled
15 high pressure run.
16 In addition, the Unit 2 feed water reg valves and
17 control system were upgraded as mentioned earlier.
18 Next slide, please; 25.
19 [Slide.]
20 MR. SWAFFORD: Work management improvements. We
21 are now successfully running the 12 week rolling schedule.
22 INPO has just exited last Friday, coming in to specifically
23 look at this area for us. They commented saying that the
24 process is functioning. However, there is much tuning to be
25 done.

1 This is not a strength at our unit, but I do
2 believe that the processes in place now will withstand the
3 time. We now need to understand them better at all levels
4 in the organization to get them implemented.
5 CHAIRMAN JACKSON: I was told you had somewhat of
6 a problem with work package procurement. Is that still an
7 issue?
8 MR. SWAFFORD: We have some weaknesses in that
9 area as well as some others. The quality of the work
10 packages, we are still struggling with. One of our
11 strategies there is to walk down the packages by the end
12 users, the craftsmen, and try to identify the problems two
13 weeks ahead of time. We are improving that area. We are
14 probably only averaging about three days ahead of time. We
15 need to get that to a full two weeks so the team has an
16 opportunity to respond, but we are moving to that end.
17 Another area is the weekly schedule adherence
18 accountability meeting. This is an important meeting to me.
19 This is a meeting I chair, which I invite my first line
20 supervisors to this meeting. In this meeting, they go over
21 all job activities that did not work per the schedule the
22 prior week. In addition, we invite key people that support
23 the process, in the Operations organization, Systems
24 Engineering organization, Procurement and others are there
25 to hear the barriers put in front of the first line

1 supervisors in getting their work done.

2 By having this meeting on accountability, I am

3 able to flush out those barriers and create action plans

4 necessary to resolve them.

5 Another area we attacked was the backlog. Our

6 approach to meet the April 30 goal was to divide that

7 backlog by system to individual first line supervisors.

8 That way, each individual again had accountability and a

9 measurable matrix, if you will, to their success.

10 CHAIRMAN JACKSON: My understanding is that there

11 is a level at which there may be "hidden material" condition

12 deficiencies. Do you feel that you really have your hands

13 or what are you doing to get your hands around the full

14 scope of the work that might be out there, that you have

15 these backlog items that are obviously based on identified

16 deficiencies. The question becomes how do you know when and

17 how to go about getting your hands around the full scope.

18 MR. SWAFFORD: I will address that in a second in

19 another slide, but to take part of it on right now, I

20 recognized when I first showed up in December, and this goal

21 was already made of 950, that we needed to understand what

22 the definition of the backlog was.

23 Clearly, there are more items in the backlog than

24 the goal was of 950. We understand that. The goal was made

25 on one particular bin called "corrective maintenance non-

1 outage WR's," so instead of changing that, we kept that
2 definition the same and tried to pull that all the way to
3 April 30, measuring that one, and leaving some of the other
4 definitions alone, but we would also have metrics for those
5 that we are tracking against as well.
6 CHAIRMAN JACKSON: How many such others with other
7 definitions?
8 MR. SWAFFORD: In the category of non-outage
9 corrective maintenance, I would say our number is about
10 1,530, of which that is broken down into two major areas.
11 One is the one number we are tracking, which is the
12 corrective maintenance non-outage power block WR's, and the
13 other one is what we call a terminology of an AR. These, of
14 which there are roughly 649, those particular items are
15 minor in nature to fix. They may have significance in terms
16 that they are corrective maintenance and they are power
17 block, but I do not need to organize the entire planning
18 process and spend all the dollars and time in planning that.
19 We worked those with a team called our WIN team,
20 work it now team. In order to continue to address that
21 number and reduce it as well, we have created a second WIN
22 team, and our first WIN team has been very successful. They
23 have reached somewhere around 120 AR's a week, give or take
24 a few, which is right up there with some of the plants with
25 benchmarks in terms of Peach Bottom and Brunswick.

1 They are fairly effective.

2 CHAIRMAN JACKSON: I guess the question becomes,
3 you know, there is always the incoming at the same time.
4 You have a work off rate. Whether you make progress also
5 depends on what comes in.

6 MR. SWAFFORD: I have another slide that may help.

7 CHAIRMAN JACKSON: Okay, I'll wait and let you
8 talk.

9 MR. SWAFFORD: To finish with this slide, the work
10 week manager de-brief with senior managers is another key
11 aspect. We have now currently six work week managers, fully
12 functioning. These people are empowered. We had them
13 before but frankly we didn't give them all the
14 responsibility and accountability and the tools to be
15 successful.

16 One of the obligations we have as senior managers
17 is to sit down with these people and explain what our
18 expectations are. We meet with them twice a week, Tim
19 O'Connor, myself and the work control superintendent, and
20 that is as much a part of mentoring the individual as it is
21 to actually understanding his problems and what is going on
22 within the schedule that week.

23 Another area is in the improved licensing
24 condition for operation procedure. As we went into the 12
25 week rolling schedule, have begun on our journey to take

1 some on-line maintenance activities. The very first one we
2 did was on the 2-3 diesel generator, of which we critiqued
3 that afterwards and out of that came some procedure changes
4 we thought were appropriate and we made them.
5 Next slide, please.
6 [Slide.]
7 MR. SWAFFORD: The non-outage corrective
8 maintenance backlog. As you can see, we did meet the goal.
9 Currently today we are at 890. I am going to move onto a
10 couple more before I get into your question. This one
11 doesn't do that.
12 Next slide, please.
13 [Slide.]
14 MR. SWAFFORD: In preventative maintenance and
15 surveillance overdue, we had a commitment by April 30 to be
16 at zero. We in fact made that goal. This was an ambitious
17 goal, scheduling of over 100 a week at times was necessary
18 to be able to meet this. I can say that the Engineering
19 organization put in place to take this on did in fact meet
20 this goal and it was a strong effort on their part.
21 Next slide, please.
22 [Slide.]
23 MR. SWAFFORD: On time schedule starts. We had a
24 goal of April 30 to be at 85 percent of starts within one
25 hour of scheduled start time. We did not meet that goal.

1 However, we did meet that a couple of times. After we made
2 it a few weeks, we found that we dropped off. Those drop
3 offs were tied to the error free start up of Unit 2 that
4 took operators away from the work control process and thus,
5 some maintenance activities did not go per schedule.
6 I would like to announce that we did this last
7 prior week make 87 percent and I believe we are moving back
8 up again in that area.
9 [Slide.]
10 MR. SWAFFORD: The next slide, 29, is the one that
11 I think might answer your question. This particular slide
12 of workoff rates is not in the traditional bins, if you
13 will, of the 950 that we are trying to meet by April 30.
14 This is an identification of total problems out in the
15 plant. They may mean housekeeping. They may mean
16 corrective in nature. It could be whatever.
17 In there, you can see that from the last quarter
18 of last year to the first quarter of this year, we have had
19 a significant number of AR's generated, which means people
20 are out there identifying problems. The systems engineers
21 have been doing system walk downs, identifying issues, as
22 well as a concerted effort on Operations' part to get out
23 there and identify the problem.
24 This became particularly complex for me as a
25 Maintenance Superintendent responsible of getting the

1 backlog down to 950, as they are doubling their efforts in
2 identification. I have to do more than double my effort to
3 work them off.
4 As you can see, we in fact in maintenance did
5 that. One other thing of note is the fact that the prior
6 quarter's performance, the last quarter, about a month and a
7 half of that period, we had over 1,000 additional
8 contractors on-site during the outage, that we did not have
9 in this last quarter. We started up Unit 2 with only
10 roughly around 250 additional maintenance contractors, as
11 opposed to 1,200 and something last Fall.
12 CHAIRMAN JACKSON: All AR's don't involve the same
13 amount of work.
14 MR. SWAFFORD: That's correct.
15 CHAIRMAN JACKSON: If you had to project how long
16 it is going to take you to really get this backlog down,
17 what would you say?
18 MR. SWAFFORD: We have a goal for the end of this
19 year to be at 800 in that one pile, that one bin of
20 corrective maintenance non-outage, and I expect to see a
21 significant increase in the rate of reduction in the other
22 column of AR, such that I have a goal of 500 in that area.
23 The end of the year performance for me would be
24 around 1,300, down from the 1,500. It would be more
25 aggressive than that but I have an outage in the Fall as

1 well, and typically in the outage, I go up 150 to 200 items.
2 I actually have to under shoot roughly around 650 to 700
3 before the start of that outage in order to have a chance at
4 the 800 at the end of the year.
5 CHAIRMAN JACKSON: If I were going to convert that
6 to some kind of number of weeks or man weeks to work things
7 off, what does it turn out to be?
8 MR. SWAFFORD: You are going to get me here.
9 CHAIRMAN JACKSON: You can give me the answer
10 later.
11 MR. SWAFFORD: Okay.
12 CHAIRMAN JACKSON: And calculate it as you are
13 going along.
14 MR. SWAFFORD: Thank you.
15 [Slide.]
16 MR. SWAFFORD: On the next slide, 30, maintenance
17 re-work. This relates back to the issue I started with, and
18 that is the skill of the craftsmen. This is directly
19 attributable to the knowledge base of my craftsmen.
20 Although this particular graph seems to have an appealing
21 trend to it, it is really not telling the story.
22 We have significant re-work problems at Dresden
23 and we have had significant components, too. It is not just
24 large numbers of small items. It has been roughly 25 to 30
25 significant items a month. This is of particular concern to

1 me and when I get into training, I will try to give you an
2 idea how I am addressing it.
3 CHAIRMAN JACKSON: Where do these fall,
4 electrical, mechanical, what?
5 MR. SWAFFORD: I would say the IM group is my
6 strongest performer. My construction group and my
7 mechanical is probably my worst performing, and my
8 electrical hovers between the mechanical area and the IM
9 area. We are not strong, I think, in three of the four main
10 groups.
11 We have had a fair number of EM issues, too, but
12 the number of work items they do per unit time is not as
13 many as the other groups.
14 [Slide.]
15 MR. SWAFFORD: Next slide, industrial safety
16 accident rate. This is another goal. We did not meet this
17 goal. We had a goal of .8. We are currently at 1.1. This
18 particular area, as you know, maintenance could probably
19 influence this more than any other group.
20 We have improved over time but we are
21 significantly above the industry. The technique we are
22 trying to approach now is where the plant manager is
23 chairing a meeting any time we have a recordable event that
24 affects our ISA rate. We meet with the first line
25 supervisor, who has a small committee of senior managers.

1 We sit there and we listen to the first line, understand
2 what happened, understand what the corrective actions are,
3 and understand whether or not he will be successful in
4 transferring that to the other groups and departments on the
5 station.
6 If it is not overly convincing, we send the
7 individuals back to get better prepared. We believe with
8 that type of heightened attention, we may start to attack
9 this issue.
10 [Slide.]
11 MR. SWAFFORD: Next slide, please. In the area of
12 maintenance training, we have completed the Phase I
13 training. This is something I believe we spoke to you about
14 six months ago.
15 Phase I was an example of understanding where our
16 fundamental skills were of our people and developing some
17 exams and testing methodologies to in fact prove where they
18 are at and find out the base knowledge level of the
19 individuals.
20 We did have some failures. We did have some
21 remediation and we did in fact remove their qual's and
22 disallowed some individuals from doing work in our power
23 plant until they got up to speed and could demonstrate
24 proficiency in their field.
25 In the area of Phase II, that I think will be our

1 next very proactive approach, is we had a heavy reliance on
2 contractors at the Dresden Station for years, and because of
3 that, we did not get some of the training and specialty
4 training to our fellow employees.
5 We are changing that. We are investing in our
6 individuals and we are going to start in June our very
7 first, if you will, specialization training. We are going
8 to do roto alignment of pumps, something that had been done
9 with contractors for many, many years.
10 I believe that by investing in these individuals,
11 this specialized training, we will be able to reduce the re-
12 work at the station. In addition, we are going to continue
13 to benchmark against strong industry maintenance training
14 programs.
15 Next page, please. In the area of maintenance
16 self assessment, this was not a strong point for us at the
17 station. We have currently completed our first self
18 assessment. It did involve some bargaining unit as well as
19 first line and management and maintenance staff personnel.
20 We chose to look at measurement and test equipment
21 and the results of the report were excellent. However, the
22 results of the findings were that we had significant
23 problems in the area of M&TE. It ranged from the database
24 being inaccurate to some of the personnel performing duties
25 in that not having up to date qualifications.

1 With that, we have taken some deficiencies and
2 placed them into our nuclear tracking system and we will be
3 completing the corrective actions to that to improve that
4 area.
5 Another area is in the area of weekly maintenance
6 coaching and assessment job overviews. This is an approach
7 where my general foremen level go out into the plant and
8 observe their work crews performing work and developing, if
9 you will, a critique, of how they are performing. After
10 that is complete, at the end of the month, I chair a meeting
11 where all of them are invited to one meeting, and they have
12 to describe the barriers and what they have seen out in the
13 plant.
14 I then take all the information at my disposal in
15 terms of problem deficiencies that were found, re-work
16 issues and all sorts of other data, to, if you will, counter
17 what they are seeing in the field. It is entirely possible
18 until we really show them how to observe out in the field,
19 they won't be able to be effective. This is a technique
20 that we believe will get them up to speed and make more
21 meaningful use out of their time in the plant.
22 We also perform management by walking around as
23 well as continuing to reinforce the maintenance workforce
24 standards.
25 In summary, the material condition at Dresden

1 Station is improving. The workforce is energized and wants
2 to improve. We need to sustain this continued improvement
3 and ensure plant equipment reliability.
4 Through reliable plant equipment will come the
5 rebuilding of confidence by our station operators in their
6 plant equipment and in their maintenance department.
7 With that, I would like to introduce Raj
8 Kundalkar, our Engineering Manager.
9 CHAIRMAN JACKSON: Let me ask you this question.
10 Given that even you admit that the skill of the craft is
11 still weak, even as you have these fairly aggressive
12 programs in place, should the Commission have comfort that
13 you have plants that are operating, that people are working
14 on, given the potential for events caused by maintenance or
15 equipment problems of various kinds, where you admit that
16 the skill of the craft, the people working on these
17 operating plants is not where it should be?
18 How do you give us comfort in that regard?
19 MR. SWAFFORD: One of the mistakes we were making
20 through the years is in some areas, we had some skilled
21 craftsmen, but through our process, we would not get them on
22 the right job, as an example. Even in those areas where we
23 had the qualities and the skills, we didn't get them on the
24 right job, thus, resulting in a lot of re-work.
25 Another example that was a large part of our re-

1 work was we allowed contractors to basically go unsupervised
2 with ComEd personnel. What I have done recently is I have
3 taken all contractors and have integrated them into the
4 crews and into the shops proper, so that I have my own
5 supervisors overseeing their work activities in the plant.
6 These two areas alone, by getting the right
7 workers on the right job as well as getting contractors
8 integrated, should ensure the minimum level if not a little
9 more than that, of being able to perform maintenance in
10 nuclear fashion.
11 We still have a way to go. We have some areas
12 where we have relied totally on contractors and we are
13 starting to train them ourselves. We will have to continue
14 to rely on contractors in those areas until we get our
15 people up to speed.
16 I think the answer is no, I am not afraid of the
17 overall skill level. It is just we are not where we need to
18 be.
19 CHAIRMAN JACKSON: I don't mean to pick on you and
20 it looks like Mr. Perry wants to jump in here, but let me
21 just repeat. To the extent that you told me this, but that
22 you still have significant re-work, which then naturally
23 raises the question about the skill or attention to detail
24 of whomever is doing the work, be it contractors or your own
25 people, whose skills you are trying to improve, and I

1 repeat, these are operating facilities we are talking about,
2 you know, how do we get a comfort level that somebody is not
3 going to cause something untoward that results in a
4 significant event?
5 MR. SWAFFORD: The PMT process is not a
6 particularly good answer, I don't think, but the PMT process
7 is our last barrier and that is a post-maintenance test,
8 which is our last barrier to ensure that before we turn that
9 equipment back over to Operations, that it in fact will do
10 its function. The quality of those PMT's are for the most
11 part laid out by the Operations staff, which is the users of
12 the equipment.
13 We are identifying the large majority of re-work
14 in the PMT stage or earlier. Therefore, I don't believe
15 when we actually turn the equipment over to Operations, we
16 are on a daily basis, if you will, challenging the
17 operators.
18 CHAIRMAN JACKSON: Do you agree with that, Mr.
19 O'Connor?
20 MR. T. O'CONNOR: Yes, I do. Preston is exactly
21 right. Our PMT process, although it does have some things
22 to improve, it does catch the issues that we need to assure
23 that the equipment is fully functional before we call it
24 operable, so that we are not putting our operators in the
25 kind of challenges -- the start ups here on the last two

1 units indicate and demonstrate that is working effectively.
2 CHAIRMAN JACKSON: What about operator work
3 arounds, however you define them? Whenever I ask that
4 question, somebody always says, well, it depends upon how
5 you define "operator work arounds." You define them. The
6 question is, you know, how many such are there and is that
7 number being reduced?
8 MR. T. O'CONNOR: There is a slide, Chairman
9 Jackson, that Raj Kundalkar will explain on operator work
10 arounds and where we are currently heading, if that is
11 acceptable, otherwise, I will try to answer.
12 CHAIRMAN JACKSON: I will wait. Mr. Perry, you
13 have a comment?
14 MR. PERRY: No. I was going to discuss where most
15 of the re-work comes from, and it is the testing before we
16 return it to operators, but they handled it very well.
17 CHAIRMAN JACKSON: You schooled them very well.
18 Thank you.
19 COMMISSIONER ROGERS: What is different about the
20 PMT process from what has been the practice in the past?
21 MR. T. O'CONNOR: One is we benchmarked several
22 other stations outside ComEd where a committed, dedicated
23 group of personnel from a variety of different disciplines,
24 Engineering, Operations and Maintenance, are now under one
25 collective group underneath our Engineering Manager, that

1 works closely with Operations. They now look at all the
2 different work packages, look at the surveillances, and look
3 at all the technical requirements in order to assure that we
4 meet operability to the fullest degree.
5 We have supplied from Operations three SRO's that
6 are full time to that particular group. That is
7 significantly different than we have had in the past.
8 Typically, it was relied solely on a work analyst type of
9 individual, to hope that he would get the right things, and
10 the screening process that would be done by our control room
11 personnel before they would actually call the equipment
12 operable.
13 MR. KUNDALKAR: Chairman Jackson, Commissioners, I
14 am Raj Kundalkar. I am the Engineering Manager for the
15 Dresden Station. I am one of the newer members of the team.
16 I joined the Dresden team in February of 1996.
17 Prior to that, I worked for the Florida Power and
18 Light Company for seven years and between 1992 and 1996, I
19 was the Engineering Manager at the Turkey Point plant, and
20 in that capacity, I was responsible for the engineering
21 team.
22 Today, I am going to summarize the results of some
23 of the key performance indicators. I am going to share the
24 results of the self assessment that we do in Engineering. I
25 am also going to show some examples of system performance

1 training and how we are using that information to identify
2 negative trends before they develop or come to surface.
3 Before I get to that, I will describe our efforts
4 and what we are doing to find out the hidden or latent
5 material condition problems. You had asked about this last
6 November and at that time, we were just starting the
7 project. We have recently completed the project and I will
8 summarize some of the results.
9 The latent material condition improvement project
10 was like the name says, go look for the hidden problems
11 before they come to you, implement appropriate PMT actions,
12 so that they do not become an issue.
13 We did this by assembling a team of very
14 experienced engineers from the industry, from General
15 Electric, Bechtel, Duke Engineering and also a team of
16 Commonwealth engineers, ComEd system engineering.
17 The approach the team took was review of the
18 systems' past performance, compare that to comparable
19 systems of comparable vintage in the industry, see how
20 failures in the past had been addressed in correcting some
21 of the past problems, do an extensive walk down of the
22 systems. Start with the operators, the systems engineers,
23 and also review the literature that is available from the
24 industry and the vendors to see if the recommendations and
25 the lessons learned over a period of a number of years have

1 been implemented in our plant components and systems.

