

U. S. Nuclear Regulatory Commission

Region I

Report No. 50-322/86-03
Docket No. 50-322
License No. NPF-36
Licensee: Long Island Lighting Company
P. O. Box 618
Shoreham Nuclear Power Station
Wading River, New York 11792

Inspection At: Wading River, New York

Inspection Conducted: January 27 - February 14, 1986

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Summary: The results of this special inspection raise serious concerns regarding the management and quality control of the Radiochemistry program at Shoreham, specifically as it relates to the training and qualification of personnel, and laboratory QA and practices. The NRC inspection found that the deficiencies identified during the May and June, 1985, LILCO audit of the Radiochemistry Division still existed in February, 1986 and that little progress in implementing effective fixes had been made. Even after the Corrective Action Request from

QCD was issued, a serious step which is only one level less severe than a Stop Work Order, the issue was still not promptly and effectively addressed by the Radiological Controls Division. The Quality Controls Division and Quality Assurance Department's handling of the results of QCD Audit 85-05 brings into question the timeliness and effectiveness of their handling of identified potentially serious problems. Similarly, management awareness of, and response to, the results of the QCD Audit was not indicative of a responsive attitude.

Problems with training and qualification of Radiochemistry section personnel indicate a lack of plant and training department management involvement in the training activities of the section. This issue had been brought to the attention of supervisory personnel by technicians on a number of occasions, and was clearly identified by the QCD Audit. The Training Department appears to have had no involvement in the training and qualification of radiochemistry technicians. Training records kept by the training department were found to be incomplete and erroneous in many respects. No formal training for technicians was offered, nor was training review of qualification records evident. Training department management did not conduct adequate reviews of qualification records and were not sufficiently involved in the implementation and/or audit of the training program being run by the Radiochemistry section, to identify that a potentially serious problem existed. Additionally, although QCD Audit Report No. 85-05 identified findings that were clearly related to training, no one in the training division or Nuclear Operations Support Department was on distribution for the Audit Report.

Problems in laboratory practices and laboratory QA relate directly to the issue of management attention to Radiochemistry activities, training and qualification. The problems noted appear to be a direct result of inadequate training and inadequate management guidance and support from their superiors. At times when issues were raised by technicians, they apparently were not properly addressed by supervisory personnel. Some of the problems noted with the improper use of control charts and graphs appear not to be due to a deliberate attempt by technicians and foreman to ignore trends or indicators, but rather indicate that they in fact were unaware of the purpose of these graphs and charts. These problems indicate a failure of higher level supervisory personnel to involve themselves in the activities of the section on a regular basis.

1. Review of the LILCO Quality Assurance Audit of the Radiochemistry Section

The inspectors reviewed LILCO Quality Control Division Audit Report No. 85-05, Shoreham Plant Staff-Radwaste/Radiochemistry. This audit was conducted during the period May 20, 1985 to June 25, 1985. The audit was conducted in accordance with QA procedures to verify compliance with and determine the effectiveness of station procedures for the Radwaste and Radiochemistry Divisions.

The audit report detailed specific "findings" of noncompliance. The report also detailed "observations". Observations differ from findings in that an observation details a suggestion for a non-mandatory change in an area which is in compliance, and findings detail failures to comply with a commitment or conform to an established regulation, industry standard, license condition, or internal procedure.

The findings in this audit report concerned the following general areas.

- . Inability to provide documentation to show that the Radiochemistry Engineer had completed required surveillances of Radiochemistry Section activities.
- . Inability to produce logs or work activity schedules to show that required semi-annual split sample analyses were being performed.
- . Inadequate and conflicting documentation between Radiochemistry Section and Training section training folders.
- . The fact that numerous instances were found where individuals had been certified as technicians without having completed the required initial training program.
- . The certification of numerous individuals in certain aspects of the training program without their having completed all training tasks required for such certification.
- . Failure to implement or document a requalification program in analytical techniques for technicians as required.
- . Failure to properly complete chemistry data sheets in that no reasons were given for out of specification chemistry conditions.
- . Failure to properly label reagent solutions with appropriate expiration dates, and the presence of out of date solutions in the laboratory work areas.

The observations in this audit report concerned the following general areas:

- . The failure to properly store or label a chemical solution. This observation had been identified as a finding during a previous QCD audit.
- . Numerous examples of improper completion of the Radiochemistry Log Book, Radwaste Log Book, Radiation Monitoring System Log Book and Offsite Analysis Log Book.

