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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)

CAROLINA POWER & LIGHT COMPANY)
and NORTH CAROLINA EASTERN)
MUNICIPAL POWER AGENCY)

(Shearon Harris Nuclear Power)
Plant))

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USNRC
'85 DEC -9 11:36
OFFICE SECRETARY
REGULATING & SERVICE
BRANCH
Docket No. 50-400 OL

APPLICANTS' PROPOSED FINDINGS OF FACT
AND CONCLUSIONS OF LAW
ON CCNC CONTENTION WB-3
(DRUG ABUSE DURING CONSTRUCTION)

Thomas A. Baxter, P.C.
John H. O'Neill, Jr., P.C.
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December 5, 1985

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TABLE OF CONTENTS

	<u>Page(s)</u>
I. INTRODUCTION AND BACKGROUND.....	1
II. RELEVANT REGULATORY REQUIREMENTS.....	4
III. EXTENT OF EMPLOYEE DRUG ACTIVITY.....	8
A. Drug Abuse Control Policies and Procedures.....	8
1. The Policies and Their Communication to Employees.....	8
2. Supervisor Drug Awareness Training.....	13
3. Assessment of Program Effectiveness.....	17
B. Means for Identifying Drug Activity.....	21
1. Security Measures.....	23
2. Urinalysis Drug Screen Testing.....	27
3. Observations by Supervisors Managers and Other Employees.....	29
4. Conclusion.....	32
C. Assessment of the Extent of Drug Activity.....	32
1. Undercover Drug Investigation.....	34
2. Employee Terminations.....	50
3. Indirect Indicators.....	54
4. Observations by Persons Working at the Site.....	57
5. The Definition of "Widespread".....	62
D. Conclusion.....	62

IV.	IMPLICATIONS OF EMPLOYEE DRUG ACTIVITY ON HARRIS PLANT CONSTRUCTION QUALITY.....	64
A.	Introduction.....	64
B.	Errors Caused by Workers Impaired by Drug Use.....	66
C.	Assurance of the Quality of Work Performed by Craft Workers Implicated in Possible Drug Activity.....	71
D.	Assurance of the Proficiency of Quality Inspectors Implicated in Possible Drug Activity.....	83
E.	Conclusion.....	95
V.	CONCLUSIONS OF LAW.....	97
VI.	ORDER.....	98
Appendix A:	Written Testimony Received into Evidence and Documents Incorporated into the Record	
Appendix B:	Exhibits	

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I. INTRODUCTION AND BACKGROUND

1. Contested issues in this operating license proceeding have been grouped into three major classifications for most purposes: environmental, safety and emergency preparedness. In its first partial initial decision, the Board resolved all environmental matters, and in this decision the Board resolves the one safety contention not resolved in the second and third partial initial decisions. See Carolina Power & Light Company (Shearon Harris Nuclear Power Plant), LBP-85-5, 21 N.R.C. 410 (1985); LBP-85-28, 22 N.R.C. 232 (1985); and LBP-85-____, 22 N.R.C. ____.

2. The Conservation Council of North Carolina ("CCNC") filed "Request for Admission of a new Contention WB-3 (Drug Abuse During Construction)," on January 18, 1985. The Board subsequently modified and admitted CCNC Contention WB-3. See Memorandum and Order (Ruling on Contentions Concerning Diesel Generators, Drug Use and Harassment at the Harris Site) at 5 (March 13, 1985). As modified by the Board, the contention states as follows:

Drug use at the Harris Plant is widespread (see the attached newspaper article for details and basis). Employees under the influence of drugs are less able to follow proper procedures and tech specs for the installation of electrical systems, pipe-fitting, and other safety-related work. Applicants' management has failed to control drug use during the construction and further, has failed to reinspect all safety-related work done by known drug abusers.

3. CCNC Contention WB-3 refers to a newspaper article for details and basis in support of its allegations. The article appeared in the Raleigh News & Observer on January 11, 1985, and was attached to CCNC's "Request for Admission of a new Contention WB-3 (Drug Abuse During Construction)," dated January 18, 1985. This newspaper article reports on CP&L's participation with law enforcement in an undercover investigation at the Harris Plant. The article reports on the arrest of six workers, and the issuance of warrants for the arrest of two other workers.

4. On September 13, 1985, in its ruling denying Applicants' motion for summary disposition of the contention, the Board bifurcated the hearing into two phases. The first phase was to address whether or not there has been widespread drug use at the site, including Applicants' program to deter drug activity. The second phase was to address the safety issue of construction quality, and Applicants' corrective actions. Tr. 8265-66; Order (Concerning Time, Place and Other Matters Related to Hearing on Drug Use Contention) at 1-2 (Sept. 18, 1985).

5. Hearings on the Phase One issue were held in Apex, North Carolina, on September 30, and October 1 through 3, 1985. Direct evidence was presented by Applicants (ten witnesses), CCNC (four witnesses),^{1/} the Attorney General of North Carolina^{2/} (three witnesses), and the NRC Staff (four witnesses). The hearing on the Phase Two issue was held in Raleigh, North Carolina, on November 12, 1985. Direct evidence was presented only by Applicants (six witnesses) and the NRC Staff (two witnesses). The Board considers the record compiled on

^{1/} Three of the CCNC witnesses were employees of the Wake County Sheriff's Department (WCSD), who appeared in compliance with a subpoena issued by the Board at CCNC's request.

^{2/} On July 31, 1985, following discovery and during the pendency of Applicants' summary disposition motion, the Attorney General of North Carolina petitioned to participate in the adjudication of this issue pursuant to the provisions of 10 C.F.R. § 2.715(c). The unopposed petition was granted. Tr. 8176.

CCNC Contention WB-3 to be both extensive and thorough.^{3/}

6. The decision below addresses the two phases of the hearing in the order in which the evidence was heard. Before addressing the extent of employee drug activity and the implications for construction quality, however, it is important to examine the legal and regulatory framework by which the findings of fact will be assessed.

II. RELEVANT REGULATORY REQUIREMENTS

7. A contention must be material to those findings which precede licensing, as set forth in 10 C.F.R. § 50.57. See Public Service Company of New Hampshire (Seabrook Station, Units 1 and 2), LBP-82-106, 16 N.R.C. 1649, 1654-55 (1982). While the NRC is not indifferent to the potential adverse effect on public health and safety attributable to drug use on site by workers at nuclear facilities,^{4/} the agency has no

^{3/} Appendix A identifies the location in the transcript of pre-filed direct testimony and of other documents incorporated into the transcript. Appendix B lists the exhibits marked for identification, and indicates whether they were received into evidence.

^{4/} See South Carolina Electric & Gas Company (Virgil C. Summer Nuclear Station, Unit 1), ALAB-710, 17 N.R.C. 25, 27 (1983). In addition, allegations of widespread drug abuse and improper security practices at operating plants have been investigated by the Office of Inspection and Enforcement. See Commonwealth Edison Company (Dresden Nuclear Power Station; Zion Nuclear Plant), DD-83-8, 17 N.R.C. 1183 (1983).

regulation governing the use of drugs on the site of a nuclear power plant under construction. Violations of criminal drug laws are the responsibility of law enforcement agencies.

8. Obviously, however, the NRC has stringent standards and oversight with respect to the construction of nuclear power plants. Execution of the construction permittee's quality assurance program, required by Appendix B to 10 C.F.R. Part 50, is designed to eliminate the possibility that construction defects of potential safety significance will go undetected and therefore unrectified. See Cleveland Electric Illuminating Company, et al. (Perry Nuclear Power Plant, Units 1 and 2), ALAB-802, 21 N.R.C. 490, 492-93 (1985). CCNC Contention WB-3 postulates construction defects caused by impaired employees under the influence of drugs. In its ruling on summary disposition, the Board raised the question of whether the Quality Assurance program was designed to cope with the effects of widespread drug abuse. Tr. 8224. In terms of the capability of the QA program to identify construction defects, Applicants took the position that unspecified CCNC postulated defects are not distinguishable from defects which result from other causes. Consequently, to a great extent the litigation of CCNC Contention WB-3 was viewed to be a challenge to the effectiveness of the QA program implemented during construction of the Shearon Harris Nuclear Power Plant. An hypothesized work force

under the influence of drugs matters to the Board's decision only to the extent that the QA program is not effective in identifying any resultant construction defects and overseeing their correction.

9. In assessing the execution of construction QA programs, NRC adjudicatory boards appropriately have turned for standards and guidance to the legal findings required for grant of an operating license application. Error-free construction is not a precondition for an operating license under either the Atomic Energy Act or the Commission's regulations. What is required instead is a finding of reasonable assurance that the plant, as built, can and will be operated without endangering the public health and safety. 42 U.S.C. §§ 2133(d), 2232(a); 10 C.F.R. § 50.57(a)(3)(i); Pacific Gas and Electric Company (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-756, 18 N.R.C. 1340, 1345 (1983), aff'd, San Luis Obispo Mothers for Peace v. NRC, 751 F.2d 1287, 1319-21 (D.C. Cir. 1984), partial rehearing granted on other grounds, 760 F.2d 1320 (1985); Union Electric Company (Callaway Plant, Unit 1), ALAB-740, 18 N.R.C. 343, 346 (1983), reconsideration denied, ALAB-750, 18 N.R.C. 1205 (1983), as modified, ALAB-750A, 18 N.R.C. 1218 (1983).

10. This is the fundamental standard against which the allegations in CCNC Contention WB-3 must be judged. CP&L's policies and programs to control drug abuse among site

employees are relevant, and are addressed in this decision, only to the extent that they provide confidence in the effectiveness of the construction QA program. The concededly laudable societal goal of eliminating substance abuse by Americans is not the focus of NRC responsibilities.

11. In examining claims of quality assurance deficiencies, then, boards are to look to the implication of those deficiencies in terms of safe plant operation. Callaway, supra, ALAB-740, 18 N.R.C. at 346 (1983). Even if it is established that all ascertained construction errors have been cured,

. . . there may remain a question whether there has been a breakdown in quality assurance procedures of sufficient dimensions to raise legitimate doubt as to the overall integrity of the facility and its safety-related structures and components. A demonstration of a pervasive failure to carry out the quality assurance program might well stand in the way of the requisite safety finding.

Id. Thus, the two-pronged test for examining CCNC Contention WB-3, as its allegations relate to the jurisdiction of the NRC, is: (1) whether ascertained construction errors caused by employees under the influence of drugs have been corrected; and (2) whether there has been a pervasive failure to carry out the quality assurance program as a result of employees working under the influence of drugs.^{5/} See Louisiana Power & Light

^{5/} The "pervasive failure" or "breakdown" portion of the test typically is applied in the context of alleged specific quality

(Continued next page)

Company (Waterford Steam Electric Station, Unit 3), ALAB-812, 22 N.R.C. 5, 14-15 (1985); Long Island Lighting Company (Shoreham Nuclear Power Station, Unit 1), ALAB-788, 20 N.R.C. 1.02, 1141 (1984).

III. EXTENT OF EMPLOYEE DRUG ACTIVITY

A. Drug Abuse Control Policies and Procedures

1. The Policies and Their Communication to Employees

12. CP&L employees at the Shearon Harris site are subject to CP&L's Drug and Alcohol Abuse Statement of Practice. The Statement, minus the provisions related to alcohol abuse, is as follows:

The use, possession, or sale of narcotics, hallucinogens, depressants, stimulants, marijuana, or other controlled substances by an employee while on Company business or on Company property will result in disciplinary action, including possible termination.

Any other use, possession, or sale of narcotics, hallucinogens, depressants, marijuana, or controlled substances by an employee that may adversely affect the employee's job performance, or that may

(Continued)

assurance deficiencies. See Callaway, supra, ALAB-740, 18 N.R.C. 343 (1983); Perry, supra, ALAB-802, 21 N.R.C. at 502 (1985) (attention focused on specific deficiencies at issue before deciding whether a need existed to expand the scope of the inquiry).

reflect unfavorably upon public or governmental confidence in the manner in which the Company carries out its responsibilities, may result in disciplinary action, including possible termination.

This statement of practice does not apply to medication prescribed by a licensed physician and taken in accordance with such prescription.

Applicants' Testimony of Peter B. Bensinger, John D. Ferguson, Garry W. Flowers and A. Reid Pannill on Drug Abuse Control Policies and Training (CCNC Contention WB-3), ff. Tr. 8326 (hereafter "Bensinger et al."), at 8. In order to provide guidance for assuring that Company practice on drug and alcohol abuse is adhered to at nuclear power plant sites, CP&L has adopted a Drug and Alcohol Interdepartmental Procedure, which prescribes the responsibilities for implementing the policy. Id. at 8-9; Applicants' Ex. 30.

13. Applicants for employment with CP&L at the Shearon Harris site are fully informed of the Company's Drug and Alcohol Abuse Statement of Practice and related Drug and Alcohol Interdepartmental Procedures. They are advised that a thorough five-year background investigation will be conducted, that drug screening procedures are a part of the required pre-employment physical examination, and that a professional evaluation using the Minnesota Multiphasic Personality Inventory (MMPI) is a part of the total preemployment procedure. Applicants are told that if the drug screen indicates the presence of drugs or

controlled substances, not obtained and used according to a valid prescription, they will not be considered further for employment. Also, if the MMPI indicates a background of or tendency toward drug or alcohol abuse or aberrant behavior in the opinion of professional advisors to the Company, they may not be considered further for employment. Bensinger et al. at 9; [NRC Staff] Testimony of Francis J. Long, William J. Tobin and Richard L. Prevatte on CCNC Contention WB-3 (Drug Use During Construction), ff. Tr. 8653 (hereafter "Long et al."), at 7.

14. Once employed, CP&L personnel assigned to the Harris site receive an instructional program entitled "Drug and Alcohol Abuse Orientation for CP&L Employees," presented by Employee Relations and the Harris Training Unit. The instruction familiarizes employees with CP&L's Drug and Alcohol Abuse Practice and Procedures, the adverse impact of drug and alcohol abuse, and CP&L's Employee Assistance Program. Each employee is given a copy of the CP&L "Drug and Alcohol Abuse Reference Manual" (Applicants' Ex. 31). The Manual includes the Statement of Practice, a message from the Chairman/President of CP&L, and a summary of the Drug and Alcohol Interdepartmental Procedures. The Manual advises the employee that the Company may undertake announced or unannounced inspections, investigations and searches for illegal drugs and controlled substances. The Manual states that "the results of such actions may include

a request that an employee have a Company-approved medical examination which will include a drug screen" and that "any employee who refuses to allow or cooperate with a properly authorized inspection, investigation or search may be subject to disciplinary action, including possible termination." The last page of the Manual is detached and retained as the employee-signed record of participation in the orientation, of the employee's agreement to abide by the Statement of Practice and related Procedures, and of the employee's understanding that compliance with the Statement of Practice and related Procedures is required for continued employment with CP&L. Bensinger et al. at 9-10; Applicants' Ex. 31; Long et al. at 6-7.

15. CP&L has imposed, by contract amendment, a drug and alcohol abuse policy upon contractors at the site. The contract amendment requires the contractor to communicate to its employees CP&L's drug abuse policy, CP&L's right to search on its property, and CP&L's discretion to remove from the site any employee who does not cooperate with or is found to be in violation of CP&L's drug abuse policy. Bensinger et al. at 11; Applicants' Ex. 32.

16. The employees of Daniel Construction Company and of its subcontractors represent roughly 70 percent of the site work force. All prospective Daniel employees at the Harris

site are subjected to pre-employment background verification, which includes, with respect to previous employment, confirmation of the dates of employment, job classification, performance rating and the reason(s) for termination. Any criminal records listed on the employment application are reviewed, and incidents involving drug-related activity in the applicant's background are viewed as grounds for denial of employment. Bensinger et al. at 13-14.

17. Daniel's drug policy at the Shearon Harris site provides that employees are forbidden to use, sell, possess or be under the influence of illegal drugs while on Daniel or CP&L property and that violation of this prohibition is cause for immediate discharge. The implementing procedures provide that Daniel may take any of the following steps while employees are on Daniel/CP&L property: observe actions of employees; counsel employees; search employees' personal items, automobiles or persons; require searches with canines; require drug screen urinalysis testing. If the employee refuses a search or test, he/she is immediately discharged. The procedures also prescribe the steps to be taken, and the action responsibilities, to implement the policy. Bensinger et al. at 14; Applicants' Exs. 36-38.