2 We have completed review of 27 systems. The first

3 thing we did was to review all the observations to ensure

4 there were no operability concerns and that indeed was the

5 case.

6 The second thing we did was we listed each one of

7 these observations under the individual system headings, and

8 then looked across the systems to see if there was any

9 common element or problematic issue that we needed to

10 address and a review of that is listed on the next page,

11 slide 36.

12 [Slide.]

13 MR. KUNDALKAR: The review identified two specific

14 areas that we needed to pay attention to, we were not doing

15 the right type of preventive maintenance. We were not doing

16 the right scope of preventive maintenance or we were not

17 doing it at the right frequency.

18 In addition, even though we were doing some

19 preventive maintenance, such as vibration analysis,

20 thermography analysis, we were not effectively using the

21 results of these trends into the system performance trending

22 and taking appropriate corrective actions.

23 I will address how we are going to take care of

24 those in the next couple of slides, but let me go on.

25 The next group of observations the engineers made

1 was that there were a number of recommendations that we had
2 not implemented. The team identified that from the past
3 failures, we had not found an appropriate root cause for a
4 number of problems and we needed to address those in a
5 timely manner.
6 The team identified that we needed to have a plan
7 to deal with the obsolete equipment, such as the electronic
8 cards in a number of our control systems. We needed to
9 develop a plan such that even if the original equipment
10 supplier goes out of business or does not provide support
11 for these components, we should have an alternate plan in
12 place, and we are doing something about that.
13 CHAIRMAN JACKSON: Where are you with respect to
14 that? That could get to be a big issue.
15 MR. KUNDALKAR: Yes. In the case of the EHC
16 system, these components, GE has alerted us that we are on a
17 last time order situation and then we are looking into other
18 suppliers, to come up with comparable equipment or
19 comparable cards for replacement. I could not give you a
20 numeric measure.
21 CHAIRMAN JACKSON: You have identified alternative
22 vendors?
23 MR. KUNDALKAR: We have identified alternative
24 vendors, not in all cases, but a number of critical cases,
25 where we can go to and then initiate a process for

1 replacement of these electronic cards, if you will.

2 Other issues the team identified was we needed to

3 pay attention to operator work arounds, a number of historic

4 problems have resulted in operator work arounds. Later on,

5 I will describe the results of that initiative.

6 We needed to pay attention to temporary

7 alterations, which are again a result of some portions of

8 equipment not working like they should. We needed to pay

9 more attention to configuration control of the plant.

10 We are in various stages of implementing these

11 recommendations. The middle block, for example,

12 prioritizing these and scheduling these to implement in the

13 balance of 1996 and 1997, whether we can implement these on

14 an on-line basis or it will require an outage to make some

15 of these improvements.

16 CHAIRMAN JACKSON: Have you prioritized them in

17 terms of risk?

18 MR. KUNDALKAR: Yes. That is the first step the

19 engineers have done. The way we did that was the key system

20 engineers for individual systems sat down with a review team

21 and looked at the importance of each one of these

22 observations to bring the important ones to the surface and

23 we will then implement them in that priority; yes, ma'am.

24 CHAIRMAN JACKSON: None of them are such that you

25 feel the plant needs to shut down to do?

1 MR. KUNDALKAR: That is correct. None of those
2 have posed any outage concern or threat to safety of the
3 plant.
4 CHAIRMAN JACKSON: If I talk to you a month from
5 now and you have had some significant event, then none of
6 these things that you have identified will be a causative
7 factor?
8 MR. KUNDALKAR: Yes, our assessment is that none
9 of these will be the cause.
10 CHAIRMAN JACKSON: I am going to keep that in
11 mind.
12 MR. KUNDALKAR: Yes, ma'am.
13 COMMISSIONER ROGERS: Before you leave that, do
14 you see this as an one time project or are there some -- it
15 looks to me like some of them maybe things that you will
16 have to continue to keep your eye on and some things you can
17 deal with once and then they are done.
18 How do you see this latent issues finding process
19 going on in the future?
20 MR. KUNDALKAR: Even though the initial effort was
21 based on getting help from the industry experts, one of the
22 goals of that effort was we train our system engineers in
23 that process, so the next group of systems would be done
24 using in-house resources. Our first effort would be to
25 implement what we have found to date. We would plan, based

1 on the priority of the systems, approach the next group of
2 systems until we come to a stopping point.
3 Next slide, please.
4 [Slide.]
5 MR. KUNDALKAR: Long before this material
6 condition improvement project was completed, we recognized
7 that we needed to improve our preventive maintenance
8 program. Therefore, early last year, in 1995, we assembled
9 a team of senior engineers, from Maintenance and also
10 Operations personnel, and systematically started looking at
11 our PM program, using the performance centered maintenance.
12 There is a template that Commonwealth has prepared
13 that is being used and we use that template as a guideline
14 in establishing the right type of PM's on the right
15 frequency and also give guidance on preventive maintenance
16 and what kind of data we need to collect and how that needs
17 to be fed back to the system performers.
18 Our goal was to do approximately 14 systems by
19 April 30. We have completed a review of 30 systems and
20 implemented the recommendations for five of those 30
21 systems. This effort will go on. By the end of this year,
22 we plan to finish review of about 50 systems and I don't
23 remember exactly, implement an additional 15 or so. This
24 effort will continue in 1997.
25 CHAIRMAN JACKSON: When do you expect, based on

1 the systems you have identified so far, to bring the
2 implementation to closure?
3 MR. KUNDALKAR: The second quarter of 1997, and
4 I'm speaking from memory, is roughly the time frame where we
5 will have implemented all the recommendations of this PM
6 improvement project.
7 CHAIRMAN JACKSON: This is based on the 90 systems
8 you have identified?
9 MR. KUNDALKAR: Yes, ma'am.
10 As the number of the findings indicate, we have
11 made a substantial number of additions to the type of PM's
12 we need to do and also change the frequency as appropriate.
13 We will do a self assessment in July to see the
14 effectiveness of this process and if any corrections need to
15 be made to the program, we will make those.
16 [Slide.]
17 MR. KUNDALKAR: The next two slides are a look at
18 material condition from the operator's perspective. The
19 first one looks at operator work arounds. When the
20 equipment or systems do not perform their intended function
21 as designed, then the operators have to take some manual
22 action, additional action. That is what we call operator
23 work arounds. That places a burden on them, obviously not a
24 desirable condition.
25 In this initiative, working closely with

1 Operations and Tim O'Connor's operators, our goal was to
2 drive the known work arounds to a small number and also deal
3 with any new work arounds that get identified so the backlog
4 keeps coming down.
5 CHAIRMAN JACKSON: Is your definition of "operator
6 work arounds" the same as or consistent with that of the
7 best performers in the industry?
8 MR. KUNDALKAR: Yes, ma'am. In my mind, Turkey
9 Point is one of the best performing plants in the industry
10 and it was the same definition used there. In fact, our
11 level of threshold for saying something is an operator work
12 around is lower than what was used, in my experience.
13 MR. T. O'CONNOR: It also benchmarked two other
14 SELP I stations and that formed the basis of the definition
15 that we are currently using for our operators to identify
16 items that would be considered work arounds.
17 CHAIRMAN JACKSON: How does your goal compare to
18 using this consistent definition?
19 MR. KUNDALKAR: Again, my experience from the
20 other plant, approximately 25 work arounds are open. The
21 issue was not how many work arounds --
22 CHAIRMAN JACKSON: That's right, how significant.
23 MR. KUNDALKAR: How significant they are and
24 immediately addressed if there is an operator concern or a
25 safety concern. As long as you have established that, you

1 have a sufficient amount of time to implement corrective
2 action, as long as you schedule those and work them out on a
3 priority basis.
4 Our goal was by April 30, to bring the backlog
5 down to 30. In fact, we have met that goal and exceeded
6 that goal. As of April 30, we were roughly at 27. We have
7 established an end of year goal where we plan to be at 20 or
8 below. I expect to meet that goal.
9 [Slide.]
10 MR. KUNDALKAR: The next slide, again, examination
11 of material condition from the operators' perspective. The
12 control center control room properly functioning is an
13 essential part for an operator to be effective in his job,
14 and therefore, if any deficiencies are identified in
15 monitors, controls, they need to be resolved in a timely
16 manner and expeditiously, so the goal of this effort was to
17 work closely with Operations again, establish priority, and
18 with the help of Maintenance, work off and resolve these
19 control room deficiencies, such that the operators would get
20 a well functioning control room, indications as well as
21 controls.
22 Before we started up Unit 2, for example, we only
23 had two control room deficiencies open on that particular
24 unit. They were of low importance, low significance. One
25 was a temperature indication in a heater bay and another one

1 was re-calibration of a particular recorder. Operators have
2 complimented this effort, saying this is the cleanest they
3 have seen the control room in many years, in the recent
4 past.
5 We have established a new goal for the end of the
6 year to be 20, and I expect to meet that goal.
7 [Slide.]
8 MR. KUNDALKAR: I am on slide 40 now, and the next
9 slide is unplanned LCO/DATR days.
10 This is a major wait period for ourselves. This
11 is a measure to see the effectiveness of our PM program,
12 preventive maintenance program. If we are tracking the
13 performance of the system and then predict potential trouble
14 or a breakdown and before that occurs, take appropriate
15 corrective action, then we would not have to have unplanned
16 LCO's to take those corrective actions. If you are not
17 doing the right performance monitoring, then when the
18 equipment breaks down, we would have to enter unplanned
19 LCO's to take the corrective action.
20 DATR days are for smoke detectors, emergency
21 lights, things of that nature.
22 As the picture indicates, the heavy blue line is
23 the number of unplanned LCO's. It is definitely trending
24 down to a low number. The thin blue line, which looks like
25 a combination of the LCO days and DATR days, is again

1 trending down. Our goal of being less than three unplanned
2 LCO/DATR days per unit has been met and we will continue to
3 track this measure to again examine the effectiveness of our
4 PM and preventive maintenance program.
5 [Slide.]
6 MR. KUNDALKAR: The next three slides look at
7 performance of our safety systems and how we compare against
8 the industry average. We do that by comparing the
9 unavailability of a system, defined as the number of hours a
10 system is unavailable, divided by the total number of hours
11 it needs to be available.
12 The first picture looks at high pressure coolant
13 injection and isolation condenser system. The industry
14 average there is indicated by the red dotted line and the 12
15 month rolling average is shown by the blue line. We beat
16 that goal on both units. Even though we have beat that
17 goal, we are not satisfied with this performance.
18 As you see with the yellow bars, they indicate
19 some corrective actions of planned maintenance activities we
20 are to perform. We need to do more work in this area and I
21 expect to further improve the performance of the system in
22 the upcoming six months.
23 The next picture is performance of our low
24 pressure coolant injection and the shutdown cooling system.
25 Again, the red dotted line is the industry average. On both

1 units, we meet or exceed the goal we have set for ourselves.
2 The large blip you see in April of 1996 was because of a
3 planned corrective action for the LPCI system. That is why
4 you see that number.
5 The next picture is a similar look at our
6 diesel's. The industry average for unavailable days, and at
7 the end of April, we met that goal. The large bar you see
8 in the month of February was again a planned maintenance
9 overhaul of our diesel's. When we took a diesel apart,
10 there was some additional discovery items, so we decided to
11 take the extra time and fix the diesel's, such that they
12 would perform later on. We do meet our goal and we plan to
13 continue to monitor this goal.
14 The next picture is a look at temporary
15 alterations. These are temporary modifications when
16 equipment does not perform as desired or as designed. These
17 are temporary means of fixing them. In some cases, they are
18 also required to monitor certain plant parameters, so they
19 are not always to take care of band-aid type solutions.
20 These may be specific plant alteration which may require
21 some installation of instrumentation to monitor certain
22 types of performance.
23 Even though the picture shows the performance in
24 the year 1996, prior to that, which is not shown on this
25 curve, we have identified and resolved approximately 120

1 temporary alterations. These have been as a result of the
2 system engineers and Operations personnel taking a proactive
3 role in identifying them as part of their walk downs and
4 then Engineering either eliminating them or implementing the
5 appropriate modifications so you would not have to rely on
6 temporary alterations.
7 Again, our end of April goal was to be less than
8 10 non-outage temporary alterations and we have met that
9 goal.
10 We established a higher goal for the end of the
11 year, seven or less than seven temporary alterations.
12 [Slide.]
13 MR. KUNDALKAR: Next slide, please. This is an
14 example of how we are tracking the performance of our
15 systems, the performance of our systems is tracked and
16 trended using a number of measures, individual performance
17 criteria in terms of availability or unavailability, and
18 then tracking if there are any unresolved operator concerns
19 or industry issues.
20 CHAIRMAN JACKSON: Is this a monthly monitoring
21 system or quarterly?
22 MR. KUNDALKAR: Yes, ma'am, it is a monthly
23 measure and a similar type of window is created or set of
24 windows are created for all systems. These are examples of
25 the type of criteria or performance measures that are used

1 to see what is the status of that system and it is displayed
2 in a color format, going from green to red.
3 For example, in the control rod drive system,
4 there is a known industry issue about the SSPV's, the scram
5 solenoid pilot valves, and GE has identified that and we are
6 in the process of changing that material. Even though we
7 have planned and are in the process of implementing this
8 corrective action, the color of this window would remain
9 yellow until we have fully resolved the issue, which would
10 be sometime in June of this year.
11 CHAIRMAN JACKSON: You are changing them out or
12 changing them out again?
13 MR. KUNDALKAR: We are changing them out with
14 improvement of material that GE is trying to supply to us.
15 CHAIRMAN JACKSON: I thought there was an issue
16 having to do with going to some new material and then there
17 was some questions about the performance of that new
18 material.
19 MR. KUNDALKAR: The material we will be using to
20 change them out with will be the new improved material.
21 CHAIRMAN JACKSON: All right.
22 MR. KUNDALKAR: Again, I use this performance
23 indicator to assess where we need to apply more attention,
24 apply more resources and what kind of corrective actions we
25 need to take.

1 CHAIRMAN JACKSON: This is monthly, you said?
2 MR. KUNDALKAR: Monthly indicator. It is
3 displayed on the wall of the Engineering hallway. It is
4 very visible to not only me but the plant management and
5 used to question us as to how we are doing in those areas.
6 The next page is a hard look at ourselves, a self
7 assessment of all aspects of work that Engineering does.
8 Those are listed in that left-hand column. For each one of
9 those categories, there is a performance criteria
10 established. It is a numeric goal. Whether we meet or
11 exceed that goal determines what color window it would be.
12 We are doing well in the area of unplanned LCO's,
13 meeting critical surveillances, operator work arounds,
14 control room correctiveness.
15 In the area of engineering backlogs, the window
16 has been red, and I will address that in a minute. In the
17 case of significant events, actually these are personnel
18 errors, the window has been red because on the 9th of
19 February, there was an error made by an engineer in doing a
20 specific surveillance which was to examine the fuel
21 consumption rate for a diesel fuel oil transfer system. Our
22 criteria in Engineering is more stringent than the plant's
23 criteria. Our criteria is if an error is made, you need to
24 have 90 days of error free performance before you can change
25 the color of the window, and 120 days before a yellow window

1 can become white and 150 days before it can become green.
2 As we sit here today, the color of that window
3 would be yellow, and if we continue the same trend, I expect
4 we will see that change to white and green.
5 In the case of engineering backlogs, we do have a
6 large number of engineering items to resolve in the backlog.
7 They are a combination of things. They are not necessarily
8 modifications awaiting engineering resolution. In a number
9 of these cases, these are questions asked by Maintenance for
10 some specific type of information and in some cases, these
11 are types of activities you do to help construction, such as
12 scaffolding requests, shielding requests, insulation
13 requests.
14 At the same time, I do have a large backlog, and
15 with the additional resources that have been made available
16 to me, we are again prioritizing and scheduling resolution
17 of this backlog. We plan to bring it down by the end of
18 this year and by the middle of next year.
19 CHAIRMAN JACKSON: Where do you stand relative to
20 design basis documentation and FSAR issues?
21 MR. KUNDALKAR: Let me take the design basis
22 documentation first. We have an initiative to improve our
23 design basis documents. For this year, our goal was to
24 complete 25 systems, to create design bases for 25 systems.
25 We are on track to finish that work. We have completed, I

1 believe, approximately 23 systems, and by the end of the
2 year, we will have completed detailed design basis packages
3 for 25 systems.
4 In the case of FSAR, we have a number of
5 initiatives in place. Let me answer that in two parts. Our
6 FSAR was re-baselined in 1992/1993, and by that I mean all
7 the open outstanding issues, LER's, correspondence with the
8 Commission, and any other known issues, changes to
9 procedures, were incorporated in what we call a re-baselined
10 FSAR, and that was submitted to the Commission, again, based
11 on some interaction and comments we have had from you.
12 Recently, prior to Unit 2 start up, we undertook
13 an extensive look to examine if any of these backlog items
14 that are on the table have any impact on what is in the
15 FSAR, do they cause any deviation from the FSAR. We did not
16 only look at open engineering backlog items but also LER's,
17 are there PIF's, problem identification forms, open work
18 requests, where the work request has not been implemented,
19 and we have found there is some clean up needed in
20 approximately 30 to 35 items.
21 In addition, we need to do some modifications to
22 the plant, and I think it was on four specific occasions
23 where we implemented those modifications prior to restart of
24 Unit 2.
25 Starting now, to the end of the year, the

1 initiative we have now in place would look at all sections
2 of the FSAR, working closely with Operations. The combined
3 team with Operations would review individual sections to see
4 if the operating procedures are in sync with FSAR and if
5 not, then take appropriate corrective action.
6 Some additional resources have been made available
7 to us, just to address this issue.
8 In addition, our corporate engineering group has
9 done a self assessment of our activities prior to start up
10 of Unit 2, and also how we are planning to look at the FSAR,
11 starting now to the end of the year.
12 CHAIRMAN JACKSON: Do you feel that by the end of
13 the year, there won't be any issues?
14 MR. KUNDALKAR: I expect we will be in good shape
15 by the end of the year as far as FSAR compliance is
16 concerned; yes, ma'am.
17 Finally, we have strengthened the training for our
18 engineers. It was done as a result of self assessment again
19 and we benchmarked it against three plants in the industry
20 that are considered to have strong training programs. From
21 those lessons that we learned, we improved the quality of
22 our fundamental training, which is similar to what is given
23 to the operators. These will be items such as reactive
24 theory, thermodynamics, process controls. All that training
25 has been completed in the last year for all the engineers.

