UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

JAN 02 1991

Report Nos.: 50-327/90-38 and 50-328/90-38

Licensee: Tennessee Valley Authority
6N38A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Docket Nos.: 50-327 and 50-328 License Nos.: DPR-77 and DPR-79

Facility Name: Sequoyah 1 and 2

Inspection Conducted: November 26-30, 1990

Inspector: JR Decker for 1/2/91
R. R. Marston Date Signed

Approved by: JR Decker 1/2/91
T. R. Decker, Chief Date Signed
Radiological Effluents and Chemistry Section
Radiological Protection and Emergency
Preparedness Branch
Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This routine, unannounced inspection was conducted in the areas of confirmatory measurements, liquid and gaseous effluents, process and effluent monitors, radiological environmental and meteorological monitoring programs, and radwaste storage and release.

Results:

No violations or deviations were identified in this inspection. Based on the areas reviewed, the licensee's programs to control, measure, and release effluents were adequate. No Technical Specification (TS) or 10 CFR 50, Appendix I limits were exceeded. The Quality Control programs for measurement equipment were professionally conducted at required frequencies. The radiological, environmental, and meteorological monitoring programs were adequate.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*D. Adams, II, Chemistry and Environmental Nuclear Support Manager
D. Amos, Nuclear Chemist
R. Bayles, Chemistry/Radiochemistry Instructor
R. Campbell, Systems Engineer
*M. Cooper, Site Licensing Manager
*J. Dills, Systems Engineer
*G. Fiser, Chemistry and Environmental Superintendent
*T. Flippo, Quality Assurance and Evaluation Manager
J. Hereford, Systems Engineer
O. Hickman, Rad Con Radwaste Manager
J. Hudson, Senior Instrument Mechanical Foreman
C. Kelley, Commitment Management Specialist
D. Pittman, Meteorologist
J. Proffitt, Compliance Licensing Manager
*J. Stewart, Nuclear Chemist
*L. Strickland, Manager, Technical Training
G. Taylor, TVA Technical Training Specialist (Chemistry)
*R. Thompson, Compliance Licensing Engineer
W. Vanosdale, Manager, Operations Water Processing
*J. Vincelli, Rad Con Field Operations Manager
R. Wallace, Health Physicist

Other licensee employees contacted during this inspection included operators, security force members, technicians, and administrative personnel.

Nuclear Regulatory Commission

*J. Brady, Project Engineer (Acting RI)
P. Harmon, SRI
S. Shaeffer, RI

*Attended exit interview

2. Changes to Programs (84750)

The inspector discussed changes in the chemistry program with the Chemistry and Environmental Superintendent. The Superintendent stated that a new Manager of Corporate Chemistry reported in during the week of the inspection. The positions in the Chemistry & Environmental Department remained at 42. The Process Control Supervisor position was vacant, and the Nuclear Chemistry Manager position was expected to become vacant in the near future. One Chemistry Technician had been called to active

military duty, and another had accepted a job elsewhere in the company. No trainees were currently in the training program. The Superintendent also stated that, starting the week subsequent to the inspection, a test of morpholine chemistry on the Unit 1 secondary side would begin.

In this program, the unit would come to one hundred percent power using conventional ammonia-hydrazine chemistry, then after a period of stabilization, morpholine would be injected. This program was expected to decrease erosion-corrosion of extraction steam piping, resulting in a decrease in sludge to the steam generators. If the test were successful, the new program would be used in Unit 2 also.

The Chemistry and Environmental organization expected to be able to effectively perform their responsibilities with the resources at hand until replacements were available. The organization appeared to be able to perform effectively and the implementation of morpholine secondary chemistry should extend steam generator life.

The inspector discussed changes to the solid radwaste program with the Radiological Controls Radwaste Manager. The Manager stated that in late July, all packaging, plant equipment, and tool decontamination personnel in the radwaste organization were transferred to Mechanical Maintenance Support. Rad Con Radwaste retained responsibilities for Contract Administration and Shipping. Coordination with other plant organizations was required for segregation, packaging, and decontamination. In addition to the Manager, the Radwaste organization included the Waste Packaging Supervisor, two engineers, and a secretary. It was still early to tell if this division of the organization would adversely affect the efficiency of the processing, packaging, and shipping of the solid radwaste. Responsibility for training of Radwaste personnel was assumed by Radiological Controls Radwaste. A contract was initiated with a vendor to conduct 4 hours of Packer-Loader training annually. This training provided instruction in segregation, sorting, and packaging.

