UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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DISCUSSION/POSSIBLE VOTE ON

FULL POWER OPERATING LICENSE FOR BRAIDWOOD-2

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[PUBLIC MEETING]

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Nuclear Regulatory Commission

Commissioners' Conference Room

One White Flint North

Rockville, Maryland

Friday, May 20, 1988

The Commission met in open session, pursuant to notice, at 10:00 a.m., the Honorable LANDO W. ZECH, Chairman of the Commission, presiding.

COMMISSIONERS PRESENT:

LANDO W. ZECH, Chairman of the Commission

THOMAS M. ROBERTS, Member of the Commission

FREDERICK M. BERNTHAL, Member of the Commission

KENNETH CARR, Member of the Commission

KENNETH ROGERS, Member of the Commission

STAFF PRESENT:

W. PARLER, GENERAL COUNSEL

S. CHILK, SECRETARY

V. STELLO, JR., EXECUTIVE DIRECTOR FOR OPERATIONS

J. SNIEZEK, DEPUTY DIRECTOR, NRR

S. SANDS, PROJECT MANAGER, DIRECTORATE III-2

E. G. GREENMAN, DEPUTY DIRECTOR, REGION III

B. DAVIS, REGIONAL ADMINISTRATOR, REGION III

T. TONGUE, SENIOR RESIDENT INSPECTOR, BRAIDWOOD

PARTICIPANTS: COMMONWEALTH EDISON COMPANY (LICENSEE)

JAMES J. O'CONNER, CHAIRMAN

CORDELL REED, SENIOR VICE PRESIDENT

ROBERT QUERIO, STATION MANAGER

P R O C E E D I N G S

[10:00 a.m.]

CHAIRMAN ZECH: Good morning ladies and gentlemen. The purpose of today's meeting with staff and Commonwealth Edison Company is to brief the Commission concerning the readiness of Braidwood Unit 2 to receive a full power license.

At the conclusion of this meeting, the Commission is scheduled to vote to authorize the Director of NRR, after making the appropriate findings, issue a full power operating license for Braidwood Unit 2 if we are satisfied that all conditions are met to accommodate public health and safety. The Commission will first be briefed by Commonwealth Edison and then the NRC staff. I understand that copies of slides are still being made up, but they will be available shortly.

Do any of my fellow Commissioner's have any opening comments to make?

[No response.]

Mr. O'Connor, we welcome you back to the Commission. You may proceed, sir.

MR. O'CONNOR: Thank you very much, Mr. Chairman. Mr. Chairman and members of the Commission, we are very grateful for this opportunity to appear before you this morning. I would like to introduce a couple of members of my team who are not at the table that you have met before; Mr. Thomas, the President of our Company, who is over here; and Tom

Maiman, who is our Vice President in charge of PWR operations.

CHAIRMAN ZECH: Welcome.

MR. O'CONNOR: Of course, with me on my right is Cordell Reed, our Senior Vice President in Charge of Nuclear Operations who is familiar to all of you and, Bob Querio, who is our new Station Manager at Braidwood. Most of you know Bob, who had been the Station Manager at our Byron station. Two months ago when our Station Manager at Braidwood left to take a position of great significance with another utility, Bob, because of his experience at Byron, was moved over to Braidwood. We can't think of a better person to assume that responsibility and continue the excellent performance that we have been experiencing at Braidwood to date.

The licensing at Braidwood 2 represents a significant milestone for Commonwealth Edison. This is our sixth license request in the last six years for an operating reactor. It signals the end of a very ambitious construction program on our part, a program that was begun over 15 years ago. I believe that we have accomplished this task with several notable distinctions.

The four units at both Byron and Braidwood have been completed at cost, among the lowest in the country. Over the last three years, we have met virtually every single construction milestone for these units. We did have some problems on Byron Unit 1 on our start up. We had some scrams

and personnel errors, more than we had hoped. Yet, we learned from that experience, and the start up on both Byron Unit 2 and Braidwood 1 have been excellent.

Byron station, in its relatively short life, has compiled an enviable operating record. I might point out parenthetically that in 1986, Byron Unit 1 was the number one operating station in the country in terms of output. We believe Braidwood is developing in the same fine manner.

Although we have had some good success with the cost and the schedule for our four Byron and Braidwood units, I certainly don't want to convey the impression that it hasn't been without some bumps in the road along the way. I have been very close to the construction of the Byron and Braidwood units since, really almost 15 years ago. Since 1977, the manager of projects, the individual responsible for coordinating and accountable for the construction of these units has reported directly to me. So, I have had the opportunity to be involved on the day-to-day basis in monitoring the progress on these sites.

Back in 1983 when questions were raised about the quality of construction at Braidwood, we developed what we called the Braidwood Construction Assessment Program or what has been called BCAP. This involved a multitude of inspections and examinations and reviews that were carried out throughout 1984 and 1985 to review all of our safety related activities

and functions at the plant. It was designed to provide additional confidence to the NRC staff that past, present and future safety related work at Braidwood would result in completed systems that were capable of performing their appropriate functions, and that Braidwood, on its final completion, would meet all the regulatory requirements.

This particular program was subject to intense oversight by our own Quality Assurance Program and by an independent overview group. Extensive sample reinspections of completed QC accepted construction work identified no significant design discrepancies at Braidwood. It also concluded that the procedures that were in existence for ongoing and future safety related work were in place to adequately address design and regulatory requirements.

Finally, BCAP concluded that the corrective action programs that it reviewed were being effectively implemented. I guess the proof of that is back in 1985 in the SALP review conducted by the region, the region gave the implementation of our BCAP programs a Category 1 ranking.

We recognize that our challenge now is to operate all 12 of our reactors, not just in an average manner, but in an excellent manner. That is clearly the commitment of this company. We know that there is no magic formula for achieving excellence. It requires setting the goals high, developing a plan with accountability for reaching those goals, and then

paying very close attention to detail and to following up on every action that requires following up.

We believe that we have that plan in place. Cordell Reed, very shortly, will give you more details on the plan. One of our top goals is to increase the professionalism in our controls rooms. Management and our bargaining group have been meeting in a cooperative effort to develop a code of ethics and principles of professionalism that will set a new standard for operations in our control rooms.

Also, our management and our labor unions agreed at our last general contract negotiations, which were approved this last Monday, that uniforms will be mandatory for all control room personnel. During the same negotiations, it was agreed that we would split the radiation protection and chemistry functions into separate areas. That previous combination of bringing the two together had been a source of concern to the NRC in terms of maintaining the skill levels in both disciplines.

Additionally, we feel especially fortunate at this time to be able to bring over so many of the people who had been involved in our construction program over the years into the operating area. We started this process about 18 months ago, and since that time we have had 51 people representing 410 man years of experience, nuclear related, brought over to our operating side of the house.

When we were here last June, I noted that we had made a major change in the organization of our nuclear area. We elevated Cordell Reed to Senior Vice President and we established two new corporate vice presidents reporting to Cordell; one for BWR operations and one for PWR. We also split our engineering department and created an engineering section for PWR and one for BWR. We simply felt that this would be more responsive to our individual station needs. This new organization is working very well, and I believe that it is well equipped to manage our 12 units.

We have taken another significant step in reducing the load on our operating stations by establishing a central contract management department. It used to be that we would have all of our stations individually responsible for the maintenance contract work that was out there. Previously, we had some problems with this. We have changed that and appointed Mike Wallace as the manager of this new central contract management department. He is heading it and doing a superb job, and has been able to take advantage of the skills of all of the individual stations in a centralized way and we have great hopes for the way that department will operate.

We also recognize our obligation to have an effective mechanism in place to monitor the operations of each of our stations. I can assure each of you that steps have been taken to make certain that that's as foolproof as it can be.

We have taken the initiative in the area of a structured performance appraisal system, a function that is unique in nuclear operations. The thrust of this program is to develop our own internal capability to better identify any weaknesses or deficiencies and to institute corrective actions in a timely manner. At the same time, we are developing a better capability to identify and communicate good practices within the company. And having six plants, we think that is especially important.

The Edison Nuclear staff met with Mr. Burt Davis and his staff at Region III last January and discussed their plans in this area. They have been extremely supportive.

We have established a Corporate Nuclear Review Committee which consists of myself as Chairman, Bide Thomas, Cordell Reed, the Manager of our Nuclear Safety, Jack Bitell and our Quality Assurance Manager, Walt Shewski, who collectively will meet at least once quarterly to specifically review the results of the performance assessments that I mentioned just a few moments ago.

Also, we have a very active Nuclear Operations Review Committee of our Board of Directors, which is headed by Admiral Dennis Wilkinson. That Committee meets on at least a quarterly basis. They meet generally at the stations themselves, and do an assessment and report back to our full Board.

We want this Commission to know that we are committed

to excellence in the operations of our nuclear plants. We have made substantial commitments of resources to these operations. Our nuclear operations and maintenance budgets are up significantly at a time when the budgets in virtually every other area of the company have been frozen or are declining.

We have also approved a $303 million facility improvement program for our nuclear stations and this will be done over the next six years. Also, we have approved the hiring of an additional 300 people for our nuclear stations. Again, this is at a time when the hiring levels have been frozen in virtually every other area of the company.

We have committed these resources to demonstrate to all of our nuclear operations personnel, in fact to everybody in the company, that the company is dedicated to excellence in nuclear operations. We sincerely hope that you have the confidence that Commonwealth Edison will meet its responsibility to operate our plants in an excellent manner.

I firmly believe that we are now ready to receive our full power license for Braidwood Unit 2, and that Braidwood Station will be among the best operating plants in the world. It is now my pleasure to ask Bob Querio, our new Station Manager, to make his comments.

CHAIRMAN ZECH: Thank you very much. You may proceed.

MR. QUERIO: Thank you, Mr. Chairman. My name is

Robert Querio and I am Station Manager at Braidwood. At Braidwood Station, our goal is to become one of the best nuclear power plants in the world. We have the organization and we have experienced personnel at Braidwood. Our people are committed to achieving excellence. We believe that we know how to operate and handle situations in today's nuclear business.

We also know that we are faced with a tough challenge of two unit activities at Braidwood, plus taking the plant through the transition period from a construction environment to a full operating plant. However, we believe that we are ready to face that challenge.

At Braidwood Station, our organization is similar to that of the other five operating stations in our company. We have a total of 695 Commonwealth Edison personnel at Braidwood Station. Additionally, we have 244 security force people that are contracted to Commonwealth Edison Company. We have contract support consultants working with our station organizations, that number of 213 people. These are supporting the instrument department, Radchem technicians and our operating maintenance and tech support areas.