1 The second part of that training --

2 CHAIRMAN JACKSON: This is for the design as well

3 as the system engineers?

4 MR. KUNDALKAR: Design as well as the system

5 engineers and we also included engineering support

6 personnel.

7 The second part of that training was systems

8 training. We used the same modules the operators use for

9 their systems training, but then we increased the emphasis

10 on the design basis type information in those training

11 modules as opposed to the items that are normally memorized

12 by operators, check valve numbers and things like that.

13 From our perspective, it was more important to

14 emphasize the design basis information as far as the systems

15 training and the interrelationship and interaction within

16 the systems.

17 That training is on track, the portion that we

18 were supposed to complete by April 30 has been completed.

19 The last batch, as we speak, is finishing up their

20 examination. It is the last set of system engineers.

21 Our goal is to allow them to work inside the plant

22 only after they have met the training requirements and

23 successfully finished the training. In fact, I, myself,

24 took this training to orient myself in the plant and second,

25 to make sure that the training had adequate breadth and

1 depth in all the aspects of system related items that I
2 expected the training needed to have.
3 In the second phase of training that we plan to do
4 in the latter part of this year, we will address some
5 specialized areas, like changes to the modifications that we
6 have done, station blackout, diesel installation is probably
7 one example, and some specialized topics, such as terminal
8 performance, so we can further improve our efficiency of the
9 secondary site.
10 CHAIRMAN JACKSON: You plan to keep your PRA up to
11 date as you modify the plan?
12 MR. KUNDALKAR: Yes, ma'am; absolutely. That is
13 correct.
14 In conclusion, Chairman Jackson, Engineering's
15 role is to support Operations and Maintenance in the plant,
16 based on the performance indicators we have seen, safety
17 system performance indicators, as well as working off the
18 backlogs, start up of Unit 2 and the smooth operation of
19 Unit 3, demonstrates that Engineering is supporting the
20 plant like it should.
21 We are not only fixing the known problems, but
22 like I described, we are going after the hidden problems.
23 We are upgrading our PM program and preventive maintenance
24 program. Even though we are satisfied with the goals we
25 have reached on April 30, that is not the end of the job and

1 we have established the next level of goals to be met by the
2 end of the year, and with the same momentum that we have, I
3 expect to meet those by the end of the year.
4 MR. PERRY: Chairman Jackson, I have under ten
5 minutes to finish this.
6 Page 49, please. Again, this is a synopsis of
7 your letter. The first question I will address is the last
8 question on the page, will the improving trend continue.
9 We have been asked before about the performance at
10 Dresden, up and down. When we were here in November,
11 Commissioner Rogers and you, Chairman Jackson, asked the
12 same question in a slightly different form, and that was we
13 have heard all this before, why is it different this time.
14 That to me is just a restatement of the question.
15 I will answer this by approaching it the same way we
16 approach issues in the nuclear industry, and that is to
17 first try and identify the root causes and then we will
18 address the corrective action for the root causes.
19 I see two issues here. The first one is in years
20 past, Dresden has been unwilling to face the reality of
21 their performance. They just did not think they were that
22 bad. They would respond to external stimuli, either from
23 the NRC or from INPO, and put a program in place to deal
24 with it, frequently see an improvement in performance as a
25 result of that program, but when the stimuli was removed or

1 diminished with age, there was no inner drive at the station
2 to continue the program, and so it would frequently languish
3 and performance would tail off again.
4 The second issue is accountability or more
5 accurately, lack of accountability. Managers at Dresden
6 didn't hold themselves accountable, didn't hold their
7 subordinates accountable, their peers accountable, or their
8 seniors accountable. As a consequence, when a program did
9 languish, that was okay because I didn't feel accountable
10 for it.
11 Those two issues are the basis for what I view as
12 the root causes for the cyclic performance in the past. How
13 do you address that? What we have done, I think, is the
14 same answer for both of them, and that was Mike Wallace
15 addressed it in November when he said we were changing the
16 leadership, and we have changed the leadership at Dresden.
17 We have brought in new managers. In fact, six of
18 the nine managers, the top managers at the site, are from
19 other utilities, who were all in a turnaround situation. In
20 fact, five of the six individuals are currently in the same
21 position they were at the utility they came from. There is a
22 lot of experience there.
23 Go down one level into the middle managers, 21 of
24 those, 11 of those are new. All of them are from either
25 turnaround plants or plants that were performing well.

1 These individuals, when they see a mess, they
2 recognize it as a mess. They call it a mess and they deal
3 with the mess. They all were grown up with accountability.
4 That is how they achieved success in the places they came
5 from. They held themselves accountable and they held
6 everyone around them accountable.
7 These individuals here whom you have heard speak
8 today are representative of the people we have on the site.
9 Accountability is a way of life at the station, and you
10 heard us talk about how we are holding people who work for
11 us accountable and how we are trying to drive that thought
12 process down into the work organization, particularly
13 targeting the first line supervisors and encouraging them to
14 get it into their people in the workforce.
15 We are having some measures of success. We are
16 teaching our first line supervisors, both formally in a
17 classroom environment and informally, as you heard here, on
18 how to run their people, how to hold their people
19 accountable.
20 For example, we have given each of the first line
21 supervisors -- in fact, everybody who supervises anyone at
22 the site from me on down, we have given them four days of
23 training on how to deal with the bargaining unit, something
24 we haven't done well in the past. It has had an immediate
25 identifiable effect on the site that we as the first lines

1 and their superiors are now running and managing the
2 station.
3 Our approach to this issue is to get the first
4 lines to run the plant on a day to day and week to week
5 basis. I would predict that in about a year to a year and a
6 half from now, they will be indeed running the station and
7 there won't be anything that I or these other managers can
8 do that will turn them around because once they get the
9 taste for running it, they won't permit me to allow cyclic
10 performance at the station.
11 The second question was does our workforce
12 understand and implement our standards.
13 [Slide.]
14 MR. PERRY: If we turn to the next slide, the way
15 I approached this problem was to commission two assessment
16 teams. I asked my Plant Manager to put together a team of
17 line managers and I also asked my quality organization to
18 put together a team.
19 The line managers consisted of a middle manager
20 and six others who were divided between working level
21 individuals and first line supervisors.
22 The second bullet shows the areas that they looked
23 at, pretty wide view of what was going on at the site, and
24 the results are indicated under the "Results" bullet. The
25 first one was what the management team came up with and they

1 felt there was a strong understanding and implementation of
2 standards throughout the site.
3 Quite frankly, I think they missed the mark there.
4 I don't think we are as good as that. My personal opinion is
5 that although people understand and are aware of the
6 standards, they have not yet internalized it to where they
7 on a minute to minute basis with their hands, what they are
8 doing, can relate to those standards.
9 I think that the management team found a lot of
10 enthusiasm and energy to try and get better and they mistook
11 that for real implementation of the standards. I will give
12 some evidence of that a little bit later.
13 In fact, one piece of evidence is what the quality
14 organization found. I thought that was a much more balanced
15 look at the situation, and I will give you an example of
16 that, talking about self verification, which we like most
17 utilities in this industry in this country, use the START
18 program, which means to stop, think, then act and then
19 review what you see against what you expected to see.
20 What the quality organization found is that there
21 was widespread understanding and awareness of STAR. In
22 fact, they saw many examples where the supervision
23 reinforced those principles in pre-job briefs and tailgate
24 meetings and the like, but when they observed people in the
25 field, they found that outside of Operations, Operations

1 does a very good job at this, both in the control room and
2 outside the control room, but the other people in the field
3 had inconsistent application, which is what was in my mind,
4 that everybody understands it, but they don't know what it
5 means when they are going to do this particular item
6 necessarily.
7 It is an area that we are going to continue to
8 work on. I did bring one piece of anecdotal evidence, if I
9 may. In early April, we had a licensee event report occur
10 on Unit 2, which was shut down at the time, when we were
11 doing maintenance and had expected an alarm. The operator
12 was briefed on what to do, which was basically to silence
13 the alarm. He in fact pushed the wrong button. He pushed
14 the manual Scram button, which was an event that reset our
15 clock and also prompted our licensee event report.
16 Several days after that, in the Dresden Daily
17 News, which is published fairly independent of me, this
18 article appeared that he conjoled the Editor into including
19 in this, without any management prompting, this individual
20 is a reactor operator, bargaining unit individual -- I'd
21 like to read the paragraph to you.
22 "A few days ago, I placed Unit 2 through an
23 unnecessary transient. It was a mistake on my part. My
24 attitude toward mistakes has been that honest mistakes will
25 happen. My mistake was 100 percent avoidable. I now

1 realize that in itself makes it a selfish act on my part.
2 Like many of you, this job is my livelihood. I depend on
3 it. The success of this station will be determined by the
4 success of its people. I let all of you down by committing
5 this selfish act and I cost the station a black eye. The
6 concept of STAR when practiced might not catch an honest
7 mistake, but it will prevent avoidable ones."
8 He goes on for about five paragraphs explaining
9 the STAR process and winds up saying "In closing, I wish to
10 extend my apology to everyone here at the station."
11 This is at least one individual that fully
12 understands what the standards are we are trying to impose
13 throughout the site.
14 If we could go to the next slide, please.
15 [Slide.]
16 MR. PERRY: This is just a wrap up of all of the
17 performance targets that we said we were going to achieve
18 and I want to make some points here. The top six items
19 there, the goals we set for ourselves, were all significant
20 improvements over performance in 1994 and earlier. The
21 bottom two were new measurements that we created at the
22 site, so there is no history on those.
23 If you go down to the fifth one where it says zero
24 preventive maintenance past critical. "Past critical" means
25 beyond the grace period and usually 25 percent of the

1 interval that the PM is performed. We had over 150 of these
2 that were past the critical date.
3 In fact, when we went back, we decided that we
4 were going to make this applicable to all PM's, whether they
5 were beyond the critical date or not, and we had about 480
6 of those.
7 When we presented this to the preventive
8 maintenance coordination group that schedules and
9 coordinates these things, their response to us was
10 impossible, and yet we achieved it. The point of my giving
11 you that little story was just to establish the credentials
12 of these being tough goals, because that was a tough goal.
13 Similarly on the next page, we went through our
14 safety system performance and the industry's national
15 average, which is much lower than the goals that the
16 industry had set for itself, the industry is performing very
17 well in here, and for us to meet the national average as
18 good performance, and we are better than the national
19 average in all five of these.
20 Similarly, we discussed at some length the
21 Operations events. These goals that we set for ourselves
22 were much better than 1995 performance. We didn't achieve
23 them but the goals were tough goals.
24 Finally, on the last page, again, I want to single
25 out one in particular. It is the zero overdue corrective

1 actions. We hadn't prior to this point addressed that one.
2 In the Summer of 1995, we had several hundred corrective
3 actions that were overdue, beyond the due date. We put an
4 effort into that and did drive those down to zero by the
5 month of October. We set a goal, a perpetual goal, in
6 effect, to have zero overdue corrective actions. We wanted
7 to achieve that, to have none between October and April 30.
8 We didn't achieve that goal. We had four overdue
9 actions and we extended it beyond just corrective actions to
10 everything that was in our tracking system, the bulk of
11 which is corrective actions, but not completely.
12 We did over that seven month period, we closed
13 1,900 items, four of them were overdue. That means they
14 missed by one day. That is all it takes to get the bean
15 counted.
16 I think it is clear that, too, is a very tough
17 goal. We viewed all of these as tough goals. Just to
18 reiterate what I said in the beginning, to achieve 68
19 percent of them is clearly a good performance in my mind.
20 You can form your own opinion, of course.
21 I will finish up by saying the following; talking
22 to a reactor operator in a control room a month or so ago,
23 he made a comment, I've never seen that work before. It
24 struck a cord with me. I collected the never seen before's.
25 These are from the control room operators who have been at

1 Dresden for 10 to 15 years, and in that 10 to 15 years,
2 these individuals have never seen these things before.
3 The feed water control system working, three
4 element control and automatic. We are still on Unit 2 in
5 the middle of testing it, but we have been operating it
6 automatic in three element control for many months on Unit
7 3. Never seen before.
8 Two steam generator rejector and off gas trains
9 working on each unit. We have had one operating for as long
10 as any memory exists on this site and we have put both of
11 them back in operation.
12 Unit 2 reactor vessel drain, which has been
13 clogged up. We showed you the pictures when you were there
14 in December and probably some construction days. That is
15 now clean and operable.
16 The booster pump, feed water booster pump minimum
17 flow valve is now operable from the main control room area.
18 Operators have never seen that before.
19 The Unit 1 fuel storage pool. You can see the
20 bottom of the pool. Never been able to see that before.
21 Service water radiation monitors work properly.
22 Hydrogen analyzers, which monitor the hydrogen in the
23 containment, work properly. You already heard Raj say that
24 the main control room panels on Unit 2 have never been so
25 clean in terms of deficiency tags.

1 To provide a balanced view, after a week of this,
2 I decided to ask the operators what they had not seen yet,
3 and the predominant answer, in fact, almost exclusive
4 answer, is we have yet to see an outage performed for the
5 plant. That is what we have to work on.
6 That concludes my statement.
7 CHAIRMAN JACKSON: Thank you very much for a
8 comprehensive briefing. Do you have any further questions?
9 COMMISSIONER ROGERS: I have one question. I
10 thought this was very helpful and very informative. One
11 matter that nobody touched on was your IPE. We had a
12 briefing a few days ago on the status of all the IPE's. I
13 noticed that ComEd had several IPE submissions that didn't
14 meet the intent of the NRC's generic letter.
15 I wonder if one of you would care to comment on
16 the Dresden one, but Quad Cities and Zion also did not meet
17 the NRC's intent of the generic letter, and I wondered
18 whether you had something to say on those matters.
19 MR. KEISER: We have met with the staff on the
20 issue and have plans in place to resolve the discrepancy,
21 the differences, if you will, and resubmit. It has been an
22 agreed to plan with the Commission. It is actively on the
23 way. It has to do with how we treated the human performance
24 or human errors within the IP.
25 COMMISSIONER ROGERS: That is a common factor for

1 all of those?

2 MR. KEISER: Yes, sir.

3 COMMISSIONER ROGERS: Human factors?

4 MR. PERRY: Right.

5 COMMISSIONER ROGERS: You feel comfortable that

6 you can do that?

7 MR. PERRY: I think the commitment now for Dresden

8 is in June, as I recollect, that we will have it submitted.

9 MR. KUNDALKAR: June of 1996; that is correct.

10 CHAIRMAN JACKSON: Commissioner Dicus?

11 COMMISSIONER DICUS: One quick question. You

12 identified what you thought were two root causes of problems

13 that you have been having and some fixes for those. I was

14 curious, for this get well plan and for where you hope to

15 be, what do you think is the major obstacle you face?

16 MR. PERRY: Any time you try to change the culture

17 of people who have grown up in that culture for 15 or 20

18 years, it is a big effort to change people's mind about

19 things. I believe that the way you do that is with energy

20 and enthusiasm at the top and getting the first line

21 supervisors to accept their role as managing the site, which

22 I have described in some detail, and hopefully with

23 enthusiasm, that is where we are driving. That is our

24 obstacle, to get everybody to change how they grew up.

25 CHAIRMAN JACKSON: I have a question for you, Mr.

1 O'Connor. It is not one that CEO's like people to ask them.
2 Let me ask you this. You have various initiatives to deal
3 with deregulation and competition. Can you assure us that
4 these initiatives will not compromise your ability to
5 continue the improvement path you have started on at
6 Dresden, as well as to improve the performance of a number
7 of other plants?
8 I guess the question essentially becomes how do
9 you avoid such impact, given the resources that may be
10 required and given the amount that you have already put into
11 the plants this year, the figure that you talked about
12 earlier.
13 MR. J. O'CONNOR: Chairman Jackson, having read a
14 number of the things that you have said recently on this
15 subject of deregulation, I would just simply like to say
16 that we believe that to succeed in the competitive
17 marketplace going forward will require that we have safe and
18 reliable and high capacity factor nuclear power plants.
19 In order to get to that level, we are going to
20 have to apply the resources that are required. The two do
21 go hand in hand. We understand that. We have a Board that
22 is committed to do that. I think there is no
23 misunderstanding on the part of the people in the nuclear
24 line organization in being responsive to their requests,
25 that we are prepared to do that going forward.

1 CHAIRMAN JACKSON: I would like to thank you again
2 for briefing the Commission. Your presentation today has
3 provided the Commission with a clearer idea of the path that
4 you are following and the status of your efforts to improve
5 station performance at Dresden.
6 You appear to be on a progress path. I will say
7 that. I can't stress enough the importance the Commission
8 places on the need for continued progress and focused
9 management attention to prove to yourselves as well as to us
10 that your efforts are effective.
11 Everyone here practically is new in these key
12 areas. I know that Mr. Maiman is new in this position and
13 Mr. Swafford mentioned he had only been in the job for five
14 months, and Mr. Kundalkar mentioned he had been at Dresden
15 since February.
16 It seems that you finally are really dealing with
17 self assessment and accountability. It is important that
18 the response to the issues at the lower levels is clear.
19 I urge you not to rest on the fact that you have
20 gotten started, because really what you are doing is you are
21 struggling up the hill to get to industry norm's. I
22 remember when you were here before and I talked about that a
23 little bit. There were comments that, well, you have
24 improved but the industry is going on. Now we are entering
25 more and more a period of deregulation and competition.

1 It is kind of a colloquialism but it is true that
2 if you are going to play on the field, if you are going to
3 come play in the game, you have to play with the teams on
4 the field.
5 If you are struggling up the hill to get to
6 industry norm's, then that says that sustained performance
7 is important.
8 Just from some previous experience, I would say
9 that unless significant events and re-work is reduced, that
10 your chain of improvement is questionable. You have had a
11 focus on Dresden since my letter to you, but you do have the
12 rest of the system, which is also of concern to the
13 Commission. For example, Quad Cities. One issue, as an
14 example, is unknown material condition problems at other
15 plants.
16 I would just throw that out. Again, that is why I
17 asked you the question, Mr. O'Connor, and that Commonwealth
18 Edison has to devote sufficient resources to not only
19 maintain the trajectory at Dresden over a longer term than
20 we have had a chance to see so far, but to maintain the safe
21 operation and make step change improvements at the other
22 facilities that you have.
23 Based upon the Commission's concerns with Dresden,
24 the performance of Dresden and the other Commonwealth Edison
25 plants, we will be continuing to monitor closely the

1 performance of Dresden and your other plants and assess them
2 as we go along, because if the improvement trends are not
3 sustained, you have to consider yourselves, perhaps shutting
4 yourselves down to get your hands, if you can't do it --
5 that is why I asked the question about while the plants are
6 operating, and you have significant events, that you need to
7 just figure a methodology perhaps to shut yourselves down to
8 get your hands around the issue once and for all.
9 We can't have it go on. As I say, you appear to
10 be on an improvement trajectory. I will put it that way.
11 "Trajectory" means an initial velocity and a direction.
12 We have to see how it all comes out. Again, I
13 thank you for the comprehensive review that you have given
14 the Commission.
15 If there are no further comments, we are
16 adjourned.
17 [Whereupon, at 3:50 p.m., the briefing was
18 concluded.]
19
20
21
22
23
24
25

CERTIFICATE

This is to certify that the attached description of a meeting of the U.S. Nuclear Regulatory Commission entitled:

TITLE OF MEETING: BRIEFING BY COMMONWEALTH EDISON - PUBLIC MEETING

PLACE OF MEETING: Rockville, Maryland

DATE OF MEETING: Monday, May 13, 1996

was held as herein appears, is a true and accurate record of the meeting, and that this is the original transcript thereof taken stenographically by me, thereafter reduced to typewriting by me or under the direction of the court reporting company

Transcriber: Linda Viar

Reporter: Mark Mahoney

ComEd Senior Management Briefing of Nuclear Regulatory Commission

May 13, 1996

James J. O'Connor

Unicom/ComEd CEO

Introduction

- Nuclear is Vital to ComEd
- Resources
- Management Team
- Focus on Dresden
- Commitment to All Stations

J. S. Perry
Dresden Site Vice President

March 22, 1996 Letter Issues

- Performance results - are we executing plans and meeting goals? Have areas of weakness been addressed?
- Does our workforce understand and implement our standards? Is it skilled?
- Has materiel condition improved?
- Are we identifying and correcting deficiencies? (Focus on system reviews)
- Are necessary resources being applied?
- Will the improving trend continue?