18. Daniel employees are introduced to its drug policy for the Harris site in several ways. All new employees and all

employees transferring from other Daniel work sites are introduced to the policy through an employee orientation, during which an instructor reviews the policy, a video program reinforces it, and an employee handbook describing the policy is reviewed by each employee. After reading the handbook, each employee is required to complete an affidavit, retained in the site personnel file, certifying that the handbook was received and read, and that the employee will abide by its rules and regulations. In addition, employees are reminded of the drug abuse control policy through posters and bulletin board items posted throughout the site, and at meetings with supervisors. Bensinger et al. at 15-16.

2. Supervisor Drug Awareness Training

19. CP&L has a drug awareness training program for CP&L managers and supervisors (including first-line supervisors, i.e., foremen) at the Harris site designed to prepare them to recognize drugs and drug-related behavior, and to understand their responsibilities when such substances or behaviors are observed or reported on the job. The supervisor is responsible for reporting any information on suspected drug activity, for removing from the job any employee having possession of or under the influence of drugs, and for initiating disciplinary action in accordance with the provisions of the Company's Drug

and Alcohol Abuse Statement of Practice. The drug awareness training program enables supervision to carry out these responsibilities effectively. In developing its drug and alcohol abuse education efforts, CP&L utilized the expertise and guidance of numerous individuals and organizations with valuable experience, including other utility companies, Federal and local law enforcement personnel, the academic community, and consulting firms with national experience in the prevention of drug and alcohol abuse. Bensinger et al. at 11-12.

20. CP&L supervisors and managers at the Harris Plant have attended a "Drug and Alcohol Workshop for Supervisors." This program provides the participants with a comprehensive review of CP&L's Drug and Alcohol Abuse Practices and Procedures and of their supervisory responsibilities under them. Participants are thereby provided with the skills necessary to implement the Practices and Procedures. Subsequently, this training was incorporated into a "Workshop in the Assessment of Aberrant Behavior," a 12 to 16-hour course presented by Management Consultants of Chapel Hill. That course includes 4 hours of instruction devoted to drug and alcohol abuse problems, practices and procedures. Each manager and supervisor receives, as a part of the drug awareness training program, the CP&L Supervisor's Reference Manual, Drug and Alcohol Abuse (Applicants' Ex. 33), which illustrates the scope and content of the

training provided. In addition to the Practices and Procedures, the manual describes drugs of common abuse (including identification of the drug, methods of use and signs/symptoms of use), guidance on observing and documenting changes in employee behavior, guidelines for administering CP&L's policy on drug abuse, behavior and job performance warning signs, a check-list for observing employee behavior, and guidelines for conducting a disciplinary interview. Bensinger et al. at 12; Applicants' Ex. 33; Long et al. at 8. In actual practice, CP&L supervisors have identified employees involved in drug activity. Tr. 8411 (Ferguson).

21. In addition to this on-going and repeated (for new supervisors/managers) training program, CP&L in 1984 gave special attention to drug abuse control. On August 1, 1984, CP&L management gathered for a briefing on drug and alcohol abuse control, presented by Mr. Peter B. Bensinger, President of Bensinger, DuPont and Associates, Inc., a professional consulting firm providing services to private industry, national and community organizations, and government, on the problems of drug and alcohol abuse, including its impact on the workplace. Subsequently, refresher training on drug and alcohol abuse was conducted by Mr. Bensinger's associates and CP&L personnel at the Harris site in August, 1984, for CP&L supervisors. Bensinger et al. at 2, 12-13; Applicants' Ex. 34. In a further

effort to remind personnel of the importance the Company attaches to its drug and alcohol abuse control practices and procedures, CP&L employees at the Harris site, as well as contractor employees who attend the routine safety meetings, received a videotape "Drug and Alcohol Abuse Refresher Training" session presented by CP&L's Executive Vice President. Bensinger et al. at 13; Applicants' Ex. 35.

22. Daniel supervisors are also responsible for reporting suspected drug activity and for taking immediate action if drug activity is observed. The supervisors receive special training on drug awareness and Daniel's policy, so that they can better fulfill those responsibilities. Supervisors are given the written drug policy which appears in a Personnel-prepared Supervisor's Handbook. The drug awareness training provided to supervisors familiarizes the participants with Daniel's drug policy and how to implement it. The supervisors are also taught how to recognize drugs with high abuse rates (e.g., marijuana, cocaine and different forms of speed), how to recognize the symptoms of drug abuse in an employee, and the supervisor's role in carrying out the policy. This training program was developed from information provided by Federal and local law enforcement agencies, medical doctors and pathologists, and the training content has been reviewed for accuracy by law enforcement experts and medical doctors. The presentation is made by

an instructor on-site using slides, static displays of drug paraphernalia, and a drug display kit which was commercially purchased. Bensinger et al. at 16-17; Applicants' Exs. 39 and 40; Tr. 8413-14 (Flowers).

3. Assessment of Program Effectiveness

23. The NRC has no rules, regulations, or policy guidelines regarding control and prevention of drug use for holders of construction permits. [NRC Staff] Testimony of Loren L. Bush, Jr. Concerning CCNC Contention WB-3, ff. Tr. 8653 (hereafter "Bush"), at 3. The Board was provided, however, with two assessments of the Harris drug abuse control policies, based on the current standard of "best industry effort" recommendations -- by Applicants' witness Bensinger and Staff witness Bush.

24. Mr. Bensinger has considerable government and industry experience in efforts to deter substance abuse. Prior to forming his consulting firm, Mr. Bensinger served five and one-half years as Administrator of the U.S. Drug Enforcement Administration, a position to which he was appointed in January, 1976, by President Ford and for which he was confirmed by the U.S. Senate. DEA is responsible for enforcement of U.S. narcotic and dangerous drug laws, and has 4,000 employees in 160 offices in the United States and 40 foreign countries. The

firm Bensinger, DuPont and Associates specializes in consulting services, training, audit and expert testimony dealing with the problems of substance abuse in the workplace. The firm has been retained by numerous corporations, government agencies, and associations, and has consulted for and provided training at over 20 nuclear power plants. Bensinger et al. at 2-4 and Attachment A.

25. Bensinger, DuPont and Associates has provided policy consultation to CP&L and supervisory training to all CP&L management and supervisory personnel at its nuclear facilities and headquarters locations. After CCNC filed its Contention WB-3, Mr. Bensinger met with CP&L Security and Harris Project management personnel to review the current status of efforts by CP&L and its contractors to control drug use at the site. In addition to reviewing documentation on the Harris site drug abuse control program, Mr. Bensinger had the manager of his firm's Rockville, Maryland office visit the site in order to advise him on the actual implementation by CP&L and Daniel of their drug abuse control policies, procedures and programs. Consequently, Mr. Bensinger's assessment of the Harris site drug abuse control program is based on his historical familiarity as a consultant contributor to the program, and on a special review conducted for this proceeding. Bensinger et al. at 18-19.

26. Mr. Bensinger and Mr. Bush each outlined what they consider to be the key elements of an effective drug abuse control program. Bensinger et al. at 19-20; Bush at 6-9. Both are based upon the Edison Electric Institute's "Guide to Effective Drug and Alcohol/Fitness for Duty Policy Development" (August 1985). (Mr. Bensinger was a consultant to the EEI Task Force which authored the Guide. Tr. 8329-30 (Bensinger).) According to the Staff witness, it would appear that this industry-developed standard, while not intended to be mandatory or prescriptive, will be used voluntarily at both operating power reactors and those under construction to meet "fitness for duty" goals and objectives. Although this Guide has not formally been adopted by the Commission, the Staff expects the industry to use the EEI Guide in developing a drug abuse control program. Bush at 6.

27. Mr. Bensinger concluded that CP&L has undertaken all of the principal initiatives recommended by the EEI Guide for an effective drug abuse control program. His assessment of the supervisor training program at Harris is that the initiatives undertaken meet or exceed standards in other nuclear power plant locations, and meet the need to address the threat of drug abuse at the construction site. In particular, Mr. Bensinger testified that the training provided to the supervisors on identification of the symptoms of drug abuse

enables the supervisors to recognize unusual behavior and to initiate intervention prior to the worker becoming so impaired that he would compromise safety-related work. Bensinger et al. at 20-22; Tr. 8333, 8412-13, 8415-16 (Bensinger).

28. The Staff review also resulted in the conclusion that all key program elements of the EEI policy guide are included in the Shearon Harris program. Bush at 9. In addition, the Staff identified numerous specific practices at the Harris site which exceed the recommendations in the EEI Guide. Bush at 9-14; Long et al. at 7. The Staff's conclusion, then, is that an effective drug abuse control program is in place at the Harris site. Bush at 14; Long et al. at 9; Tr. 8768-69 (Prevatte).

29. CP&L's Director-Personnel Relations for the Harris site testified: "unequivocally that CP&L vigorously enforces its drug abuse policy. Our consistent practice has been to encourage employees to cooperate with the implementation of that policy, but to terminate employees who violate it." Bensinger et al. at 13; see also Tr. 8423-25 (Pannill, Flowers). The record before the Board indicates this to be the case. Neither does it cast doubt on the effectiveness of policy implementation that instances of drug use, discussed below, have been reported. It would be of far more concern if CP&L had undertaken no initiatives with law enforcement or through

management intervention to disclose such use and abuse.

Bensinger et al. at 21; Long et al. at 9.

30. In the Board's view, the Harris site drug abuse control policies and the program to implement them reflect a high level of management attention and initiative, and a commendable emphasis and level of effort to address the problem of drug abuse in the workplace. While more could always be done, we have before us no serious challenge to the facts that CP&L has exceeded in many respects the "state of the art" in drug abuse control policies and training, and has essentially implemented at the Harris construction site a program appropriate for an operating plant.

B. Means for Identifying Drug Activity

31. CP&L has employed numerous and diverse means for identifying violations of the drug abuse control practices and procedures on the Harris Project. Beyond the pre-employment screening discussed above, these means include security measures, urinalysis drug screen testing, and the observations of managers, supervisors and employees. Applicants' Testimony of William J. Hindman, Jr., Michael W. King, D. Glenn Joyner and Peter B. Bensinger on the Assessment of Employee Drug Activity (CCNC Contention WB-3), ff. Tr. 8893 (hereafter "Applicants' Assessment Testimony"), at 3.

32. In order to coordinate effectively the information obtained by these various means, CP&L has designated a project-level coordinator (Mr. William J. Hindman, Jr.) of all information pertaining to illegal drug use on the Harris Project. In this capacity, Mr. Hindman is to be informed of all allegations of, or other information developed with respect to, potential drug use or other drug-related activity among project employees. In conjunction with other appropriate personnel, information is assessed and actions are planned to resolve each situation -- whether through further investigation or immediate personnel action. If sufficient information is developed to confirm, or suspect on reasonable cause, a violation of site drug abuse policies, the employee either is required to submit to the urinalysis drug screen described below, or is terminated or removed from the site via CP&L's contractual right to direct contractors to remove any of their employees at CP&L's discretion. Where an employee is terminated or removed in part because of drug-related reasons, the relevant quality organization has been informed so that any corrective action necessary with respect to the employee's previous work may be identified and undertaken. Applicants' Assessment Testimony at 9-10.

1. Security Measures

33. Cooperation with responsible law enforcement agencies is one of the means utilized by CP&L to identify drug activity among the employees at the Harris site. Undercover operations, such as the one which was conducted in late 1984, not only serve to identify employees involved in drug activity, but also to deter others who are contemplating involvement with drugs. The 1984 undercover operation is not the first one conducted on site by law enforcement officers in cooperation with CP&L. Further, CP&L intends to use such investigative techniques in the future whenever the situation warrants.^{6/} Applicants' Assessment Testimony at 4; Long et al. at 8.

34. In addition to special efforts with law enforcement personnel, the full-time security force at the construction site provides an on-going means for identifying and discouraging drug activity at the site. Applicants' Assessment Testimony at 4. Construction security at the Harris site is under

^{6/} While, as will become apparent from our findings below, some professional disagreements between CP&L and law enforcement emerged from the 1984 undercover investigation, the Board assured itself that the working relationship between CP&L and law enforcement has not been inhibited by these disagreements, and that cooperation continues. Tr. 9306-07 (Burch); Applicants' Testimony of William J. Hindman, Jr., Michael W. King, D. Glenn Joyner, Michael L. Plueddemann and Peter B. Bensinger on the Undercover Drug Investigation (CCNC Contention WB-3), ff. Tr. 8471 (hereafter "Applicants' Investigation Testimony"), at 35, 44.

the supervision of Mr. D. Glenn Joyner, CP&L's Commissioned Construction Security Agent and a commissioned law enforcement officer. Mr. Joyner has been employed in security positions at the Harris site since September, 1979. He has nine years of experience as an Investigator with the Raleigh Police Department, and he has received narcotics investigation training, as well as a B.S. degree in Police Science. Applicants' Investigation Testimony at 4-5.

35. Approximately 2,600 man-hours per week are authorized for the contract security organizations at the Harris site. These hours and the post assignments allow around-the-clock patrol of the entire job site by foot and vehicle patrols. Through their contact with and observation of employees, the security personnel are able to provide management with intelligence information on drug activity at the plant. In addition, they pursue information received on possible drug activity in an attempt to confirm the accuracy of the information and to pursue additional sources of information. Applicants' Assessment Testimony at 4-5.

36. Contract Security personnel are at the entrances to the site where they observe incoming and outgoing employees and watch for physical signs of incapacity such as staggering, falling, weaving, lack of coordination and odors. These observations of employees are also made by timekeeping and

supervisory personnel assigned to monitor the entrance and exit of workers. During every shift change, lunch boxes, briefcases and other containers are opened for inspection as the employees leave the site, and on a random basis as the employees enter the site. On a random basis exiting employees are selected for search using a hand-held metal detector. It should also be noted that construction personnel are rigidly controlled from the moment they access the site and until they leave. When on the job, they must remain in the job area; and when on break or lunch, they must be in a designated area. Applicants' Assessment Testimony at 5; Long et al. at 8.

37. Beginning in February, 1985, under the direction of CP&L's Construction Security Unit, a narcotic detection dog has been on the site twice per month, on an unannounced schedule, to search a random sampling of areas on the site. If specific requests are made or information is available relative to specific areas on site, those areas are given priority for search by the narcotic detection dog. Applicants' Assessment Testimony at 5-6; Long et al. at 8. The drug detection reliability of a well-trained dog is in excess of 95 percent.^{7/} The dog's olfactory system is so well developed that it can detect

^{7/} CP&L Security personnel conduct periodic controlled tests to ensure the continued reliability of the dogs and handlers. Applicants' Assessment Testimony at 6.

residual odors and amounts, present from prior contact of an area with a controlled substance, even when the drug itself is no longer present. The dogs employed at the Harris site are trained, at a minimum, to identify marijuana/hashish, cocaine, heroin and methaqualone. Applicants' Testimony of Dana B. Mackonis and Kenneth A. Mathias on Use of Drug Detection Dogs (CCNC Contention WB-3), ff. Tr. 8993 (hereafter "Mackonis and Mathias"), at 7-8. To illustrate the dog's capability, searches at the Harris site have identified: a pipe with marijuana residue in a locked tool box inside a gangbox; marijuana seeds and ashes, and marijuana cigarette butts, inside of vehicles parked at the site.^{8/} Id. at 10, 11.

38. In addition to testimony by the dog handlers. Applicants presented as a part of their direct case a live demonstration of the capabilities of one of the dogs used for searches at the Harris site. While the handler was not present, the Board's law clerk hid in the hearing room a bag of

^{8/} CCNC's witness questioned the effectiveness of CP&L's use of narcotic detection dogs because the dog and handler are visible to the employees. Testimony of Patty Miriello for the Conservation Council on Contention WB-3 (Drug Abuse During Construction), ff. Tr. 9084 (hereafter "Miriello"), at 5. There are two reasons why the Board finds this testimony unpersuasive. First, Ms. Miriello has no asserted expertise in this field. More importantly, however, her testimony is totally misplaced. CP&L makes no effort to hide the presence on site of the dog and the handler because of the deterrent effect such searches have on employee drug activity. Tr. 9041-42 (Mackonis); Tr. 8938 (Joyner).

marijuana and a bag of cocaine provided by Officer Mathias (one of the handlers) of the Raleigh Police Department. Following the handler's lead in a controlled search of the hearing room, the dog located the two bags in approximately two minutes. Tr. 9059-62.