The experience level of the people at Braidwood Station ranges from an average of 16 years for the assistant superintendent and above level people to greater than eight years for our SCRE or shift technical advisor people. In the way of operational performance, error-free planning is the

theme for all of our activities at Braidwood.

Unit 1 had an error-free fuel load that began on October of 1986, and we had error-free mode changes to initial criticality on unit 1, which was on May 29 of 1987. There have been 48 licensee event report items on unit 1; 16 of these have been personnel error events since initial criticality. Unit 1 underwent a surveillance outage early in this year of 1988, and the recent SALP report identified concerns relative to a high rate of personnel errors at Braidwood. We also are concerned about our people's performance and continually review the error events to assess the cause and provide a solution.

A high number of LER events that could have occurred at Braidwood we believe were precluded by various design changes, hardware fixes and procedure revisions that were made as a result of lessons learned from Byron and from other stations. The absolute number of LERs at Braidwood is less than some recent plants for the first year of operation. However, even with the best programs in place, people require a calibration period to properly implement the best of those programs and some personnel error will occur during this period.

In 1987, our personnel error events averaged about 4.5 per month. Thus far in 1988, these events are averaging a little over two per month, so I think there is some improvement being shown. We take a conservative approach to problems that

arise at Braidwood and we thoroughly investigate and resolve these problems before we proceed.

In 1987, the total LER events averaged approximately five per month. Thus far in 1988, the LER events are averaging a little bit less than three per month. We believe we try to find thorough comprehensive solutions to the problems that are identified. Current status of Unit 1 at Braidwood is that it is operating steady state at 75 percent power. We are working on completion of some of our start up tests at that power level.

Regarding Unit 2 at Braidwood, we believe we learned from Braidwood Unit 1 and from the Byron Unit 2 start up. We had an error-free fuel load period at Braidwood Unit 2 that began on December of 1987, and we had error free mode changes to initial criticality on Unit 2. Initial critical was on March 8 of 1988. The current status of Unit 2 is that it is operating at approximately 3 percent power. We are working on some lower power start up tests and we are ready to proceed with the power escalation program on Unit 2.

Overall, we believe that we have had excellent performance at Braidwood, and that has been achieved from the various programs that have been successfully implemented at the plant.

During the start up period at Unit 1, we had a concurrent activities program. This program was to assure

appropriate attention, direction, supervision and control for taking Unit 1 through its power ascension program while Unit 2 was undergoing the pre-op and start up testing at the same time. The key features of this program included error-free planning. This included executive level reviews on a bi-weekly basis at the plant; it included shift augmentation during periods of increased activity.

This meant that we would have a senior manager person on shift as necessary; we would have added SRO's and RO's as needed for particular tests; and that we would have control room shift test directors to coordinate and direct the test activities; and we provided around the clock maintenance support. We also implemented a shift release process that meant that the shift personnel came to the job approximately one hour early and did an extensive review and relief program.

Another part of this concurrent activities plan were organizational changes to support the Unit 2 initial start up activities. We provided a start up assistant for the station lead start up coordinator, we provided an assistant for the Unit 2 operating engineer, and we provided an assistant SCRE to help with the activities in the control room. Additionally, we limited control room access. We restricted general access to the control room and provided or specified a control room access pattern in order to minimize control room distractions and congestion.

Recently, we added a start up and test completion plan for the Unit 2 start up activities. This plan is intended to focus our resources in order to complete the Unit 2 start up testing and to complete the Unit 1 testing and power ascension program.

We created a start up and testing group. This is an independent group that reports to the services superintendent at the station, and the testing supervisor for this group is an assistant superintendent level person, a management person who is SRO certified for Braidwood station.

All of our testing activities are now controlled by one group, which thereby minimizes the number of people that must interface with the shift operating personnel. This start up and testing group determines the sequencing and the priority of testing activities. A benefit of this consolidated start up test group is that it leaves the operating maintenance tech support areas so that they can focus on their normal kinds of operating duties.

The start up and testing group personnel that we have include two experienced test directors on each of our shifts that provides us 24 hour a day, seven day a week coordination of our testing activities. We have a total of 41 people in this group, plus an additional 15 indirect contact people that provides us with access to the remainder of the total station organization and additionally to our engineering department,

our construction department and our nuclear steam supply vendors and all the other vendors that are available for support.

The recent SALP report for Braidwood cited adequate handling of these concurrent activities.

In the training area at Braidwood Station, we have had an excellent NRC exam pass rate over the several years. The total people success rate is 95 percent for Braidwood, and the first attempt success rate is 86 percent for Braidwood Station. We currently have 47 SRO licenses and 35 RO licenses at Braidwood. Each of our licensed people receive 60 hours of simulator training each year. Additionally, they partake in a two, four week block training requalification programs within a classroom environment.

The recent SALP report rated the training program at Braidwood as a number one level.

We think that we have had excellent lessons learned implemented at Braidwood overall. We believe strongly in learning from the experience of others. Braidwood deals with lessons learned from Byron, from other plants and from the industry in general. As an example, a task force evaluated Byron Unit 1 start up, identifying problem areas and proposed solutions.

Braidwood resolved each area in advance of Unit 1 start up. Similarly, the Braidwood Unit 1 start up was

reviewed and lessons learned were incorporated into the Unit 2 start up activities.

Key Byron contractor and consultant personnel were moved to Braidwood to participate in the Unit 2 start up activities. A monthly plant status report is generated that covers NRC, INPO and other performance indicators, and this report is used for adverse trend identification. These lessons learned efforts will continue into the future.

A current example of a lessons learned is that we are going to bring three Byron Station present supervisors who were former RO operators at Byron and bring them over to Braidwood during the initial power operations. They are going to work with the Braidwood operators and particularly focus on the D-5 Steam Generator level situations. You may recall that Byron did pretty well with the D-5 Steam Generators because they picked up a good lesson from Catawba Station on some of their problems.

The Regulatory Assurance Department at Braidwood is one of the strongest support groups that we have. This was as noted in the recent SALP report. The function of this group is to monitor, investigate, and report to senior station management compliance with NRC regulations, INPO benchmarks of excellence and other regulatory requirements.

This department coordinates our lessons learned program. Also, they track commitments through to completion,

they provide a daily interface with the NRC, and the SALP report cited the group as well staffed with energetic and professional personnel who were effective in resolving regulatory issues.

Model spaces program at Braidwood is something that we are extremely proud of. Each of you that has visited Braidwood has commented favorably on the program. The program facilitates cleanliness at the plant, equipment preservation, decontamination of the plant. In fact, this was identified as an INPO strength in our recent INPO plant evaluation.

The program also lowers the threshold of problem visibility and identification; it has positive effects on the morale, the attitude and the pride of the people at Braidwood. The status of this program is that all except for the Unit 2 turbine building areas are greater than 90 percent completed at the present time. Unit 2 turbine building is approximately 20 percent complete. In effect, what we are really doing is evolving to a model plant concept rather than just a local area. We are going to maintain the plant in its model condition for its lifetime.

The maintenance program at Commonwealth Edison Company and Braidwood Station, in regard to maintenance, we recognize the importance of a structured maintenance program. A corporate conduct of maintenance policy and directive was significantly revised and issued in the first quarter of 1988.

This structured program included, for the Commonwealth Edison Company, a goal of having 50 percent preventative maintenance at all of our plants. At the present time, Braidwood currently has approximately 35 of its activities are considered preventative maintenance. Preventative maintenance includes more than just maintenance department work hours; it also includes surveillance, work activities, vibration analysis and a number of other activities. We are continuing to expand the emphasis on preventative maintenance at Braidwood.

Braidwood Station has implemented a Commonwealth Edison program called Total Job Management, and a feature of that is an equipment maintenance system. This program at Braidwood was recently cited by INPO as a good practice in our evaluation.

Some of you have seen the microelectronics surveillance and calibration unit at Braidwood, the MESAC Unit. This unit has significantly reduced the monthly instrument department surveillance time. We have had no personnel errors or plant trip events in about 1,800 surveillances that have been conducted at Braidwood. Additional units are being built to be used for Byron Station. We have had a patent and trademark received for this unit at Braidwood.

Regarding equipment qualification status at Braidwood Station, this was reviewed by the NRC in February of 1988.

Concerns were raised regarding O-ring and seal changeouts, regarding pump and motor lubrication frequencies, regarding grease mixtures for motor operated valves. All of these concerns have been corrected and Braidwood is considered to be in full compliance with the EQ rule in this particular area.

Another portion of the EQ program raised concerns about Bunker Ramo instrument penetration assemblies at Braidwood Station. These are used in four areas to penetrate the containment wall. The Commonwealth Edison Company made a substantial effort to provide supporting documentation to establish qualification to the NRC staff satisfaction. We have not been successful at the present time in resolving these concerns, and we therefore seek exemption to the EQ rule for this particular item.

In the overall maintenance area at Braidwood, we continuously monitor the backlog of our work request status. We presently have pending, work requests and it ranges over about 2,000 units per month, 2,000 work request items per month. This covers all areas including corrective maintenance, preventative maintenance, modifications, facility items and equipment repairs that would put an item back into our storeroom.

The present corrective maintenance backlog at Braidwood is 950 items. Of those 950 items, less than 40 percent of those are greater than three months old. That puts

Braidwood in the upper quartile in the INPO performance category there. Maintenance at Braidwood is going to continue aim at achieving excellence.

An information management program is another item that has been well implemented at Braidwood Station. The Station has initiated a computer program to word search the FSAR, our tech specs and station procedures. The tech specs are presently on this system. The FSAR will be on this system by September of this year. At the present time, 100 percent of our procedures are loaded, 40 percent of these are validated.

The benefits of this program will include enhanced 50/59 reviews, safety reviews, identification of procedures affected by changing various plant changes and plant modifications, it will reduce the chance of error in changing paper in our different paper programs at the plant, and it will provide immediate procedure availability upon approval by the on-site review committee.

Also, an effective computerized nuclear tracking system has been established to track NRC issues and commitments and other industry and operating experience information and commitments. The nuclear tracking system is a living file. Items can be reopened based on in-house or industry experience. The status of issues is periodically reviewed for continuing acceptability. Again, one organization tracks all of our open items through completion.

Information management, as a whole, and the nuclear tracking system specifically, again were recently identified by INPO as good practices at Braidwood Station.

The main control room annunciators has been an area focus at Braidwood. A program to reduce nuisance alarms began by monitoring annunciator status at fuel load, and we presently track control room work request status on a daily basis. We are continuing a positive trend towards blackboard annunciator implementation at Braidwood.