Performance Results -
April 30, 1996 Goals

- Actions to be Accomplished
  - 23 of 23 met
- Numerical Performance Targets
  - 15 of 22 met
- Updated End-of-Year Goals Established

Timothy J. O'Connor
Dresden Operations Manager

Unit 3 Operation

- Important Upgrades Completed During Forced Outage in 1995
  - Redundant Off-Gas Train
  - Feedwater Level Control (Transient Conditions)
- Deliberate, Error-Free Startup
- Strong Unit Operation
  - > 180 Days Continuous Operation
  - > 90% Average Capacity Factor Since Startup October 1995

Unit 2 Outage and Startup

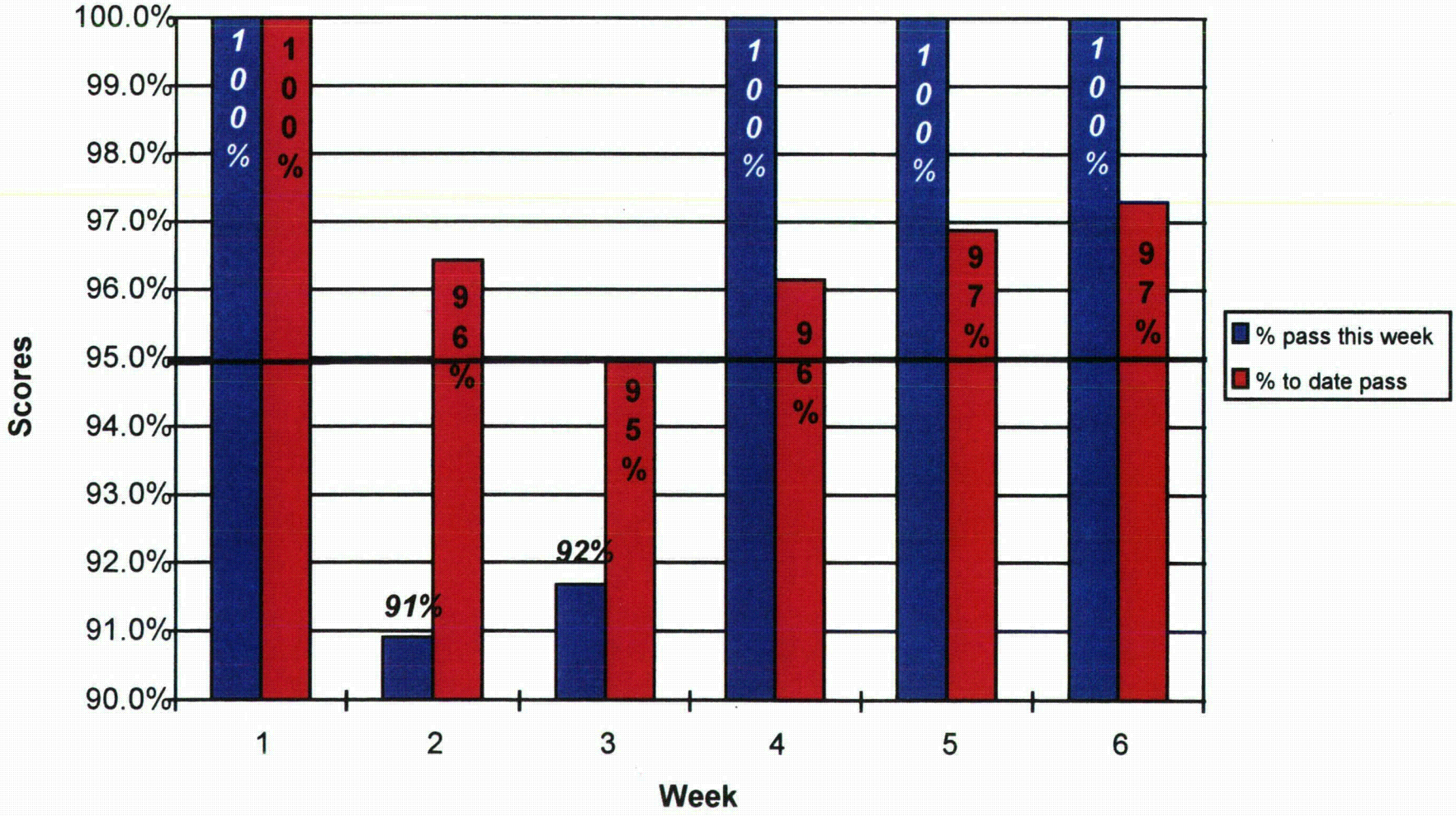
- Important Unit 2 Upgrades Completed
  - Will be addressed later
- Tightly Controlled Startup Process
  - System checkout ("fast cruise")
  - Startup plan
  - Just-in-time training; Control Room and Plant
  - Monitor watches - crew readiness
  - NSO (reactor operator) plant walkdowns
  - Senior management overviews
- Deliberate, Error-Free Startup

Operations Workforce Standards

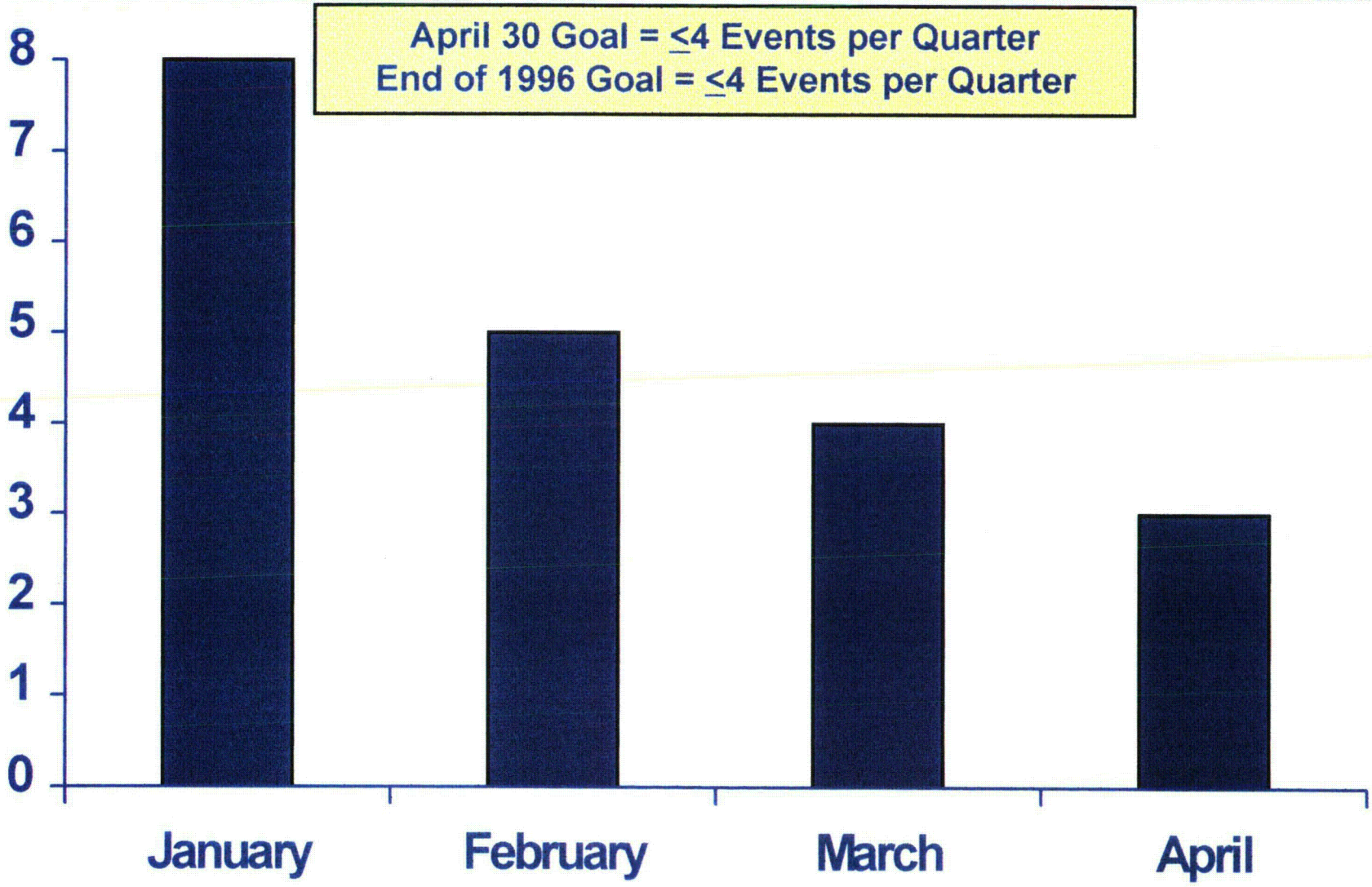
- Licensed Operators - Step Change
  - Standards/Expectations Upgraded
  - Routine Structured Situational Exams
  - Routine Industry Peer Reviews
  - Conservative Decision Making with BWRs
- Non-licensed Operators
  - Standards Training
  - Performance Training and Testing
  - Systems Training - Improved Depth
  - Conservative Decision Making Seminar