39. In addition to the exiting and random searches, and the use of the narcotic detection dog, identified employees may be directed to submit to a search because of information obtained on potential or confirmed drug activity. Security, Employee Relations and Industrial Relations personnel conduct the searches. Searches of employees include a detailed inspection of the individual's clothing, work area, and any tools, equipment or personal property. Any vehicle within the construction security fence is also subject to search. Applicants' Assessment Testimony at 6.

2. Urinalysis Drug Screen Testing

40. Urinalysis drug screen testing is used by CP&L and Daniel as one means of determining whether an employee suspected of drug activity is consuming drugs. When information becomes available which provides good cause for reasonable suspicion that an employee is involved in drug activity, management and security personnel determine if a drug screen urinalysis test should be required. In the case of site

employees involved in quality confirmation roles (Quality Assurance, Quality Control, Construction Inspection), however, the drug screen test is administered to the employee even where there is no independent evidence to confirm drug involvement (for example, on the basis of an anonymous allegation alone.) Applicants' Assessment Testimony at 6-7; Bensinger et al. at 18.

41. The urine specimen is collected and, pursuant to an established written procedure designed to assure sample authenticity, is delivered to CompuChem Laboratories, Research Triangle Park, North Carolina, with whom CP&L and Daniel have business agreements to perform urinalyses for the detection of drug use.^{9/} The drug classes included in the CompuChem analysis are amphetamines, barbiturates, benzodiazepines, cannabinoids, cocaine, methadone, methaqualone, opiates, and phencyclidine. Each urine sample submitted to CompuChem first undergoes an Enzyme Multiplied Immunoassay Technique (EMIT) qualitative analysis. All positive EMIT analyses are confirmed by Gas

^{9/} CCNC witness Miriello questioned CP&L's drug testing program because workers employed for three years or more do not take the test when transferring to the site, and because of the potential for an employee to cheat and substitute another employee's urine. Miriello at 4-5. Ms. Miriello, however, appears not to understand the testing program. If an employee is undergoing a test for cause (suspected drug activity), the length of employment is irrelevant and the employee is escorted by a CP&L employee until the sample is rendered. Tr. 8359-62 (Ferguson).

Chromotography/Mass Spectroscopy (GC/MS) quantitative analysis. This test program ensures that, if a drug is present, it will be detected by the EMIT test, and the quantity confirmed through the GC/MS analysis. The testing techniques used at the CompuChem Laboratories are considered to be the most sophisticated and foolproof available. Bensinger et al. at 11-12, 18. In addition, an anagram level is applied which is considerably tighter than is used in the public utility industry and in industry in general. Tr. 8331 (Bensinger).

42. It is important to recognize, however, that while a positive drug screen test indicates that the employee has consumed a drug or drugs, it does not necessarily indicate that the drug was consumed on site, or that the employee was impaired while at work. Detectable traces of some drugs remain in the system for up to two to three weeks. Applicants' Assessment Testimony at 7; Tr. 8365 (Bensinger).

3. Observations by Supervisors, Managers
and Other Employees

43. Employees at a construction site do not work in isolation. Site management and Security personnel learn about drug activity from information reported by managers, supervisors and co-workers of those involved. As described above, supervisors have been trained to identify illegal drugs and the signs/symptoms of abuse, and to implement their

responsibility to report such information. Daniel site Industrial Relations representatives conduct active surveillance for visible drug activity, and receive reports from employees on known or suspected drug activity. Anonymous reports have been made directly to Security personnel and site management, and others willing to identify themselves and to assist have provided information on a confidential basis. Applicants' Assessment Testimony at 7-8; Jensing et al. at 17; Long et al. at 8. Construction workers have reported fellow members of their crew out of concern for their own personal safety on the job. Tr. 8411-12 (Flowers).

44. CP&L and Daniel employees have been instructed on the use and availability of the Quality Check program as an avenue for reporting any alleged problem on a confidential, or even an anonymous, basis. This program has been a source of information on alleged drug activity among site employees.^{10/} CP&L implemented the Quality Check program at the Harris Plant in order to provide an additional opportunity for site personnel to express concerns to management and to receive feedback on their concerns. Under this program, numbered forms are available throughout the site for completion by any employee having

^{10/} Of 6,169 total Quality Check Program communications, 46 have involved alleged drug activity. Tr. 8805 (Hindman). Out of 46 reports of alleged drug activity, 20 employees were terminated for drug involvement. Tr. 8839 (Hindman).

a safety concern he or she wishes to bring to the attention of management. Each such concern is investigated by a group of QA specialists and engineers, and the results of the investigation are then reported back to the employee. If the employee wishes to remain anonymous, he can determine the action taken on his concern by telephoning the Quality Check program office and providing the form number of his concern. In addition, as part of the Quality Check program, each employee working in a safety area who leaves employment at the site (whether by resignation, termination or reassignment) is scheduled to be interviewed by the Quality Check group in order to identify potential safety concerns. The Quality Check group also conducts interviews of randomly¹¹ selected site employees to uncover safety concerns. Any concern identified through these interviews are similarly fully investigated by the Quality Check group. The most recent NRC Construction Appraisal Team inspection found the Quality Check program to be an effective and viable method of addressing employee concerns.^{11/} Applicants' Assessment Testimony at 8-9; Bensinger et al. at 17; Long et al. at 8.

^{11/} Daniel employees are also encouraged to use the Daniel Open Door Policy, which is discussed with each new hire and is the subject of posters throughout the project, to raise problems with their supervision and, if not satisfied, to contact further levels of management. Bensinger et al. at 17.

4. Conclusion

45. Bensinger, DuPont and Associates has assessed the security measures employed at the Harris site and found that appropriate initiatives have been taken to address the drug abuse and sale threat at the site. Their review of confidential files, investigative data, search procedures and the Quality Check program reflects professional and thorough documentation of incidents and allegations, and appropriate investigative and preventative security actions. Mr. Bensinger testified that CP&L's program reflects aggressiveness when compared to that of other utilities, and substantial intervention capability compared to typical business enterprises in the United States. Applicants' Assessment Testimony at 10-11.

46. The Board finds that the measures employed at the Harris site provide a reasonably effective capability to identify violators of site drug abuse policies.

C. Assessment of the Extent of Drug Activity

47. The record includes several sources of information on the estimated extent of drug activity among employees at the Harris site. These sources include: the results of the 1984 undercover drug investigation at the plant and the opinions of those who participated in the investigation; data on the number of employees terminated for suspected drug activity; data on

indirect indicators of population drug abuse; and the judgments of witnesses for Applicants, CCNC and the NRC Staff who have worked on the site.

48. Before evaluating that record, however, several observations are in order. First, we used the term "estimated" above in recognition of the fact that no witness claimed that the actually identified drug activity represented all that likely has occurred. Second, we discuss drug "activity," instead of just drug "abuse" -- the term used in the contention. While it is only employee impairment on the job due to drug consumption which has potential safety significance,^{12/} much of the evidence -- for example, on employee terminations -- does not distinguish between consumption and other drug activity such as possession, purchasing and selling, delivering and other supportive roles, or failure to cooperate with site policies and procedures.

49. Finally, any assessment of the extent of drug activity among the 26,000 who have been employed at the Harris site must recognize that there is an extensive national problem of drugs in the workplace. There were in 1982-1983, according to the National Institute on Drug Abuse, over 22 million users of

^{12/} This was acknowledged by CCNC during discovery. See Answer to Interrogatory 21, Conservation Council's Answers to Applicants' Discovery Requests on Contention WB-3 (Drug Abuse), dated May 24, 1985.

marijuana on a once-a-month basis, over 4 million users of cocaine at least once a month, and perhaps as many as 10 million abusers of prescribed medication. The cocaine use probably has doubled today to a range of 8 to 10 million users on a once-a-month basis. Drugs are in our schools and universities, in our jails, in our armed services, and in our athletic teams at all levels. While most drug use occurs in a social setting, and is much less frequent on the job, drugs have also invaded all of the workplaces in the United States -- including government and law enforcement agencies. Arrests for drug use and sale have been made at a number of nuclear power plant construction sites throughout the country. It is to be expected that some employees will bring drugs to their work assignment in spite of the best efforts of the construction site management and the owner utility company to prevent it. Applicants' Assessment Testimony at 17-18; Applicants' Testimony of Dr. Robert L. DuPont, Jr. on the Effects of Employee Drug Use (CCNC Contention WB-3), ff. Tr. 9994 (hereafter "DuPont"), at 4-5.

1. Undercover Drug Investigation

50. CCNC Contenton WB-3 as filed was based exclusively on the results of an undercover drug investigation conducted at the Harris site in late 1984. In response to Applicants' motion for summary disposition, the Attorney General of North

Carolina advanced information and opinion which appeared to question CP&L's motives and actions in the conduct of the investigation, and the conclusions which CP&L drew from the results of the investigation.

51. At the hearing, the Board heard on this subject the testimony of the two undercover operatives during the investigation -- Deputy Hensley of the Wake County Sheriff's Department (WCSD) and Agent Williams (then) of the State Bureau of Investigation (SBI) -- and two supervision personnel from each agency: Major Lanier and Lt. Self of the WCSD, and Supervising Agent Overton and Assistant Supervisor Burch of the SBI. Applicants presented the testimony of their four employees involved in the planning and execution of the investigation: Mr. Hindman, CP&L's Manager, Harris Project Administration and the project-level coordinator of drug information; Mr. King, Supervisor of CP&L's Construction Security Unit; and the two employees who worked closely with the undercover agents -- Mr. Joyner of CP&L Security and Mr. Plueddemann of Daniel Industrial Relations. In addition, Mr. Bensinger provided his opinions and judgments on the investigation from his unique experience both as a consultant to industry on drug abuse control and as an experienced narcotics law enforcement professional with the DEA.

52. While the record on this investigation is lengthy, in retrospect it is not terribly important for the Board's ultimate findings on the contention in light of the other evidence presented. In order to assess the somewhat conclusory statements and inferences in the SBI testimony, it was necessary to complete the record with substantial factual evidence. Because of the conclusions the Board reaches below, it is not necessary to encumber this decision with a detailed rehearsal of all of these facts. Rather, we will focus that evidence on two questions: whether the investigation calls into question CP&L's asserted interest in deterring drug abuse on the Harris Project, and what light the investigation sheds on the extent of drug activity among site employees.

53. Some of the SBI testimony appears to question CP&L's motive for proposing the investigation, to criticize CP&L's actions as impeding the effectiveness of the investigation and endangering the undercover agents, and to blame CP&L for the asserted premature termination of the investigation. Affidavit of S.L. Burch, ff. Tr. 9274 (hereafter "Burch"). Much of this testimony -- which is based almost entirely on statements attributed to WCSD personnel -- was contradicted at the hearing by the WCSD witnesses, Applicants' witnesses and SBI Agent Williams.

54. The record is undisputed as to the fact that CP&L proposed and requested that this investigation be undertaken by off-site law enforcement. Burch at 2; Applicants' Investigation Testimony at 10-11. In her testimony, SBI witness Burch asserts, solely on the basis of her recollection of a statement by Mr. King of CP&L at a meeting of October 17, 1984,^{13/} that there was pressure on CP&L to take more vigorous action to address drug activity. Mr. King testified that he did not make such a statement, and his testimony is endorsed by Mr. Joyner, who also attended the meeting. Applicants' Investigation Testimony at 10. Further, Mr. Joyner explained exactly how CP&L's proposal came about -- which was because CP&L Senior Vice President McDuffie telephoned Mr. Joyner after reading a weekly security report which discussed drug activity.^{14/} Mr. Joyner recommended the investigation to Mr. McDuffie and preparation efforts began shortly thereafter. Applicants' Investigation Testimony at 10-11. When asked for their

^{13/} Under normal circumstances, recollection of a statement made at a meeting held long ago is not infallible. Here, Ms. Burch's recollection is contradicted not only by the recollections of others, but by her own changes to her recollection. The testimony as filed (an affidavit executed on July 31, 1985) reported a statement by King that the pressure came from the NRC. At the hearing, this testimony was changed to report a King statement that the pressure was internal to CP&L. Burch at 2.

^{14/} A copy of the report is in the record, ff. Tr. 8776.

understanding of why CP&L requested the investigation, the WCSD witnesses testified that CP&L simply felt there was some drug activity at the plant and requested WCSD assistance to address it. Tr. 9172 (Lanier (who also attended Oct. 17, 1984 meeting), Self, Hensley). Ms. Burch's uncertain recollection is overshadowed by the testimony by the CP&L and WCSD witnesses. The reliable evidence is that CP&L proposed the investigation entirely because cognizant security and management personnel responsibly, and without pressure, decided to take positive action.

55. Sheriff Baker of Wake County has observed that CP&L deserved great credit for taking the initiative to propose this investigation at the Harris Plant. Applicants' Investigation Testimony at 11; Tr. 9194 (Lanier). Experts in the control of drug abuse in the workplace term cooperation with law enforcement agencies in undercover investigations a very positive element of a corporation's arsenal of tools to combat drugs in the workplace. Such operations not only serve to identify violators of the company's drug abuse policies, but also to deter future drug activity among the employee population contemplating the use of drugs on the job. Applicants' Investigation Testimony at 11-12. The Board would add that the initiative of CP&L's Senior Vice President, Nuclear Generation Group, in seeking out additional information once he read the weekly

security report, and in promptly following the recommendation for an investigation, reflects very well on management's interest in controlling drug abuse.

56. Further, the actions CP&L took to support the investigation reflect a desire to help the operation be effective. An important initial contribution was to respond to the WCSD request for a confidential informant.^{15/} In addition, CP&L provided the agents with all of the accoutrements of legitimate employees, with unescorted access to any part of the site at any time. Mr. Hindman made himself available to the agents if they needed assistance or encountered problems. Mr. Joyner and Mr. Plueddemann were available to the operatives on a daily

^{15/} During the planning stage for the operation, Lt. Self of the WCSD stated that in order to help the undercover operatives gain access to the drug dealers, he wanted the assistance, as an informant, of a particular employee who had been terminated and turned over to the WCSD for possession of cocaine. The individual agreed to perform this role in exchange for the anticipated dropping of criminal charges against him after successful completion of the operation, and with the understanding that he would not testify in any subsequent criminal proceedings. Consequently, only purchases by the law enforcement officers could be the basis for arrests. The informant had been an employee of Davis Electric Company, a sub-contractor of Daniel Construction Company. Because this individual had been terminated for violating site drug abuse policies, Davis personnel (unaware of the investigation) could not be persuaded to re-hire him. CP&L then arranged to have the former employee hired through a temporary agency with his salary paid by CP&L, and gave him total access to the site. It was understood by the WCSD and others involved in the investigation that co-workers of this former employee knew he had been fired and knew the reasons for his termination. Applicants' Investigation Testimony at 13-14.

basis, and did all follow-up work to make positive identification of each person reported to have used, possessed or sold drugs. CP&L Security also provided the agents, at the outset of the investigation, with a list of 21 employees suspected of drug activity, and shared intelligence on likely locations of such activity. Applicants' Investigation Testimony at 13-16; Tr. 8568 (King).

57. In support of the apparent argument that CP&L impeded the investigation, SBI witness Burch cites the initiation, shortly after the investigation began, of random gate exit searches of employees with hand-held metal detectors. Burch at 3-4. Applicants explained that the metal detectors had been requested by the construction manager well before the undercover operation had been conceived, and that their sole purpose was to curb tool theft. Indeed, the detectors do not identify drugs -- only metal -- and there is no credible basis for speculating that these searches adversely affected the investigation. Applicants' Investigation Testimony at 16-19; Tr. 9197 (Hensley).