The inspector discussed changes in the liquid and gaseous radwaste programs with the Manager, Water Processing. One Unit Operator (UO) had been called to active military duty. The 21 assigned Assistant Unit Operators (AUOs) had been assigned to the Shift Operations Supervisor, and worked for the Water Processing Manager only when involved in radwaste operations.

No violations or deviations were identified.

3. Process and Effluent Radiation Monitors (84750)

TSs 3.3.3.9 and 3.3.3.10 state the operability requirements for radioactive liquid and gaseous process and effluent monitors, respectively. TSs 4.3.3.9 and 4.3.3.10 state the surveillance requirements for radioactive liquid and gaseous process and effluent monitors, respectively. The inspector and a licensee Nuclear Chemist

toured the plant and examined a selection of liquid and gaseous process and effluent monitors. The monitors appeared to be adequately installed and were maintained in a clean environment. The inspector also examined the remote indicators and recorders located in the control room for these instruments. The inspector discussed calibration, functional tests, and alarm setpoint determinations conducted on the monitors with a system engineer, and reviewed documentation which showed that the following instruments were calibrated:

- Waste Disposal System Liquid Effluent Radiation Monitor, on August 13, 1990
- Unit 1 Condenser Vacuum Pump Air Exhaust Radiation Monitor, on April 6, 1990
- Unit 1 Steam Generator Blowdown Liquid Sample Radiation Monitors (RM-120 and RM-121), both on April 9, 1990
- Unit 2 Condenser Vacuum Pump Air Exhaust Radiation Monitor, on March 20, 1990
- Unit 2 Steam Generator Blowdown Liquid Sample Radiation Monitors (RM-120 and RM-121), both on March 24, 1990

The calibration records showed that the alarm setpoints were calculated and entered in the monitors during the calibration.

The inspector also reviewed the following records which showed the most recent functional tests:

- Waste Disposal System Liquid Effluent Radiation Monitor, on November 6, 1990
- Unit 1 Steam Generator Blowdown Liquid Sample Radiation Monitors (RM-120 and RM-121), both on November 7, 1990
- Unit 2 Steam Generator Blowdown Liquid Sample Radiation Monitors (RM-120 and RM-121), both on October 22, 1990

Alarm setpoints were calculated for the above functional tests. The above tests were conducted on a quarterly basis as specified in TSs. Monthly non-TS functional tests were also conducted for several of the above monitors in addition to Unit 1 and Unit 2 Condenser Vacuum Exhaust Radiation Monitors.

The required calibrations and functional tests were conducted as required by TS.

No violations or deviations were identified.

4. Radiological Environmental Monitoring (84750)

TSs 3.12 and 4.12 state the requirements for the conduct of the radiological environmental monitoring program, including sampling, analysis, land use census, and participation in an intercomparison program. The inspector discussed the program with a Health Physicist from TVA's Western Area Regional Laboratory (WARL), which was responsible for conducting the radiological environmental monitoring programs at TVA's plants. Accompanied by the Health Physicist, the inspector examined several of the licensee's environmental monitoring stations to verify compliance. Several air monitoring stations were examined. The air samplers were found to be operable with the flow integrator in current calibration. TLDs were posted at the air sampler stations, as well as a rainwater collection system. The Health Physicist stated that the water was not analyzed unless there was a reason, and that as part of the program, grass samples were collected at required frequencies in the area of the air monitoring stations. The inspector observed that a logbook for each station was kept in the air monitor cabinets. Two TLD stations were checked. Colocated NRC TLDs were in place at the TVA N-1 station. The inspector also examined the well sampler located northeast of the plant.

The inspector reviewed the results of the 1990 annual Land Use Survey taken for Sequoyah Nuclear Plant. The survey showed the nearest resident and distance for each sector, the nearest garden and distance in each sector, milk producing locations in each sector, and a table showing milk producing animal substitute feeding for each location. The inspector also reviewed the results of the WARL participation in the EPA Crosscheck program for 1990 to date. Air filters, water, and milk samples were analyzed as part of this program and comparisons were made.