Operator Requalification Exam Pass Rates

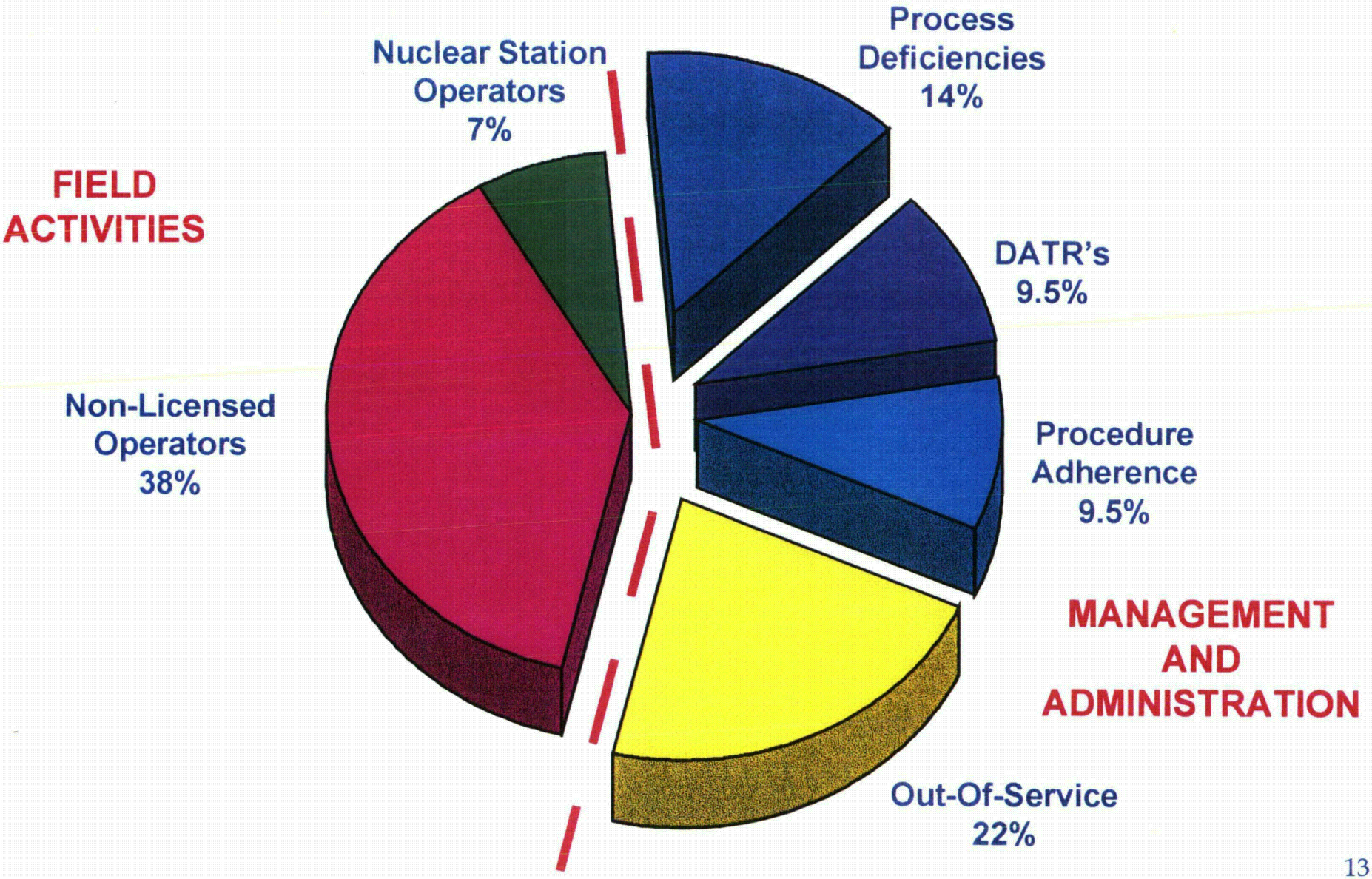
April 30 Goal = 95% Pass Rate



Operations Department
Level III Events

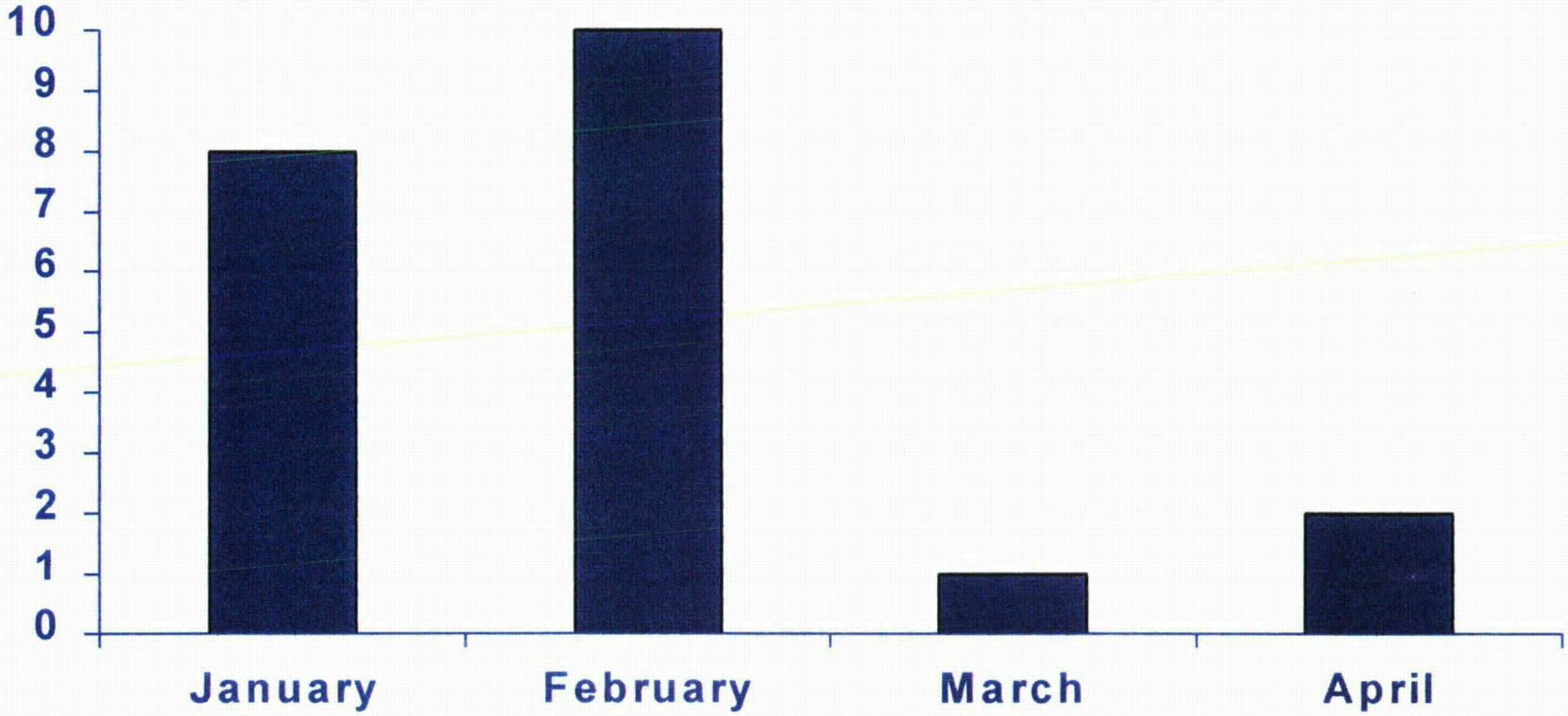


Operations Department Significant Events Breakdown By Area



1996 Out-of-Service Events

April 30 Goal = ≤1 Event per Month
End of 1996 Goal = 0 Events per Month

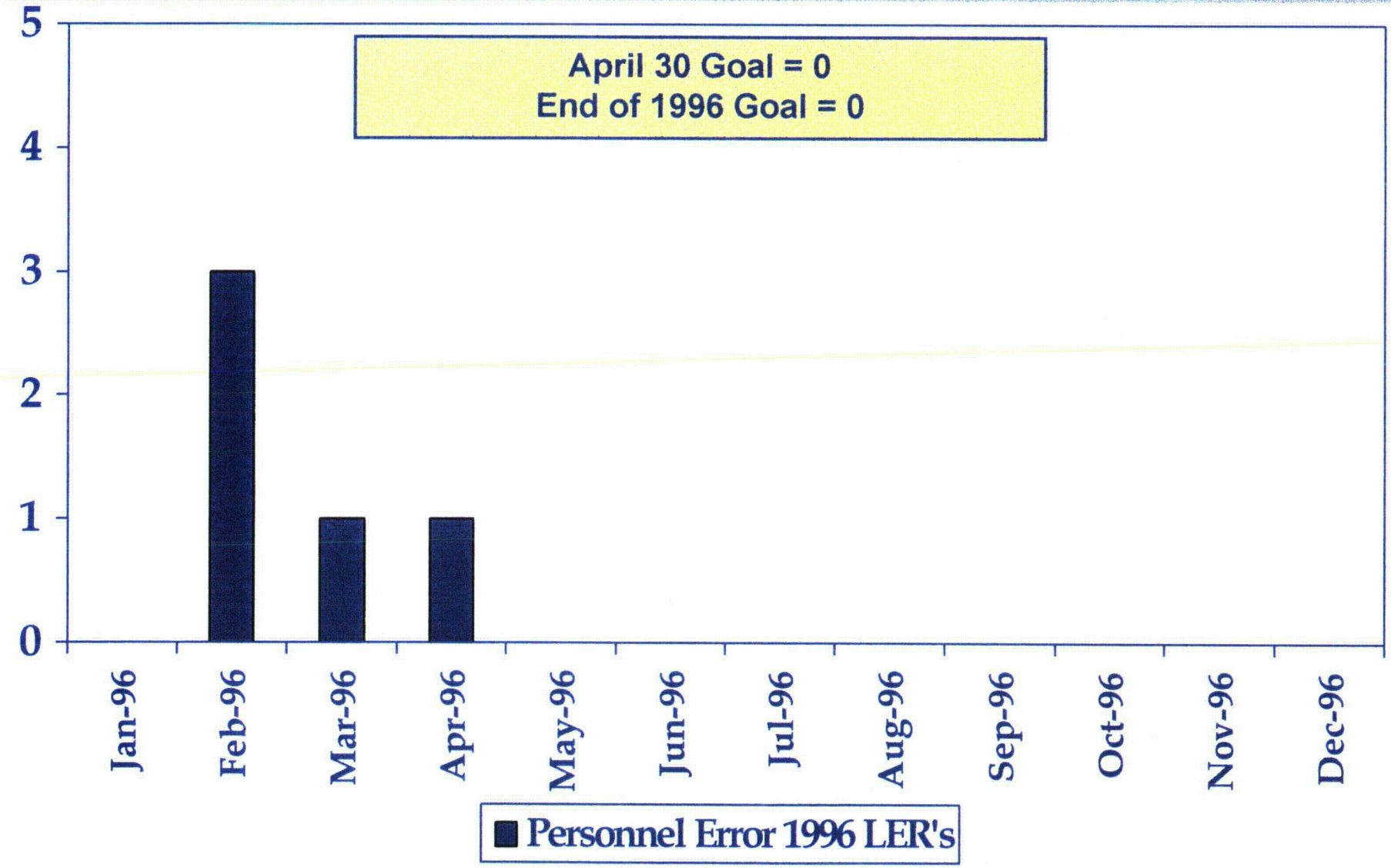


OOS Event = Problem found or created in the plant

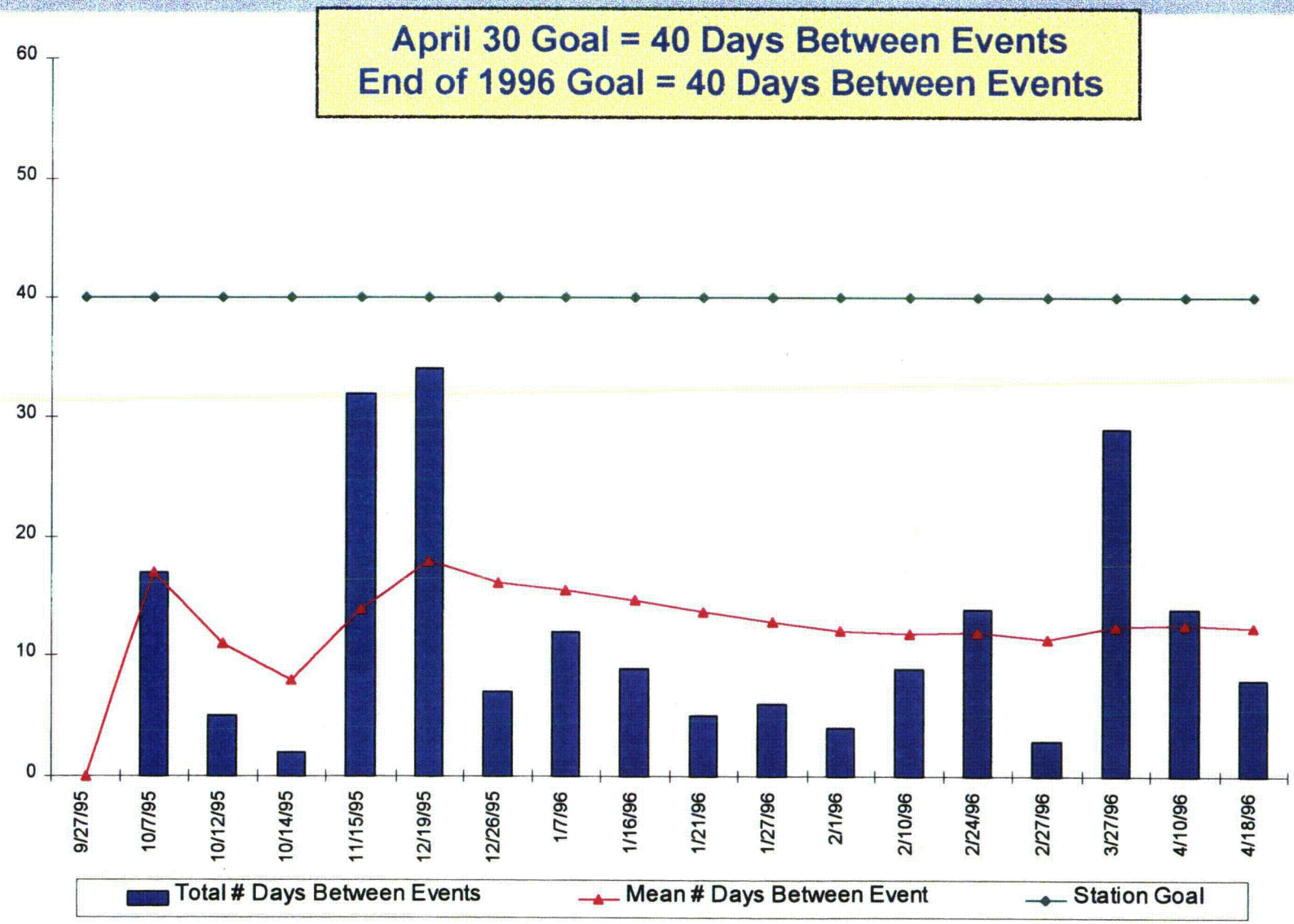
Operations Self-Assessments

- Significant Program Enhancement - Assessments
  - Self Check Process (STAR)
  - Procedure Revision Process
  - Operations Training
  - OOS Process
  - Operator Aid Program
  - Outside Departments' Perceptions
  - Communications
  - Performance Indicators

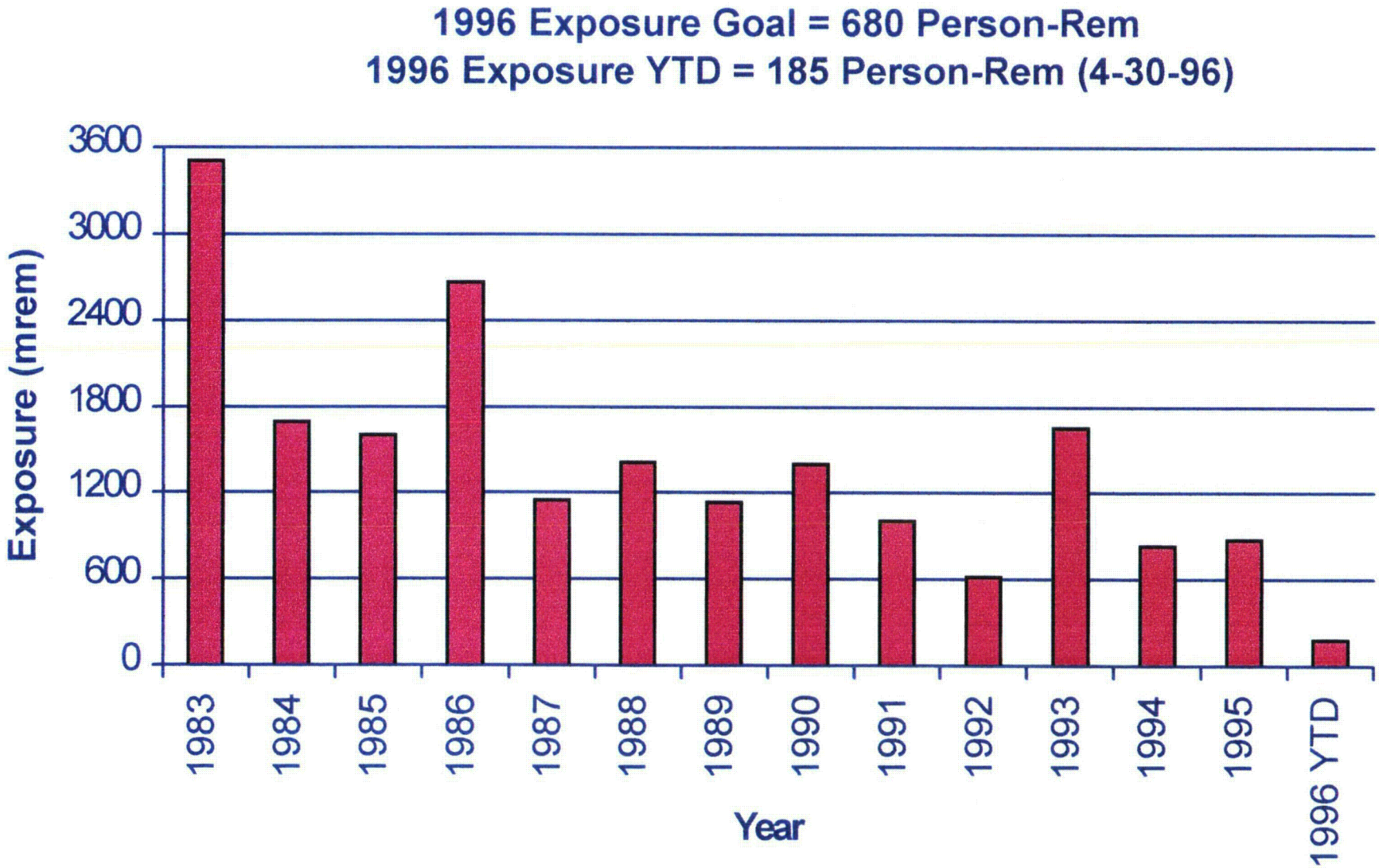
Personnel Error LERs



Days Between Events

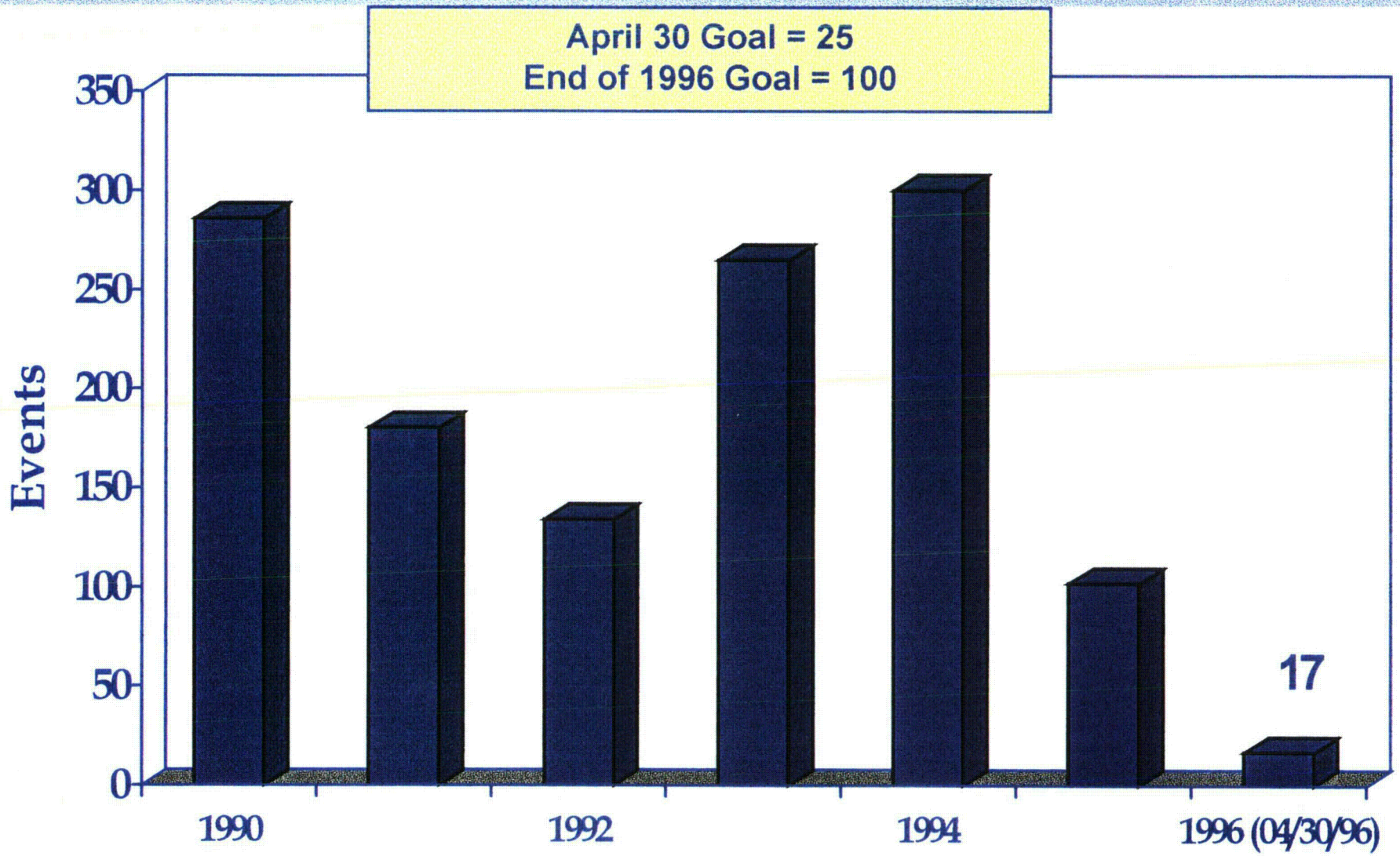


Station Exposure History



Personnel Contamination Events

Historical Performance



Radioactive Materiel Control

- > 450 Items Identified in 1995
- Multidiscipline Team and Corrective Actions
- Continuing "Sweeps" in Progress
  - Results indicate 95% reduction; several items found are result of activities in prior years
- Quarterly "Sweeps" Will Continue

Preston D. Swafford

Dresden Maintenance Superintendent

1996 Dresden Focus

"Significantly Improve the Materiel Condition of Dresden"

- ❒ *Improving Work Management*
- ❒ *Improving Engineering Support*
- ❒ *Reducing Rework*

Recent Key Materiel Condition Accomplishments

- 3 of 10 Worst Plant Areas Cleaned (April 30 goal)
  - Unit 3 Reactor Building Equipment Drain Tank Room
  - Unit 3 High Pressure Coolant Injection Room
  - Unit 2/3 Acid-Caustic Area
- Unit 2 Core Shroud Repairs
- Unit 2 RWCU Piping and Heat Exchanger Modification

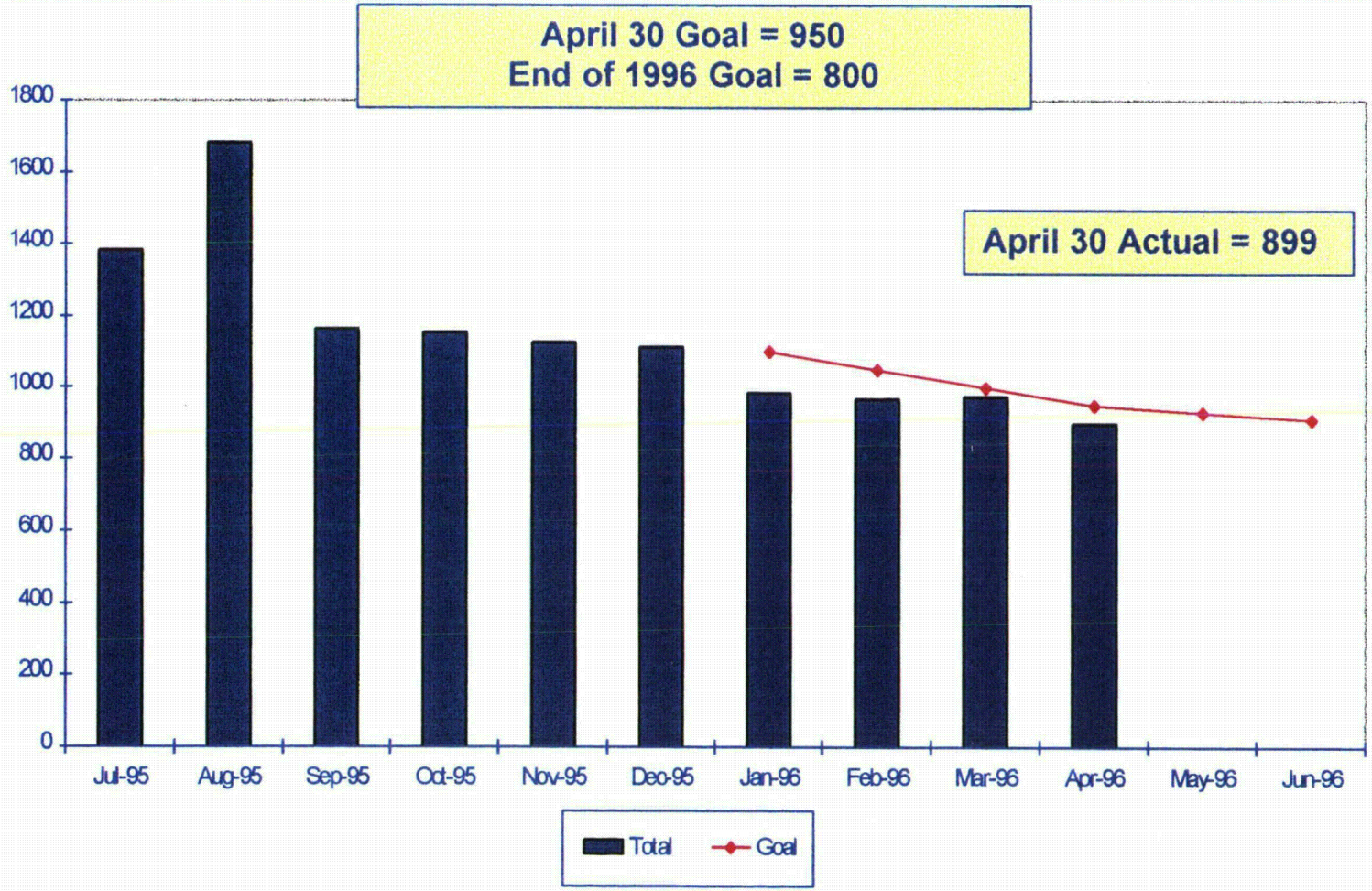
Recent Key Materiel Condition Accomplishments (Cont'd)