The main control room instrumentation is another area of emphasis. We desire high availability of our instrumentation. It's part of the full deck concept of our error-free plan. Again, we track control room work request status daily. Presently, we have 15 work requests outstanding per unit at Braidwood Station and the top quartile for INPO performance indicator there is 18 units for each unit.

Regarding the INPO evaluation that I have mentioned a couple of times, Braidwood Station just completed its first operating plant full plant evaluation. In fact, the exit meeting was just this past Tuesday. This evaluation identified Braidwood as receiving a number two plant performance level rating. There were several strengths and good practices mentioned and there was also areas mentioned that needed emphasis for continued improvement.

Overall, the INPO team was impressed by the plant, by

the people, by the professionalism, by the responsiveness and pride, and by the overall positive attitude towards excellence. I think the INPO evaluation serves as a good calibration for our people at this time of helping go through the transition from the construction phase to a full operating type of plant. We are pleased with INPOs recognition of good performance at Braidwood Station.

In conclusion, in all areas at Braidwood Station, we are committed to achieving professional excellence. As with Unit 1, we are prepared to meet with the Region III staff to discuss readiness to operate above 50 percent power. We have the right attitude, we have the dedication, the ability and the commitment to operate Braidwood Station safely and reliably.

Our approach is timely, thorough and comprehensive. We have set our standards and goals high. Simply stated, we intend to be the best. Commissioner Bernthal, on his recent visit to the plant, said that Braidwood Station approaches looking like a world class plant. We are not going to be satisfied until we have a world class operation at Braidwood Station. Thank you.

CHAIRMAN ZECH: Thank you very much.

MR. REED: Mr. Chairman, my less than five minute remarks. As Mr. O'Connor stated earlier, we are committed to excellence in all aspects of our nuclear operations, and we think we have a good plan to get us there. My senior managers

and I have spent considerable time in developing a plan for excellence and have set goals and action plans for achieving excellence in all phases of our operations.

Our three major steps that we have taken to make this plan a reality, first, is accountability. Each nuclear manager, from myself down to the first line supervisors in our plants and in our general offices have personal accountability goals tied to the plan of excellence. These goals are set in formal meetings.

Second, we have made substantial effort to communicate our plan to all of our employees and to get them involved in developing of the plan. Third, as Mr. O'Connor has stated, we have committed the financial and personnel resources to make it a reality. For that reason, I think we are going to have a good success.

We experienced improved performance in our operations of our nuclear units last year. I would like to take a few minutes to review our 1987 performance. Quad Cities achieved an equivalent availability of 70.3 percent last year, and that was excellent performance. Their SALP rating had an average of 1.6; their INPO evaluation was a three in the broad middle. Quad Cities station had the lowest MANREM exposure of any multi-unit BWR station in the country last year.

At Zion, our equivalent availability was 63.4 percent last year. Again, we had a 1.6 average SALP rating, and they

were rated a three by INPO. One thing that we are proud of at Zion is that there were no reactor scrams on either units at Zion in 1987.

Our Byron Station had an equivalent availability of 58.4 percent last year. They had a SALP rating of 1.7, and we are most proud of an INPO number one rating in 1987. That is terrific, when you consider that we had our first refueling outage on Unit 1 and we brought Unit 2 into commercial operation.

Our LaSalle Counties equivalent availability was only 46.8 percent. This certainly was below average. Our biggest problem resulted from a generic problem with one of the reactor coolant pumps that cost us some 12.9 percent in availability. The thing that made our year at LaSalle last year, however, was a November 1987, that INPO rated LaSalle a two. We are confident that LaSalle is on its way to being an outstanding station.

Dresden Station has an equivalent availability of only 59.3 percent last year. Their SALP rating was 2.1, with one three. But Dresden has been on a very significant improving trend for over a year. We have changed 20 of the top 26 management people at Dresden to get some fresh approaches. We have made a major effort at improving the housekeeping and material condition of the plant. As a result, in August 1987, INPO rated Dresden a four with a strong improving trend.

It has been eight months since that evaluation, and I can assure you that we have had strong improving trends since that time.

Dresden 2 had a 204 day continuous operating run recently. Dresden 3 had 170 day run. We have had five units with over 200 days of continuous operation over the last several months. Zion Unit 1, with 284 days; Zion Unit 2, 2227 days; Byron Unit 1, 228 days; LaSalle Unit 2, 237 days. Our 1988 goals are on track, and it will demonstrate a substantial improvement over our 1987 performance.

Finally, I just want to say that we are committed to excellence, and it's not just a slogan. As I tell our people, we have experience and we have the talent to be excellent and we must realize our full potential by not only being the biggest but also being the best. Thank you.

CHAIRMAN ZECH: Thank you very much. Does that complete your presentation, Mr. O'Connor?

MR. O'CONNOR: Yes, it does, Mr. Chairman.

CHAIRMAN ZECH: All right. Questions of my fellow Commissioner's? Commissioner Roberts?

COMMISSIONER ROBERTS: Briefly, briefly. What is the nature of the problem with the environmental qualifications for the full penetrations and are those same penetrations qualified in Byron 1 and 2 and Braidwood 1?

MR. REED: Briefly, we felt that the penetrations

were qualified. The staff has in March, determined that they didn't have enough information to demonstrate that they are qualified.

COMMISSIONER ROBERTS: Be more specific. What do you mean?

MR. REED: The test that was run on the Bunker Ramo penetration, the four penetrations at Braidwood Station, have been reviewed by the staff in the past. But as they looked at them again on Braidwood 2, they are concerned that it does not meet the high triple-E 1974 standards.

There is an issue of taking of resistance values and they felt that these values were not taken frequently enough to meet the standards. We have technical disagreement with the staff of that, but in an effort to resolve it we have committed to change out those penetrations if we can't demonstrate that they are good --

COMMISSIONER ROBERTS: You mean, physically cut them cut and replace them?

MR. REED: Yes.

CHAIRMAN ZECH: When are you going to do that?

MR. REED: Our best opportunity is January of 1989, when we come down for a surveillance outage. We would like to get the unit through its start up phase. It would be a great imposition, it would take a 16 week outage now if we would try to replace them now. If we have time to plan this out -- it is

important that we plan it well.

We think that we can get it done within a 10 week period. The trick is, after you disconnect -- if you change them out and disconnect all of the instrument cables to put them back together correctly and to have an adequate test program to ensure that they are all right.

We think we have a very strong justification for continued operation. Our people and our simulators have demonstrated that they can shut the unit down safely with the alternative instrumentation that we have if these penetrations do fail.

COMMISSIONER ROBERTS: Does any entity in the U. S. operate more reactors than Commonwealth Edison?

MR. O'CONNOR: No, sir.

COMMISSIONER ROBERTS: You have got an equal mix of PWR and BWR?

MR. O'CONNOR: Yes, six of each.

COMMISSIONER ROBERTS: For my part, we certainly look to you for leadership in the industry and excellence.

MR. O'CONNOR: We recognize that responsibility and that obligation. I think we, as Cordell pointed out, we have not only the resources but the willingness to commit those resources to be the best.

COMMISSIONER ROBERTS: That's all I have.

CHAIRMAN ZECH: Commissioner Bernthal?

COMMISSIONER BERNTHAL: I want to pick up just a little bit more on the issue that Tom raised. I understand that you relied somewhat at least, on the Midland testing. I don't want to get into too much gory technical detail here. I also understand that apparently this could even be a generic issue, which staff I assume, will tell us more about when they get up here. Other plants and others have the same problem.

From what my staff has told me about the Midland testing, it was a matter of the testing times now quite overlapping or something for a similar type penetration. Could you elaborate just a little bit on why the Midland testing doesn't really satisfy our testing requirements? I assume the staff will comment on that as well, but perhaps you can.

MR. REED: I would like for my staff to briefly explain that. Mike or Brent.

CHAIRMAN ZECH: Would you come up to the microphone over here please, and identify yourself for the reporter, or to the table, either one. Right here is fine.

MR. SHELTON: My name is Brent Shelton, and I am PWR Engineering Manager for Commonwealth Edison. The response to the question is that the data that was taken in the Midland test was not taken frequently enough through the period of the LOCA to have actual resistance values at the peak of the LOCA.

The resistance values that were taken in the initial phases and after the LOCA all showed that the resistance values

were adequate and the penetrations worked. So the missing piece of information is an insulation resistant measurement or measurements at the peak of the LOCA essentially.

COMMISSIONER BERNTHAL: The information that I had was that the Midland tests -- I may have these reversed -- the Midland tests were run from 16 to 20-odd hours and your -- I think it was the other way around, actually. Yours or theirs were run from up to 16 hours for a simulated LOCA or something like that.

Is it the fact that they weren't run in overlapping timeframes then, that --

MR. SHELTON: No. We have insulation resistance measurements just prior to the peak of the LOCA and after it, but not through the whole period of the LOCA transient.

COMMISSIONER BERNTHAL: I see. So, yours actually would have been measurements in the later timeframe then?

MR. SHELTON: Well, one of them a little bit ahead I believe and one after.

COMMISSIONER BERNTHAL: I understand.

MR. SHELTON: The point is that the penetrations from our view though, did come through the LOCA and functioned afterwards. So the question is right at the very peak time we don't have data available. None of the data that we have frankly, points to failure or problem. It is just an adequate amount is the debate to prove fully that they are qualified.

COMMISSIONER BERNTHAL: Thank you very much. I would just make a comment or two here and then have one or two more questions. I don't know whether it is four now, or how many plants of yours that have been licensed during my tenure on the Commission. Is it just four or is it beyond that?

MR. REED: I believe it's four.

COMMISSIONER BERNTHAL: It is at least four. I have seen you several times across the table here, and you are probably tired of hearing me say and therefore you said it first today, that you are not only the biggest but you should be the best and you intend to be the best.

I will be quite candid and say that in the earlier years at some of those earlier plants, I always felt like Commonwealth was big and came in and got a respectable gentleman's "C". I guess "B" is respectable these days. A "C" used to be respectable. I want to congratulate you and give you measured credit, because I think measured credit is due.

I have the feeling now, after four and one-half years, that the VECTOR is definitely on the way up. I think you are above average, and clearly the appearance of this plant -- I think the operations that you have displayed, and I believe that our regional staff people agree, are beginning to display the kind of leadership that the country has a right to expect from a utility that has th largest nuclear operation in the country.