The licensee's radiological environmental protection program was conducted in accordance with TSs.

No violations or deviations were identified.

5. Meteorological Monitoring Program (84750)

TSs 3.3.3.4 and 4.3.3.4 state the requirements for operation and surveillance of the plant meteorological system. The inspector examined the plant meteorological tower and associated ground equipment and recorders, the control room remote readout recorders, discussed the program with a TVA Meteorologist and Sr. Instrumentation Mechanical Foreman, and examined program documentation to verify compliance. The tower and associated equipment was installed as required with no local obstructions to cause a perturbation in the normal air flow about the tower. The Meteorologist stated that there were five meteorologists on TVA's staff. The Foreman stated that system components were generally calibrated onsite. Temperature and wind speed equipment were calibrated at a facility in Knoxville. The Foreman stated that the most recent

calibration records had been missent to Knoxville, and were not available at the time of the inspection. The inspector reviewed the records for the November 29, 1989 and February 1, 1990 calibrations and found them to be in order. The most recent Quarterly Report to Nuclear Power-Meteorological Support Activities was reviewed. This report, for the July through September 1990 quarter, covered planned and conducted activities, accomplishments, and showed meteorological data recoverability. All variables at Sequoyah met the 90 percent data recovery goal with the exception of the ten meter dewpoint. This parameter's recoverability for the quarter was just over 81 percent. The problem was identified as due to a bad electronic card, a bad pump, a dirty mirror, and low airflow. Two log books were maintained in the meteorological equipment building. The Met Logbook included service records, major computer program changes, maintenance records, and chart changes. The computer Record System was a logbook for the computer system. Data was available on a printer, recorders, or a computer. A backup computer was available, but would have to be connected to be used. A backup power supply was available which could keep the facility operating for 30 minutes, and a generator was also available for use during a longer term power failure. The inspector determined from the above that the meteorological monitoring program was being conducted in accordance with requirements.

No violations or deviations were identified.

6. Confirmatory Measurements (84750)

Pursuant to 10 CFR 20.201(b) this area was inspected to verify the licensee's ability to conduct precise and accurate measurements. During this inspection, a spiked particulate aerosol filter and a spiked charcoal cartridge were provided to the licensee for counting on the plant's gamma spectrometry systems. The licensee took samples of gaseous radwaste, liquid radwaste, and reactor coolant for analysis on the plant's gamma spectrometry systems. The licensee's results were compared against those obtained by the inspector from the same samples analyzed on the NRC Region II Mobile Laboratory gamma spectrometry system. The purpose of these comparative measurements was to verify the licensee's capability to accurately identify and quantify gamma-emitting radionuclides in various plant systems and effluent streams.

The inspector toured the Count Room and Secondary Chemistry Laboratory to determine the status of the licensee's gamma spectroscopy systems. System ADC #1 had high noise and bad resolution problems and could not pass the daily Quality Control checks. It was considered to be out of service. All systems were within current calibration. The licensee was converting from a 30 month calibration frequency to an 18 month frequency. ADC #2 was just starting its calibration procedure during the inspection. ADC #4, located in the Secondary Lab, was calibrated for only a limited number of geometries, and not for waste gas or reactor coolant.

A description of the sample types and counting geometries along with a comparison of the NRC and licensee results is listed in Attachment 1. The method for determining agreement with licensee results is discussed in Attachment 2. Good agreement was obtained in all comparisons for all samples with the exception of the Cadmium-109 88 kev line on Detector ADC #2 for the charcoal cartridge. Since agreement was obtained on the other two detector systems, since this detector was undergoing calibration, and since this line was near the lower end of the calibration range, the inspector determined that the disagreement was not significant.

No violations or deviations were identified.

7. Testing of Effluent Air Cleaning Systems (84750)

TSs require testing of HEPA filters and charcoal adsorbers and laboratory analysis of representative charcoal samples at specified frequencies and under specified conditions in order to demonstrate systems operability for the following systems: Emergency Gas Treatment System (EGTS) (TS 4.6.1.8); Control Room Emergency Ventilation System (CREVS) (TS 4.7.7); and the Auxiliary Building Gas Treatment System (ABGTS) (TS 4.7.8).

