



THE INSPECTOR

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JANUARY 1980

OFF AND RUNNING

Examining, testing and certifying electrical equipment from small tools to giant turbines for use in hazardous locations, continues to fascinate EIA member K. V. (Vic) Knudsen, an engineering specialist whose career goes back to the early twenties. Today he works out of the Richmond office of Canadian Standards Association, a safety oriented service organization, and covers for them the Pacific Region from the North West Territories, parts of Mexico as well as Arizona, Nevada and Utah.

Knudsen said he wears two hats: "I do Certification and Factory Inspections."

CSA Certification is based on the construction of electrical equipment and on its performance. There is no allowance for hazard. To pass, equipment must be constructed in such a manner that it will do the job it was built to do while adhering to all CSA safety standards.

CSA Factory Inspections form an important part of Knudsen's work load. The CSA Monogram is a registered certification mark used by clients under the terms and conditions of a CSA Service Agreement. One of the requirements for maintenance of the certification is factory inspection once or twice a year to conform to the requirements laid out at the time of certification.

Knudsen lists oil refineries, pipelines and grain elevators among the highly explosive and combustible environments he works in. Here an arc, or an error that would cause an arc or flame, could readily be followed by an explosion and fire. It is Knudsen's job to check on the design and installation of the electrical equipment so that it will not be the cause of such a fire.



Electrical Inspectors are very careful as to what electrical equipment goes into a grain elevator said Knudsen. "When we (CSA) deal with grain elevators we are dealing with combustible materials. Fine dust, in proper concentrations, is extremely explosive. The nature of the explosion is totally different from that of gasoline. Heat is there longer. The destruction from blast and fire is very often greater for a small area. Nearly always there's a loss of life."

Since equipment is required to have enclosures for live and moving parts it is seldom the cause of an accident. Electricians on the job are extremely conscious of the combustible nature of the environment. "Also," said Knudsen, "there is a warning mark on the equipment to de-energize before unbolting or opening. I would say any carelessness not to do so would be extremely rare."

Every new job is a fresh encounter and challenge. And any major job means sitting down with the people involved and reviewing exactly what has to be done and the method of doing it. Knudsen has an immense respect for electrical inspectors and others who work in this field, He said, "We (CSA) work with the contract engineer and electrical inspectors. They present the problem on which they are seeking a solution. The resident inspector has issued a mandate that electrical equipment is not to be connected until it has the MARK on it."

Problems, when they occur, are in structure and/or design. Electrical products are imported from a variety of countries around the world. CSA is involved with 34 countries and certifies equipment manufactured in all of them but Knudsen said that some of the equipment that comes in doesn't bear any evidence of the approval of anyone. When that happens he goes over the equipment very carefully. No detail is left to chance. He then issues a letter detailing the deficiency or other problem and informs the client what is required to achieve certification.

Depending on the problem, certification may come within a few days or weeks or may be held up for several months. On rare occasions the equipment may have to be discarded. But in general, said Knudsen, corrections can be made through the applicant by the manufacturer. The problem for the exporting company may have occurred because of difficulty with the language. They have to first know what is

required and then they have to devise a method of building this into the product. "We can't tell them what to do, we simply point out what is required and assess the result."

Each client pays a fee. "It is my responsibility to arrive at some assessment as to how much it would take to get the thing started. But that's no indication as to the scope of the job. We don't have a crystal ball. What may appear easy sometimes turns out to be complex."

THE BIG ONES

Knudsen was involved in the controversial Syncrude project in Northern Alberta over a three year period. He spent anywhere from two or three days to a week at a time there, examining electrical equipment in co-operation with CSA personnel from head office at Rexdale, a suburb of Toronto, and elsewhere.

Knudsen feels very good about his work and the Syncrude project had tremendous variety and scope. It involved him in motor controls, numerous types of switches, lubricating oil assemblies, centrifuges, turbines (compressors), fixtures, process controls (equipment built to control other pieces of equipment, also described as a program) etc.