I certainly hope, and I agree with Commissioner Robert's comment, that that continues. You have had a massive construction program out there that taxes the resources of any organization, even Commonwealth Edison. I find it remarkable that you, Mr. O'Connor, maintain a stability and an equanimity through this whole process that I think is commendable. It is certainly something that I suspect many other company chief executives would wish they had been able to accomplish throughout such a major program.

I look forward, after I am gone from this Commission, to reading about continued improvement and leadership in your utility.

I have one or two questions which as a matter of getting them on the public record, I was already briefed considerably on most of the problems and progress at your plant when I visited. To get on the public record one or two difficulties that you have had, let me just ask you to run through these briefly and, in particular, the grease problem to get to one point.

I assume that the difficulty that you had with the residual grease that was not qualified, replacing that, cleaning valves that contain that material, that that problem has not been completely cleared away or you wouldn't be here today.

Could you just elaborate a little bit on that for the

public record here, and explain what you did to take care of it?

MR. QUERIO: Let me talk about it. In the original timeframe of 1985, we sampled all the grease at Braidwood Station and believed at that time that all the grease met the requirements. Subsequently, it has been determined that the sampling methods, the sampling technique, just wasn't precise enough at that time.

During the recent EQ inspection at the plant, we were asked if we thought that there was any dirt accumulation in the grease over the construction period of time. We decided to do some additional sampling and turned up signs of streaks in a couple of the places, black streaks that indicated potentially mixed grease. We embarked on a much more extensive sampling program and sampled from all the various ports on the limit torque operators, and came to the conclusions that there were problem situations there and set about on a program to change all of the grease out on those that indicated mixed grease.

We have completed that for Braidwood Unit 2.

COMMISSIONER BERNTHAL: Could you describe just a little bit, how much -- was it hardening that you find when these two materials get mixed? I'm not sure that I remember what --

MR. QUERIO: It's my understanding that you could find either hardening or softening or liquefying.

COMMISSIONER BERNTHAL: Is that right, okay.

MR. REED. Over a period of time, with temperature and radiation it could harden.

MR. QUERIO: In our case, we just had the indications, the dark streaks but not the hardening or liquefying.

COMMISSIONER BERNTHAL: That has all been taken care of, I assume?

MR. REED: Right.

COMMISSIONER BERNTHAL: I think I will not make further comment at this time, and turn to my colleagues here.

CHAIRMAN ZECH: Commissioner Carr?

COMMISSIONER CARR: I would just comment that it is encouraging to me that over the, as you mentioned, the construction period, you were able to make your schedules when I was out there. It's been almost two years ago when you gave me the schedule for this unit, and you said you would be critical in one month and you were, and a little earlier than you predicted I think.

It looks to me like you are now heading for full power sooner than you had predicted.

MR. O'CONNOR: It's a little bit sooner.

COMMISSIONER CARR: I would say it's encouraging to me that somebody can meet a schedule -- I will put that on the record.

MR. O'CONNOR: Thank you.

CHAIRMAN ZECH: Commissioner Rogers?

COMMISSIONER ROGERS: Yes. I wonder if you could just say a few words about your view, from a long term basis, of this flaw that was detected in an elbow-to-valve weld in the reactor coolant system on Unit 2; that small ultrasonic flaw was detected ultrasonically. I wonder if you can say something about your view on that on a long term basis.

Do you expect to have to make a change there sometime, or do you expect that to be serviceable for the indefinite future?

MR. REED: Can you address that, Brent?

MR. SHELTON: I believe I can. The flaw was small. We had it evaluated by Westinghouse. To the best of our knowledge, we don't believe that that will have to be changed in the future.

I think the reason that it came apparent in the late stages is that some of the technology, UT techniques and what have you, have improved and the threshold has actually been lowered on our ability to find things.

COMMISSIONER ROGERS: Do you expect to follow that one on a periodic basis? I mean, that will be on a checklist, an inspection checklist to follow it?

MR. SHELTON: Yes. It is in the ISI program.

COMMISSIONER ROGERS: You mentioned that there were

no plant trip of 1,800 surveillances so far at Braidwood. Do you have some kind of a goal there of what your expectation would be in terms of plant trips as a result of surveillances? It shouldn't happen at all, but --

MR. QUERIO: That's kind of like asking how many loss time accidents do you want to have. I mean, you want to have none, and you obviously want to have --

COMMISSIONER ROGERS: Of course.

MR. QUERIO: --no plant trip events from anything. We target a low number as an outside kind of a goal, and it is two or three trips per unit per year, is something that maybe would happen like that.

MR. REED: Specifically, our 1990 goal and I'm looking at Chairman Zech -- he's help sensitize us on the subject -- is no more than one a unit. I mean, we are trying to get zero but we are really trying to make very conscientious efforts not to get over one. If we do that, we think that will put us in the upper quartile of industry performance.

We have just set our 1993 goals, and we had quite a discussion that zero could be it. We have not come to zero yet. I think there are things underway in terms of surveillance testing, at least we have heard from the Commission and from the staff, that some of this testing that we do during operations, if we don't have to do those and expose the unit, I think this country can have as good a record

as any other country.

MR. QUERIO: The point with the 1,800 surveillances was that the MESAC device, the electronic devise, gives us very improved performance with instrument surveillances.

COMMISSIONER ROGERS: That's all I have right now.

CHAIRMAN ZECH: Commissioner Bernthal, you had additional questions?

COMMISSIONER BERNTHAL: Yes, or you go ahead.

CHAIRMAN ZECH: Go ahead. I will wait for a minute.

COMMISSIONER BERNTHAL: I want to get to the capacity factor business for a moment. I would hope that we can do better than 70 percent in this country. I know that based on history and the track record in our country, we would be delighted, the industry would be delighted, and I think the Commission would be delighted, because I would hope that would indicate higher quality of operations and greater safety as well if the entire country could average 70 percent.

I note that you mentioned that Byron was the high 50's last year, I believe that's what you said.

MR. QUERIO: In 1987, yes.

COMMISSIONER BERNTHAL: That is about the national average. It doesn't even come close to the Japanese average. I don't believe it even comes close to the French average now and a number of other countries.

Why was Byron, for example, the only high 50's?

MR. REED: We went through our first refueling outage on Byron station last year. Clearly, our goal, our goal for 1990 is 80 percent. We have not set any goals that we cannot reasonably deliver. Eighty percent is substantially better than anything we have ever done in the past.

We really think that we are over the hump with a number of problems that we have had with BWRs, hydrogenetic loads, the turbines on Zion, and we firmly believe that we can reach 80 percent. Our last six or seven months of operation have demonstrated that we can actually meet these.

So 70 percent is just the best we did on any of our units, but that is not the goal that we are reaching for.

COMMISSIONER BERNTHAL: I entirely agree. I would attach the term excellence to 80 percent. In fact, 70, I think, is good and 60 tells me as a Commissioner that maybe some things aren't going as well as they should be. I am sure that although it happens to be close to average in the country right now, it isn't good enough for this business and I think you all understand that.

MR. O'CONNOR: I think those are fair assignments of categories too, 60, 70, 80 with which we would concur. I think a very aggressive goal in the near term is the 80 percent number. I think if we are successful in limiting the number of scrams and confining our outages to better levels than we have been able to achieve both in our company and nationally, and

resolving the question of how long between fuel loads, I think we are going to have some very impressive improvement in those numbers over the next few years.

COMMISSIONER BERNTHAL: I agree.

MR. QUERIO: I was going to add that a big part of meeting the goal is to do outages in a good timeframe. Zion station just completed an outage in 74 days, scheduled 10 week outage. That's an important factor in getting to the 80 percent.

COMMISSIONER BERNTHAL: I am reminded of the plant on the West Coast of Finland that's a BWR -- it's not a PWR, which this was two or three years ago. I think they have done better since. When I was there I was very pleased. The plant personnel were very pleased because they had achieved a 19 day -- 19 day outage.

MR. REED: Commissioner, he was at the conference you attended in Chicago, at least the maintenance manager there. They are up to 25 days, but he assured me it wasn't magic and he could teach me how to do it, was his statement.

[Laughter.]

COMMISSIONER BERNTHAL: One point about your training and the fact, as I understand it, you use the Braidwood simulator for both the Byron and Braidwood simulator training. Do you find that you have any difficulty in scheduling time? That's a pretty heavy usage, I would guess, with four units on

that simulator. I know you mentioned that number six and 60 hours --

MR. REED: We are now in that position. We committed this year to increase our simulator training time to 60 hours. We were down to about 40 or 50 before. Because of that, we have committed, we have gotten approval to build a separate Byron simulator at the Byron site, building a separate Quad Cities simulator at the Quad Cities site.

COMMISSIONER BERNTHAL: You may have mentioned that in your presentation. One last comment. I also understand that you have a degreed, engineering degreed advisor on all of your shifts now with an SRO credential. I applaud that effort. I think that's a step toward the kind of professionalism and excellence that all of our operations, all of our plants should try and maintain in their control rooms. So, I commend you all for that.

That's all I have, Mr. Chairman. Thank you.

CHAIRMAN ZECH: Concerning the electrical penetration problem, my question is, are there alternative instruments in case the instruments involved in this penetration problem would not function?

MR. QUERIO: Yes. There are alternative instruments available. We have demonstrated on the simulator, being able to shut down the plant with the failure of the instrumentation through these devices and the operators were able to deal with

it. We did kind of a study event of the simulator activities and determined a couple of procedure changes that would help the operators be able to deal with that.

We have added those procedures and have provided some operator aid so that the control room people are able to better use some of the other instrumentation that is available.

CHAIRMAN ZECH: All right. I would like the staff to comment on that when they come to the table too, please.

Do you have a degree program in place at the Commonwealth Edison plant?

MR. REED: Yes, sir. In 1981, we started a program with Northern Illinois University. It is a four year degree program receiving a Bachelor of Science degree in reactor technology engineering. We have had four people to graduate from this program. We have five other students in the advance stages, and other people in the two.

Generally, the profile of the people that we have in this program are people who are 35, with two years of college experience. It is very difficult, however, for people who are working on shift to complete this program. We are encouraging this and we are trying to enhance the number of people that we can get through it.

CHAIRMAN ZECH: Is it in place at all of your sites?

MR. REED: It is available at all sites except Zion and Quad Cities. We have had live classes taught at our

production training center. We have had people to participate at all stations through electronic blackboard. We found for these difficult subjects, that the electronic blackboard is just not effective. The instructors have to speak into the microphone.