58. Ms. Burch also testified that CP&L acted against a WCSD request and refused to let two individuals, suspected of bringing a large amount of marijuana, to enter the job site. Burch at 4. First, it should be noted that neither Ms. Burch nor the SBI had anything to do with these events. Id.; Tr.

9288, 9293 (Burch); Applicants' Investigation Testimony at 21. Second, Ms. Burch's account is disputed by all of the witnesses who were involved. The WCSD did not request CP&L to stop the two employees at the gate. Rather, there was a plan between CP&L and the WCSD to have the two employees arrested as they attempted to enter. CP&L stopped the two employees -- who were in possession of drugs -- when the arresting officers did not arrive. Applicants' Investigation Testimony at 21-23; Tr. 9197-98 (Hensley, Self).^{16/}

59. In her pre-filed testimony (the affidavit filed July 31, 1985 in response to Applicants' summary disposition motion), SBI witness Burch made the serious charge that "actions by CP&L endangered the lives of the undercover officers." During direct examination at the hearing, Ms. Burch inserted the word "potentially" before "endangered." Burch at 8. During cross-examination, Ms. Burch explained that this statement

^{16/} Given that the Burch testimony on this score is based solely on purported statements by Hensley and Self, it is surprising that it was not withdrawn. The Attorney General was on notice prior to the filing of testimony that the WCSD personnel had contradicted Ms. Burch's account at an August 12, 1985 meeting with CP&L. See Applicants' Reply to the Response by the Attorney General of North Carolina to Applicants' Motion for Summary Disposition of CCNC Contention WB-3 (Drug Abuse During Construction), dated August 16, 1985, at 13-15. At the hearing itself, Lt. Self and Deputy Hensley confirmed Applicants' description of these events before Ms. Burch testified. Because the Burch testimony was presented, the Licensing Board has been required to address clearly unreliable and incorrect evidence.

referred to the planned initiation of narcotic detection dog searches -- which clearly did not occur during the investigation. Ms. Burch then agreed to amend the statement further to read "actions by CP&L potentially would have endangered the lives of the undercover officers." Tr. 9299-9300 (Burch). It is clear to the Board that the original testimony, even as amended on direct, leaves the entirely misleading impression that the CP&L "actions" took place at a time when the officers' lives may have been endangered -- i.e., during the investigation.

60. There is no evidence in the record that the agents' lives were ever endangered by actions of CP&L. In the interest of both safety and effectiveness, Applicants took extraordinary precautions to prevent awareness of the investigation. As experienced law enforcement officers themselves, Mr. King and Mr. Joyner were conscientiously concerned with the safety of the agents and the secrecy of the operation.^{17/} Applicants' Investigation Testimony at 25-26. Neither Deputy Hensley nor Agent

^{17/} Mr. Joyner's experience is described at ¶ 34, supra. Mr. King, to whom Mr. Joyner reports, has been involved in security work for CP&L since 1978. He previously spent over seven years on the Raleigh Police Department, where his assignments included narcotics (including undercover) investigations. He is a commissioned law enforcement officer, has a B.S. degree in Police Science, and has received considerable training on narcotics law enforcement. Applicants' Investigation Testimony at 2-3.

Williams ever expressed to Applicants concern about their personal safety, and at the hearing they each testified that they had no such concern beyond the recognition of the usual risk attendant to such work. Id. at 26-27; Tr. 9189, 9198 (Hensley); Statement of Don Williams, ff. Tr. 9274 (hereafter "Williams"), at 13; see also Tr. 9189 (Lanier).

61. The Board is convinced that CP&L worked to support and cooperate with this investigation, and not to impede its effectiveness. WCSD Deputy Hensley testified that he was satisfied with CP&L's support of him during the investigation. Tr. 9195 (Hensley); Applicants' Investigation Testimony at 16. The contrary testimony by SBI Assistant Supervisor Burch, which was not confirmed by the SBI's own agent, reflects a misperception of the facts or a misunderstanding of the business of constructing a nuclear power plant. CP&L could not cut back on safety and security for misconceived possible perceptual problems involving the investigation. See Applicants' Investigation Testimony at 18, 19; Tr. 8586-87 (Bensinger). We agree with CP&L's consultant Mr. Bensinger, for example, that it would have been irresponsible -- and from the NRC's viewpoint undesirable -- for CP&L to have facilitated drug activity by allowing employees with drugs to enter the workplace. Applicants' Investigation Testimony at 24.

62. The SBI witnesses testified that the undercover operation was terminated prematurely because CP&L insisted upon initiation of its program of narcotic detection dog searches at the Harris site. It is contended that the agents' safety would have been threatened thereby. Burch at 7-8; Direct Testimony of C. J. Overton, III, ff. Tr. 9274 (hereafter "Overton"), at 6. The decision to terminate the investigation was made by Sheriff Baker and SBI Supervising Agent Overton. Overton at 6; Tr. 9189 (Lanier). The investigation began on or about November 6, 1984, and culminated in arrests on January 10, 1985 (although agent activity on site ceased around the turn of the year). Applicants' Investigation Testimony at 16, 35. The first dog search was actually conducted on site on February 25, 1985, but apparently CP&L did not succeed in communicating this schedule and there was a misunderstanding by the law enforcement personnel at the time about when the searches would begin. Id. at 37-38; Tr. 9203-04 (Lanier, Hensley, Self).

63. The Board normally would not be inclined to address the WCSD and SBI decision to terminate the investigation. Since the basis for the decision has been attributed by the SBI to CP&L, however, with critical inferences, we must do so. CP&L's experienced law enforcement officers and the former Administrator of the DEA testified that the random dog searches would not have posed a threat to the safety of the undercover

agents.^{18/} Applicants' Investigation Testimony at 38-39. Tr. 8562-65 (King). SBI Agent Williams testified that in his opinion the investigation could have proceeded with the dog searches in progress. Williams at 12. SBI Agent Overton advanced no explanation for the perceived threat. Overton at 5-6. It is not apparent to the Board how random searches by drug detection dogs would create suspicion among drug users that there were undercover agents on the site, or cause any such suspicion to focus upon the actual agents. In view of this record, the Board does not attribute to CP&L responsibility for the law enforcement agencies' decision to terminate the investigation.

64. Finally, we turn to the question of what the investigation reveals about the extent of employee drug activity at Shearon Harris. The clear results of the operation were the arrests of eight employees for sales to the officers, and the identification to CP&L of 53 others suspected of drug activity.^{19/} In addition, Deputy Hensley testified that he observed about 40 other employees, whom he did not identify, consuming

^{18/} Applicants acknowledged that such searches would tend to inhibit the level of drug activity. Applicants' Investigation Testimony at 37. This appears to have been SBI Agent Williams' only concern as well. Williams at 11.

^{19/} This includes the 21 employees identified by CP&L before the investigation began.

drugs on the job.^{20/} He also stated that he suspected, based on intelligence being gathered, another 100. The WCSD spent \$1,725 for drug purchases during the investigation. Applicants' Investigation Testimony at 40; Tr. 9173-75, 9240-42, 9263-64 (Hensley).

65. The SBI witnesses had no additional information to contribute to the record on this score.^{21/} Instead, they argued that if the investigation had continued, more could have been accomplished. They also testified that the investigation was not a success. Burch at 8-9; Overton at 6; Williams at 11-12. It is difficult to appreciate the thrust of this

^{20/} The 8 plus 53 plus 40 constitute the 100 employees observed, and attributed to Hensley, in paragraph 9 of the Burch Testimony. Tr. 9175 (Hensley). There is some question about the 40 employees Hensley says he observed in the act of consumption. If Deputy Hensley had been close enough to be sure he was observing drug activity, he should have been able to identify the employees from hard hat markings. Applicants' Investigation Testimony at 42-44; Tr. 8974-77 (Joyner).

^{21/} As indicated previously, the SBI testimony largely relies on second-hand information obtained from the WCSD -- some of which is inaccurately reported. For example, SBI witness Burch testified that Deputy Hensley made his first drug purchase after being on site only one and one-half hours. Burch at 5. It is beyond dispute, however, that the confidential informant, who had been involved in drug activity while employed at the site, made that purchase. Applicants' Investigation Testimony at 30-31; Tr. 9200, 9229 (Hensley). Ms. Burch did testify that in her opinion the number of terminated employees and the results of the undercover investigation did not themselves reflect widespread drug use. Tr. 9312 (Burch). The Board will not rely on other "intelligence" not substantiated by the SBI testimony. See Applicants' Investigation Testimony at 43.

testimony on the effectiveness of the investigation, given the SBI's role in it. The witnesses agree that at the planning stage Sheriff Baker recognized the inexperience of his officer, requested that the SBI furnish an experienced undercover operative, and that the SBI assured Sheriff Baker of its support. Burch at 2-3; Overton at 3; Applicants' Investigation Testimony at 12. It is also agreed that during the eight-week investigation, SBI Agent Williams appeared for work at the Harris site on only 10 to 15 occasions, frequently for only 3 to 5 hours at a time, and accomplished little. Applicants' Investigation Testimony at 27-28; Tr. 9198-99 (Hensley); Williams at 13; Tr. 9318 (Williams). Given this level of participation in the operation, the Board cannot give significant weight to the opinions and conclusions of the SBI witnesses where they are not supported by the WCSD and Applicants' witnesses who were more consistently involved.

66. Beyond the level of SBI support already provided, there are other reasons why CP&L was not enthused about the proposed plan, presented in mid-December, 1984, to extend the investigation with a concentration on the second shift and with a new SBI agent and Deputy Hensley, but without a confidential informant.^{22/} See Burch at 6; Overton at 4. While the agents

^{22/} In the view of CP&L Security and the informant, the informant's personal safety would have been threatened by any ex-

(Continued next page)

were always free to investigate on the second and any other shift, the informant on whom the agents relied heavily had not worked the second shift and did not have contacts among those employees. Neither the SBI nor the WCSD had undertaken to develop a new informant. In Applicants' view, with which SBI Agent Williams agrees, such an operation would not have been productive -- among other reasons because only roughly 800 of the over 6,000 daily employees at the site work the second shift. Applicants' Investigation Testimony at 33, 41; Tr. 8527 (Joyner).

67. The proposed plan itself, however, confirms Applicants' testimony that the investigation on the first shift was winding down in December, 1984, in terms of the cases being made against suspects. See Applicants' Investigation Testimony at 40-41 and Attachment 5; Tr. 8589 (King). Moreover, Applicants had understood that the investigation would last about eight weeks,^{23/} and viewed this to be a sufficient period of time given the assistance of the informant and the leads

(Continued)

tended participation in the investigation. Applicants' Investigation Testimony at 34-36. SBI witness Williams also expressed the view that the informant's contacts had been exhausted. Id. at 35-36.

^{23/} See Williams at 4. WCSD personnel testified, however, that they did not intend to leave this impression. Tr. 9200-03 (Lanier, Self, Hensley).

provided by CP&L, and the geographically concentrated area to be investigated. Applicants' Investigation Testimony at 32-33. More importantly, however, the Board appreciates that from the standpoint of effective implementation of its corporate drug abuse control program, CP&L could not afford to extend the investigation, at least in the absence of the likelihood of positive results. Keeping known drug users and sellers on the site for an extended period of time, with the attendant inhibition on policy enforcement which would potentially compromise the investigation, was a matter of understandable concern to CP&L. See id. at 34-36. It is also revealing that when asked whether the investigation was terminated prematurely, the WCSD witnesses testified merely that they thought more could have been accomplished in a longer investigation "as in any operation." Tr. 9190 (Lanier, Self, Hensley). In short, the Board is unwilling to conclude that substantially different results would have been achieved if the investigation had continued, or that, at least from the standpoint of the NRC's interest in controlling drug abuse among employees, the investigation should have continued.

68. Deputy Hensley of the WCSD did express the opinion, the basis for which was not limited to his actual observations during the investigation, that drug use at the Harris site was widespread. Tr. 9243 (Hensley). This qualitative assessment

should be viewed in the context, however, of Deputy Hensley's statements that he essentially did not know whether the percentage of users at Harris was comparable to that of the U.S. population, and that he also considered drug use in Wake County to be "widespread." Tr. 9246 (Hensley). In addition, Deputy Hensley's roughly eight weeks on the Harris site were not representative of the typical experience of an observer assessing the site employee population as a whole. The informant was an experienced drug user who introduced Deputy Hensley immediately into a circle of drug dealers and users. It was the agent's job to infiltrate whatever drug community existed. In fact, it was his only job. It does not follow, however, that these employees are representative of the site population as a whole. It is also to be expected that rumors would exist, among those involved, of the extent of drug activity. People who are involved in drugs tend to try to convince themselves that everyone else is doing it as well. Applicants' Investigation Testimony at 43; Tr. 8572 (King).

2. Employee Terminations

69. A review has been made of Security, CP&L and Daniel records to provide an assessment of the extent of drug activity among employees at the Shearon Harris site (CP&L, Daniel and/or other contractor employees) since February, 1978, and through

October 15, 1985. More than 26,000 people have been employed at the site during this time period.24/

70. CP&L has identified 218 employees as confirmed or suspected of some level of involvement in controlled substances.25/ None of these 218 individuals are now employed at

24/ At the time of the hearing, and during the 1984 undercover investigation, the daily employee population was approximately 6,000. This number was lower during the earlier years of construction. Tr. 8346-47 (Ferguson).

25/ In addition, by stipulation with CCNC, Applicants agreed to treat five employees of CONAM Inspection, who performed pre-service, baseline eddy current testing on the Harris Plant steam generators, in the same manner as employees potentially implicated in drug activity for purposes of reevaluating their work. Applicants agreed to perform an additional eddy current testing of a sample of three percent of the tubes of the three Harris steam generators. Tr. 8891-92. During the hearing held on November 12, 1985, Applicants' witness Brombach presented the results of the retesting of a sample of the Harris Plant steam generator tubes. Technical Services Laboratory ("TSL") of Greenville, South Carolina was selected as the vendor to carry out the retesting program with a level III analyst from Zetec, Inc. acting as a consultant. TSL utilized the same examination techniques, equipment, and calibration standards previously used by CONAM. As a result of an independent testing of four percent of the Harris steam generator tubes, TSL concluded that no reason could be found to doubt the validity of data interpretation or tube identification previously reported by CONAM. Applicants' Testimony of Harold R. Banks, Roland M. Parsons, George L. Forehand and Thomas W. Brombach on Evaluation and Reinspection of Work Performed by Employees Implicated in Possible Drug Activity (CCNC Contention WB-3, ff. Tr. 10,077 ("QA Panel"), at 19-21 (Brombach); Applicants' Ex. 52. In addition, nine of the magnetic eddy-current tapes acquired by CONAM during the base line eddy current examination of Harris steam generators were taken to the Electric Power Research Institute ("EPRI") NDE Center in Charlotte, North Carolina. EPRI performed an independent review of CONAM's analysis, representing five percent of the total number of steam generator tubes exam-

(Continued next page)

Shearon Harris. However, this total of 218 encompasses a variety of situations. Because of the nature of the project, CP&L has erred on the side of caution in personnel actions related to potential drug involvement. The bases for personnel actions on these employees are as follows:

° Presence of drugs confirmed through urinalysis drug screening:	23
° Found to be in possession of a controlled substance on site:	54
° Arrested off site:	6
° Arrested on site:	8
° Refused to submit to a urinalysis test or a search of their person, property or vehicle:	50
° Suspicion, based on less than search or testing:	<u>77</u>
	218

Consequently, over one-half of the 218 incidents involved circumstantial information or inferences from the refusal to subject to a search or test. Only 13 employees (included above in the "possession" category) have been identified for whom it was established that a controlled substance was being consumed on

(Continued)

ined by CONAM, and validated CONAM's eddy current testing and examination results. QA Panel at 18-19. CCNC did not cross-examine Mr. Brombach on the results of these retesting and independent reviews.

site. Applicants' Assessment Testimony at 11-12, as amended by Applicants' Ex. 51 at 2, 12.