The audit report findings and observations were sent to the Radiochemistry Organization on July 15, 1985 for response. QCD required that these responses be returned by August 15, 1985. The Radiochemistry Engineer responded to QCD in late October 1985 and proposed corrective actions to be implemented. Radiochemistry committed to corrective actions and indicated that these actions would be completed by specific due dates. All due dates, with the exception of one, committed to completion of corrective action on or before December 31, 1985. The one exception to this involved the failure to implement a requalification program for technicians in analytical methods. The Radiochemistry Section committed to complete corrective action on this item by March 31, 1986.

The QCD Lead Auditor responded promptly to the proposed corrective actions and commitment dates, approving Radiochemistry's actions. QCD initially rejected the March 31, 1986 completion date for the requalification finding as unacceptable, and requested additional information as to what interim actions would be implemented by Radiochemistry as remedial steps. Radiochemistry responded that the March 31, 1986 completion date was based upon all technicians completing required sample analyses. The extended time frame for this completion was the result of shift scheduling constraints. QCD accepted this response.

QCD scheduled followup audits on each of the findings in Audit Report 85-05 to verify that Radiochemistry had properly implemented their proposed corrective actions. During the week of January 13, 1986 a followup inspection was performed to verify implementation of corrective actions for audit finding 85-05-43. This finding had involved the fact that technicians had not completed all phases of the required initial training program. Radiochemistry had committed to resolution of this item by December 31, 1985.

This follow-up audit identified that corrective actions had not been completed. On January 17, 1986, QCD management and the Quality Assurance Department Manager met with the Radiological Controls Division Manager and Radiochemistry Supervision to inform them of the lack of completion of the audit finding commitments. QCD was prepared to issue a Stop Work Order to Radiochemistry, but agreed to a Corrective Action Request instead based upon Radiochemistry's commitment to immediately institute short term corrective actions to allow work to continue. Radiochemistry and QCD personnel worked that night, and over the weekend, to ensure that enough technicians were properly qualified to allow work to continue, and a review of all personnel qualifications was initiated. The Quality Controls Division formally issued the Corrective Action Request on January 27, 1986

to the Radiological Controls Division Manager. The Radiological Controls Division response to the Corrective Action Request was due to QCD on February 28, 1986 and therefore was not available at the time of this inspection.

2. Organization and Qualification of Radiochemistry Section

The inspectors reviewed the licensee's chemistry organization with respect to structure and staffing. The inspectors also reviewed the qualifications of the supervisory and professional personnel in the licensee's chemistry organization. These reviews were performed using the criteria contained in Section 6.2, Organization; and Section 6.3, Unit Staff Qualification, of the Technical Specifications and ANSI Standard N18.1-1971, "Selection and Training of Nuclear Power Plant Personnel".

The licensee appears to have an effective organizational structure for the management of the station chemistry program. The responsibilities and authorities of management positions, as well as position interfaces, are clearly defined. The licensee is using the selection criteria contained in Procedure SP No. 71.002.01, Radiochemistry Section Policy and Objective, for staffing the organization. The selection criteria in this procedure are the selection criteria in the FSAR Section 13.1.3. and ANSI/ANS-3.1-1979 which meets and exceeds the criteria of ANSI Standard N18.1-1971. Beginning with and including the radiochemistry engineer, the licensee's staff includes 9 professional or supervisory positions with a total of 11 individuals. All individuals in the current organization meet the selection criteria with the exception of one individual; a foreman. The licensee stated that documentation could be supplied to demonstrate the qualifications of this individual for the foreman position. Subsequent review of the documentation by the inspector determined that the qualifications of this individual still remain in doubt as to whether he meets the experience requirement of four years specified by Procedure SP No. 71.002.01. Procedure SP No. 71.002.01 implements the requirements of Section 6.3 of the licensee's Technical Specifications. Until more detailed information regarding this individual's previous experience can be supplied this item is considered unresolved. (50-322/86-03-01)