So we cut them out at Zion and Quad Cities for the current time. Dresden, LaSalle and Braidwood people can attend live classes at PTC. Byron people can go to NIU. We are trying to perfect our program and see how we can make is available to Zion and Quad Cities.

CHAIRMAN ZECH: Is it available to other than control room operators?

MR. REED: Yes. Right now, it is available to all management people. We have put our priority on SROs, but other tech staff, assistants and the like, engineering assistant -- at the current time, it is not available to the bargaining group.

What we are trying to do is to iron out, to make it more effective and get more people more successful at this program before we expand it to the bargaining group, but that's our intent.

CHAIRMAN ZECH: I would encourage you to continue the program and to give it emphasis. I think frankly, you should consider it part of your upgrade of professionalism that you mentioned early in the presentation. I think it is part of

that. My view is that there's a lot of talent in the utilities that if we look to the future, can contribute to improved operation, improved safety if they are given the opportunity to move up into management.

Most utilities, it is my understanding, either require or certainly would expect people in management to have a college degree. To those talented people that you have in your control room and other places and maintenance areas too, it seems to me that it is in your best interest and in our best interest as far as safety is concerned to use that talent. That's why I encourage you to continue that program in a strong sort of way.

I think your emphasis on professionalism in the control especially, and your going to uniforms, is a good thing to do. That doesn't make a better operator any more than a college degree would in some cases I suppose, but on the other hand, it adds up. Those are the things, in my view, that add up to more discipline, to a more professional atmosphere. I think those are the right things to do and I commend you for that.

I think your model space program, which we have mentioned several times in which I think all of the Commissioner's that have visited your plant have been impressed with, is all part of your upgrading professionalism. I think you should continue that model space program and, again, make

it utility-wide and not just in certain areas. I understand that you are doing that.

Those are the things that all come together under your effort to increase professionalism. I consider the degree program part of that, as well as your emphasis on the control room area. I think you should not exclude your maintenance people and others who also play a very important role in safety of operations.

Your commitment to excellence, I think is something that will require leadership involvement on a continuing basis. It has got to be action and not just worlds. You have got the plan and you've got the thing going, but it does require in my view, a continued leadership involvement all the way down the line. From what I have observed at Commonwealth Edison sites -- and I have visited all of them -- that you have that. You have a very good program of leadership involvement going, but I think it is, again, a continuing challenge.

If there any one secret to success in this nuclear power commercial industry of ours, in my judgment it is leadership involvement and not just at the top but all the way down the line, and the challenge is to get it all the way down the line. That's the real challenge. I think that's a continuing challenge to not only your utility but all utilities.

I would commend you for continuing your efforts

towards leadership involvement which I have observed at Commonwealth Edison, which I think is so important for safe, reliable and efficient operation.

You do have six sites and 12 units, really the largest of our utility, certainly in the private sector in the country. I think it does give you the added obligation, the added responsibility, to show leadership. You are a leader. I think this Commission looks to Commonwealth Edison and expects Commonwealth Edison to be a leader. Your emphasis on excellence, your commitment to excellence, your commitment to upgrade professionalism across the board is very important.

Other utilities will look to Commonwealth Edison and will be watching Commonwealth Edison, as will this Commission. It is important, and I think you do have that added burden of responsibility to show other utilities how it should be done. You do have the resources that some perhaps don't.

I think that your improvement that I have noted -- I agree with Commissioner Bernthal's comment and his observations over the past four and one-half years or more that he stated and mine, over three and one-half years plus -- I think the visits that I have made more recently to your utilities have shown me that you are improving and, therefore, your commitment to excellence is real.

So, I commend you for that, but I also say there's always room for improvement. Even at Commonwealth Edison

there's room for improvement. I think you should continue that solid effort to improve and recognize that the other utilities and the Commission are particularly mindful of Commonwealth Edison and expect you to continue to improve.

Those are the comments that I have. I think that your leadership role is extremely important, and I would encourage you to be mindful of that and all of your senior organization to be mindful of that too, as you continue to apply yourself through operating these plants in a safe manner so the public health and safety will be protected.

With that, unless there are any other comments? Commissioner Bernthal?

COMMISSIONER BERNTHAL: Just one quick question. How many -- do you happen to know, Mr. O'Connor, how many INPO category one ratings have been given to plants in this country?

MR. O'CONNOR: There are nine as of this week.

COMMISSIONER BERNTHAL: Well, I am glad they are parsimonious with that kind of ranking. I noted that a two made you feel pretty good about a plant, but a one ought to be something that really is an achievement. I am pleased that they keep it that way.

One other item that I --

MR. O'CONNOR: We are not certain, Commissioner -- we don't think anybody has ever done better than a two on a first time operational evaluation of a plant. In fact, we are not

certain that anybody has done a two, but there probably has from somebody. But two is a road to one, in our judgment at Braidwood.

COMMISSIONER BERNTHAL: I understand. And apparently one is tough to get, and it ought to be. I was just going to make the comment in relation to some of the things the Chairman mentioned about control room decorum and control room educational credentials, that we had an excellent briefing yesterday from the gentleman who chaired the National Academy study on human factors.

You have mentioned and I saw when I was at your plant, that you had the resources and the talent to take the lead on diagnostic testing, electronic testing devices. It may well be that you would also want to take a very careful look at some of the findings of the National Academy, the research area recommendations.

You obviously are an influential member of the Electric Power Research Institute, and I believe that some of these human factor areas recommended for additional research to the NRC are areas that could at least as well, perhaps better, be handled by EPRE. I would refer you to the report which is complete now, and I think really gives an exciting perspective and direction and I hope some impetus once again to human factors research, not only in our own Agency but I think the industry ought to take careful look at that study. It's a good

one.

MR. O'CONNOR: We will do that.

CHAIRMAN ZECH: Thank you very much, Mr. O'Connor and your colleagues.

I will ask the staff to come forward.

Mr. Stello, you may proceed.

MR. STELLO: Thank you, Mr. Chairman. I will turn very quickly here to Mr. Sniezek. We will try to abbreviate our presentation this morning, to not repeat the things we have already heard from Commonwealth.

There are two points that I think are important. One is that we are satisfied with the progress that has been made, and are prepared this morning and are recommending to the Commission, that you agree that the plant is, in fact, ready for full power licensing and authorize the staff to go forward and issue that license when it is prepared to do so.

There is, and has been already, considerable discussion on one issue that I think has come out of the briefing. You have asked us to pay attention to it and we will at the end of the briefing, turn directly to the Bunker Ramo penetration question. We would like to very quickly go through it and then we will get directly to answer that question. We have Mr. Craig here this morning to apprise you of it.

It is a generic problem. Our estimate is that it is affecting on the order of 12 plants, and we will be prepared to

describe to you what that problem is.

I will ask Mr. Sniezek to introduce the others at the table and principally get through the presentation.

CHAIRMAN ZECH: Thank you very much. Mr. Sniezek.

MR. SNIEZEK: Good morning, Mr. Chairman.

CHAIRMAN ZECH: Good morning. You may proceed.

MR. SNIEZEK: On the left at the end of the table is John Craig. He is the Chief of the Plant System Branch NR, who will discuss the Bunker Ramo penetration situation. I believe you all know Burt Davis, the Regional Administrator, Region III. Ed Greenman, who is the Region III Projects Division Director; Stephen Sands, who is the NRR Project Manager for Braidwood; and Tom Tongue, who is the Senior Resident Inspector at Braidwood.

Mr. Sands and Mr. Greenman will be conducting the presentation this morning. I will turn it over to Mr. Sands at this time.

CHAIRMAN ZECH: Thank you very much. You may proceed.

MR. SANDS: Mr. Chairman and Commissioner's, I would like to direct your attention to slide number one. It's a presentation outline.

[Slides.]

If there are no objections, in order to expedite the briefing, I would like to move to slide seven. Most the

material in between is backgrcund information which you have already seen.

CHAIRMAN ZECH: Fine, go right ahead.

MR. SANDS: This slide is a chronology of the hearing and licensing milestones. The OL evidentiary hearings, which were conducted for two contentions; one involving emergency planning and the other was on a QA contention involving harassment and other discrimination.

The hearings were commenced in 1985 and completed in 1986. The record was then closed in December of 1986. The initial decision on EP was in May of 1987. The decision on harassment and other discrimination was also concluded in May of 1986.

Out of those initial decisions, the licensing board authorized issuance of the full power license pending Commission approval. The result of that, if we look at slide eight, was an appeal by the intervenors of the licensing board decision.

[Slides.]

The appeal panel held a hearing on October of 1987, and the decision was granted in March of 1988, affirming the board's decisions. On slide nine, are the licensing milestones. The Construction permit was issued in December of 1975. There was a halt in construction from September of 1979 through March of 1980. It was initiated by Commonwealth and it

was financial consideration.

The low power license was just issued this past December and fuel loading had commenced in December of 1987, and was finished by the end of the year. Initial criticality was in March of 1988.

On slide 10 is a status of issues. There are three exemptions attached to this license. The first two are standard exemptions which we have all seen before for all other OL plants. One is the criticality alarm system which is for the storage of dry fuel; and the other is the containment airlock testing which was previously granted in the low power license and are carried forward with the full power license. The third exemption is the schedule exemption on EQ for Bunker Ramo, which is going to be discussed in greater detail by Mr. Craig.

On slide 12 is a chronology of the exemption request. It was first discovered at an EQ audit, inspection audit conducted in February. There were meetings held on both March 9th and 16th to evaluate the qualification documentation and there were further meetings in May, May 2nd and May 9th to go over the exemption request material.

In early April, the staff had concluded that although the existing test information was not sufficient to demonstrate qualification under 5049 paragraph (f), the penetrations would likely be operable. On this basis, decided to support the

exemption request. On April 7, Commonwealth requested the exemption to 5049 and presented a justification for operation.

[Slides.]

On slide 14, is an abbreviated basis for recommending the exemption. There are individual tests for specific components of the penetration, mainly the pigtail, the splice and the wire. All of those have passed the environmental qualification. The penetration itself is the one that is under question.

Other factors for recommending this are the low probability event and the short timeframe of the exemption from their start up now until January, and their scheduled surveillance outage when they plan to replace these penetrations. Added to that, there are functions in the reactor protection system which would be activated by alternative signals.

COMMISSIONER BERNTHAL: I must say that it is perhaps of somewhat greater concern that if this is a generic problem in this particular plant, you have set down licensing conditions and they have demonstrated that they can meet any emergency that might arise because of this particular question. Are we sure of the other operating plants that that is the case, since other plants have a similar penetration as I understand.