- Unit 2 Zinc Addition Modification
- Unit 2 Station Blackout Modification (Unit 3 in Fall Refuel Outage)
- Unit 2 89-10 Valves (3 to test when HPCI available)
- Unit 2 Feedwater Regulating Valve/Control

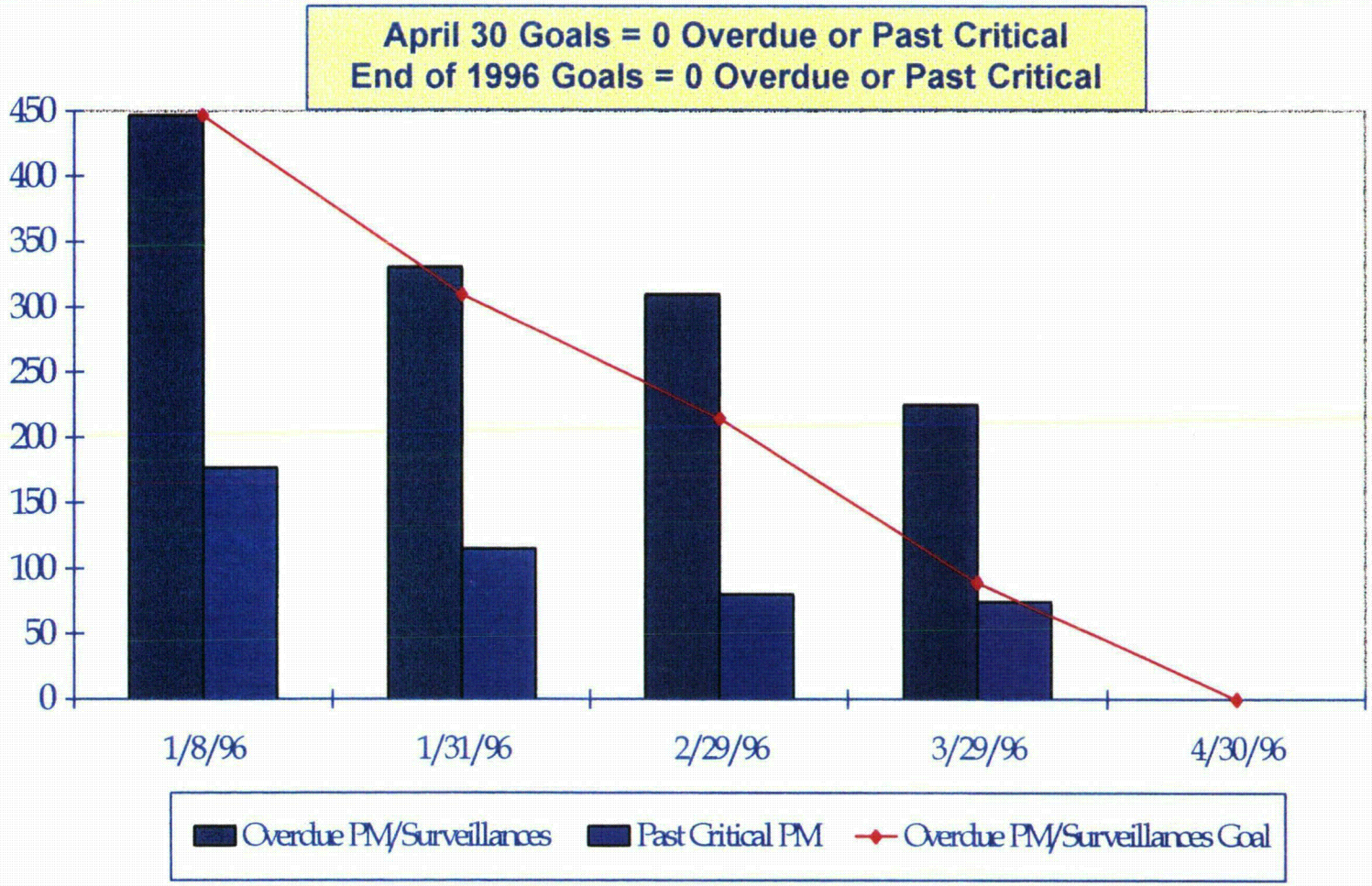
Work Management Improvements

- 12-Week Rolling Schedule
- Weekly Schedule Adherence Accountability Meetings
- Backlog Items Divided by System and Assigned to First Line Supervisors
- Work Week Manager Debrief With Senior Managers
- Improved LCO Procedure

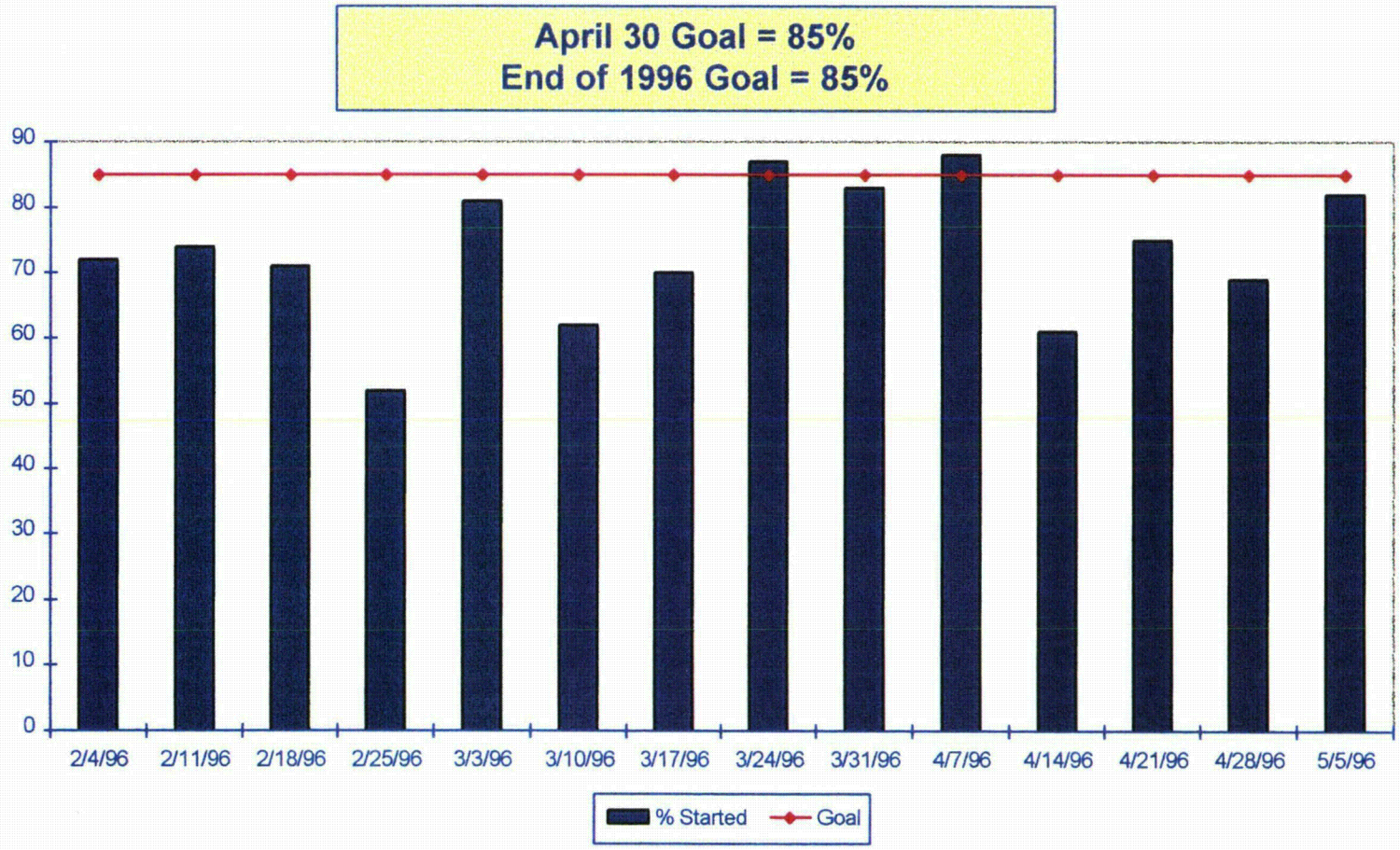
Non-outage Corrective Maintenance Backlog



Preventive Maintenance / Surveillance Overdue

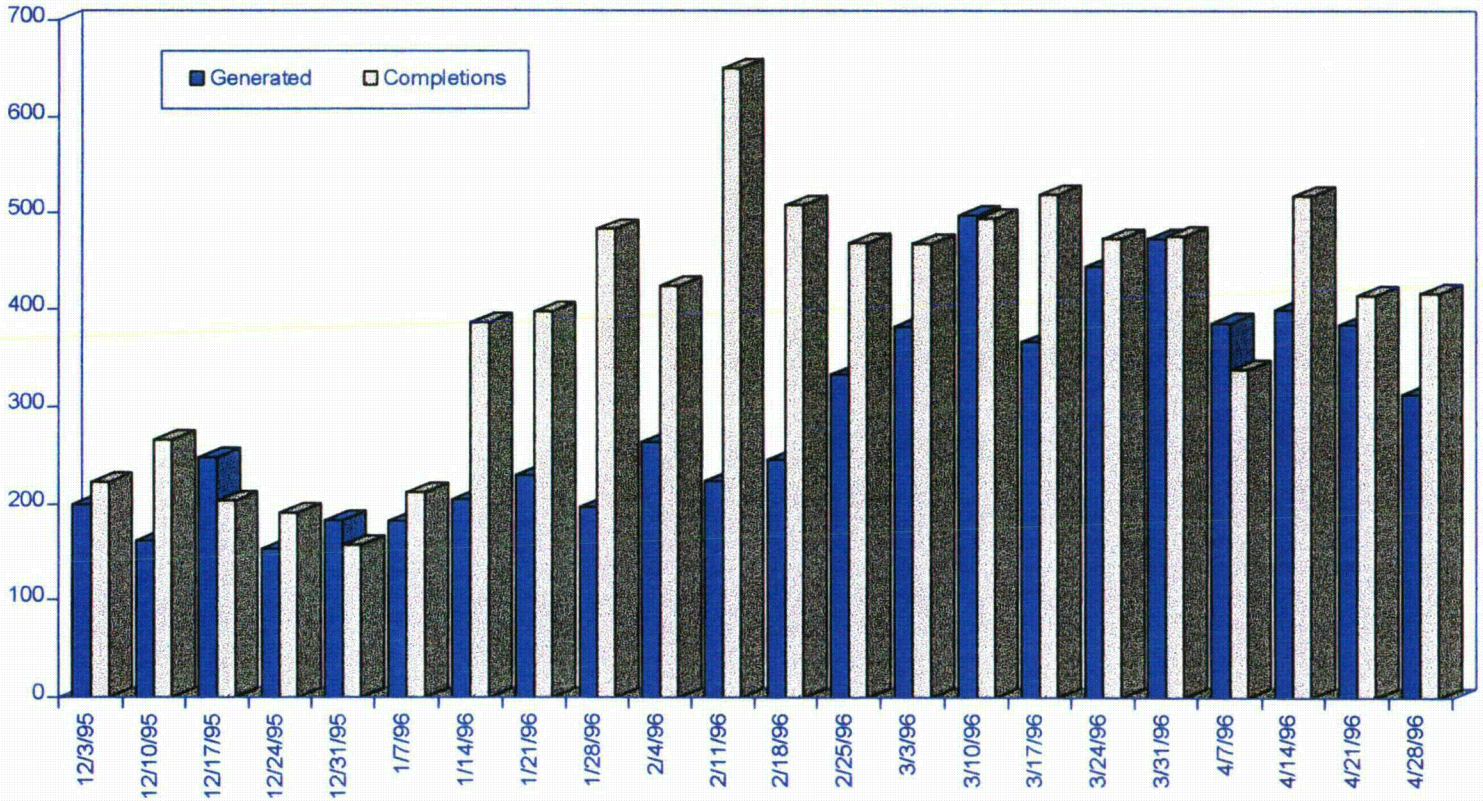


On-Time Schedule Starts

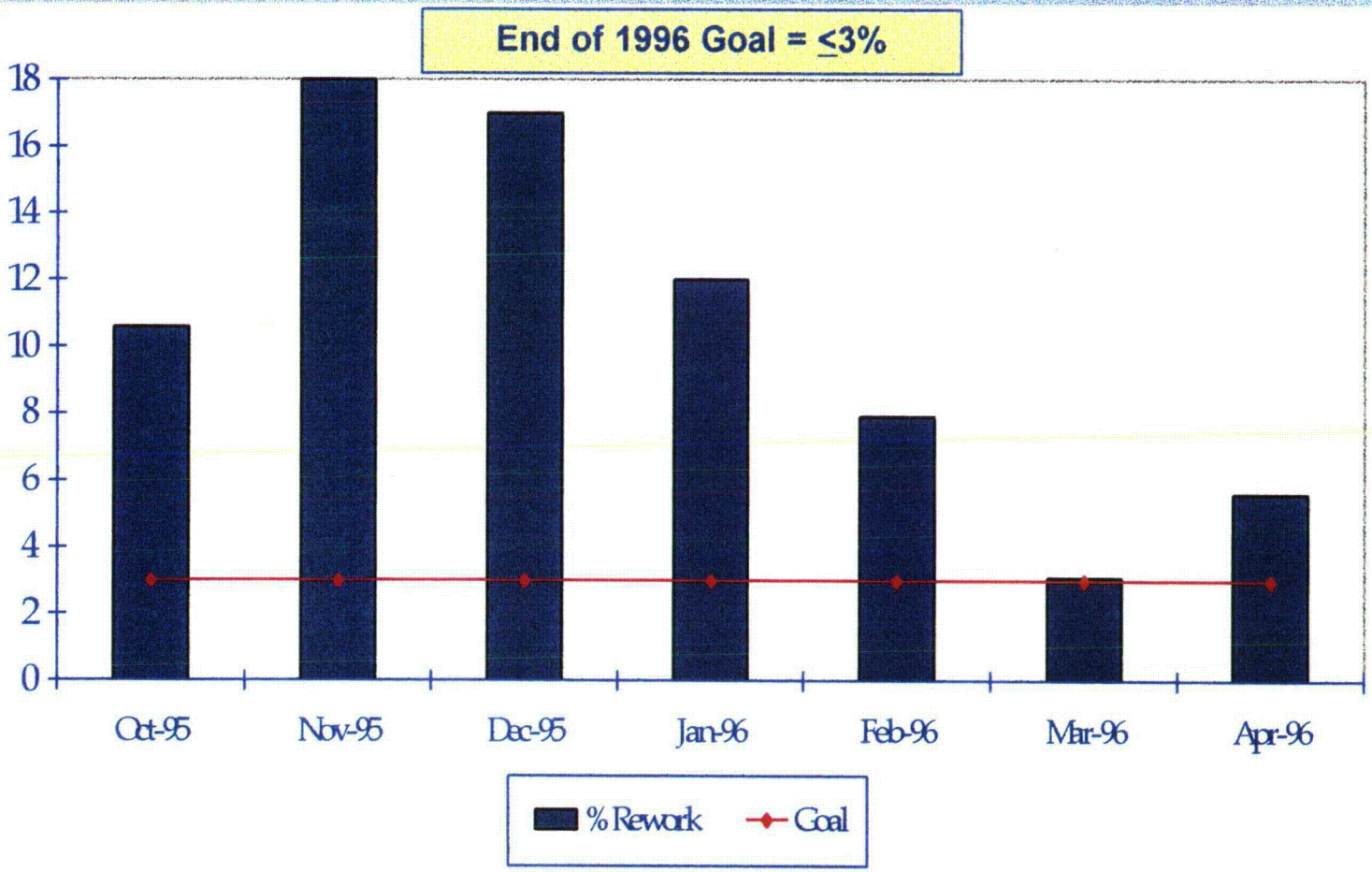


Workoff Rates

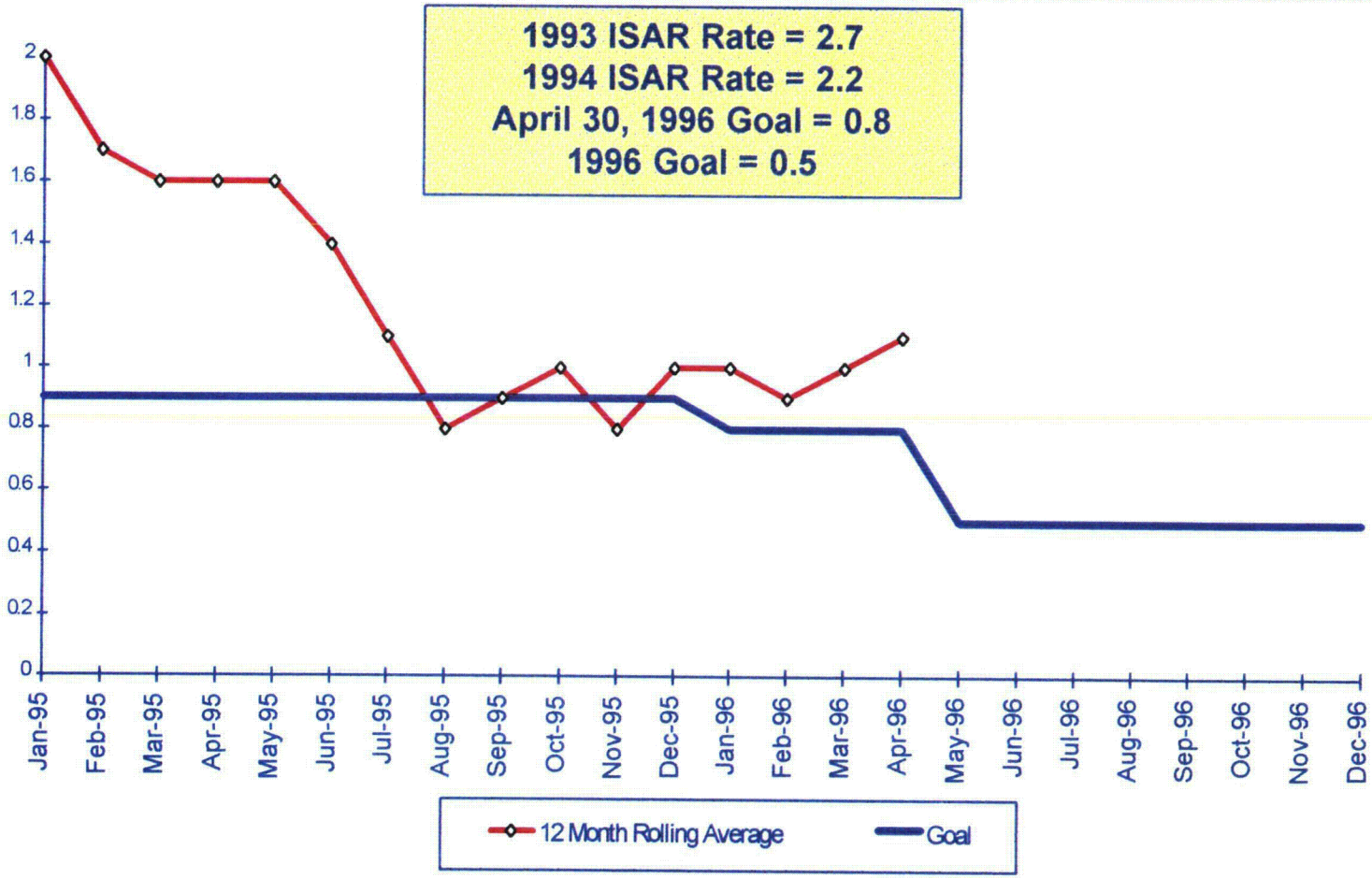
4th QTR 1995 Avg = Generated = 206/week Completed = 271/week
1st Four Months 1996 Avg = Generated = 325/week Completed = 450/week