The inspector also noted that of the 11 individuals in the organization four were contractor personnel. The licensee stated that attempts were being made to recruit qualified individuals so that the organization would be staffed with company personnel. In addition, the inspector further noted that the individual occupying the radiochemistry engineer position is acting in that position. The acting radiochemistry engineer has been absent from work recently due to illness and, therefore, both the radiochemistry supervisor and radiochemistry support supervisor have been acting for the acting radiochemistry engineer. The inspector discussed the temporary staffing situation with the licensee. The licensee stated decisions would be made regarding these staffing matters in the near future. The inspector stated that this area would be reviewed during a subsequent inspection. (50-322/86-03-02)

In reviewing the selection criteria used for the radiochemistry supervisor position the inspector noted that the criteria were the same as that for the foreman position. The licensee stated that the selection criteria in Procedure SP No. 71.002.01 for the radiochemistry supervisor would be upgraded to the same criteria used for the radiochemistry support supervisor position. The inspector stated that this area would be reviewed during a subsequent inspection. (50-322/86-03-03)

3. Technician Selection, Training and Qualification

The inspector reviewed the licensee's program for the selection, training, and qualification of Radiochemistry Technicians. The review was performed using the criteria contained in Section 6.4, Training, of the Technical Specifications and ANSI N18.1-1971, "Selecting and Training of Nuclear Power Plant Personnel". The licensee's program in this area is detailed in Procedure SP No. 71.006.01, Radiochemistry Technician Selection, Training and Qualification Program.

The licensee's technician selection and training program as detailed in Procedure SP No. 71.006.01 meets the requirement of ANSI N18.1-1971. In addition, procedure SP No. 71.006.01 contains provisions for technician qualification on specific procedures or tasks as well as requalification and retraining. The inspectors reviewed licensee selection and qualification records and held discussions with chemistry technicians with respect to implementation of Procedure SP No. 71.006.01. The licensee's procedure requires that the individual technician demonstrate practical abilities, procedural and technical knowledge, and the skills necessary to perform a task. Either procedure checkout guidelines or technician task evaluation guides are to be used to qualify technicians. Contrary to these requirements, however, the licensee qualified the chemistry technicians on procedures by giving open book exams to the technicians. The technicians were given the examination, which consisted of approximately three to five questions on each specific procedure, and copies of the applicable procedures and instructed to take the examination. Interviews with technicians indicated that actual task evaluations were not performed, although qualification records reviewed show signoffs for these task evaluations.

The inspector also noted that the licensee had qualified seven chemistry technicians on the radiation monitoring system (RMS) procedures using the required task evaluation guide, but that all the technicians were qualified on the same date. Again discussions with chemistry technicians indicated that individual procedure qualifications had not been performed as required. The licensee stated that the RMS task evaluation guides were all signed on the same date by a chemistry foreman based on the judgement of the foreman that the chemistry technicians were qualified. The inspector noted that Section 6.4 of the Technical Specifications requires a training program that meets or exceeds the requirements of ANSI N18.1-1971. Procedure SP No. 71.006.01 written pursuant to the requirements of Section 6.4 of the Technical Specifications requires task evaluations as part of the training program. However, as the above examples indicate,

the licensee failed to perform the task evaluations as required by the procedure. The inspector stated that the failure to follow Procedure SP No. 71.006.01 was a failure to meet the training requirements of ANSI N18.1-1971 and, therefore, a violation of Section 6.4 of the Technical Specifications. (50-322/86-03-04)

Interviews with chemistry technicians further indicated that laboratory QA was not included in any training given by the Chemistry Department. Chemistry technicians did not appear to be aware of the basis for a laboratory QA/QC program; eg, why the technicians perform control measurements and how to evaluate them; and the concept that the QA/QC programs and associated analyses are part of the overall analytical methodology. This lack of training has had an adverse effect on the laboratory QA program as discussed in Section 5.

4. Procedures

The inspector reviewed the licensee's procedures for sampling, instrument calibration, operation and maintenance, radiochemical and non-radiochemical analyses, and laboratory quality control. The inspector noted that the above procedures were reviewed and approved as required by Section 6.8, Administrative Controls-Procedures and Programs, of the Technical Specifications and conform to standard industrial practices.