MR. SNIEZEK: I would mention at this time that it is

one of the things that Mr. Craig will be discussing at the end. We do have a kind of attack and approach for the other plants that may be affected.

COMMISSIONER BERNTHAL: Okay, good.

MR. SANDS: Some of the other key factors where the Commonwealth had put in special operating procedures to address these penetrations to cover -- in the event of an accident. And then you add in the fact that they had simulated this on their simulator without letting the operators know. On the basis of all of this, we concluded that there was a reason to support the exemption.

The organization staffing you heard in detail from Commonwealth, and I don't think there's a need to go into it in any great detail. However, on slide 17, I would like to point out the shift composition.

[Slides.]

There is a tech spec required which they meet or exceed, if you notice there are actuals both day and night shift, exceed the tech spec requirements for all categories. Their station control room engineer, which you have already heard, is SO qualified and degreed.

This concludes my portion of the presentation. I turn it over to Mr. Greenman.

CHAIRMAN ZECH: Thank you very much. You may proceed.

MR. GREENMAN: Mr. Chairman, Commissioners, I would like to defer discussion on the construction history with the Commission's agreement, in that it has been discussed at length during the licensing process for Braidwood Unit 1 and for low power licensing for Braidwood 2.

CHAIRMAN ZECH: Fine, you may proceed.

MR. GREENMAN: I would like to add to that discussion, however, our re-review of outstanding allegations. We reviewed the seven outstanding allegations at this point for the utility, and have concluded that after examination of the technical issues, that there are no issues outstanding that would impeded full power licensing of Braidwood Unit 2.

If I may have slide 19, please.

[Slides.]

With respect to preoperational and start up testing, it was mentioned earlier that lessons learned from Byron and Braidwood have been incorporated into Braidwood 2 testing. The staff is of the view that this is a major factor in the generally smooth progress of overall testing at Braidwood.

The utilities use an experienced staff wherever possible, and the performance has been generally good for the last of SECO's nuclear units. As the Commission has pointed out, we have high expectations for Commonwealth Edison and this is the fourth of their unit. While their performance has been good overall, it was not quite as good as Byron Unit 2.

Slide 20, please.

[Slides]

Operational experience for the utility, strengths, overall Byron 1 and 2 and Braidwood 1 plan experience using the task force from the Byron start up. There is an ongoing review of all of the Byron DVRs and LERs, NRC inspection reports, notices of violations, alterations and caution cards. On balance, this has been effective overall. The performance has not been quite as good as we would have expected for the fourth unit of this type.

Management control of Braidwood 1 and 2 activities has been a strength for the utilities. In part, staffing is common to both units 1 and 2 and to the common portions of the plant. Unit 1 start up testing, power ascension was conducted well; the utilities have done well with managing concurrent activities.

We recently conducted a SALP assessment for the utility and I will discuss that briefly momentarily. The utilities discussed the movement of Mr. Querio from the Byron Station to Braidwood. That transition has gone smooth and in orderly fashion.

Enforcement issues that are outstanding, --

CHAIRMAN ZECH: I think you are on slide 22 now; are you not?

MR. GREENMAN: I'm sorry. We can move to slide 22.

[Slides.]

Enforcement issues that are outstanding, we recently proposed a civil penalty related to the control room heating and ventilation system issue on design and testing. There is a current issue involving vital area barriers that is under evaluation by the staff.

COMMISSIONER BERNTHAL: What is that last one there?

MR. GREENMAN: That's the security issue, Commissioner Bernthal, on the vital area.

COMMISSIONER BERNTHAL: Obviously. What happened?

MR. GREENMAN: This has to do with access through what is known as the lake screen house, and where vital area control could have been compromised.

May I have slide 24, please?

[Slides.]

The last SALP assessment was conducted and presented to the licensee on April 5th of this year. It covers the interval from December 1, 1986 through December 31, 1987. Basically, there were two declines in performance in both quality assurance programs and administrative controls and assured quality, and in preoperational start up testing.

Our view is that with respect to quality programs -- and if I can move to the next portion of that slide -- this decline was due predominantly to overall management of operational activities when compared to very, very aggressive

handling of construction activities that existed in the previous SALP.

The decline in preoperational testing area number "K" is, in large part, was related to an increase in the number of violations that were identified in that particular area. On balance, it was a pretty good SALP. Number one category is given in emergency preparedness and in training and qualification effectiveness.

May I have slide 26, please?

[Slides.]

Overall operational readiness assessment, fuel loading and initial criticality -- proceeded with initial criticality on Unit 2 March 8th of this year. It was very smooth and professional with no problems. We conducted an operational readiness team inspection beginning in the middle of February of this year, went back for a second look for outstanding issues, and exited on March 7. The findings we have discussed earlier, and Mr. Craig will be discussing those later.

With respect to events, and if I could have the next portion of the slide.

[Slides.]

The utility has referenced their dissatisfaction with a number of events at Braidwood. We have held meetings with the licensee last December and have found that there are too

many personnel errors. These are concentrated in the first quarter of this year, actually up through May 1 of this year. There have been, overall, 12 personnel errors concentrated in the area of surveillance and in maintenance.

We have also had three events in the first quarter of the year related to noise problems with radiation monitors and sensitivity to noise systems. The utility is planning on putting in acoustical dampers and filters to resolve this issue.

Finally, with respect to this slide, as we have done on Braidwood Unit 1, after a decision is made with respect to full power licensing and the test program continues, the staff will meet with the utility after the complete testing up to the 50 percent level to ascertain that there are no additional outstanding issues which would require resolution before proceeding further. That commitment is documented and was documented by the licensee on the 8th of March of this year.

If I could have back up to slide number one.

[Slides.]

Overall performance, and looking at NUREG 1275, and comparing Braidwood 1 data, they look pretty good. With respect to all PWRs and first unit PWRs on trips, they run about one-third of the average, better than all first units on ESF actuations. The one area that is a little bit high relates to identified tech spec violations.

While we can't definitively determine why that's a little bit high, in part it is related to personnel errors, procedural problems and as you can equate that to technical specifications.

May I have slide 27.

[Slides.]

In conclusion, in reviewing the program, the staff has concluded that the utility satisfies the requirement for issuance of a full power license and, therefore, recommends that the Commission authorize issuance of such a license after the remainder of the staff deliberations. The Region, during the remainder of the start up test program and in particularly the power escalation beyond 5 percent early phases, will provide augmented inspection coverage to ensure that operational performance continues and that it is in the right direction.

Thank you, Mr. Chairman.

CHAIRMAN ZECH: Thank you very much.

MR. SNIEZEK: At this time, I would like to turn it over to Mr. John Craig, who will discuss briefly the technical issues that the staff has wrestled with in determining the Bunker Ramo penetration qualifications.

CHAIRMAN ZECH: Thank you very much. You may proceed.

MR. CRAIG: Mr. Chairman and Commissioners. As noted

by Mr. Reed, Commonwealth has spent a substantial effort reviewing this issue as has the staff. Our effort has included not only NRC personnel but experts from Sandia and EG&G labs who have conducted equipment qualification tests and are experienced in looking at installations and data to determine whether or not components are qualified.

The 5049 discusses and establishes high standards for equipment qualification. I am about to explain why we don't think it is qualified. I would caution at the beginning that we have concluded though, that the information presented by the licensee supports a conclusion that the penetration assemblies will be operable during the interim until they can be replaced or tested.

The test that is the subject of the controversy has to do with the testing of a complete assembly. Ideally, you would test a module for an epoxy containment penetration that would contain a number of wires, five, six, seven, 37. There are connections inside the module and then there's a wire that goes to a splice such as a Raychem splice, or a terminal board.

This string of electrical components would be then in the LOCA chamber and subjected to the tests at temperatures, pressures and spray conditions which are representative of the EQ profile that you would expect to see in a particular facility. So, there are a number of variables that are plant specific.

The tests that were reviewed during the inspection for Braidwood 2 focused on a Bunker Ramo generic test. The modules included in that test had the penetration assembly, but also included a terminal board. Terminal boards have typically not been accepted by the staff for harsh environment conditions because they short the ground. They have been very difficult to qualify, if not impossible. In general, they are unacceptable for that application. Instrument circuits are very sensitive to leakage currents in the order of a few milliamps can cause a significant inaccuracies in the readings.

The Bunker Ramo test that the staff reviewed had no satisfactory or qualified modules for the test. The licensee reviewed the test data, since it had a configuration that was not representative of the configuration at Braidwood 2. Braidwood 2 has splices. They concluded that the cause of the bad readings in the Bunker Ramo generic test were the terminal boards.

Therefore, the conclusion briefly, that their installation is qualified. There was not, and has yet to be, a strong conclusion that the cause of the failure was indeed the terminal boards and not the Bunker Ramo modules.

The Midland tests that we have discussed, we have reviewed the Midland test data. There were two, I believe, penetration assemblies tested in the Midland test. One module had a twisted pair which is representative of the Braidwood 2

instrument circuit and a triax, so that the module had five wires in it.

The test record shows that a reading was taken 52 hours into the test when an insulation resistance measurement was taken. It's actually a leakage current that gets converted into an insulation resistance. That reading was approximately 10 to the six ohms, which is a minimum value for qualification for this application. It is well after a peak.

The standards in this area for testing equipment specify that a series of measurements be taken to demonstrate the electrical performance for characteristics of the assembly during a LOCA profile. There have been a number of questions as to how many readings are enough and those kind of things. A sufficient number of readings are necessary to demonstrate the performance of an assembly as the temperatures increase, preferably during a peak, and following a peak.

There were none taken in this instance until, according to the test log, 52 hours which is well after the peak. Upon discussion of that aspect of it, there were discussions with the engineers who performed the test approximately eight or nine years earlier, test results were reviewed, and a determination was made by the utility that a reading was taken approximately 16 hours into the test which is, again, after the LOCA profile would be seen inside containment.

Basically, there's this one reading. Whether it be 52 or 60 hours, it's after the profile and it's minimally acceptable. I would point out that the one reading that showed 10 to the six was for the twisted pair and that the triax wires through the same module failed in that same reading. So that, to the staff's knowledge, there are no tests which have been conducted which demonstrate that the Bunker Ramo containment penetration assemblies, the Bunker Ramo modules the portion are, in fact, properly qualified.

Based upon that and a number of sub-issues that the staff has reviewed and discussed with the licensee such as thermal lag analyses and how hot will the module get, what kind of a temperature change will it see, will it be subjected to moisture, direct sprays, et cetera, we concluded as have the experts in the field that have looked at it, that it has not been demonstrated to be qualified.