Maintenance Rework



Industrial Safety Accident Rate



Maintenance Training

- Phase I Fundamentals Training/Testing Completed
  - Fundamental Skills/Worker Qualification
  - Personnel Requiring Remediation
- Phase II Upgrade of Ongoing Training
  - Areas of Specialization Determined
  - First Specialization Course - June 1996
  - Benchmarking Against Strong Industry Maintenance Training Programs

Maintenance Self-Assessment

- Completed First Quarterly Self-Assessment on Measurement and Test Equipment (M&TE) and Tool Control
- Weekly Maintenance Coaching and Assessment Job Overviews
- Management by Walking Around
- Maintenance Workforce Standards

Raj S. Kundalkar

Dresden Site Engineering Manager

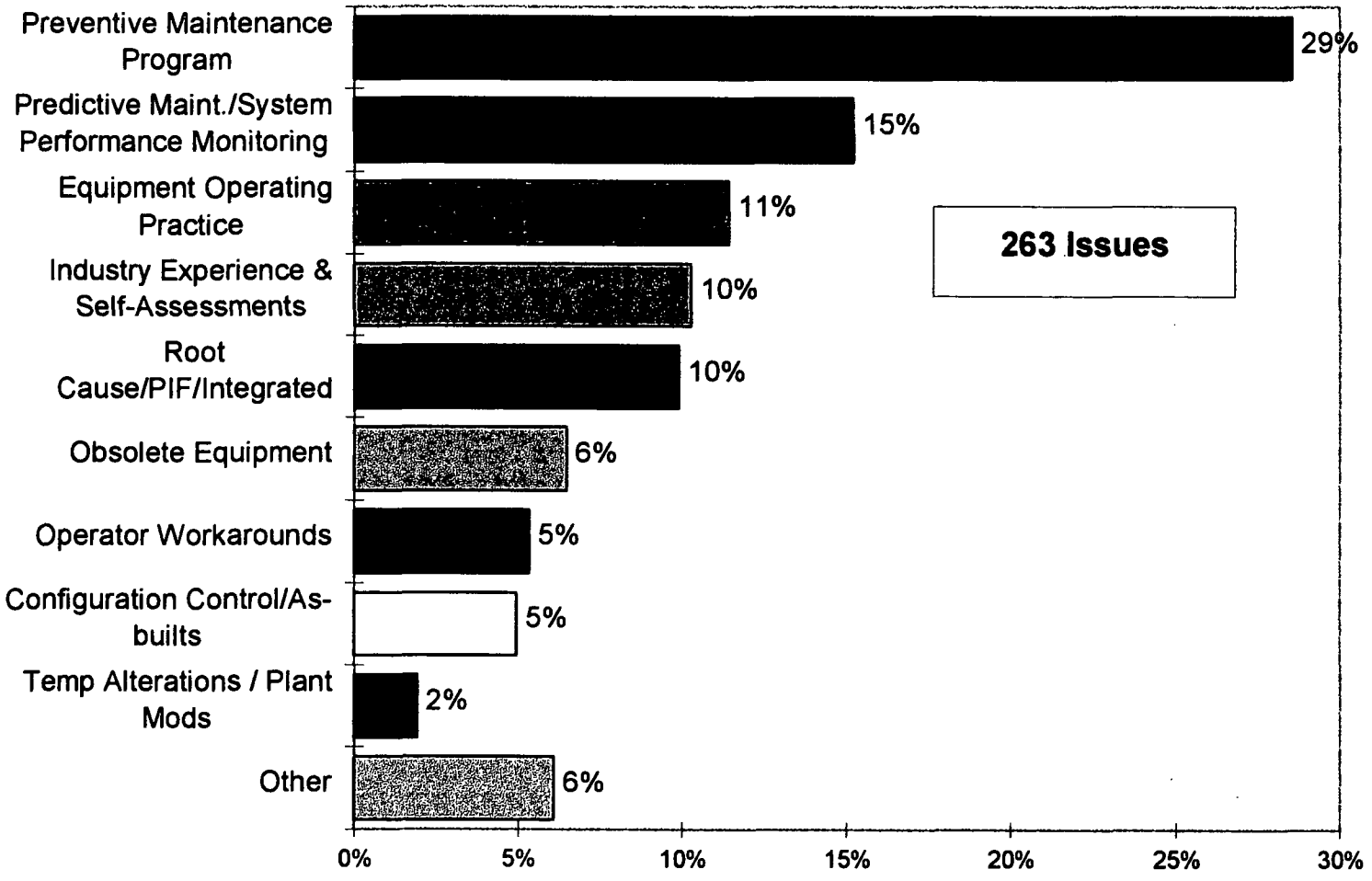
Latent Material Condition Improvement Project

Purpose:
- Identify & Prioritize "Latent" Problems
- Combined team of ComEd, GE, Bechtel & Duke
- Industry issues, Vendor Recommendations, System Performance History and Walkdowns, and Operator Interviews

Status: 26 Systems/ 1 Component (motors) Completed (Met April 30 goal)

Conclusions:
- No Operability Concerns
- Prioritizing/Scheduling
- Many Completed or Underway

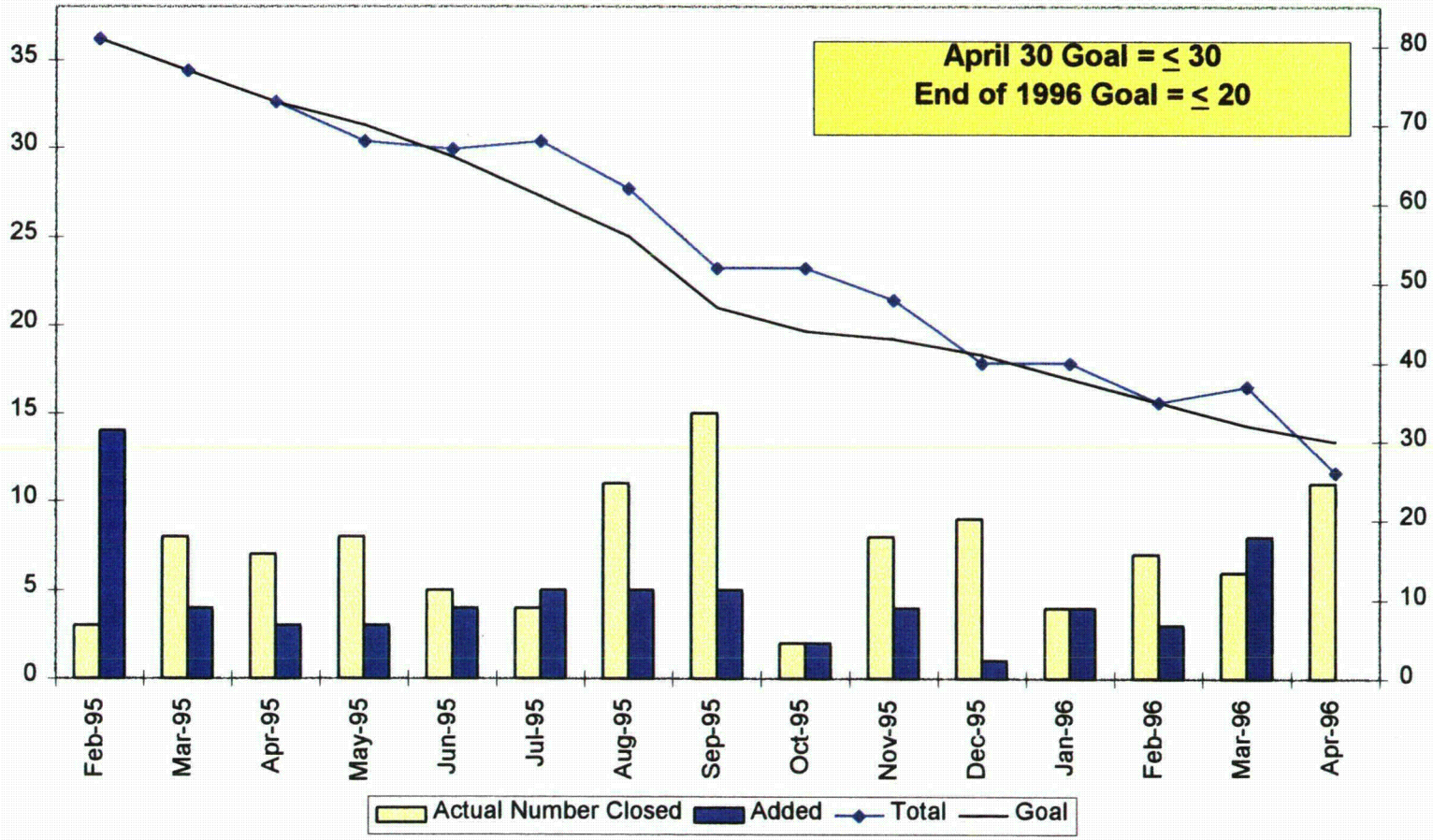
Summary of Findings



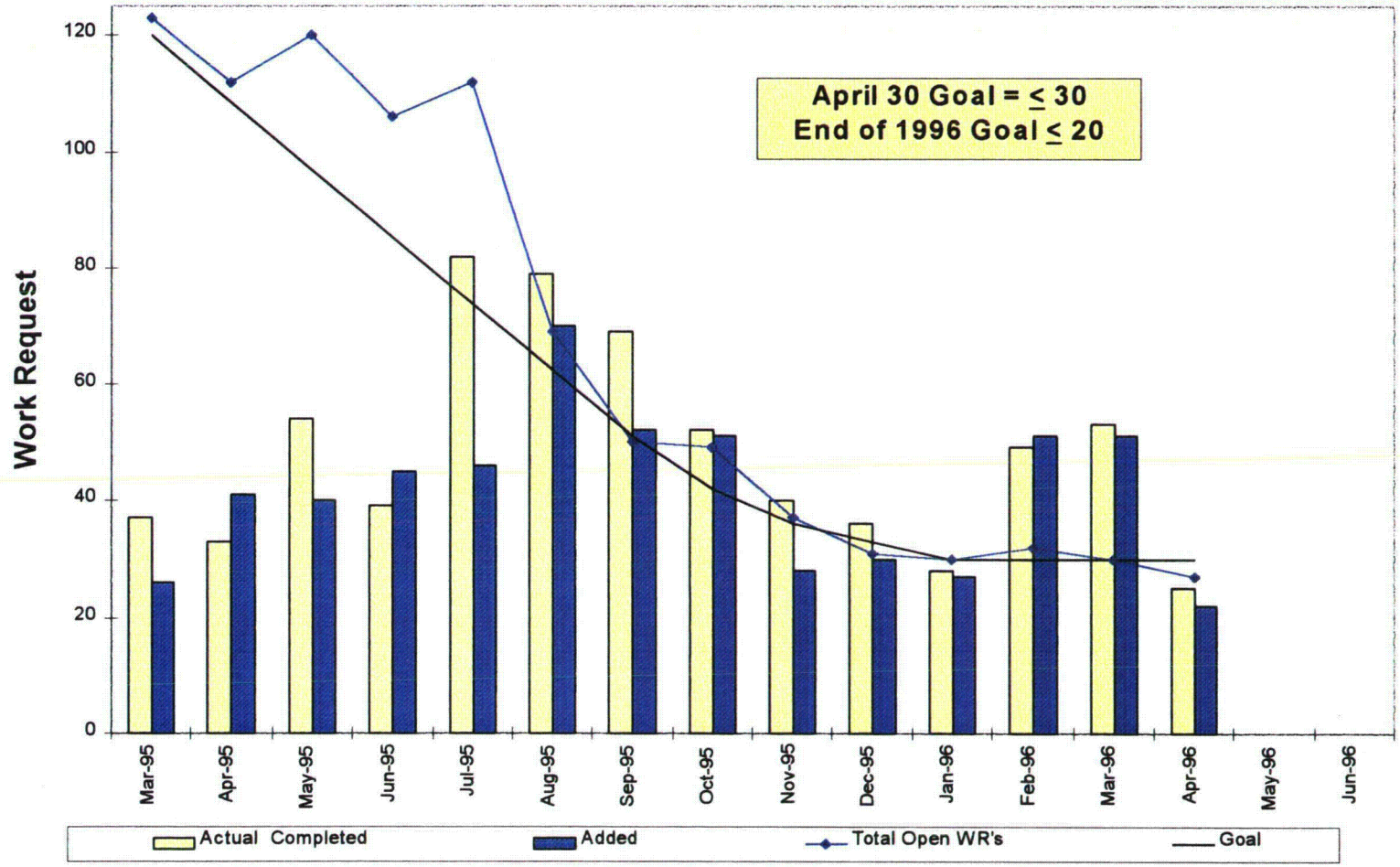
Performance Centered Maintenance

- Goal: Review a total of 14 systems by April 30, 1996 and Identify Improvements to Preventive and Predictive Maintenance
- Status - Met April 30 Goal
  - Analysis Phase: 30 of 90 systems/components completed
  - Implementation Phase: 5 of 90 systems/components completed
- Findings
  - 3750 recommendations made to improve Preventive Maintenance Program
  - 65% additions or major revisions (change of scope)
  - 35% deletions or minor revisions (change of frequency)