The inspector observed the analyses of the NRC standard chloride solutions (See Section 7). The licensee used procedure SP78.011.38, Rev. 2, "Chloride Analysis, Specific Ion Electrode Method". This procedure states that two check standards with concentrations of 20 ppb and 50 ppb chloride will be prepared, analyzed, and results plotted on a control chart. If the results of these licensee check standards fall within two sigma error limits, the existing chloride calibration curve is considered acceptable to use for the analyses. The inspector noted that the check standards were prepared and analyzed, but the results were not plotted since no control charts exist. The inspector further noted that 6.8.1a of the Technical Specifications requires that procedures be established, implemented, and maintained covering the activities referenced in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. This includes chemical and radiochemical control procedures. Procedure SP 78.011.38 was written pursuant to the requirement of Section 6.8.1.a of the Technical Specifications. The inspector stated that the failure to use control charts as required by Procedure SP 78.011.38 for the period November, 1985 through February, 1986 was a violation of Section 6.8.1 of the Technical Specifications. (50-322/86-03-05)

The licensee stated that no control charts are generated for the chloride check standards because the same respective millivolt (MV) readings are obtained each time 20 ppb and 50 ppb standards are analyzed. These measurements result in a mean millivolt (or ppb) value with a standard deviation of zero.

5. Laboratory Quality Assurance (QA)

The inspector reviewed the licensee's program for the quality assurance of analytical measurements. This program is addressed in Procedure SP 71.018.01, "General Laboratory Operation". The inspector noted that control charts were implemented for all of the laboratory radioanalytical instrumentation. However, the inspector further noted that the licensee did not appear to be using the control charts as intended. Several months data for both the gamma spectrometry and gamma well counting systems were commonly on one side of mean, yet no corrective actions were taken. Standard guidance is that no more than eight consecutive data points should fall on the same side of the mean without some action to maintain instrument statistical control. One of the licensee's control charts was found to have thirty consecutive biased data points. Control charts for the liquid scintillation counter were present for quenched background and quenched standard samples. The mean values and warning limits for these charts were determined from the previous months data which is a recommended practice. The inspector identified that all of the previous months data points are not used to calculate the control chart parameters; instead, a minimum of fifteen data points are randomly chosen. This method may lead to an improper evaluation of the warning limits.

The inspector also discussed the calibration of micropipettes with the licensee since the pipettes are used for Technical Specifications related analyses. The licensee stated that the micropipettes are calibrated routinely, but could produce no data to substantiate these calibrations. Discussions with chemistry technicians indicated that pipettes calibrations were not performed routinely.

As previously mentioned the licensee does not use a statistical curve fitting method for chemical calibration curves. The inspector discussed curve fitting with the licensee and stated although curve fitting is not a quality parameter, it may improve analytical results because of better interpolation of the area between data points. The inspector pointed out that not curve fitting calibration data points is a deviation from good, commonly accepted laboratory practice. On the other hand, the licensee's software for the gamma spectrometry system statistically fits the calibration curves for the gamma system geometry. Again, the inspector pointed out that good laboratory practice would include plotting the actual calibration data as a visual check for anomalous results.

The inspector noted that the above items are generally accepted laboratory practice. The lack of their implementation appears to be related to a lack of attention to detail by the licensee and raises concerns regarding the reliability of chemical analyses. These areas will be reviewed during a subsequent inspection. (50-322/86-03-06)

6. Laboratory Tour

The inspectors conducted a tour of the Radiochemistry Lab to observe conditions, level of cleanliness, and general laboratory practice. The inspectors noted standards that were available for use had expiration dates that were past due. The inspectors also noted instruments available for use which had past due calibration dates.

The inspector also noted several conditions in the laboratory that were not in accordance with good housekeeping practices. The inspector noted broken glassware in the chemical storage room, chemical deposits on workbenches, numerous empty chemical bottles being stored under sinks and in fume hoods, glassware available for use without being free of mineral deposits and a general state of clutter and disarray in portions of the laboratory.

7. Measurement Capability Test Standards

During the inspection test standards were submitted to the licensee in order to evaluate the licensee's capability to measure radioactivity in effluents and chloride concentration in the reactor coolant system. The radioactivity standards were prepared by the NRC reference laboratory, DOE Radiological and Environmental Sciences Laboratory (RESL), and duplicated the types of samples and nuclides that the licensee would encounter during operation. The standard chloride solutions were prepared by Brookhaven National Laboratory (BNL) Safety and Environmental Protection Division, for the NRC Region I. All test standards were analyzed by the licensee's chemistry technicians using routine methods and equipment.