Knudsen said that Syncrude, in spite of its many early problems, including numerous fires due to a variety of chemical processes, is within 90 per cent of its output today. "I gather it's successful because two more plants are going to be built." A June, 1979 report in TRADE AND COMMERCE states that Syncrude Canada Ltd., recently came on stream with a production goal of 129,000 barrels a day.

Texas--that's a big one. Knudsen is due there before Christmas and by the time you have this Newsletter he will probably be back.

Two gas turbines manufactured by a British firm will eventually land in Fort Nelson, British Columbia via Texas. The turbines are destined for the pipeline project in north-eastern B.C. so why Texas? "It's a matter of economics," explains Knudsen. Turbine systems are complex so you are limited to the number of places such a job can be done.

The initial examination of the electrical system took place at the main plant in England. The balance of the work was then subcontracted to the Company's Texas agency, a manufacturing

plant. Here Knudsen will complete the examination and issue certification. That done, the turbines will be shipped to Fort Nelson to produce power to an energy-hungry north.

Knudsen said, "It (the job) includes every electrical piece of equipment that you've ever been involved with. It makes it very interesting to be a part of that." He became momentarily thoughtful. "It's the kind of job that can sometimes leave you wondering what you may have overlooked that day. In the final analysis I'm in the position of having to sign for it."

Knudsen makes numerous calls in Western United States where they produce "just about everything under the sun in electrical equipment." At the moment he is on a busy schedule with a number of jobs booked ahead. First on the list is a jaunt to a plant in Arizona. In his office a large, scuffed carrying case bulges with legal size file folders. Each folder contains information on a specific manufacturer of electrical equipment and gives details of products manufactured under the CSA Mark.

CSA Service Agreements provide for follow up inspection service on all products that have been certified and carry the Mark. Knudsen's responsibility is to verify that the manufacturer continues to manufacture according to those required standards and plants are therefore always open to him.

Knudsen believes that Canada is unique in that it has a Standards and Certification program that is common throughout the country.

"Different countries have standards organizations but not always to the degree we do, nor do they have the correlation we have between the standards organization and the inspection bodies. I'm a strong supporter of that."

He said other countries besides Canada want to see the CSA Mark on their purchases. To them the Mark is a measure of satisfactory performance. "It has, by the consistency of our work, become an acceptable standard of quality." Knudsen's work experience has been gathered in many parts of the world and not always with CSA. He says the number of people qualified to do the whole range of work necessary is extremely restricted. "You have to be a Jack of many trades and an expert in all of them."

A son, Harald J. Knudsen is now following in his father's footsteps. Harald is involved in a CSA training course in the east and taking some in-depth instruction on the assessment of equipment and doing report writing. "Anything that will provide guidance for him to start performing on his own," said the father.

A career in this field requires a very broad electrical background. "After that, to get a new man off and running could take several years or more," said Knudsen. "Depends on the man."

Knudsen continues to be associated with the rapidly expanding facilities and staff at the Richmond laboratory of the Pacific Region headquarters for CSA. The plant is under the management of Dudley Barnes and his Assistant, Denis Hegan.

The certification and inspection program grew out of a need to protect man and his environment. Today more and more enquiries are being processed through the Richmond plant. As a result the plant is being expanded to take care of the many demands for service.

TIME OUT

The October 15th Dinner meeting at the Magic Chef Restaurant, New Westminster, was well attended. Highlight was the presentation on Code given by Al Luck, Chief Electrical Inspector for the Province of British Columbia. The talk was made visually interesting and details clarified by the use of a projector and screen. Main subject dealt with Grounding Structures.

Jim Filleter, a representative of S & C Electric Canada Ltd., gave a talk on Pole Top Switches and Load Interrupter Switches and their application. Detailed technical information was distributed to all in attendance.

Election of Officers--results are as indicated on the masthead of this publication.

December 3rd Meeting

Revisions to the 13th edition of the Code got an up-tempo discussion at a well attended Dinner Meeting, Magic Chef Restaurant, New Westminster. Joe Laminski was the speaker with lots of input from the floor necessitating a teaspoon on cup control by President, Jim Law. The mandatory date for implementation of the new code will most likely be May 1, 1980.