We have however concluded, as I noted earlier and as discussed by Mr. Sands a few minutes ago, determined that it is likely to be operable. And in part the arguments as to specific components, the splice and the cable which will see more of the harsh environment in this particular application, have been qualified by separate tests. There, qualification is not at issue.

Are there any questions about this?

CHAIRMAN ZECH: Could you talk about alternatives for

just a moment? Say it fails; say it does not work. I understand that there are alternative instrumentation that can be used; is that correct?

MR. CRAIG: Yes, sir, it is. Are there any questions? I will get to the JCO in just a second. Are there any other questions about either the Bunker Ramo test or the Midland test data?

CHAIRMAN ZECH: I really don't want to prolong the detail. I thought that Midland test was 16 to 20 odd hours and nothing before that. You have talked about 50 hours.

MR. CRAIG: The test record that is part of the file says at 52 hours the circuit that is representative of the Braidwood 2, was tested for leakage current. The staff questioned that. The utility had discussions with the people that conducted the test, reviewed temperature logs and made a determination that a reading was taken at approximately 15 to 20 hours.

There has been discussion as to additional data that may be there. The utility is attempting to get that data. If they do, we will look at it.

CHAIRMAN ZECH: Let's go on.

COMMISSIONER ROBERTS: Let me ask a question. As I understand it, they have twisted pairs only in these penetrations?

MR. CRAIG: In the penetrations at Braidwood 2.

COMMISSIONER ROBERTS: Yes.

MR. CRAIG: That's my understanding.

COMMISSIONER ROBERTS: The twisted pairs did meet what you called a minimally acceptable resistance reading to make the sure the LOCA had passed in the test and that is documented?

MR. CRAIG: Yes, sir.

COMMISSIONER ROBERTS: So, we are at the point where we don't know that that's a failure. We just don't have documentation that proves it?

MR. CRAIG: Yes, sir.

COMMISSIONER ROBERTS: So, it's a documentation rather than failed penetration that we are talking about?

MR. CRAIG: Yes, sir.

COMMISSIONER ROBERTS: Okay.

CHAIRMAN ZECH: You may proceed.

MR. CRAIG: Because the staff made the determination that the penetrations are not qualified in accordance with the generic letter, the licensee prepared a justification for continued operation. Generic letter 87 which contains the revised EQ enforcement policy also discussed justification for continued operation.

One of the aspects of the JCO is alternative information circuits that might be available. We have had extensive discussions and some meetings with the licensee to

identify other instrumentation that would be available to bring the plant to safe shutdown conditions.

We are satisfied that there is sufficient instrumentation available and indeed, as indicated by Mr. Reed, they perform tests on their simulator to demonstrate that only using the alternative instrumentation that their operators could cope with a number of different scenarios and bring the plant to a safe shutdown.

MR. STELLO: Mr. Chairman, unless there are more questions, that concludes our --

CHAIRMAN ZECH: Let me see if my fellow Commissioner's have any further questions.

[No response.]

CHAIRMAN ZECH: That completes your briefing, is that what you are saying?

MR. STELLO: Yes.

CHAIRMAN ZECH: Commissioner Roberts?

COMMISSIONER ROBERTS: No.

CHAIRMAN ZECH: Commissioner Bernthal?

COMMISSIONER BERNTHAI I think we have covered everything that I have, Mr. Chairman.

CHAIRMAN ZECH: Commissioner Carr?

COMMISSIONER CARR: Did I miss the generic part of the problem that either qualify this penetration for those other plants or is somebody going to retest the penetration?

That looks like the quickest and easiest thing to do.

MR. SNIEZEK: John, why don't you address that.

MR. CRAIG: It is our understanding that as Mr. Reed indicated earlier, that tests will be performed absent the ability to qualify penetration assemblies. I agree clearly, testing would be the most conclusive method to achieve resolution of the issue.

We have issued letters to each of the licensee's that we believe have Bunker Ramo penetrations in their plants, and discuss the fact that the Braidwood 2 qualification documentation was determined not to demonstrate qualification. Those utilities are in the process of, or have already, compiled justifications for continued operation.

So, they are aware of the problem and they are aware of the potential for their facilities.

COMMISSIONER CARR: All of these facilities hang on the same test from the manufacturer?

MR. CRAIG: Some of the facilities rely on either this test or similar tests. At least one utility had an assembly without a terminal board and they took lots of readings during the test with numerous failures. They determined that the cause of their failure was non-qualified tape for the connection. They replaced the tape but they haven't retested the assembly.

We are not convinced that those assemblies are

qualified, absent an additional test or other tests to demonstrate that that configuration is, in fact, qualified.

COMMISSIONER CARR: Are the other 12 twisted pairs or do they have all kinds of cables in them?

MR. CRAIG: It's a combination of instrumentation, control, and there could be power but I am not certain.

COMMISSIONER CARR: It's a site-specific problem them?

MR. CRAIG: It is very plant specific. One facility of which we are aware, we have had discussions with the plant and they have determined that there may be a couple of exceptions in any instrument circuits involved. So they are not going to as sensitive to leakage currents or low IR values as a function.

MR. SNIEZEK: Commissioner Carr, we are in the process of gathering that type of information now. We have done a phone survey of all of the plants and there's up to approximately 12 units that could be affected. We have to work out the details with all of them.

COMMISSIONER CARR: Okay.

CHAIRMAN ZECH: Commissioner Rogers?

COMMISSIONER ROGERS: No additional questions.

CHAIRMAN ZECH: Let me first of all, thank the Commonwealth Edison Company for their fine presentation this morning and for their continued leadership in this field, and

their commitment to excellence. Let me thank the staff for a fine presentation and your commitment to follow through on this electrical penetration problem, not only at Braidwood but at other plants that may have the same problem.

To summarize this morning's meeting, it is my understanding that the staff has concluded that Commonwealth Edison and Braidwood Unit 2 satisfy the requirements for issuance of a full power license from what we have been told this morning; is that correct, Mr. Stello?

MR. STELLO: That is correct, Mr. Chairman, and except for some administrative details if the Commission allows the staff to have that authority, we may be ready as soon as this afternoon to move forward and authorize full power.

CHAIRMAN ZECH: All right, fine. Unless there are any additional questions or comments from my fellow Commissioner's I would ask them if they are prepared to vote?

[A chorus of ayes.]

CHAIRMAN ZECH: Those in favor of authorizing the staff, after making the appropriate findings and the administrative matters looked into that Mr. Stello has just alluded to, those in favor to grant Commonwealth Edison Company a full power operating license for Braidwood Unit 2, please signify by saying aye.

[A chorus of ayes.]

CHAIRMAN ZECH: Those opposed?

[No response.]

CHAIRMAN ZECH: I hear none. The vote is five to zero to authorize the staff, when ready, to proceed with full power for Braidwood Unit 2.

I congratulate again, Commonwealth Edison on the last of their 12 units that have been authorized for full power. We expect you to continue the leadership you have shown and continue to show the country, Mr. O'Connor, how to do it, and to continue your improvement and commitment to excellence.

With that, we stand adjourned.

[Whereupon, at 11:50 a.m., the meeting adjourned.]

CERTIFICATE OF TRANSCRIBER

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

TITLE OF MEETING: DISCUSSION/POSSIBLE VOTE ON FULL-POWER OPERATING LICENSE FOR BRAIDWOOD-2

PLACE OF MEETING: Washington, D.C.

DATE OF MEETING: FRIDAY, MAY 20, 1988

were transcribed by me. I further certify that said transcription is accurate and complete, to the best of my ability, and that the transcript is a true and accurate record of the foregoing events.

_____

Ann Riley & Associates, Ltd.

SCHEDULING NOTES

TITLE: DISCUSSION/POSSIBLE VOTE ON FULL POWER OPERATING LICENSE FOR BRAIDWOOD-2

SCHEDULED: 10:00 A.M., FRIDAY, MAY 20, 1988 (OPEN)

DURATION: APPROX 1-1/2 HRS

PARTICIPANTS: COMMONWEALTH EDISON COMPANY (LICENSEE) 40 MINS

- JAMES J. O'CONNER, CHAIRMAN
- CORDELL REED, SENIOR VICE PRESIDENT
- ROBERT QUERIO, STATION MANAGER

NRC 20 MINS

- JAMES H. SNIEZEK, DEPUTY DIRECTOR, NRR
- DANIEL R. MULLER, PROJECT DIRECTOR, PROJECT DIRECTORATE III-2
- STEPHEN P. SANDS, PROJECT MANAGER, PROJECT DIRECTORATE III-2
- EDWARD G. GREENMAN, DEPUTY DIRECTOR, DIVISION OF REACTOR PROJECTS, REGION III

COMMISSION BRIEFING

ON THE

FULL POWER LICENSING

OF

BRAIDWOOD STATION, UNIT 2

MAY 20, 1988

PRESENTATION OUTLINE

BACKGROUND
PLANT DESIGN
ORGANIZATION AND STAFFING
HEARING/LICENSING MILESTONES
ISSUES/STATUS

CONSTRUCTION HISTORY
PREOPERATIONAL/STARTUP HISTORY
OPERATIONAL EXPERIENCE
OPERATIONAL READINESS ASSESSMENT
CONCLUSION

BACKGROUND

- OWNER AND OPERATOR

  COMMONWEALTH EDISON COMPANY

- EXPERIENCE

  OWN AND OPERATE
  FIVE OTHER NUCLEAR STATIONS

  DUPLICATE PLANT CONCEPT WITH
  BYRON 1/2

[BACKGROUND CONTINUED]

- SITING
  - LOCATION:
    NORTHEASTERN ILLINOIS
    60 MILES S.W. OF CHICAGO

  - POPULATION (1980):
    NEAREST TOWN:
    BRAIDWOOD, IL. (1 MI.) - 3,429

    NEAREST POPULATION CENTER:
    JOLIET, IL (20 MI.) - 77,956

[BACKGROUND CONTINUED]

- EMERGENCY PLANNING

  ONSITE AND OFFSITE
  LICENSING REQUIREMENTS COMPLETED

FULL PARTICIPATION EMERGENCY EXERCISE
COMPLETED - NOVEMBER 6, 1985

ANNUAL EMERGENCY EXERCISE - (PARTIAL)
COMPLETED - MARCH 18, 1987

PLANT DESIGN

*GENERAL
- -WESTINGHOUSE PWR (4 LOOP RCS)
- -ARCHITECT/ENGINEER: SARGENT AND LUNDY
- -GEN. CONTRACTOR: COMMONWEALTH EDISON

*NSSS CHARACTERISTICS
- -RATED POWER: 3411 MW_T, 1120 MW_E

*CONTAINMENT CHARACTERISTICS
- -STEEL-LINED REINFORCED CONCRETE
- -FREE VOLUME: 2,700,000 CU. FT.