The results of the radioactive standards comparison indicated that all of the radioactivity measurements were in agreement based on the criteria for intercomparing results. (See Attachment 1). The results of the comparison are listed in Table 1. The results of the chemical standard comparison also indicated that the chloride measurements were in agreement based on the criteria for intercomparing results. (See Attachment 2). Standards of 10, 30 and 70 ppb concentrations were submitted to licensee and all were analyzed in triplicate. The results and comparisons are listed in Table 2. Although the results of the radioactive and chemical standard comparisons were satisfactory, the problems in laboratory procedures and QA; noted in Sections 3, 4, 5, and 6; raise concerns regarding the reliability of the chemical analysis program.

8. Technician Interviews Concerning Training and Knowledge and Performance of Duties

The inspectors interviewed Radiochemistry section technicians to determine the adequacy of on the job training, to confirm implementation of the qualification process and to evaluate the quality of formal classroom training. The following are the results of those interviews.

- The inspectors determined that technicians routinely perform both preventive and corrective maintenance on electronic equipment in the Radiation Monitoring System, including safety related equipment, with no electronics training or previous electronics background other than on the job training. This is an apparent violation of ANSI 18.1-1971 which requires a minimum of three years working experience in their specialty, which the licensee has committed to in Technical Specification 6.3.1 (50-322/86-03-07).
- Technician qualification cards have a performance section which must be completed prior to a technician qualifying as an on-shift technician. The inspectors determined that, contrary to Station Procedure 71.006.01, a number of the technicians have been qualified as shift technicians, without ever performing tasks under supervision.
- Prior to qualification as a shift technician, an individual spends six months in on-the-job training. The inspector determined that in many cases only the last 2 to 4 weeks of this six months were spent in actual on-the-job training and, no formal or structured training program was established. In these cases approximately five and one-half months of the six month period were spent working on activities other than the areas to be qualified in. It was determined that, inadequate time was provided to allow technicians to complete performance elements as required by Station Procedure 71.006.01.
- The inspectors determined that the testing process for qualification was not being conducted in accordance with S.P.71.006.01 in that the licensee administers procedural based exams with the procedures available to the trainee instead of requiring performance of procedures under supervision. (See Section 3)

The last three of the above observations are additional examples of the apparent violation of Section 6.4, Training, of the Technical Specifications (50-322/86-03-04) stated in Section 3. The findings presented above indicate that serious deficiencies exist in the Radiochemistry training program. As indicated in Section 1, similar deficiencies had been noted during the LILCO QA audit conducted during May and June of 1985. In addition, the inspectors found that many of these training and qualification problems had been brought to the attention of higher level management by technicians in the Radiochemistry Department. The lack of a timely resolution of identified problems indicates an absence of management involvement in the department's activities.

9. Exit Meeting

On February 14, 1986 the inspectors discussed the findings of this inspection with station management. Based on NRC Region I review of this report and discussions held with licensee representatives, it was determined that this report does not contain information subject to 10 CFR 2.790 restrictions.

ATTACHMENT 1

Criteria for Comparing Analytical Measurements

This attachment provides criteria for comparing results of capability tests and verification measurements. The criteria are based on an empirical relationship which combines prior experience and the accuracy needs of this program.

In these criteria, the judgement limits are variable in relation to the comparison of the NRC Reference Laboratory's value to its associated uncertainty. As that ratio, referred to in this program as "Resolution", increases the acceptability of a licensee's measurement should be more selective. Conversely, poorer agreement must be considered acceptable as the resolution decreases.

$$\text{Resolution} = \frac{\text{NRC REFERENCE VALUE}}{\text{REFERENCE VALUE UNCERTAINTY}} \quad \text{RATIO} = \frac{\text{LICENSEE VALUE}}{\text{NRC REFERENCE VALUE}}$$

<u>Resolution</u>	<u>Agreement</u>
< 3	0.4 - 2.4
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