71. It must be recognized that these data do not prove that a single employee "abused" drugs at work in the sense asserted by the CCNC contention -- that is, such that job performance was impaired.^{26/} Rather, the terminations are for any kind of suspected drug-related activity, without regard to actual consumption or work impairment. Applicants' Assessment Testimony at 15. Further, in evaluating these data it must also be recognized that a so-called high rate of detection of drug activity itself can be caused by a high rate of drug activity or by a high level of enforcement of anti-drug policies, or both. Used in isolation this indicator (arrests or dismissal for drug activity) can be misleading because it can seem to show that the sites with the most effective drug abuse prevention efforts have the highest rate of drug activity (because they have the most arrests and dismissals, for example), when these indicators may actually reflect a relatively low rate of drug activity at a particular site. Id. at 19.

72. The drug activity at the Harris Plant that has been identified by CP&L, its contractors and law enforcement represents, as a percentage of the site work force, less than

^{26/} Applicants know of no instances of employees being impaired by drugs on site. Tr. 8841-42 (Joyner, King, Hindman).

one-eighth of the national work forces' percentage of drug abusers. In making this comparison, it is assumed that each of the 218 identified employees was a drug abuser -- which may or may not be the case. Consequently, this is not a high rate of arrests/dismissals, and is not indicative of widespread drug abuse. Applicants' Assessment Testimony at 19.

3. Indirect Indicators

73. An assessment of drug activity should not be limited, however, to a consideration of the number of arrests and dismissals. Other key indicators, such as accident rates, are valuable evidence of the rate of drug activity. A high rate of arrests and dismissals with a low accident rate would strongly suggest a low relative rate of drug use and effective intervention. A high rate of arrests and dismissals, however, when found with high accident rates would strongly suggest a higher rate of drug abuse. A low rate of arrests and dismissals with a high accident rate would reflect ineffective intervention. Applicants' Assessment Testimony at 19-20; DuPont at 13.

74. The Daniel Construction Company and its subcontractor (Davis Electric Company) have a 0.80 incidence of lost workday accident cases per 200,000 workhours for the period November 1984 through July 1985. For the immediately preceding year (November 1983 through October 1984), the figure was 0.30. By

comparison, the North Carolina State Department of Labor, Injury Statistics (1983-Construction) show a 4.7 incidence of lost workday accident cases per 200,000 workhours for heavy construction in North Carolina. The national average - Construction 1984 Edition "Accident Facts National Safety Council" - for heavy construction in this same category is 3.5. During 1984, CP&L employees at Harris experienced 0.79 lost workdays from accidents per 200,000 workhours, compared to 1.23 lost workdays for the Company as a whole. Additionally, the Harris project has experienced no fatal accidents. This is an outstanding safety record and a strong indication of a low rate of substance abuse. If drug use were widespread at the Harris Plant, one would see a higher accident rate among the site work force. Applicants' Assessment Testimony at 20; DuPont at 13.

75. Another indirect indicator of the level of drug activity is the quantity of drugs involved in the drug-related incidents at the site. CP&L's estimate, based upon a review of its site security files, is that CP&L Security has confiscated misdemeanor amounts of approximately 282 grams of marijuana, 4.5 grams of cocaine, 50 pills (controlled) and 450 pills (non-schedule). CP&L's estimate of drugs turned over to the WCSD in felony amounts is 16 ounces of marijuana and 3 grams of cocaine. These estimates do not include the drugs purchased during the undercover investigation. These quantities of drugs

are not indicative of wholesale drug operations, but rather reflect small, personal consumption quantities used by individual employees. Applicants' Assessment Testimony at 12, 16.

76. In addition, the record includes the results of 16 searches of the site in 1985 with narcotic detection dogs. Most searches were negative, and only minute quantities of marijuana were identified. Mackonis and Mathias at 10-12; Tr. 8994-95 (Mackonis). The handler who conducted 14 of those searches expressed her opinion, based on these searches, that there is not widespread drug use at the Harris site. Mackonis and Mathias at 12; Tr. 8995 (Mackonis). This conclusion was confirmed by Officer Mathias, who conducted the other two searches. Officer Mathias, who conducts canine searches for narcotics investigations by the Raleigh Police Department and is in charge of its canine unit (id. at 2-4, Tr. 8995 (Mathias)), testified as follows:

My opinion is that there is not widespread drug use at the SHNPP site. This opinion is based solely upon the two searches I conducted at the site. My dog made indications only on the drugs hidden by CP&L security personnel. He searched large areas and made no indications as to controlled substances. If drugs were used on a widespread basis as alleged then they would have been present in some of the areas searched. Based upon the dog's abilities and his lack of indications, I do not feel that there is an on-site drug problem.

Id. at 12-13; Tr. 8995-96 (Mathias). Officer Mathias also

testified that his searches changed his pre-conceived expectations about drug activity at the Harris site. Tr. 8995-96 (Mathias).

4. Observations by Persons Working at the Site

77. The record also includes the assessments of several persons who have worked at the site, including the NRC's Senior Resident Inspector for Construction. All but one of these witnesses (Ms. Miriello) testified that drug use at the Harris Plant has not been widespread.

78. CCNC witness Miriello was employed at the site from April, 1984, to August, 1985.^{27/} Miriello at 2. Ms. Miriello's employment with CP&L was terminated on August 30, 1985 because of her inability to function cooperatively with her co-workers and supervisors.^{28/} Applicants' Assessment Testimony at 15. Ms. Miriello presented the opinion that drug abuse at the Harris Plant is widespread. Miriello at 5-6. Yet, her opinion is totally unsubstantiated by her testimony.

^{27/} Ms. Miriello was employed by Nuclear Energy Services from April, 1984, to February, 1985. She was employed by CP&L from February 25 until August 30, 1985. Miriello at 2; Applicants' Assessment Testimony at 14.

^{28/} The record indicates that Ms. Miriello contacted CCNC immediately after her dismissal by CP&L. Applicants' Assessment Testimony at 15; Tr. 9110 (Miriello).

79. First, Ms. Miriello testified that on one occasion she observed 7 or 8 workers up on the boilers smoking marijuana -- in plain view of the administration building. Miriello at 4. Leaving aside the insignificance of this incident, even if true, as a basis for her conclusion, the reliability of Ms. Miriello's observation was substantially undermined by her admission, on cross-examination, that the view of the boilers -- 660 feet from the administration building -- is obscured by another building. Tr. 9117-18 (Miriello). The only other basis advanced for Ms. Miriello's conclusion was that she had smelled marijuana when walking through the Daniel parking lot.^{29/} Miriello at 4. Yet, Ms. Miriello included neither of these observations in her affidavit of September 6, 1985, in opposition to Applicants' summary disposition motion. Tr. 9115-16 (Miriello). Since Ms. Miriello claims she did not recall these incidents for the first time after the affidavit was prepared, id., a fair inference is that she considered them to be too insignificant for inclusion.

80. Ms. Miriello's credibility as a witness was also impeached to such an extent that her testimony cannot be considered to be reliable. The alleged incident of workers smoking

^{29/} Ms. Miriello never attempted to identify any of the employees involved or to report the incidents either to site authorities or law enforcement. Tr. 9118, 9150-51 (Miriello).

marijuana on the boilers occurred in October, 1984. Miriello at 4. However, in a Quality Check Employee Exit Questionnaire signed by Ms. Miriello on February 19, 1985, she clearly indicated that she had reported no safety concerns, and that she had no unreported concerns.^{30/} Applicants' Ex. 41; Applicants' Assessment Testimony at 15. At the hearing, Ms. Miriello stated she "didn't care" about filling out this form, and refused to acknowledge what she had clearly marked on the form. Tr. 9105-08 (Miriello). This testimony reflects not only a disdain for safety and her responsibilities as an employee, but a careless disregard for the obvious truth.^{31/} It is also apparent that prior to her termination by CP&L, Ms. Miriello threatened CP&L in writing that she would attempt to stop the plant through intervention if she were fired. Tr. 9101 (Miriello); Applicants' Assessment Testimony at 15. Apparently, Ms. Miriello sought to fulfill this threat by contacting counsel for CCNC within two days after her employment was terminated by CP&L. See n. 28, supra. The Board could observe Ms. Miriello's bitterness and hostility toward CP&L from her

^{30/} Ms. Miriello also testified, in contradiction, that she had reported the concerns on drug activity to the FBI in November, 1984. Tr. 9109 (Miriello).

^{31/} Ms. Miriello also misrepresented her qualifications by testifying that she has an M.S. degree from Pennsylvania State University, when in fact the degree has not been conferred. Compare Miriello at 2 with Tr. 9114 (Miriello).

demeanor as a witness. Ms. Miriello's motivations are further reason to question the credibility of her testimony. For all of the foregoing reasons, we do not rely on Ms. Miriello's opinion on the extent of employee drug activity at the Harris site.

81. Mr. Hindman has been employed by CP&L at the Harris site full time since February, 1979, and was on site part time previously. His assessment is that there is not widespread drug abuse among the site employees. Applicants' Investigation Testimony at 1; Applicants' Assessment Testimony at 16-17, 21. This conclusion is shared by Mr. Joyner, who testified as follows:

I would like to add that I am a law enforcement officer who has worked at the Harris site on a daily basis for six years. I have extensive previous investigative experience, and have investigated alleged drug activity at the site for six years. I am encouraged by my management to identify violators of site drug abuse policies. I am the one who proposed the undercover operation. I investigate potential leads about suspected drug activity, and I am well equipped to observe and to identify indications of drug activity. If drug abuse on the site were widespread, I would know it. It is my firm professional conclusion that drug use at the site has not been widespread.

Applicants' Assessment Testimony at 16. Mr. King, who has been on site frequently in his seven years of employment with CP&L, also concluded that drug abuse is not widespread. Applicants'

Investigation Testimony at 2-3; Applicants' Assessment Testimony at 16-17, 21.

82. Mr. Prevatte had been assigned to the Shearon Harris site from March, 1983, through October, 1985, as the NRC's Senior Resident Inspector for Construction. Long et al. at 4; Tr. 10,164 (Prevatte). Mr. Prevatte testified that he is on the site almost daily, has free access over the entire site, can observe workers at any time or location, spends the majority of his time in actual inspection in the field, but has never observed drug use on the site. Tr. 8679-80, 8755, 8759 (Prevatte). Mr. Prevatte acknowledged that there has been drug use on the site, but testified that based upon his experience he does not believe "it is a dominant factor that is occurring continuously that high percentages of people are using it on the site." Tr. 8760-61 (Prevatte). He further testified that he has received training on identifying drug use, and that he would be able to detect someone under the strong influence of drugs. Tr. 8762 (Prevatte). Finally, Mr. Prevatte testified that if there had been widespread drug use at the Harris site, he would have seen direct evidence of it over time. Tr. 8764 (Prevatte). As Senior Resident Inspector for Construction, Mr. Prevatte was in a good position to observe any drug problems on site. His opinions, as an independent and unimpeachable observer, are entitled to substantial weight.

5. The Definition of "Widespread"

83. The word "widespread" used in the contention is both a relative and a subjective term. Each witness used his or her own sense of this word in presenting testimony. In assessing the extent of employee drug activity at the Harris site, however, the Board relies on the uncontradicted definition provided by Mr. Bensinger, who has extensive national experience. Mr. Bensinger testified that in the American workplace today, anywhere from 5 to 12 percent of the working population may be using illegal drugs, on and off the job. Therefore, his opinion is that a figure in the upper limits of that range -- such as 10 percent -- would represent widespread use at a job site. Tr. 8338-39, 8954-55 (Bensinger).

D. Conclusion

84. The Board has, as discussed above, various sources of information on the potential extent of drug activity among the Harris site employees. We have found each source to be useful, but no one source to be determinative. The undercover drug investigation did not cover a significant time period in the Harris Project's history and it was not perfectly run. Yet, it did provide valuable information and led to the removal from the site of a number of offenders of the drug abuse control policies. No significant, wholesale drug operation was

identified, however -- only personal consumption incidents. The employee termination data reflect effective enforcement of the policy, and yet a small number compared to the total employee population over the life of the project. The indirect indicators of industrial safety record, quantities of drugs confiscated, and results of canine searches all point toward a low level of drug activity. Finally, the observational experience of the credible employee witnesses -- particularly Mr. Joyner of CP&L and Mr. Prevatte of the Staff who, because of their positions, are in an excellent position to observe drug activity -- strongly supports a conclusion that drug abuse is not widespread. We do not consider this testimony less important because it is not quantitative. Indeed, the Board would expect that if drug abuse at the site were widespread, these two witnesses -- based on their activities, experience and training -- would have seen direct evidence of it.

85. As Mr. Bensinger testified, no one can arrive at a certain quantitative estimate of the extent of drug use. Tr. 8964. Under questioning by the Board, however, he ventured the opinion that the number of employees not identified by Applicants does not represent a large number (within 20 to 30 percent) compared to those identified. Tr. 8963-64, 8967. Looking at an annualized identification rate of roughly 100 out of 10,000, the percentage (one percent) is going to be

significantly below the definition of widespread (10 to 12 percent) adopted by the Board even if the one percent identified is lower by a large margin than the fraction actually using drugs. Tr. 8964-67 (Bensinger). Consequently, the Board concludes that even accepting at face value the numbers advanced by WCSO Deputy Hensley, the drug use at the Harris Plant cannot be termed "widespread" as CCNC contends. This conclusion is supported as well by the other evidence, direct and indirect, on the extent of employee drug activity.

IV. IMPLICATIONS OF EMPLOYEE DRUG ACTIVITY ON HARRIS PLANT CONSTRUCTION QUALITY

A. Introduction

86. While Applicants and the NRC Staff had opposed admitting CCNC Contention WB-3 on the grounds, inter alia, that CCNC had failed to establish a link between drug activity and construction defects,^{32/} the Board was willing to presume such a link might exist -- i.e., that "the quality of work may suffer" -- for purposes of admitting the contention. However, CCNC did not advance -- in discovery, in responding to Applicants'

^{32/} Applicants' Response to CCNC's Request for Admission of New Contention WB-3 (Drug Use During Construction), dated February 6, 1985; NRC Staff Response in Opposition to Conservation Council of North Carolina's Motion to Admit Proffered Contention WB-3 Regarding Drug Use, dated February 7, 1985.

motion for summary disposition, or during the hearing -- any construction deficiency, let alone one caused by drug use. Nor did CCNC attempt to demonstrate that a breakdown of Applicants' Quality Assurance ("QA") program had occurred due to drug use by quality inspectors.

87. Applicants sought to rebut the presumption of possible construction deficiencies due to drug use by construction workers by establishing that (1) any employees who might have been working at the Harris Plant while impaired by drug use would not generate errors which are different in kind from those made by other employees and which are identified by QA personnel; (2) all safety-related work performed by craft workers is subjected to quality inspections to identify and ensure correction of deficiencies; and (3) the work of QA inspection personnel itself is routinely subject to surveillance and audits and, if an inspector is implicated in drug activity, to re-evaluation or physical reinspection. Thus, Applicants' case sought to prove that a well conceived, properly implemented and monitored QA program is capable of detecting errors from any source -- including drug use, and that Applicants' have such a construction QA program at the Harris Plant site. Tr. 9989 (Applicants' opening statement).

B. Errors Caused by Workers Impaired by Drug Use

88. Dr. Robert L. DuPont, Jr. testified for Applicants regarding effects of drug use on work performance. Applicants' Testimony of Dr. Robert L. DuPont, Jr. on the Effects of Employee Drug Use (CCNC Contention WB-3), ff. Tr. 9994 (hereafter "DuPont"). His qualifications to address this issue were unassailable. A Board-certified psychiatrist, Dr. DuPont served for five years as the Director of the National Institute on Drug Abuse and was Chief White House advisor on drug abuse from 1973-1975. He was President of the national nonprofit American Council for Drug Education from 1978-1984. From 1982 to the present, Dr. DuPont has been Vice-President of Bensinger, DuPont & Associates. DuPont at 3. Dr. DuPont estimated that he has personally treated about 200-300 people for drug problems and has supervised the treatment of thousands of drug users. Tr. 10,066 (DuPont). He is also Clinical Professor of Psychiatry at Georgetown Medical School and Visiting Associate Clinical Professor of Psychiatry at the Harvard Medical School. DuPont at 3. Dr. DuPont was not only extremely knowledgeable and superbly qualified but also candid and helpful during his testimony.