[PLANT DESIGN CONTINUED]

* DUPLICATE PLANT DESIGN
(BYRON/BRAIDWOOD)

- DUPLICATE DESIGN FEATURES:
  - -NUCLEAR STEAM SUPPLY SYSTEMS
  - -BALANCE OF PLANT SYSTEMS
  - -ASSOCIATED AUXILIARY SYSTEMS

- SITE-SPECIFIC FEATURES:
  - -SITE-RELATED CHARACTERISTICS
  - -CHANGES FROM BYRON STATION DESIGN
  - -UTILITY ORIENTED SAFETY-RELATED MATTERS

HEARING/LICENSING MILESTONES

- OL EVIDENTIARY HEARING
  - COMMENCED 10/29/85
  - COMPLETED 10/26/86
  - RECORD CLOSED 12/17/86
- INITIAL DECISION ON EP 5/13/87
- INITIAL DECISION ON HARASSMENT AND OTHER DISCRIMINATION 5/19/87

[HEARING/LICENSING MILESTONES CONTINUED]

- NOTICE OF APPEAL BY INTERVENORS OF THE ASLB DECISION CONCERNING HARASSMENT AND DISCRIMINATION 6/01/87

- ASLAP HEARING OF INTERVENORS APPEAL OF THE DECISION CONCERNING HARASSMENT AND DISCRIMINATION; APPEAL BOARD AFFIRMED THE LICENSING BOARD'S DECISION. 3/25/88

[HEARING/LICENSING MILESTONES CONTINUED]

- LICENSING

- CONSTRUCTION PERMIT	12/31/75
- CONSTRUCTION DELAY	9/79 - 3/80
- LOW POWER LICENSE	12/18/87
- FUEL LOADING	12/21/87
- INITIAL CRITICALITY	3/28/88

ISSUES/STATUS

* LICENSE EXEMPTIONS

- CRITICALITY ALARM SYSTEM (10 CFR 70.24)
  THIS EXEMPTION CONTINUES THE EXEMPTION PREVIOUSLY GRANTED PURSUANT TO 10 CFR 70.24.

- CONTAINMENT AIR LOCK TESTING 10 CFR 50 APPENDIX J

[ISSUES/STATUS CONTINUED]

- EQUIPMENT QUALIFICATION (EQ)
  [10 CFR 50.49(F) AND 50.49(J)
  SCHEDULAR EXEMPTION FOR FOUR
  BUNKER RAMO CONTAINMENT
  PENETRATION ASSEMBLIES

SCHEDULAR EXEMPTION REQUEST CHRONOLOGY

* DURING AN EQ INSPECTION AND AUDIT CONDUCTED IN FEBRUARY - MARCH 1988 FOUR BUNKER RAMO CONTAINMENT PENETRATION ASSEMBLIES HAD NOT ADEQUATELY DEMONSTRATED ENVIRONMENTAL QUALIFICATION.

* MEETINGS WERE CONDUCTED ON MARCH 9 AND MARCH 16, 1988, TO EVALUATE THE QUALIFICATION DOCUMENTATION.

[CHRONOLOGY CONTINUED]

* IN EARLY APRIL, THE STAFF CONCLUDED THAT ALTHOUGH THE EXISTING TEST INFORMATION WAS NOT SUFFICIENT TO DEMONSTRATE QUALIFICATION UNDER 10 CFR 50.49(F), THE PENETRATIONS WOULD LIKELY BE OPERABLE.

* ON APRIL 7, 1988, CECo REQUESTED A SCHEDULAR EXEMPTION TO 10 CFR 50.49 AND PRESENTED A JUSTIFICATION FOR CONTINUED OPERATION.

STAFF BASES FOR RECOMMENDING EXEMPTION

- TESTS OF PENETRATION ASSEMBLY COMPONENTS
- INDEPENDENT INTEGRATED TEST OF A BUNKER RAMO PENETRATION
- LOW PROBABILITY EVENT
- AUTOMATIC FUNCTIONS IN THE REACTOR PROTECTION AND ESF SYSTEMS WOULD BE ACTIVATED BY ALTERNATIVE SIGNALS

[STAFF BASES CONTINUED]

- IN THE UNLIKELY EVENT OF AN ACCIDENT, ALTERNATE INSTRUMENTATION AND UNAMBIGUOUS EMERGENCY OPERATING PROCEDURES WOULD BE AVAILABLE

- THIS ACTIVITY HAS BEEN VERIFIED THROUGH EXERCISES WITH PLANT OPERATORS USING THE PLANT SIMULATOR

ORGANIZATION/STAFFING

* ORGANIZATION
  * TOTAL STATION MANPOWER: 1244
    - o EDISON MANAGEMENT - 308
    - o BARGAINING UNIT EMPLOYEES - 382
    - o CONTRACTED SECURITY - 313
    - o CONTRACTED CONSULTANTS - 241
* STAFFING
  * SHIFT ROTATION: 8 HR. SHIFTS, 6 CREWS

[STAFFING CONTINUED]

* SHIFT COMPOSITION:

	T/S REQ'D (BOTH UNITS)	ACTUAL DAY	ACTUAL NIGHT
SHIFT ENGINEER (SRO)	1	2	1
SHIFT FOREMAN (SRO)	1	4	2
# SCRE (WITH DEGREE)	1	2	1
CONTROL OPERATOR (RO)	3	6	3
AUX.OPERATOR(NON LIC.)	3	18	9

EQUIVALENT TO A SHIFT TECHNICAL ADVISOR (STA) AT OTHER FACILITIES. - SRO QUALIFIED AND HAS AN ENGINEERING DEGREE

CONSTRUCTION HISTORY

* SIGNIFICANT CONSTRUCTION DEFICIENCIES
  - 1982 - INSTALLATION AND INSPECTION OF MECHANICAL EQUIPMENT
  - 1983 - MATERIAL TRACEABILITY, HVAC WELDING, SMALL BORE PIPING
* MAJOR INSPECTIONS
  - CONSTRUCTION APPRAISAL TEAM (CAT)
  - NONDESTRUCTIVE EXAM. (NDE) VAN
  - INDEPENDENT DESIGN REVIEW
* BRAIDWOOD CONSTRUCTION ASSESSMENT PROGRAM (BCAP)
* ALLEGATIONS

PREOPERATIONAL/STARTUP TESTING

* EXPERIENCED STARTUP ORGANIZATION
* TESTING CONDUCTED ON SCHEDULE
* PREOPERATIONAL TESTING RESULTS

BRAIDWOOD OPERATIONAL EXPERIENCE

* LESSONS LEARNED

  - BYRON 1 & 2, BRAIDWOOD 1 PLANT EXPERIENCE

  - TASK FORCE FROM BYRON STARTUP

  - ONGOING REVIEW OF BYRON'S DVRs, LERs, INSPECTION REPORTS, NOVs, TEMPORARY ALTERATIONS, CAUTION CARDS

BRAIDWOOD OPERATIONAL EXPERIENCE (cont)

* MANAGEMENT CONTROL OF BRAIDWOOD 1 & 2

  - STAFFING COMMON TO BOTH UNITS

  - UNIT 1 STARTUP TESTING AND POWER ASCENSION CONCURRENT WITH UNIT 2 PREOP. TESTING AND FUEL LOAD

  - ACTIVITIES MANAGED WELL, PROBLEMS AVOIDED

BRAIDWOOD OPERATIONAL EXPERIENCE (cont)

* SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

* NEW STATION MANAGER ON SITE 3/7/88

* ENFORCEMENT ISSUES

  - CONTROL ROOM VENTILATION DESIGN AND TESTING

  - LAKE SCREEN HOUSE VITAL AREA BARRIER BREACH

BRAIDWOOD SALP 7 RATINGS

	FUNCTIONAL AREA	RATING
A.	OPERATIONS	2
B.	RADIOLOGICAL CONTROLS	2
C.	MAINTENANCE	2
D.	SURVEILLANCE	2
E.	FIRE PROTECTION	2
F.	EMERGENCY PREPAREDNESS	1
G.	SECURITY	2

BRAIDWOOD SALP 7 RATINGS (continued)

	FUNCTIONAL AREA	RATING
H.	QUALITY PROGRAMS AND ADMINISTRATIVE CONTROLS AFFECTING QUALITY	2
I.	LICENSING ACTIVITIES	2
J.	TRAINING AND QUALIFICATION EFFECTIVENESS	1
K.	PREOPERATIONAL TESTING	2
L.	CONSTRUCTION	2
M.	ENGINEERING/TECHNICAL SUPPORT	2

OPERATIONAL READINESS ASSESSMENT

* FUEL LOADING AND INITIAL CRITICALITY
* OPERATIONAL READINESS TEAM INSPECTION
* ENVIRONMENTAL QUALIFICATION FINDINGS

OPERATIONAL READINESS ASSESSMENT (cont)

* EVENTS
  - MANY PERSONNEL ERRORS DURING MAINTENANCE, SURVEILLANCE
  - SPURIOUS RADIATION MONITOR ACTUATIONS

* NRC REVIEW PLANNED AFTER 50% TEST PLATEAU

CONCLUSION

THE STAFF CONCLUDES THAT THE LICENSEE SATISFIES ALL REQUIREMENTS FOR ISSUANCE OF A FULL POWER LICENSE FOR BRAIDWOOD STATION, UNIT 2, & THEREFORE RECOMMENDS THAT THE COMMISSION AUTHORIZE ISSUANCE OF A FULL POWER LICENSE.

TRANSMITTAL TO: X Document Control Desk, 016 Phillips

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DATE: 5/23/88

FROM: SECY Correspondence & Records Branch

Attached are copies of a Commission meeting transcript and related meeting document(s). They are being forwarded for entry on the Daily Accession List and placement in the Public Document Room. No other distribution is requested or required.

Meeting Title: dis/Poss Vote on Full Power Operating License for Braidwood-2

Meeting Date: 5/20/88 Open X Closed ____

Item Description*:	Copies Advanced to PDR	DCS Copy
1. TRANSCRIPT w/scheduling notes & memoranda	1	1
2.	____	____
3.	____	____
4.	____	____
5.	____	____
6.	____	____

* PDR is advanced one copy of each document, two of each SECY paper. C&R Branch files the original transcript, with attachments, without SECY papers.