The inspector discussed the program for in-place filter and charcoal adsorber leak testing and charcoal sample lab testing with a cognizant System Engineer and reviewed records of the testing to verify compliance.

Filter testing records were reviewed for the Control Building Emergency Air Cleaning System (CBEACS), the ABGTS, and Train B of the EGTS. Records of the laboratory testing of charcoal samples were reviewed for the above systems, including Train A of the EGTS. The CBEACS HEPA trains were last tested in August 1989, and the charcoal adsorbers were tested in October 1990. EGTS Train B was last tested in-place in September 1990. The ABGTS Train A was last tested in October 1990, and Train B was tested in January 1990. The licensee took the charcoal samples and sent them to a vendor for laboratory testing. The CBEACS Train A was tested in March 1990, and Train B in October 1990. The ABGTS Train A was tested in October 1990, and Train B in January 1990. The EGTS Train B was tested in September 1990. The results of the in-place tests and the laboratory tests showed that all tests successfully met the TS requirements.

No violations or deviations were identified.

8. Radwaste Systems (84750)

TS 6.15 states requirements upon the licensee when major changes to radioactive waste treatment systems are initiated. No major changes were identified by the inspector either through discussions with licensee representatives or through examination of the systems.
The inspector toured the plant with a cognizant licensee Nuclear Chemist to identify changes, evaluate capability, and assess quality. The inspector examined radiological effluent monitor installation, radwaste

processing and storage equipment, and the radwaste control room. No discrepancies were noted.

The Manager, Water Processing stated that the Condensate Demineralizer Waste Evaporator had been used for 15 to 20 days during the Unit 2 refueling outage to assist the Demineralizers. Leakage in the CDWE had been narrowed down to tubes in the heater and had been isolated. The Manager stated that time had not yet been available to clean the system out. Inleakage problems with the Floor Drain Collector Tank (FDCT) had been partially identified. Most were from steam traps to the CDWE Building. The licensee was preparing to install acoustic monitors to identify other leak sources.

The inspector concluded that an effective radwaste control program was in place.

No violations or deviations were identified.

9. Training (84750)

TS 6.4 states that a retraining and replacement training program for the facility staff shall be maintained under the direction of the Operations Superintendent. The TS further states the requirements that must be met by such a program. The inspector discussed the training program for new Chemistry Technicians with members of the plant and TVA training staffs, including the Plant's Manager, Technical Training. There were no trainees in the Chemistry Department at the time of the inspection, so the Technical Training organization was using the time to revise and upgrade the training program. Formerly a new Chemistry Technician entered a 14 week Basic phase which was conducted in the classroom. The remainder of the two year training program was conducted on-the-job (OJT) with a module or task signoff upon successful completion. The proposed program was for the basic phase to cover the two year training period with the manuals "self-study" oriented rather than classroom oriented. Classroom presentations would still be conducted under the new program, but would be interspersed through the period. The Manager, Technical Training stated that the new modules as rewritten were in accordance with INPO Guideline 87-010. The new modules had been submitted for review and were to be revised if required by the results of the review. The inspector briefly reviewed the lesson plans for the new program and considered that the program would be effective when implemented.

No violations or deviations were identified.

10. Inoperable Instrumentation (84750)

The licensee's Effluent and Waste Disposal Semiannual Report, Attachment 1, included an update on instrumentation out of service for greater than 30 consecutive days during the period of the Report. Since late 1987, flow indicators which measured flow through both Unit 1 and

Unit 2 Shield Building Exhausts were considered inoperable for exhaust flow rates of less than 8000 cubic feet per minute (cfm), but were still operable for flow rates above 8000 cfm. New equipment was installed, and a licensee System Engineer stated that the flow monitors were expected to be fully operable by December 10, 1990. In the interim, the licensee was conservatively estimating flow rates as 8000 cfm, when the actual flow was less than that rate.

The Semiannual Report also reported that the Waste Gas analyzer oxygen channel was declared inoperable on March 22, 1990. The channel had become erratic in its readings and out of tolerance when compared to grab samples. The plant had planned to obtain vendor assistance in stabilizing the oxygen channel. As of the date the Semiannual Report was ready for release, troubleshooting investigation was being conducted. The Report also stated that compensatory grab samples were being conducted and would continue until the system was determined to be operable. The inspector checked the status of the system with the cognizant System Engineer and Chemistry Department Management. The oxygen analyzer was still inoperable and trouble was being experienced with the hydrogen analyzer. A decision had been made to replace the Waste Gas analyzer, but a date was not yet available

No violations or deviations were identified.