89. Marijuana and cocaine are by far the most frequently abused drugs in American society, and also the drugs most often identified as involved in drug use by Harris employees. DuPont

at 4; Tr. 10,036-39 (DuPont). Most drug use occurs in a social setting, usually in the evening or on weekends. Drug use on the job site is much less frequent. This is especially true in an environment like the Harris Plant where the employer has an active, ongoing program to control drug use. The same is true for drug sales. This does not imply that drug use (and sales) do not occur on the job, only that, among those who use drugs, they are much more likely to occur off the job than on the job. DuPont at 5-6.

90. Marijuana produces an intoxicated state, the most notable effects of which on work performance come from the drop in motivation and memory. Marijuana's effects are likely to mimic the effects of lack of sleep or exhaustion and low morale, leading to low output and sloppy performance. Dr. DuPont calls marijuana the "I don't care" drug for this reason. By contrast, cocaine is a stimulant drug. Common work-related problems associated with cocaine are over-talkativeness and poor concentration on the task because of easy distractability, or inappropriate preoccupation to a particular detail of the task to the neglect of the complete picture. In addition, when the user comes off of cocaine he is exhausted and depressed, so his work performance suffers, much as it would for someone with a serious illness who has not been able to sleep adequately.^{33/}

^{33/} Methamphetamine, which has been identified on site but to a much lesser extent than marijuana and cocaine, has effects similar to cocaine. DuPont at 9.

DuPont at 6-8.

91. Impairment of job functions by an employee is most likely to occur when drug use is great (e.g., at a high dose) and when it is current (e.g., when the user is intoxicated). Casual low-dose drug use can cause impairment, but it is far less likely to do so than high-dose usage. Off-site drug usage may cause work performance to decline, but it is much less likely to do so than use on the job site. Even if a worker uses drugs on the job site, it is by no means certain that his work will be flawed on any given day. The risks are relative and, for each individual, uncertain. Workers who use small doses, who work in crews and whose work is frequently checked will be less likely to produce drug-caused work errors. In crews, the non-impaired workers often do the work of the impaired workers so that the negative effects of their impairment are reduced or even eliminated.^{34/} DuPont at 10-11.

92. While drug abuse on the job site does cause an increase in many common work-related problems, it does not cause unique kinds of work-related problems. Aside from the sales of drugs and overdose reactions (the former of which does not have

^{34/} The majority of craft work at the Harris Plant site is performed in teams where one worker's performance is subject to the scrutiny of fellow workers. Applicants' Testimony of Harold R. Banks and Roland M. Parsons on the Construction Quality Assurance Program (CCNC Contention WB-3), ff. Tr. 10,077 (hereafter "Banks/Parsons"), at 6.

direct effects on work performance, while the latter is relatively easily detected because the user is usually unconscious or acting bizarrely), the effects of drug use are of the same kind as are produced by a wide variety of other causes, ranging from alcohol intoxication to fatigue, and from mental illness to conflicts with supervisors and co-workers. Drug use would not result in errors that are qualitatively different from errors caused by other types of impairment.^{35/} DuPont at 12-13; Tr. 10,011-13 (DuPont).

93. Dr. DuPont rejected the suggestion by CCNC's counsel during cross-examination that drug users were likely to be involved in sabotage or deliberate concealment of errors. Tr. 10,013-15 (DuPont). Based on his experience and professional opinion, Dr. DuPont expected that a smaller fraction of sabotage or active concealment of errors would be caused by drug abusers than by employees who made more routine errors or had more routine problems in work performance. This is true because drug abusers tend to be sloppy and poorly motivated. They are often preoccupied with drug use itself. They are seldom involved in active sabotage or mischief (except for

^{35/} In his opening statement counsel for CCNC asserted that it would take a "leap of faith" to accept this proposition. Tr. 9989-90 (Runkle). The promised cross-examination to reveal the asserted fallacy of Dr. DuPont's testimony never materialized.

income-generating theft and drug sales) because of the effects, direct and indirect, of their drug use. DuPont at 12; Tr. 10,018-19, 10,062-63 (DuPont).

94. Dr. DuPont's conclusions are persuasive regarding the effects of employee drug use at the Harris Plant on the quality of safety-related construction. Since we do not know the precise number of employees who have actually been involved in drug activity, or the circumstances surrounding any drug consumption (e.g., timing, dosage, setting, tolerance) by those identified as possibly involved in drug activity, it is not possible to be precise about the work impairment effects, if any. Based upon an understanding of typical patterns of drug use, however, it is fair to conclude that many of the identified employees only consumed drugs off the job and were not impaired at work, and that because of low dosage consumption and tolerance levels, some consumers on the job (depending on the complexity of tasks involved) would not be impaired such that work results would be affected. For the employees consuming drugs in a way that impairs performance, crew work situations will often result in on-the-spot corrective action. Where this does not occur, the errors generated by an impaired employee would not be different in kind from other errors which are identified through the construction QA program. DuPont at 13.

C. Assurance of the Quality of Work Performed by Craft Workers Implicated in Possible Drug Activity

95. The gravamen of CCNC Contention WB-3 is the allegation that "Applicants' management * * * has failed to reinspect all safety-related work done by known drug abusers." Of the identified 218 Harris site employees implicated in any way in possible drug activity, the majority (146) were craft workers.^{36/} Applicants' Ex. 51, Chart II-2. Applicants did not reinspect safety-related work performed by craft workers known to have used drugs or implicated in drug activity. As a practical matter, it is not possible to determine with certainty all work or even all systems or components on which work was performed by an individual craft worker. QA Panel at 5-6. However, an evaluation of the work of all craft personnel implicated in possible drug activity was performed by four key Harris site individuals: the Manager QA/QC - Harris Plant, the Manager - Harris Project Administration; the Project General Manager; and a representative of the contractor (for non-CP&L employees). QA Panel at 7; Tr. 10,096-99, 10,105-08 (Parsons). During these evaluations, the individual's job description and a supervisor's description of the employee's work assignments

^{36/} Not all of the 218 identified employees nor all of the 146 craft workers performed safety-related work at the Harris Plant. See Applicants' Ex. 51 at Chart II-1.

were considered. The employee's work was evaluated to verify that the work was subjected to one or more quality inspections and that the employee's performance alone was not relied on for assuring the quality of the work. It was determined that all safety-related craft work performed by employees implicated in drug activity was subject to independent inspections^{37/} and, therefore, that reinspection -- even if feasible -- was not necessary. QA Panel at 7; Tr. 10,099 (Parsons); Testimony of Paul Fredrickson and Richard Prevatte for the NRC Staff regarding Contention WB-3's Allegation Concerning Reinspection of Work Perform by Persons Suspected of Drug Abuse, ff. Tr. 10,166 (hereafter "Fredrickson/Prevatte"), at 6-7.

96. Applicants thereby rely on the efficacy of the Harris construction QA program to detect errors made by craft workers -- whether the errors are the result of impairment due to drug use or for any other cause.^{38/} Applicants presented

^{37/} The inspection activities for craft work are summarized in Section III of Applicants' Exhibit 51. Applicants' bases for determining that employees' work was subjected to inspections is summarized in Chart II-1 of Applicants' Exhibit 51.

^{38/} Applicants' QA program for the construction of the Harris Plant was approved by the NRC prior to its implementation. That approval included a finding that the program complies with 10 C.F.R. Part 50, Appendix B, Criterion XVI of which requires that "[m]easures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected." Carolina Power & Light Company (Shearon Harris Nuclear Power Plant, Units 1, 2, 3 and 4), LBP-78-4, 7 N.R.C. 92, 107-109 (1978).

the testimony of a panel of five witnesses to describe the capabilities, implementation and effectiveness of CP&L's construction QA program at the Harris Plant. The panel included four CP&L employees: Mr. Harold Banks, Manager - CP&L Corporate Quality Assurance; Mr. Roland Parsons, Harris Project General Manager for Completion Assurance Activities; Mr. George Forehand, Director of Quality Assurance/Quality Control at the Harris Plant; and Mr. Thomas Brombach, a Project Specialist for Plant Inservice Inspections. The panel also included Mr. Eugene Trainor, Senior Vice President of Cygna Energy Services, Inc.^{39/}

97. Mr. Banks and Mr. Parsons described the construction QA program at the Harris Project in some detail. They explained that, while responsibility for achieving quality work in the first instance lies with the individual craft worker responsible for accomplishing the work, confirmation of quality for safety-related work is accomplished by sequential layers of review; namely:

- a. First line craft supervision;
- b. Independent inspection organizations (Quality Control (QC) and Construction Inspection (CI));

^{39/} See QA Panel, *supra*; Banks/Parsons, *supra*; Applicants' Testimony of Eugene F. Trainor on the Capabilities and Performance of Applicants' Construction QA Program (CCNC Contention WB-3), ff. Tr. 10,077B (hereafter "Trainor").

- c. Supervisory audits of inspectors and independent QA surveillance of inspectors' work;
- d. QA records review;
- e. System walkdowns jointly by Construction, Start-Up and QA personnel to verify the system is complete and no obvious deficiencies exist;
- f. Start-up testing to verify the system will function as designed during operation; and
- g. Corporate QA audits.

This multi-tier approach provides sufficient checks and cross-checks to provide adequate confidence that plant construction meets regulatory and design requirements. Banks/Parsons at 4-5.40/

40/ CCNC appeared to suggest that the effectiveness of the construction QA program was not an issue in dispute: "we are not here to really look at the Applicants total QA program" and "[w]e are not going to dwell that much on whether their quality assurance program can take care of all the problems at the site." Tr. 9990 (Runkle). Indeed, Mr. Runkle's entire cross-examination on the three pieces of pre-filed testimony sponsored by the panel of five witnesses covered no more than 28 pages of transcript (Tr. 10,088-116), much of which simply asked questions already asked and answered in the written testimony. Tr. 10,108 (Judge Kelley). While Mr. Runkle argued that it required a "leap of faith" to believe that the QA program "will pick up all errors at the site," he posed no challenge to the efficacy of the Harris construction QA program. Tr. 9990 (Runkle). Since the effectiveness of the various elements of the Harris construction QA program was not challenged and the QA program has already been found acceptable by the NRC, the Board will not discuss here each individual facet of the program. Our review of the extensive record satisfies us, however, that the QA program employed for Harris Plant construction is well conceived, properly implemented and carefully monitored. See, e.g., Trainor at 21-22; Frederickson/Prevatte at 7-11.

98. Mr. Eugene F. Trainor was retained by CP&L to review the Harris construction QA program. In particular, Mr. Trainor was asked to review the results of the reinspections in implementing the QA attribute surveillance program and the results of reinspections of the work performed by quality inspectors implicated in possible drug activity. Trainor at 7. Mr. Trainor has more than 25 years of experience in the nuclear industry, most of which has been in the area of quality assurance and quality control. Id. at 2-6.

99. Mr. Trainor described the capabilities of a well conceived, properly implemented, and monitored QA program. As defined in the Commission's regulations at 10 C.F.R. Part 50, Appendix B, such a QA program is capable of ensuring "adequate confidence" that a structure, system, or component will perform satisfactorily in service. The essential elements of a QA program which meets Commission regulatory requirements include organization and staffing; the identification and application of QA management tools such as inspection, audit, and defect analysis; the periodic evaluation of implementation and program effectiveness and lastly the documentation of results. A well conceived QA program is designed in conjunction with the process work flow to provide a series of "hold points" or "gates" at which the work product is evaluated for correctness and completeness. If acceptable, it passes to the next work station.

The number and location of the gates or hold points is based on the number of steps in the process, the type of process and consequences of past errors. Redundant gates ensure that errors missed at one gate are detected at subsequent gates. Trainor at 8-9.

100. QA inspection programs are established for safety-related systems and components. Inspections are designed with built-in redundancies -- sequential layers of screening or "gates" to minimize the probability of residual error. For example, a single weld on a safety-related pipe that is subject to ASME Code requirements will be subjected to inspection by the craft supervisor; by QC and NDE inspectors both during and after welding; by the Authorized Nuclear Inspector at hold/witness points; during walkdown inspections, hydrostatic tests and start-up tests; and finally during independent, third party pre-service inspections as part of the ASME Code, Section XI, inservice inspection baseline determination. Additionally, at the Harris Plant the work of inspectors is subject to audit by inspection supervision and reinspection pursuant to the Harris Plant attribute surveillance program. Trainor at 12; Banks/Parsons at 12-15; Applicants' Ex. 51 at Section III.

101. In order to determine the effectiveness of its construction QA program, in June 1984, CP&L began implementation of its QA attribute surveillance program -- a sample

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reinspection program of safety-related work at the Harris Plant. The methodology of the QA attribute surveillance program is based on the precedent established by the reinspection plan approved in Commonwealth Edison Company (Byron Nuclear Power Station, Units 1 and 2) LBP-84-41, 20 N.R.C. 1203, 1220-33, affirmed, ALAB-793, 20 N.R.C. 1591, 1598-99, 1607 (1984). Banks/Parsons at 21. Attribute surveillances are performed in accordance with Harris Plant Procedure CQA-7, "Evaluation of Program Effectiveness" (Applicants' Ex. 50), and provide a statistical sampling method to assess empirically the overall adequacy and effectiveness of the inspection program for nuclear safety-related work. CP&L is in the process of conducting a physical reinspection of a sample of all safety-related components in the Harris Plant that can be reinspected. See Banks/Parsons at Attachment 3. The statistical sample size for each category of components is based on Military Standard 105-D, Table I General Inspection Level II, and is based on the total population of the components in question at the Harris Plant.^{41/} Id. at 22. Quality attributes are reinspected for each component; any deficiencies are reported as nonconformances for engineering evaluation and disposition.

^{41/} Military Standard 105-D is a sampling system that has acceptability and widespread usage in both the defense and nuclear industries. Trainor at 15.

Id.; see Applicants' Ex. 51 at Section III for a description of quality attributes for each component.

102. Inspection effectiveness or proficiency is calculated by comparing the number of acceptable attributes with the total number of attributes reinspected, and is expressed as a percent. The minimum acceptable inspection effectiveness levels of 95 percent for objective inspection attributes and 90 percent for subjective inspection attributes were established in Harris Plant Procedure CQA-7 based on the Byron reinspection plan.^{42/} The 95 percent/90 percent acceptance criteria do not include defects which have nuclear safety significance.^{43/} Banks/Parsons at 23-24.

103. Applicants reported that in the one and one-half year period that the QA attribute surveillance program has been in effect, 3,183 components, out of a total selected sample of 4,269 components, have been reinspected as of October 1, 1985.

^{42/} Objective inspection attributes are measurable and are not greatly affected by human factors (e.g. physical dimensions); conversely subjective inspection attributes are subject to interpretation and result in the recording of qualitative data (e.g. weld overlap and surface profile). Byron, supra, 20 N.R.C. at 1599, n. 16; Banks/Parsons at 23.

^{43/} The definition of a deficiency with nuclear safety significance is found at 10 C.F.R. § 50.55(e): "a deficiency found in design and construction, which, were it to have remained uncorrected, could have affected adversely the safety of operations of the nuclear plant at any time throughout the expected lifetime of the plant."

The components reinspected thus far encompass 54,560 attributes, of which only 269 were found to be deficient. This establishes that the Harris Plant quality inspection program is 99.5 percent effective overall, with the lowest individual component (structural steel installation inspection) at 95.3 percent. Banks/Parsons at 24 and Attachment 3. No deficiency with safety significance has been identified. Id. at 24. Applicants' witness Trainor performed a statistical engineering evaluation of the data from the QA attribute surveillance program. He determined that the results are statistically significant based on an analysis of variance that determined the variation of the mean surveillance activity proficiency (99.5 percent) about the specified proficiency (95 percent). This technique uses a ratio of the variance of the mean and the variation of the experimental error (F-ratio) to test for statistical significance. The results of the test show that there is at least 99 percent confidence that there is statistical significance. Furthermore, based on the average sample size of the surveillance activity attributes, the technique will detect a change in proficiency as small as 1.0 percent. Mr. Trainor concluded that there is a 99 percent confidence that the range of inspector proficiency at the Harris Plant will lie between 99.9 percent and 97.7 percent.^{44/} Trainor at 17-18.