Table 1

<u>Radiological Capability Test Results</u>				
<u>Sample</u>	<u>ISOTOPE</u>	<u>NRC VALUE</u>	<u>LICENSEE VALUE</u>	<u>COMPARISON</u>
<u>Results in Total Microcuries</u>				
Spiked Charcoal Cartridge Detector 2 Geometry 12	Ba-133	(3.96 ± 0.04)E-2	(3.79 ± 0.05)E-2	Agreement
Spiked Charcoal Cartridge Detector 1 Geometry 12	Ba-133	(3.96 ± 0.04)E-2	(4.22 ± 0.06)E-2	Agreement
(1) Spiked Charcoal Cartridge Detector 1 Geometry 12	Ba-133	(3.96 ± 0.04)E-2	(4.26 ± 0.06)E-2	Agreement
(2) Spiked Charcoal Cartridge Detector 1 Geometry 12	Ba-133	(3.96 ± 0.04)E-2	(4.62 ± 0.06)E-2	Agreement
(1) Cartridge analyzed by different technicians				
(2) Cartridge rotated 80 degrees.				
Spiked Particulate Filter Detector 2 Geometry 16	Cd-109	2.21 ± 0.11	2.72 ± 0.08	Agreement
	Ce-139	(7.4 ± 0.3)E-2	(8.87 ± 0.07)E-2	Agreement
	Co-57	(3.8 ± 0.2)E-2	(4.56 ± 0.03)E-2	Agreement
	Co-60	(9.9 ± 0.5)E-2	(1.14 ± 0.01)E-1	Agreement
	Cs-137	(9.5 ± 0.41)E-2	(1.13 ± 0.01)E-1	Agreement
	Sn-113	(1.61 ± 0.07)E-1	(1.87 ± 0.02)E-1	Agreement
	Y-88	(2.49 ± 0.11)E-1	(2.86 ± 0.03)E-1	Agreement

Table 1 (Continued)

<u>Radiological Capability Test Results</u>				
<u>Sample</u>	<u>ISOTOPE</u>	<u>NRC VALUE</u>	<u>LICENSEE VALUE</u>	<u>COMPARISON</u>
<u>Results in Total Microcuries</u>				
Spiked Particulate	Cd-109	2.21 ± 0.11	(2.72 ± 0.08)	Agreement
Filter Detector 1	Ce-139	(7.4 ± 0.3)E-2	(7.9 ± 0.2)E-2	Agreement
Geometry 17	Co-57	(3.8 ± 0.2)E-2	(4.03 ± 0.10)E-2	Agreement
	Co-60	(9.9 ± 0.5)E-2	(1.02 ± 0.02)E-1	Agreement
	Cs-137	(9.5 ± 0.4)E-2	(9.98 ± 0.16)E-2	Agreement
	Sn-113	(1.61 ± 0.07)E-1	(1.72 ± 0.06)E-1	Agreement
	Y-88	(2.47 ± 0.11)E-1	(2.43 ± 0.09)E-1	Agreement
<u>Sample</u>	<u>E(KeV)</u>	<u>NRC Value</u>	<u>Licensee Value</u>	<u>Comparison</u>
<u>Results Gammas Per Second</u>				
Simulated Offgas Vial	186	231 ± 5	233 ± 8	Agreement
Detector 1	242	496 ± 10	481 ± 10	Agreement
Geometry 9	295	1230 ± 30	1294 ± 15	Agreement
	352	2360 ± 50	2263 ± 20	Agreement
	609	2970 ± 60	2699 ± 30	Agreement

Attachment 2

Criteria for Comparing Analytical Measurements

This attachment provides criteria for comparing results of capability tests. In these criteria the judgement limits are based on the uncertainty of the ratio of the licensee's value to the NRC value. The following steps are performed.

(1) The ratio of the licensee's value to the NRC value is computed

$$\text{(ratio} = \frac{\text{Licensee Value}}{\text{NRC Value}} \text{)};$$

(2) The uncertainty of the ratio is propagated.

If the absolute value of one minus the ratio is less than or equal to twice the ratio uncertainty, the results are in agreement. ($|1 - \text{ratio}| \leq 2 \times \text{uncertainty}$)

$$\underline{z} = \frac{x}{y}, \text{ then } \frac{s_z^2}{z^2} = \frac{s_x^2}{x^2} + \frac{s_y^2}{y^2}$$

(From: Bevington, P.R., Data Reduction and Error Analysis for the Physical Sciences, McGraw-Hill, New York, 1969)

Table 2

Chloride Capability Test Results

<u>NRC Value</u>	<u>Licensee Value</u>	<u>Ratio (Lic./NRC)</u>	<u>Comparison</u>
	<u>Results in Parts Per Billion (ppb)</u>		
10.3 ± 0.7	≤20	--	No Comparison
28 ± 3	33 ± 3	1.2 ± 0.2	Agreement
70 ± 3	68 ± 6	0.97 ± 0.10	Agreement