11. Exit Interview (84750)

The inspection scope and findings were summarized on November 30, 1990, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee. The confirmatory measurements program showed the licensee's effluent sampling and analysis to be adequate. Process and effluent radiation monitors, radiological environmental monitoring, meteorological monitoring, filter testing, radwaste, and Chemistry Technician initial training were adequate. Proprietary information is not contained in this report.

ATTACHMENT 1
NRC-LICENSEE SAMPLE COMPARISON EVALUATION

SAMPLE	ISOTOPE	CONCENTRATION LICENSEE	CONCENTRATION NRC	RESOLUTION	RATIO LICENSEE/NRC	COMPARE
Sequoyah	Co-60	4.76 E-2	4.57 ± 0.06 E-7	76	1.04	Agreement
Charcoal	Cd-109	3.09 E-1	2.73 ± 0.03 E-1	91	1.13	Agreement
Cartridge	Co-57	3.82 E-3	3.37 ± 0.09 E-3	37	1.13	Agreement
NRC Spike:	Cs-137	4.48 E-2	4.12 ± 0.05 E-2	82	1.09	Agreement
NRC-CC-008	Y-88	1.99 E-3	2.37 ± 0.17 E-3	14	0.84	Agreement
DET: ADC#3						
DET: ADC#4	Co-60	4.72 E-2	4.57±0.06 E-2	76	1.03	Agreement
	Cd-109	3.08 E-1	2.73±0.03 E-1	91	1.13	Agreement
	Co-57	3.76 E-3	3.37±0.09 E-3	37	1.12	Agreement
	Cs-137	4.42 E-2	4.12±0.05 E-2	82	1.07	Agreement
	Y-88	2.25 E-3	2.37±0.17 E-3	14	0.95	Agreement
	Co-60	5.33 E-2	4.57±0.06 E-2	76	1.17	Agreement
DET:ADC#2	Cd-109	3.54 E-1	2.73±0.03 E-1	91	1.30	Agreement
	Co-57	4.15 E-3	3.37±0.09 E-3	37	1.23	Agreement
	Cs-137	4.94 E-2	4.12±0.05 E-2	82	1.20	Agreement
	Y-88	2.59 E-3	2.37±0.17 E-3	14	1.09	Agreement *88 keV peak
Sequoyah	Co-60	3.33 E-2	3.24±0.05 E-2	65	1.03	Agreement
Particulate	Cd-109	4.62 E-2	4.21±0.16 E-2	26	1.10	Agreement
filter	Co-57	5.49 E-4	5.31±0.49 E-4	11	1.03	Agreement
NRC Spike:	Cs-137	4.06 E-2	3.78±0.04 E-2	94	1.07	Agreement
NRC-LQ-014-D						
DET:ADC #3						
DET: ADC #4	Co-60	3.38 E-2	3.24±0.05 E-2	65	1.04	Agreement
	Cd-109	4.61 E-2	4.21±0.16 E-2	26	1.10	Agreement
	Co-57	5.04 E-4	5.31±0.49 E-4	11	0.95	Agreement
	Cs-137	4.10 E-2	3.78±0.04 E-2	94	1.08	Agreement
DET: ADC #2	Co-60	3.34 E-2	3.24±0.05 E-2	65	1.03	Agreement
	Cd-109	4.50 E-2	4.21±0.16 E-2	26	1.07	Agreement
	Co-57	5.80 E-4	5.31±0.49 E-4	11	1.09	Agreement
	Cs-137	3.96 E-2	3.78±0.04 E-2	94	1.05	Agreement
Sequoyah	Co-58	3.00 E-6	2.64±0.14 E-6	19	1.14	Agreement
Liquid Rad	Co-60	5.74 E-7	3.71±0.73 E-2	5	1.55	Agreement
Waste	Sb-125	1.55 E-5	1.46±0.05 E-5	29	1.06	Agreement
DET: LIQ Mari						
DET: ADC #39						