^{44/} Reinspections at Commonwealth Edison Company's Byron Plant showed a range of 96.3 percent to 99.6 percent for inspector

(Continued next page)

104. The results of the QA attribute surveillance program do not necessarily reveal anything about the proficiency of craft workers (who could be making many or few errors which are detected by quality inspectors and corrected prior to inspector sign-off). The results of the QA attribute surveillance program do demonstrate that the QA program is working properly -- errors are detected at one or more of the "gates" described by Mr. Trainor and are corrected. By its implementation of the QA attribute surveillance program, CP&L has developed statistically significant, hard data which proves the effectiveness of the QA program and which establishes a sound basis for reliance on that program to detect errors made by craft workers.

105. In addition to CP&L's own surveillance and audit activities, the following outside agencies have regularly assessed the quality of construction at the Harris Plant:

- a. the American Society of Mechanical Engineers (ASME), through its N-Stamp program;
- b. the State of North Carolina, represented by the Authorized Nuclear Inspectors (ANI);
- c. the Institute for Nuclear Power Operations (INPO); and

(Continued)

proficiency based on the results of "objective" inspections. Trainor at 18.

- d. the Nuclear Regulatory Commission, through its normal Regional I&E and resident inspection program, the Systematic Assessment of Licensee Performance (SALP) program and the Construction Appraisal Team (CAT) evaluation program.

Banks/Parsons at 25-29. The NRC Staff endorsed the effectiveness of Applicants' QA Program at the Harris Plant. NRC Staff witness Prevatte, Senior Resident Inspector for Construction at the Harris site for two and one-half years, stated his belief that "the inspection program at Harris is one of Applicants' strengths and that program has the ability to identify safety related hardware deficiencies regardless of the cause of the deficiency." Frederickson/Prevatte at 8. The NRC Staff witnesses testified that the results of ongoing inspections at the Harris Plant site by Region II I&E personnel, the results of the CAT inspection and the results of periodic SALP appraisals all confirm the effectiveness of Applicants' construction QA program at the Harris Plant. Id. at 6-11.

106. Both CCNC and Mr. Eddleman simply questioned whether the Harris construction QA program was capable of "picking up" or "catching" all errors. Tr. 9990 (Runkle); 9991 (Eddleman). No QA program can ensure 100 percent confidence that construction work is 100 percent free of discrepancies, because that program must rely on the human element which, irrespective of the checking process with its built in redundancies, allows for

error. Trainor at 10. Nor does 10 C.F.R. Part 50, Appendix B, require perfection; rather the QA program must ensure "adequate confidence" that the plant will perform satisfactorily. However, where the acceptance criteria to achieve such confidence for objective attributes is 95 percent, the overall proficiency of 99.5 percent achieved by CP&L is exceptional. To accommodate any undetected deficiencies in construction, systems and components essential to assure public health and safety are designed with a high safety factor (or conservative design margin) and with system redundancy to compensate for any deficiencies in construction. Trainor at 11-12. As Applicants have emphasized, none of the deficiencies uncovered during re-inspections were of nuclear safety significance. Banks/Parsons at 24.

107. Thus, Applicants rely on the construction QA program to detect errors made by craft workers -- whether the source of those errors might be impairment from drug use or for any other cause. Applicants' construction QA Program at the Harris Plant is demonstrably capable of detecting errors made by craft workers. Applicants therefore did not reinspect the work of craft workers suspected of drug activity. Rather, the effective implementation of the Harris Plant construction QA program provides reasonable assurance that errors made by craft workers who might have been impaired by drug use will not go undetected.

D. Assurance of the Proficiency of Quality Inspectors
Implicated in Possible Drug Activity

108. The linchpin of the QA program is the independent inspection of safety-related systems and components. Inspections are not conducted on a sampling basis, but rather address all safety-related construction work. At the Harris Plant Project, this function is performed by the Quality Control (QC) Unit and the Construction Inspection (CI) Unit. These units now report to the Director QA/QC - Harris Plant, who in turn reports through the Manager QA/QC - Harris Plant Section to the Manager - Corporate Quality Assurance Department. There are presently on site over 500 quality inspection personnel to carry out quality inspections on construction and start-up activities. Banks/Parsons at 6.

109. Inspections are documented and the inspection results are reviewed by qualified personnel to assure that applicable requirements have been met. Deficiencies identified are forwarded to appropriate supervision for corrective action and tracked by QC/CI through satisfactory resolution. As one indication of the extent of the QA effort at the Harris Project, Applicants estimated that quality inspectors have logged-in over 2.5 million man-hours on inspection activities and that over three million pages of QA documents have been generated. Id. at 7.

110. The inspection organizations at the Harris Plant have established programs to assure inspection personnel are adequately trained and qualified in their respective areas of responsibility. These programs meet the requirements of NRC Regulatory Guide 1.58, "Qualification of Nuclear Power Plant Inspection, Examination & Testing Personnel," to which Applicants committed in the Harris Plant Preliminary Safety Analysis Report. Generally, only personnel with previous training and experience, who meet or exceed Harris Plant requirements, are hired for inspector positions. Inspector candidates who do not meet the training and experience requirements for an intended assignment are provided additional classroom and practical/on-the-job training under the supervision of qualified personnel. Id. at 7-9. Mr. Trainor testified that CP&L's methods for selection and training of inspection personnel were particularly noteworthy. Trainor at 14.

111. Supervisors audit or monitor each inspector's work to identify performance problems so that appropriate corrective action can be taken. Inspectors attend regularly scheduled classes designed to cover changes to specifications and procedures, to emphasize requirements in areas where problems are encountered, and to improve the inspectors' knowledge and understanding of applicable codes, specifications and procedures. Each certified inspector must be recertified at least every two

years (three years for NDE methods) based on documented annual evaluations of the inspector's performance. An unsatisfactory performance evaluation will result in removal of the individual from inspection activities pending appropriate retraining, satisfactory demonstration of proficiency and reexamination. Banks/Parsons at 9-10.

112. Inspection supervisors audit the work of newly certified visual inspectors on a weekly basis for a minimum of four weeks and monthly thereafter to ensure a thorough understanding of requirements and the adequacy of inspections. The supervisor checks both in-process work and completed work in each inspection area in which the inspector is working. The in-process audits consist of unannounced visits by the supervisor to observe the inspector's performance in the field. Inspectors are questioned on the activity being performed, procedural requirements, acceptance criteria and the handling of applicable inspection documentation. Any weaknesses and problem areas are discussed and resolved. Id. at 10.

113. CP&L's Manager of Corporate Quality Assurance testified that supervisory audits have been highly effective in providing early indication of problems with individual inspectors and generic inspection problems. He noted that such audits also provide supervision a high level of confidence that the inspection force is performing in accordance with program

requirements. Applicants' witness Banks stated that the overall inspector proficiency determined from data developed by supervisory audits is approximately 99 percent. This closely parallels the overall inspector proficiency rate of 99.5 percent as determined by QA attribute surveillances performed in accordance with Harris Plant Procedure CQA-7. Id. at 10-11, 24.

114. The NDE supervisors monitor NDE inspectors' performances and review their inspection reports.^{45/} In addition to this supervisor review, an independent review of completed NDE inspection reports is conducted by certified NDE technicians to determine completeness of the report and that recorded indications have been correctly interpreted in accordance with applicable acceptance criteria. Id. at 11.

115. Notwithstanding the greater emphasis in practices and procedures to control drug use applied to quality inspectors (discussed in Sections III.A and B supra), the quality inspection organizations at the Harris Plant have not been immune from drug activity among inspection personnel. QA Panel at 8.

^{45/} NDE methods are designed to detect flaws which cannot be determined by visual inspections. NDE is comprised of two basic types of examinations; surface and volumetric. Surface examination methods are liquid penetrant and magnetic particle. Volumetric methods are radiography, eddy current and ultrasonic examinations. These examinations are used to detect physical evidence of weld and base material defects. Banks/Parsons at 11-12; Applicants' Ex. 51 at Section IV.

Of the 218 Harris employees identified as having suspected or confirmed involvement with drugs, 27 were quality inspection personnel. Applicants' Ex. 51 at Chart II-2. Applicants' witness Forehand noted that over 1,000 quality inspection personnel have been employed at the Harris Plant Project since 1981. He suggested that the identification of 27 individuals was indicative of the stringent program for pursuing any allegations of drug activity among quality personnel. QA Panel at 8. None of the 27 individuals were found to have used or possessed drugs at the Harris site. Applicants' Ex. 51 at Chart II-3. Significantly, CP&L has never been able to relate any deficiency in an inspector's performance to use of drugs. QA Panel at 8.

116. To assure the quality of the inspections performed by quality inspection personnel implicated in possible drug activity, CP&L evaluated the inspections performed by such individuals and, where appropriate, reinspected a sample of the work. The results of these evaluations and reinspections are set forth in Applicants' Ex. 51 at Section VI, and were discussed by Applicants' witness Forehand.^{46/} QA Panel at 9-12; Tr.

^{46/} NRC staff witness Prevatte verified that Applicants properly evaluated and reinspected work performed by 15 of the inspectors implicated in drug activity. He was satisfied that the reinspections were performed and that the work of the implicated inspectors was acceptable. Fredrickson/Prevatte at 4-5.

10,073-75 (Forehand). The basis for confirming the quality of the work performed by these inspection personnel is summarized in the following findings.

117. Within the QC organization, three NDE (non-destructive examination) inspectors have been terminated because of positive drug screen test results, and two have been terminated for refusing to take the test. Reinspection of the liquid penetrant and magnetic particle examinations performed by these NDE inspectors was completed in accordance with Harris Plant Procedure CQA-7. Of the 284 items reinspected, only four minor deficiencies -- all corrected by minor buffing -- were found. The results of these reinspections confirmed the proficiency and reliability of the NDE inspectors' work. The Radiographic Examination (RT) work done by four of these inspectors was not reinspected, for the following reasons. Certified as Level II-Limited (Shooter Only) in RT, these four inspectors participated as a member of a two-man team in making radiographic set-ups and film exposures, but not in performing interpretations of RT film for final acceptance or rejection of the items radiographed. RT film is subject to two independent reviews/interpretations by other Level II personnel qualified for film interpretation. QA Panel at 9-10; Applicants' Ex. 51 at 49-50.

118. Seven CI inspectors -- six certified in cable pulls and/or cable terminations, and one CI inspector certified in drilled-in expansion anchors -- have been terminated and/or removed from the job for positive drug screen test results (two), refusal to take the test (four) and suspected drug activity based on information from a reliable source (one). A sample of the work of these inspectors was reinspected pursuant to CQA-7, and the results -- an overall acceptance rate for the seven inspectors of 99.3 percent -- were acceptable under the procedure. QA Panel at 10; Applicants' Ex. 51 at 50-51.

119. Fourteen QC inspectors and one inspector-in-training have been terminated because of a positive drug screen test or refusal to take the drug screen test. Since the inspector-in-training was never certified, no reinspection was required. The work of eight of these QC inspectors was reinspected pursuant to Harris Plant Procedure CQA-7. The reinspections confirm the inspectors' proficiency and reliability, in that the overall acceptance rate was 99.7 percent. QA Panel at 10; Applicants' Ex. 51 at 51-52.

120. Of the remaining six QC inspectors, one field-tested concrete and performed sieve analysis, grout testing and cadweld inspections; this inspector was terminated for positive drug screen test results. There are no safety concerns with the employee's assignments in field testing concrete, grout

testing or sieve analysis, since final acceptance of concrete and grout is based on meeting the required design strength as determined by later testing. A statistical sample of the cadwelds in concrete reinforcing steel bars subjected to cadweld inspections are cut out and subjected to tensile testing. The high success rate of rebar and cadweld splices subjected to tensile tests (only 8 out of 2,764 splices tested failed to meet minimum tensile requirements) and the large margin by which those test results exceed design requirements independently confirm the quality of cadweld splicing and cadweld inspections. Consequently, no reinspection was performed for this inspector. QA Panel at 10-11; Applicants' Ex. 51 at 52-53.

121. Another QC employee was a field concrete tester who also performed rebar and cadweld tensile testing, sieve analysis and grout testing; this inspector was removed from the job for suspected drug use based on information provided by a reliable source. For the reasons discussed above, there are no safety concerns with this employee's work in concrete and grout testing or sieve analysis. While this employee actually performed tensile testing, the results of this employee's tests are consistent with the results of tensile tests performed by others, as determined by a comparison of a statistical distribution of his test data with that of the remaining inspectors.

Because of the uniformly high success rates of such tests performed by all such testers and in light of the satisfactory 30 supervisory audits of this inspector's work, Applicants concluded that there was no reason to doubt the validity of this inspector's test results. QA Panel at 11-12; Applicants' Ex. 51 at 53.

122. The three remaining QC inspectors had performed inspections on the installation of expansion anchors. A sample of the inspections was selected pursuant to Harris Plant Procedure CQA-7 and the work was reinspected to the extent possible. Certain of the inspection attributes are imbedded in concrete and are no longer accessible. For the first inspector, 80 expansion anchors were reinspected out of 982 originally inspected; 1,493 attributes were reinspected and 5 deficiencies were noted. The inspector proficiency was 99.7 percent. For the second inspector, 50 expansion anchors were inspected out of 356 originally inspected; 1,057 attributes were reinspected and 5 deficiencies were noted. The inspector proficiency was 99.5 percent. For the third inspector, 125 expansion anchors were reinspected out of 1,257 originally inspected; 2,445 attributes were reinspected and 3 deficiencies were noted. The inspector proficiency was 99.9 percent. None of the thirteen deficiencies noted were safety significant. In fact, all were minor deficiencies. Tr. 10,074-75 (Forehand).

123. The first and third QC inspector discussed in the preceding paragraph also inspected concrete and grout placements and installation of embedded items and reinforcing bars in concrete. Reinspection of these items is impossible. Because of the extraordinarily high inspector proficiencies shown by these two inspectors, and because the work during concrete and grout placements inspected by these inspectors is also subject to verification by both a construction supervisor and an area engineer on the same concrete placement card as the inspectors' results are recorded, CP&L had no reason to question the proficiency of the inspections performed by these inspectors on concrete. Tr. 10,075 (Forehand).

124. The final quality inspector in this group was assigned to perform final system walkdowns with representatives from the system turnover group, construction engineering, and start-up personnel. This assignment did not require the individual to review documentation or inspect systems to determine quality or acceptability. In addition, the inspector was not solely responsible for any aspect of his assignment, and the turnover documentation packages were reviewed by a supervisor. For these reasons, no reinspection or re-verification of this inspector's work was required. QA Panel at 12; Applicants' Ex. 51 at 53.

125. The results of all reinspections on the work performed by individuals implicated in drug activity indicates a 99.6 percent proficiency rate for such inspectors. QA Panel at 13. Applicants' witness Trainor applied statistical engineering principles to evaluate the results of reinspection data available to him for fifteen of the inspectors and concluded that there is no apparent difference in the performance of the inspectors implicated in drug activity and the overall inspector population. Trainor at 19. Based on the data from reinspections of the work of the fifteen inspectors, it can be predicted with a 99 percent confidence level that inspector performance will lie within a performance range between 99.9 percent and 96.1 percent.^{47/} Id. at 19-20.

^{47/} In addition to craft workers and quality inspection personnel, ten engineering support individuals were implicated in possible drug activity. These individuals performed original calculations and revised calculations in accepting ongoing and final as-built conditions for construction activities. Other engineering support personnel verified these evaluations and reviewed and checked calculations and revisions. Of the ten identified individuals, five were reviewers who checked calculations, and their work was evaluated in accordance with Harris Plant Procedure CQA-7. Their work was found acceptable with no discrepancies. The other five were evaluated as performing acceptable work because their work, in turn, was evaluated by independent reviewers who provided quality verification. None of these independent reviewers were implicated in drug activity. Thus, the work of all ten engineering support personnel was determined to be reliable. QA Panel at 12-13; Applicants' Ex. 51 at 53-54.