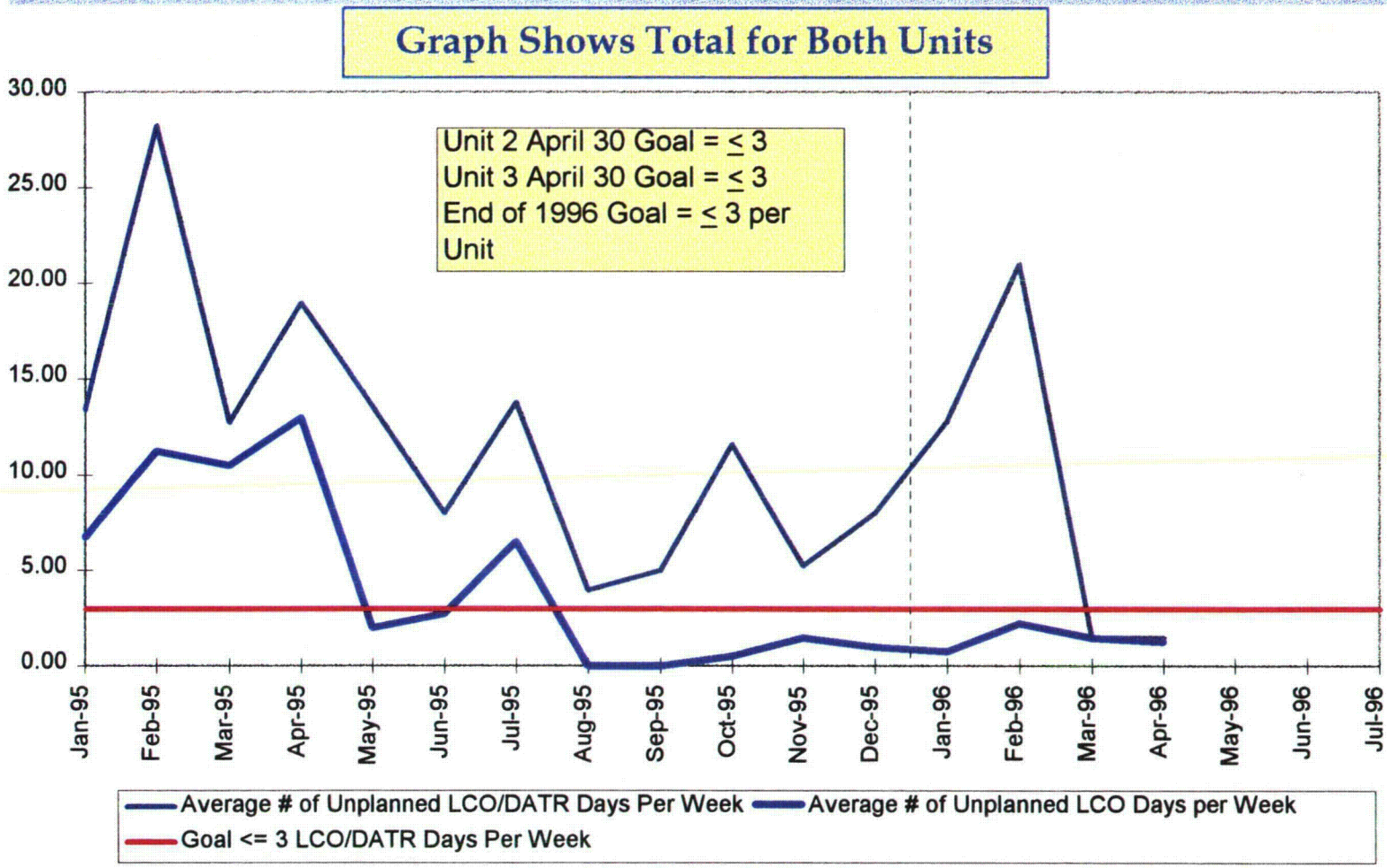
Operator Workarounds



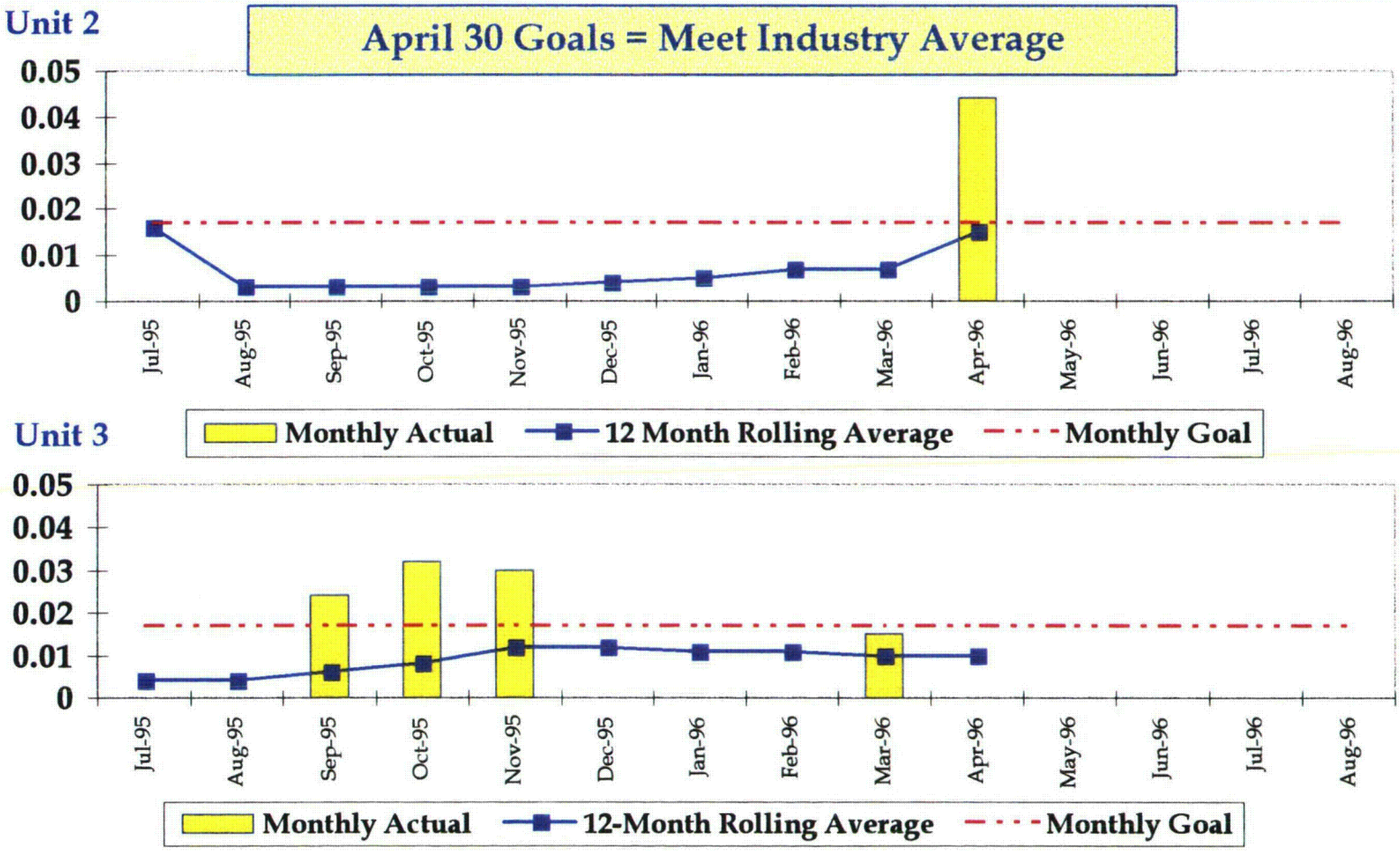
Control Room Work Requests



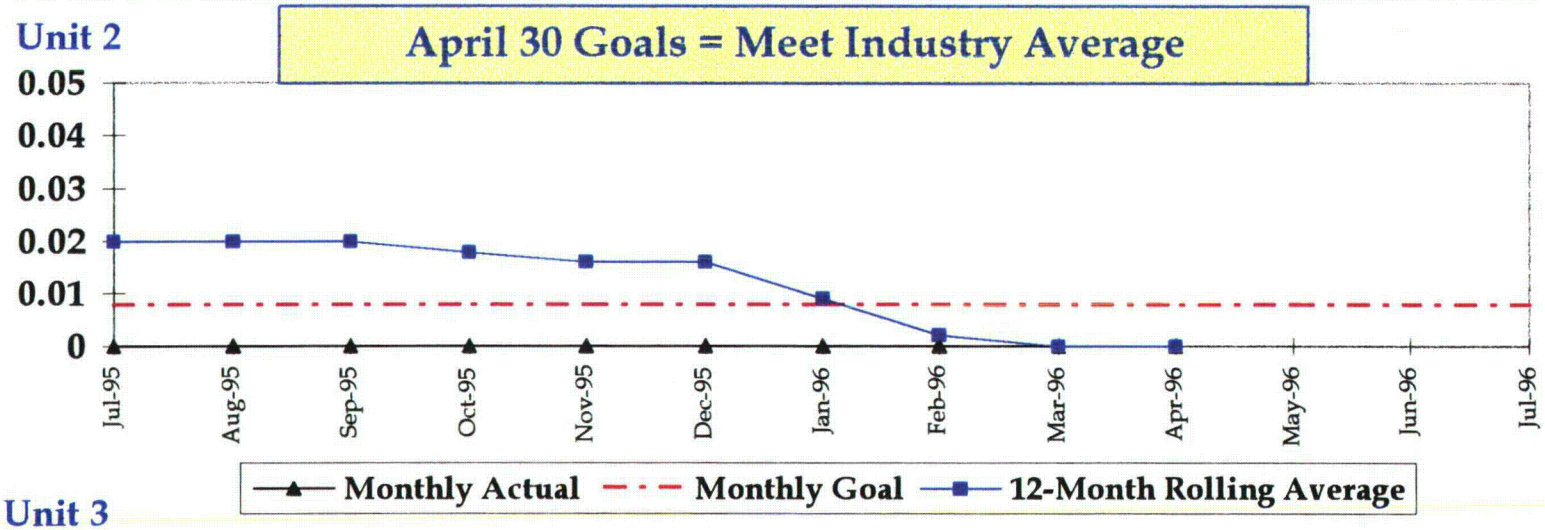
Unplanned LCO/DATR Days

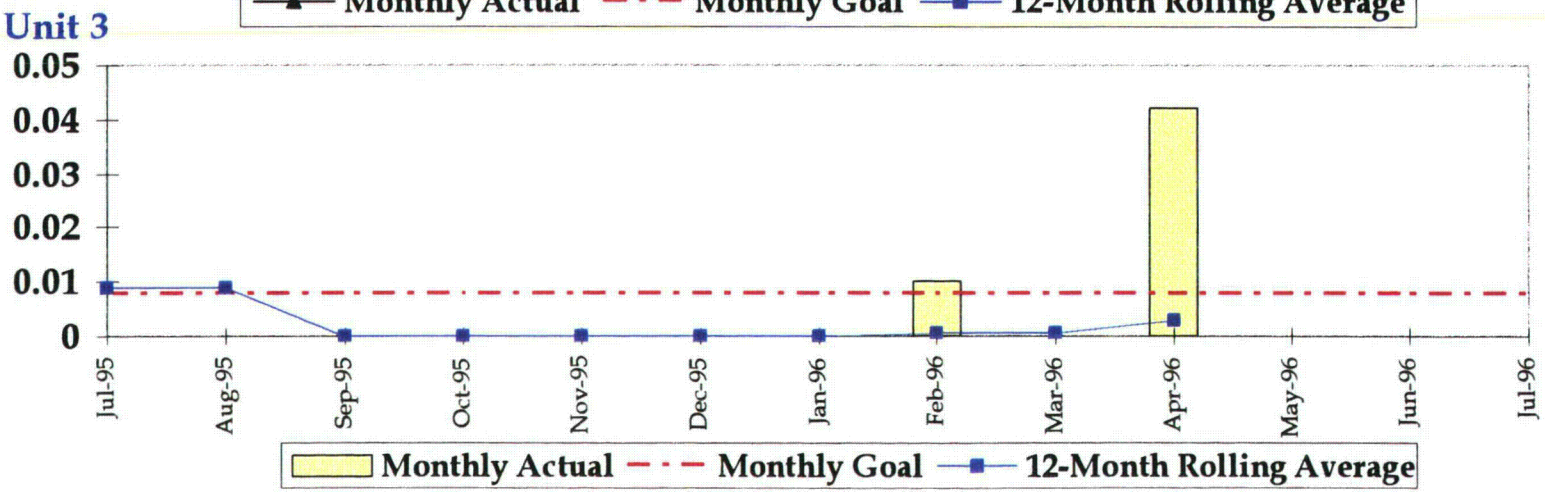


Safety System Performance: HPCI/Isolation Condenser

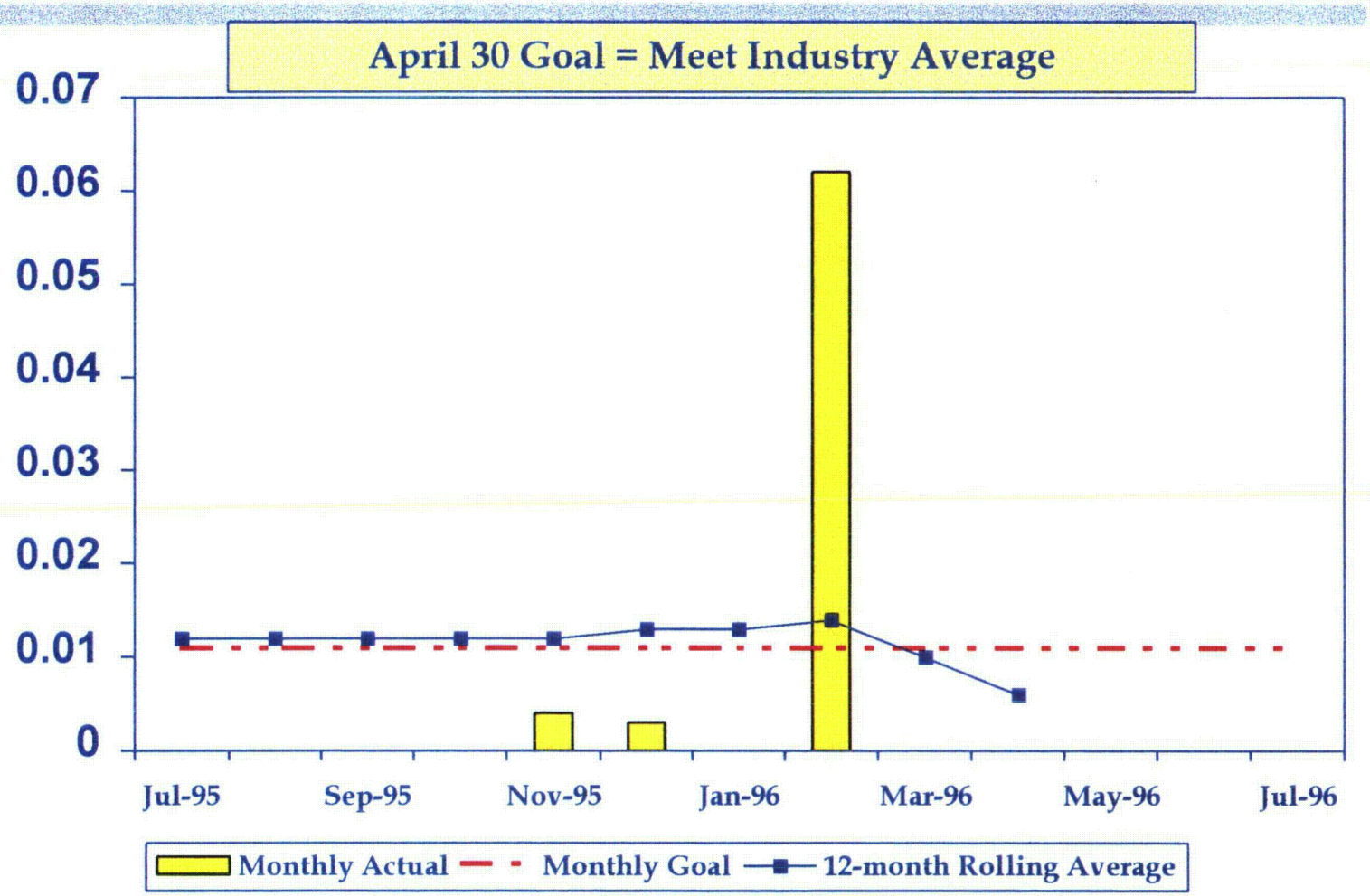


Safety System Performance: LPCI/Shutdown Cooling

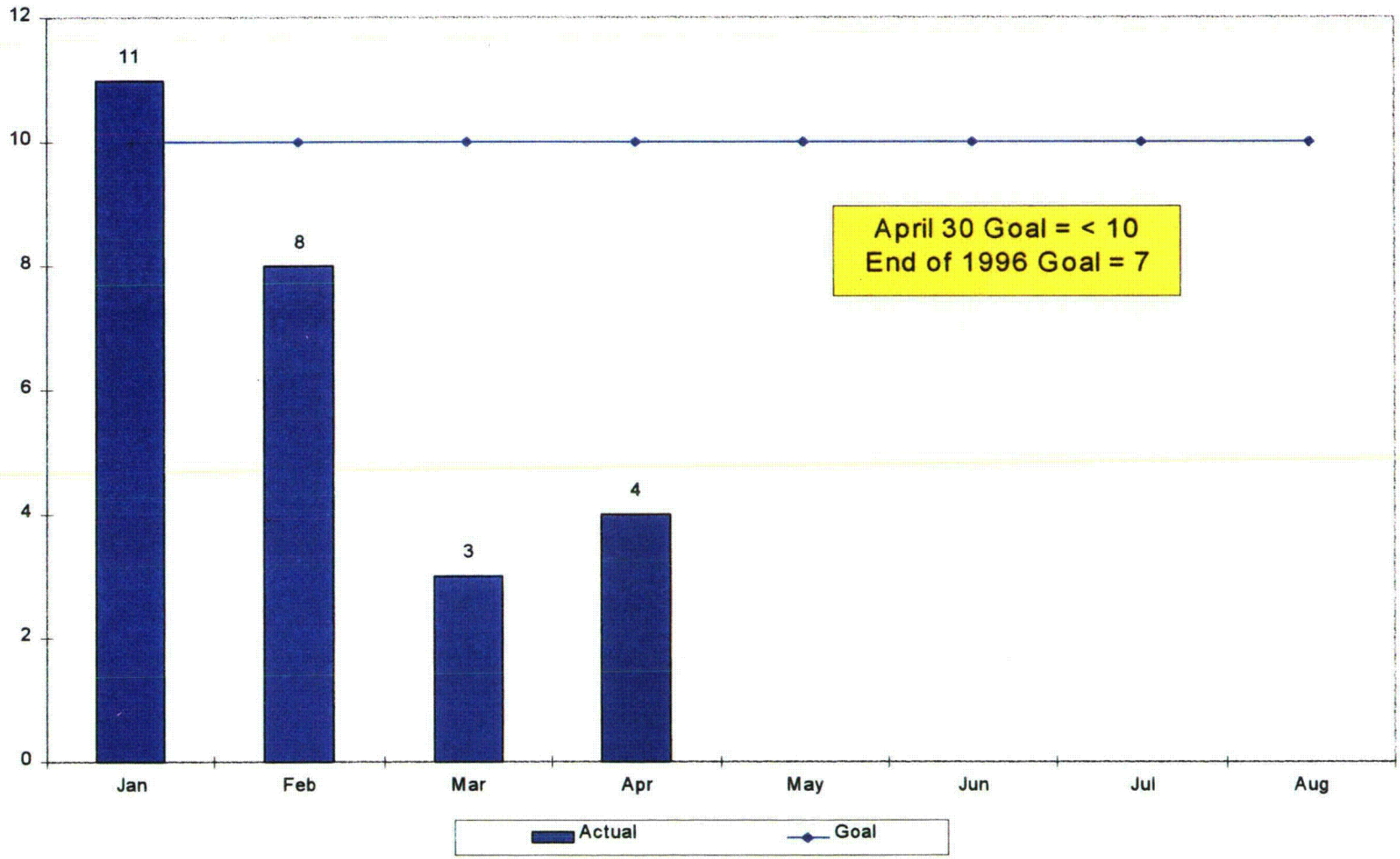




Safety System Performance: Emergency A/C



Non Outage Temporary Alterations



Safety System Performance Monitoring

REACTOR RECIRCULATION (0200) YELLOW	ATWS (0201) GREEN	CONTROL ROD DRIVE (0300) YELLOW	STANDBY LIQUID CONTROL (1100) WHITE
REACTOR WATER CLEANUP (1200) WHITE	ISO. CONDENSER (1300) WHITE	CORE SPRAY (1400) WHITE	LPCI / CCSW (1500) WHITE
PRIMARY/ SECONDARY CONTAINMENT (1600) WHITE	HPCI (2300) YELLOW	MAIN STEAM / ADS (3000) WHITE	

RED = SIGNIFICANT WEAKNESS

YELLOW = IMPROVEMENT NEEDED

WHITE = SATISFACTORY PERFORMANCE

GREEN = SIGNIFICANT STRENGTH

Department Performance Monitoring

Indicators	January	February	March	April
System Performance	N/A	YELLOW	YELLOW	YELLOW
Safety System Availability	GREEN	GREEN	GREEN	WHITE
Unplanned LCOs / DATRs	RED	RED	GREEN	GREEN
Significant Events	WHITE	RED	RED	RED
System Walkdowns	RED	RED	RED	YELLOW
Past-Critical Surveillances	GREEN	GREEN	GREEN	GREEN
Operator Workarounds	YELLOW	WHITE	YELLOW	GREEN
Control Room Correctives	GREEN	WHITE	WHITE	GREEN
NTS Item Completion	GREEN	GREEN	YELLOW	YELLOW
Budget Adherence	RED	RED	RED	YELLOW
ALARA	WHITE	YELLOW	YELLOW	WHITE
Business Plan Progress	N/A	GREEN	WHITE	WHITE
System Review Board	WHITE	WHITE	WHITE	YELLOW
ER Backlog	RED	RED	RED	RED
Schedule Adherence	N/A	GREEN	GREEN	YELLOW
Self Assessment	RED	RED	YELLOW	YELLOW

RED = SIGNIFICANT WEAKNESS

YELLOW = IMPROVEMENT NEEDED

WHITE = SATISFACTORY PERFORMANCE

GREEN = SIGNIFICANT STRENGTH

Engineering Training Initiatives

- Phase I
  - System Training
  - Qualification cards and design certification developed
- Phase II
  - Continuing training and specialization training being planned

J. S. Perry
Dresden Site Vice President

March 22, 1996 Letter Issues

- Performance results - are we executing plans and meeting goals? Have areas of weakness been addressed?
- Does our workforce understand and implement our standards? Is it skilled?
- Has materiel condition improved?
- Are we identifying and correcting deficiencies? (Focus on system reviews)
- Are necessary resources being applied?
- Will the improving trend continue?

Workforce Standards

- Two Assessments
  - Line Management Assessment
  - Quality Organization Assessment
- Assessments Covered Industrial Safety, ALARA, Procedure Use/Adherence, Self-Verification, Communications, Professionalism
- Results
  - Strong Understanding of Standards
  - Implementation Good in Some Areas; Need for Improvement in Others
- Continuing Action to Improve Standards

Performance Target Achievement

❒ Corrective Maintenance Backlog < 950	Met
❒ Operator Workaround Backlog < 30	Met
❒ Control Room Deficiencies < 30	Met
❒ Non-Outage Tem. Alterations < 10	Met
❒ Zero PMs Past Critical	Met
❒ Zero Surveillances Past Critical	Met
❒ U2 < 3 LCO/DATR Days/Week	Met
❒ U3 < 3 LCO/DATR Days/Week	Met

Performance Target Achievement (Cont'd)

❒ U2 HPCI/ISO Condenser	Met
❒ U3 HPCI/ISO Condenser	Met
❒ U2 LPCI/Shutdown Cooling	Met
❒ U3 LPCI/Shutdown Cooling	Met
❒ Emergency AC (Diesels)	Met
❒ < 4 Operations Events Per Quarter	Not Met
❒ ≤ 1 Out of Service Events Per Month	Not Met

Performance Target Achievement (Cont'd)

❐ Zero Personnel Error LERs	Not Met
❐ > 40 Days Between Events	Not Met
❐ ISAR Rate < .8	Not Met
❐ Zero Overdue Corrective Actions	Not Met
❐ 85% On-Time Work Start	Not Met
❐ 95% Licensed Operator Pass Rate	Met
❐ < 25 Personnel Contamination Events	Met