NRC-LICENSEE SAMPLE COMPARISON EVALUATION

SAMPLE	ISOTOPE	CONCENTRATION LICENSEE	CONCENTRATION NRC	RESOLUTION	RATIO LICENSEE/NRC	COMPARE
DET: ADC #4	Co-58	3.06 E-6	2.64±0.14 E-6	19	1.15	Agreement
	Co-60	5.49 E-7	3.71±0.73 E-7	5	1.50	Agreement
	Sb-125	1.60 E-5	1.46±0.05 E-5	29	1.10	Agreement
Sequoyah	Kr-85	2.42 E-3	2.97±0.32 E-3	9	0.81	Agreement
Waste Gas	Xe-131M	2.31 E-4	3.50±0.58 E-4	6	0.95	Agreement
Decay Tank	Xe-133M	2.56 E-4	2.28±0.17 E-4	13	1.12	Agreement
NRC: 33cc Bulb	Xe-133	2.84 E-2	2.58±0.01 E-2	>200	1.10	Agreement
DET: ADC #3	Xe-135	2.79 E-4	2.81±0.06 E-4	47	0.99	Agreement
DET: ADC #2	Kr-85	2.82 E-2	2.97±0.32 E-3	9	0.94	Agreement
	Xe-131M	3.74 E-4	3.50±0.58 E-4	6	1.07	Agreement
	Xe-133M	2.64 E-4	2.28±0.17 E-4	13	1.16	Agreement
	Xe-133	2.72 E-2	2.58±0.01 E-2	>200	1.05	Agreement
	Xe-135	2.62 E-4	2.81±0.06 E-4	47	0.93	Agreement
Sequoyah	I-131	6.97 E-3	6.14±0.22 E-3	28	1.14	Agreement
Reactor	I-132	4.06 E-2	3.93±0.18 E-2	22	1.03	Agreement
Coolant	I-133	2.97 E-2	2.56±0.04 E-2	64	1.16	Agreement
NRC: 50ml bottle	I-135	4.76 E-2	4.46±0.21 E-2	21	1.07	Agreement
	Cs-134	4.07 E-3	3.78±0.21 E-3	18	1.08	Agreement
DET: ADC #3	Cs-137	4.06 E-3	3.64±0.16 E-3	23	1.12	Agreement
	I-131	6.94 E-3	6.14±0.22 E-3	28	1.13	Agreement
	I-132	3.82 E-2	3.93±0.18 E-2	22	0.97	Agreement
	I-133	2.86 E-2	2.56±0.04 E-2	64	1.12	Agreement
	I-135	4.68 E-2	4.46±0.21 E-2	21	1.05	Agreement
	Cs-134	3.87 E-3	3.78±0.21 E-3	18	1.02	Agreement
	Cs-137	3.92 E-3	3.64±0.16 E-3	23	1.08	Agreement

ATTACHMENT 2

CRITERIA FOR COMPARISONS OF ANALYTICAL MEASUREMENTS

This enclosure provides criteria for the comparison of results of analytical radioactivity measurements. These criteria are based on empirical relationships which combine prior experience in comparing radioactivity analyses, the measurement of the statistically random process of radioactive emission, and the accuracy needs of this program.

In these criteria, the "Comparison Ratio Limits" 1[1] denoting agreement or disagreement between licensee and NRC results are variable. This variability is a function of the ration of the NRC's analytical value relative to its associated statistical and analytical uncertainty, referred to in this program as "Resolution"[2].

For comparison purposes, a ratio between the licensee's analytical value and the NRC's analytical value is computed for each radionuclide present in a given sample. The computed ratios are then evaluated for agreement or disagreement based on "Resolution." The corresponding values for "Resolution" and the "Comparison Ratio Limits" are listed in the Table below. Ratio values which are either above or below the "Comparison Ratio Limits" are considered to be in disagreement, while ration values within or encompassed by the "Comparison Ratio Limits" are considered to be in agreement.