126. If we accept the hypothesis that drug use by inspection personnel will cause a reduction in inspector performance, the reinspection data suggest that inspection personnel were not under the influence of drugs while performing their inspection activities. Trainor at 21; QA Panel at 13-14. None of the 27 inspection personnel implicated in possible drug activity were identified as having used or possessed drugs at the Harris site. Certain of the inspectors who refused to submit to a drug screen or who showed positive indications of drug use in a drug screen had demonstrated very good performance while employed at the Harris site. QA Panel at 14.

127. Applicants have demonstrated empirically that the proficiency of inspectors implicated in possible drug activity is no different than the overall excellent rate of inspector proficiency for the Harris Project. This provides one measure of adequate confidence that the quality of work is assured, even for an inspector who may have used drugs and has not been identified and evaluated. QA Panel at 14-15. In addition, each individual inspector's work is subject to supervisory audits, QA surveillances, the QA attribute surveillance program discussed supra, QA audits, system walkdowns, start-up testing and audits/evaluations/inspections by outside agencies. QA Panel at 8. Mr. Trainor found that CP&L's surveillance and audit programs relative to inspector performance were the most

extensive that he and his firm had observed. Trainor at 14. The redundancies in the QA program provide reasonable assurance that undetected errors are not being made by quality inspection personnel -- whether due to drug impairment or other causes.

E. Conclusion

128. Applicants have evaluated all identified Harris employees implicated in possible drug activity for the potential impacts of drug use on the quality of construction at the Harris Plant. See Applicants' Ex. 51 at Chart II-1. Applicants determined that safety-related craft work is subject to quality inspections to assure that the work was performed correctly. Reinspection of all work performed by craft workers implicated in possible drug activity was neither practical nor necessary. The types of errors likely to be made by a craft worker under the influence of drugs are qualitatively no different than errors made by workers for a variety of other reasons. CP&L's construction QA program is capable of detecting errors in construction work, as attested to by the overall inspector proficiency for all Harris quality inspectors of 99.5 percent. QA inspection personnel implicated in possible drug activity were evaluated and, where appropriate, their work was reinspected pursuant to Harris Plant Procedure CQA-7. The results of all such reinspections -- establishing a 99.6 percent

effectiveness for inspectors so implicated -- and the continuing audits, surveillances and third-party reviews of construction work, even after inspection, provide reasonable assurance that the performance of quality inspectors has not been degraded by drug use. Thus, Applicants have demonstrated that any drug use by Harris site employees has not affected the quality of construction at the Harris Plant. Indeed, the uncontroverted evidence demonstrates that even if the Board were in error to some extent in its assessment of the extent of drug activity among Harris site employees, that error would be harmless in view of the QA program's effectiveness in identifying construction deficiencies.

129. In applying the two prong test for examining CCNC Contention WB-3, the Board concludes that there is reasonable assurance that any errors caused by employees under the influence of drugs will not go undetected and uncorrected, and that there has not been a pervasive failure to carry out the QA program as a result of employees working under the influence of drugs.^{48/} To the contrary, based on the extensive evidence in the record of the proceeding, the Board concludes that the demonstrated proficiency with which Applicants have implemented the construction QA program at the Harris Plant provides reasonable assurance that the Plant, as built, can and will be operated without endangering the public health and safety.

^{48/} See Section II, supra.

V. CONCLUSIONS OF LAW

130. This is a contested proceeding on an application for an operating license for a utilization facility. In issuing this decision, the Board has now made findings of fact and conclusions of law on all safety matters put into controversy by the parties to the proceeding, except for the emergency preparedness contentions which remain pending before the Board. The Board has not determined that a serious safety, environmental, or common defense and security matter exists. See 10 C.F.R. § 2.760a. Other findings required to be made prior to the issuance of an operating license, except for the remaining matters in controversy, are to be made by the Director of Nuclear Reactor Regulation. See id. and 10 C.F.R. § 50.57.

131. In reaching this decision, the Board has considered all the evidence submitted by the parties and the entire record of this proceeding, consisting of the Commission's Notice of Hearing, the pleadings filed by the parties, the transcripts of the hearing and the exhibits received into evidence. All issues and proposed findings presented by the parties, and not addressed in the Board's decision, are deemed to be without merit or unnecessary to the decision. The Board's findings of fact are supported by reliable, probative and substantial evidence in the record.

132. As reflected in the foregoing opinion on CCNC Contention WB-3 and in the other partial initial decisions on safety matters issued by this Board, the Board has resolved contested safety matters in favor of the Staff and the Applicants and against the Intervenor. The Board concludes, as to the contested safety matter addressed herein, there is reasonable assurance that, if an operating license is subsequently granted for the Harris facility, the activities authorized thereby can be conducted without endangering the health or safety of the public and that such activities will be conducted in compliance with applicable NRC regulations.

VI. ORDER

133. WHEREFORE, THE BOARD ORDERS, in accordance with 10 C.F.R. §§ 2.760(a) and 2.762, that this Partial Initial Decision shall constitute the final action of the Commission thirty (30) days after the date of its issuance, unless an appeal is taken in accordance with section 2.762 or the Commission directs that the record be certified to it for final decision. Any Notice of Appeal from the decision must be filed within ten (10) days after service of the decision. A brief in support of the appeal must be filed within thirty (30) days (forty (40) days in the case of the NRC Staff) after filing the Notice of Appeal. Any party which is not an appellant may file a brief in support of or in opposition to the appeal within thirty (30)

days (forty (40) days in the case of the NRC Staff) after the period has expired for the filing and service of the briefs of all appellants.

Respectfully submitted,

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Dated: December 5, 1985

APPENDIX A

WRITTEN TESTIMONY RECEIVED INTO EVIDENCE

Witness

Following
Transcript Page

Banks, Harold R.

"Applicants' Testimony of Harold R. Banks, George L. Forehand and Thomas W. Brombach on Evaluation and Reinspection of Work Performed by Employees Implicated in Possible Drug Activity (CCNC Contention WB-3)"

10,077

"Applicants' Testimony of Harold R. Banks and Roland M. Parsons on the Construction Quality Assurance Program (CCNC Contention WB-3)"

10,077

Bensinger, Peter B.

"Applicants' Testimony of Peter B. Bensinger, John D. Ferguson, Garry W. Flowers and A. Reid Pannill on Drug Abuse Control Procedures and Training (CCNC Contention WB-3)"

8326

"Applicants' Testimony of William J. Hindman, Jr., Michael W. King, D. Glenn Joyner, Michael L. Plueddemann and Peter B. Bensinger on the Undercover Drug Investigation (CCNC Contention WB-3)"

8471

"Applicants' Testimony of William J. Hindman, Jr., Michael W. King, D. Glenn Joyner and Peter B. Bensinger on the Assessment of Employee Drug Activity (CCNC Contention WB-3)"

8893

Brombach, Thomas W.

"Applicants' Testimony of Harold R. Banks, Roland M. Parsons, George L. Forehand and Thomas W. Brombach on Evaluation and Reinspection of Work Performed by Employees Implicated in Possible Drug Activity (CCNC Contention WB-3)"

10,077

Burch, S. L.

"Second Affidavit of S. L. Burch"

9274

"Affidavit of S. L. Burch"

9274

Bush, Loren L.

"Testimony of Loren L. Bush, Jr. concerning CCNC Contention WB-3"

8653

DuPont, Robert L.

"Applicants' Testimony of Dr. Robert L. DuPont, Jr. on the Effects of Employee Drug Use (CCNC Contention WB-3)"

9994

Ferguson, John D.

"Applicants' Testimony of Peter B. Bensinger, John D. Ferguson, Garry W. Flowers and A. Reid Pannill on Drug Abuse Control Procedures and Training (CCNC Contention WB-3)"

8326

Flowers, Garry W.

"Applicants' Testimony of Peter B. Bensinger, John D. Ferguson, Garry W. Flowers and A. Reid Pannill on Drug Abuse Control Procedures and Training (CCNC Contention WB-3)"

8326

Forehand, George L.

"Applicants' Testimony of Harold R. Banks, Roland M. Parsons, George L. Forehand and Thomas W. Brombach on Evaluation and Reinspection of Work Performed by Employees Implicated in Possible Drug Activity (CCNC Contention WB-3)"

10,077

Fredrickson, Paul

"Testimony of Paul Fredrickson and Richard Prevatte for the NRC Staff regarding Contention WB-3's Allegation concerning Reinspection of Work Performed by Persons Suspected of Drug Abuse"

10,166

Hindman, William J., Jr.

"Applicants' Testimony of William J. Hindman, Jr., Michael W. King, D. Glenn Joyner, Michael L. Plueddemann and Peter B. Bensinger on the Undercover Drug Investigation (CCNC Contention WB-3)"

8471

"Applicants' Testimony of William J. Hindman, Jr., Michael W. King, D. Glenn Joyner and Peter B. Bensinger on the Assessment of Employee Drug Activity (CCNC Contention WB-3)"

8693

Joyner, D. Glenn

"Applicants' Testimony of William J. Hindman, Jr., Michael W. King, D. Glenn Joyner, Michael L. Plueddemann and Peter B. Bensinger on the Undercover Drug Investigation (CCNC Contention WB-3)"

8471

"Applicants' Testimony of William J. Hindman, Jr., Michael W. King, D. Glenn Joyner and Peter B. Bensinger on the Assessment of Employee Drug Activity (CCNC Contention WB-3)"

8893

King, Michael W.

"Applicants' Testimony of William J. Hindman, Jr., Michael W. King, D. Glenn Joyner, Michael L. Plueddemann and Peter B. Bensinger on the Undercover Drug Investigation (CCNC Contention WB-3)"

8471

"Applicants' Testimony of William J. Hindman, Jr., Michael W. King, D. Glenn Joyner and Peter B. Bensinger on the Assessment of Employee Drug Activity (CCNC Contention WB-3)"

8893

Long, Francis J.

"Testimony of Francis J. Long, William J. Tobin and Richard L. Prevatte on CCNC Contention WB-3 (Drug Use During Construction)"

8653

Mackonis, Dana B.

"Applicants' Testimony of Dana B. Mackonis and Kenneth A. Mathias on Use of Drug Detection Dogs (CCNC Contention WB-3)"

8993

Mathias, Kenneth A.

"Applicants' Testimony of Dana B. Mackonis and Kenneth A. Mathias on Use of Drug Detection Dogs (CCNC Contention WB-3)"

8993

Miriello, Patty

"Testimony of Patty Miriello for Conservation Council on Contention WB-3 (Drug Abuse During Construction)"

9084

Overton, C. J., III

"Direct Testimony of C. J. Overton, III"

9274

Pannill, A. Reid

"Applicants' Testimony of Peter B. Bensinger, John D. Ferguson, Garry W. Flowers and A. Reid Pannill on Drug Abuse Control Procedures and Training (CCNC Contention WB-3)"

8326

Parsons, Roland M.

"Applicants' Testimony of Harold R. Banks, Roland M. Parsons, George L. Forehand and Thomas W. Brombach on Evaluation and Reinspection of Work Performed by Employees Implicated in Possible Drug Activity (CCNC Contention WB-3)"

10,077

"Applicants' Testimony of Harold R. Banks and Roland M. Parsons on the Construction Quality Assurance Program (CCNC Contention WB-3)"

10,077

Plueddemann, Michael L.

"Applicants' Testimony of William J. Hindman, Jr., Michael W. King, D. Glenn Joyner, Michael L. Plueddemann and Peter B. Bensinger on the Undercover Drug Investigation (CCNC Contention WB-3)"

8471

Prevatte, Richard L.

"Testimony of Francis J. Long, William J. Tobin and Richard L. Prevatte on CCNC Contention WB-3 (Drug Use During Construction)"

8653

"Testimony of Paul Fredrickson and Richard Prevatte for the NRC Staff regarding Contention WB-3's Allegation concerning Reinspection of Work Performed by Persons Suspected of Drug Abuse"

10,166

Tobin, William J.

"Testimony of Francis J. Long, William J. Tobin and Richard L. Prevatte on CCNC Contention WB-3 (Drug Use During Construction)"

8653

Trainor, Eugene F.

"Applicants' Testimony of Eugene F. Trainor on the Capabilities and Performance of Applicants' Construction QA Program (CCNC Contention WB-3)"

10,077B

Williams, Donald, Jr.

"Statement of Donald Williams"

9274

DOCUMENTS INCORPORATED INTO RECORD

Description

Following
Transcript Page

List of Applicants' Exhibits 30-40 -- CCNC Contention WB-3

8326

SHNPP Construction Security Unit Weekly Report --
August 13-17, 1984

8776

Letter dated October 3, 1985 from R. E. Jones (CP&L) to
John D. Runkle (CCNC)

9322

APPENDIX B

EXHIBITS

<u>Exhibit Number</u>	<u>Description</u>	<u>Identified At Transcript Page</u>	<u>Admitted At Transcript Page</u>
App. Ex. 30	Company Drug and Alcohol Statement of Practice and Drug and Alcohol Interdepartmental Procedure	8320	8326
App. Ex. 31	CP&L Drug and Alcohol Abuse Reference Manual	8320	8326
App. Ex. 32	CP&L Contract Amendment Imposing Drug and Alcohol Abuse Policy upon Contractors	8320	8326
App. Ex. 33	CP&L Supervisor's Reference Manual: Drug and Alcohol Abuse	8320	8326
App. Ex. 34	CP&L Drug and Alcohol Awareness and Supervisory Training Program	8320	8326
App. Ex. 35	CP&L Videotape: Drug and Alcohol Abuse Refresher Training	8320	8326
App. Ex. 36	Daniel Procedure TSD-SH-207, Security Actions/Illegal Drugs and Other Contraband Materials	8320	8326
App. Ex. 37	Daniel Procedure DCC-PE-510, Security Actions/Illegal Drugs and Other Contraband Materials	8320	8326
App. Ex. 38	Daniel memorandum from C. C. Wagoner to all Daniel and Davis Employees, dated December 26, 1984	8320	8326
App. Ex. 39	Daniel Supervisory Drug Awareness Program General Outline	8320	8326
App. Ex. 40	"Controlled Substances: Use, Abuse and Effects" - U.S. Drug Enforcement Administration	8320	8326
App. Ex. 41	Employee Exit Questionnaire for P. Miriello, dated February 19, 1985	9086	9124

App. Ex. 42	Letter from P. Miriello to M. A. McDuffie, dated August 9-10, 1985	9087	
App. Ex. 43	Letter from P. Miriello to M. A. McDuffie, dated August 12, 1985	9087	
App. Ex. 44	Affidavit of Patty Miriello, dated September 6, 1985	9087	
App. Ex. 45	Conservation Council's Supplement to Discovery Requests, dated September 6, 1985	9088	
App. Ex. 50	SHNPP Procedure CQA-7, Evaluation of Program Effectiveness	10,069	10,081
App. Ex. 51	CP&L Report to Nuclear Regulatory Commission Staff of Evaluation and Reinspection of Work Performed by Employees at Shearon Harris Nuclear Power Plant Who Have Been Implicated in Possible Drug Activity	10,069	10,081
App. Ex. 52	Letter from R. M. Barnes (Technical Service Laboratory) to T. W. Brombach, dated October 29, 1985	10,069	10,081

December 5, 1985

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
CAROLINA POWER & LIGHT COMPANY)	
and NORTH CAROLINA EASTERN)	Docket No. 50-400 OL
MUNICIPAL POWER AGENCY)	
)	
(Shearon Harris Nuclear Power)	
Plant))	

CERTIFICATE OF SERVICE

I hereby certify that copies of "Applicants' Proposed Findings of Fact and Conclusions of Law On CCNC Contention WB-3 (Drug Abuse During Construction)" were served this 5th day of December, 1985, by deposit in the U.S. mail, first class, postage prepaid, except as otherwise indicated on the attached Service List, to the parties identified on the attached Service List.

Thomas A. Baxter
Thomas A. Baxter, P.C.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)

CAROLINA POWER & LIGHT COMPANY)
and NORTH CAROLINA EASTERN)
MUNICIPAL POWER AGENCY)

(Shearon Harris Nuclear Power)
Plant))

Docket No. 50-400 OL

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