TABLE

NRC Confirmatory Measurements Acceptance Criteria
Resolution vs. Comparison Ration Limits

Resolution	Comparison Ratio Limits for Agreement
<4	0.4 - 2.5
4 - 7	0.5 - 2.0
8 - 15	0.6 - 1.66
16 - 50	0.75 - 1.33
51 - 200	0.80 - 1.25
>200	0.85 - 1.18

[1]Comparison Ratio = $\frac{\text{Licensee Value}}{\text{NRC Reference Value}}$

[2]Resolution = $\frac{\text{NRC Reference Value}}{\text{Associated Uncertainty}}$

U.S. NUCLEAR REGULATORY COMMISSION

INSPECTOR'S REPORT
Office of Inspection and Enforcement

PRINCIPAL INSPECTOR (Name, last, first, and middle initial)

REVIEWER: T. DECKER

INSPECTORS: R. MARSTON

LICENSEE VENDOR	TRANSACTION TYPE	DOCKET NO. (8 digits OR LICENSE NO. (81 PRODUCT) (3 digits)	REPORT NO.	REPORT SUBSEC.	NEXT INSPEC. DATE MO.	NEXT INSPEC. DATE YR.
TVA / SEQUOYAH	1 - INSERT M - MODIFY D - DELETE R - REPLACE	05000327 05000328	90-48 90-53	A B C D		

PERIOD OF INVESTIGATION/INSPECTION FROM MO.	DAY	YR.	TO MO.	DAY	YR.	INSPECTION PERFORMED BY	ORGANIZATION CODE OF REGION NO CONDUCT ING ACTIVITY (See IE MC 0610 Manpower Report for Weekly Manpower Reporting, for code) REGION	BRANCH	SUBBRANCH
11	26	90	11	30	90	1 - REGIONAL OFFICE STAFF 2 - RESIDENT INSPECTOR 3 - PERFORMANCE APPRAISAL TEAM OTHER	2	47	1

REGIONAL ACTION (Check one box only)
1 - NRC FORM 591
2 - REGIONAL OFFICE LETTER

TYPE OF ACTIVITY CONDUCTED (Check one box only)
02 - SAFETY
03 - INCIDENT
04 - ENFORCEMENT
05 - MGMT AUDIT
06 - MGMT VISIT
07 - SPECIAL
08 - VENDOR
09 - MAT ACCT
10 - PLANT SUC.
11 - RIVERT VISIT
12 - SHIPMENT/EXPORT
13 - REPORT
14 - INQUIRY
15 - INVESTIGATION

REGION ONLY (Check one box only) A	B	C	D	TOTAL NUMBER OF VIOLATIONS AND DEVIATIONS A	B	C	D	ENFORCEMENT CONFERENCE HELD A	B	C	D	REPORT CONTAINS SUNSI INFORMATION A	B	C	D	LETTER OR REPORT TRANSMITTAL DATE: NRC FORM 591 OR NRR LETTER IS SUED MO.	DAY	YR.	REPORT SUBMIT TO HQ. FOR ACTION MO.	DAY	YR.
1	1			2	2	0										01	04	91			

1 - CLEAR
2 - VIOLATION
3 - DEVIATION
4 - VIOLATION & DEVIATION
1 - YES

MODULE INFORMATION

SEC ORD	MODULE NUMBER INSP TYPE	NUMBER	PHASE	MANUAL	CHAPTER	PROCEDURE	NUMBER	LEVEL	PRIORITY	CORRECT ENERGY TRANSCRIPTION OR STAFF HOURS EXPENDED TIME INSPECTION	PERCENTAGE COMPLETED	TO DATE	STATUS	MODULE REQ FOLLOWUP PHASE	MANUAL	CHAPTER	PROCEDURE	NUMBER	LEVEL
B	IP	42750							B	H3	95								
	5847750								B	HH	95								

MODULE INFORMATION

SEC ORD	MODULE NUMBER INSP TYPE	NUMBER	PHASE	MANUAL	CHAPTER	PROCEDURE	NUMBER	LEVEL	PRIORITY	CORRECT ENERGY TRANSCRIPTION OR STAFF HOURS EXPENDED TIME INSPECTION	PERCENTAGE COMPLETED	TO DATE	STATUS	MODULE REQ FOLLOWUP PHASE	MANUAL	CHAPTER	PROCEDURE	NUMBER	LEVEL
A									A										
									B										
									C										
									D										
A									A										
									B										
									C										
									D										
A									A										
									B										
									C										
									D										

B CIRCLE SEQUENCE # VIOLATION OR DEVIATION