PEOPLE IN THE NEWS

New Westminster

While electrical inspections go coasting along at a merry pace, Inspector Ian Dingwall plays it hot and heavy camping out with a group of Boy Scouts. Two leaders and eight boys between the ages of 13 and 14 cover Mud Bay, the Nicomekl and Serpentine Rivers, a distance of 25 miles in canoes. That's a lot of paddling, fellas!

Inspector Alf Pietrachupa continues to coach hockey with the Minor Hockey Association.

The Gospel According to Duff.

Not one to be outdone by his pals, Inspector Eric Duff struggles to get his harvesting over with. His farm at Aldergrove consists of five acres, four beef animals and 100 dozen cobs of corn. Perhaps the Association could book a corn roast and barbecue for a late summer weekend in 1980.

City of North Vancouver--Jack Ball replaces Inspector Royal Smythe whose official retirement took place on August 10th, (Royal continues to work part time).

Jack is one more easterner who enjoys the Vancouver climate and the beauties of the North Shore. He came to Vancouver from Montreal six years ago, where he had been Chief Electrician with Henry Birks and Sons. The finishing and replating work for Birks stores across Canada is all done at the Montreal factory.

Since coming to Vancouver Jack has been working as an Electrician at the Saskatchewan Wheat Pool and also as a Teacher at Vancouver Technical School. He teaches the Canadian Electrical Code to student apprentices taking a "C" ticket.

Jack is a family man with a wife and three children. If you were out at the December 3rd meeting you have already made his acquaintance.

Maple Ridge--Bill Malcolm, Electrical Inspector, has joined Inspector G. Mysel at Maple Ridge.

PROMOTION--Wayne Torrans, formerly District Inspector for Williams Lake is now a Regional Inspector at Terrace, B.C. Because of the move his report on a Northern Inspection Area was not available for this issue of THE INSPECTOR but will instead be carried in the April issue.

Staff and Organizational Changes Compiled By The Ministry Of Labour

Wayne Torrans has been promoted from Williams Lake to Regional Supervising Inspector, North Coast Region, Terrace.

Bill Pitt has been transferred from Duncan to Electrical Safety Inspector, Peace River Region Fort St. John.

Gerry Armstrong is being transferred from Dawson Creek to Electrical Safety Inspector Metro Region, New Westminster.

Frank Eason is being transferred from Prince Rupert to Electrical Safety Inspector, Central Interior Region, Ashcroft.

Dave Carson is being transferred from Terrace to Electrical Safety Inspector, South Vancouver Island Region, Victoria.

Richard Berton is being transferred from Terrace to Electrical Safety Inspector, South Vancouver Island Region, Victoria.

Hugh Oliver was the successful candidate for the Electrical Safety Inspector position, Metro Region, New Westminster.

Celina Lawless was the successful candidate for the Office Assistant position, Peace River Region, Fort St. John.

Trevor Norsworthy was the successful candidate for the Electrical Safety Inspector position, Eastern Border Region, Revelstoke.

Public Service Competitions are being held for vacant Electrical Safety Inspector positions at the following locations, Duncan, Port Hardy, Chilliwack, Dawson Creek, Prince Rupert, and Terrace.

December 9, 1941 -- Vancouver's first blackout.

City street lights will not be turned on this afternoon except for intersection lights, which the city engineer's department is attempting to make invisible from the air by blueing.

--The Vancouver Sun.

To meet known power requirements and head off future electric power shortages on Vancouver Island, B.C. Hydro awarded a \$235 million contract for the supply and installation of the world's first underwater 525 kV AC power cables. The contract, the largest single supply and installation contract let by B.C. Hydro, was awarded to a joint venture of two European companies, Industrie Pirelli spa, of Italy and Standard Telefon og Kabelfabrik a/s, of Norway. The cables will provide part of the link between Cheekye Substation on the Mainland and Dunsmuir Substation on Vancouver Island. Delivery of electricity is scheduled to begin in 1983.

COMING EVENTS

Keep January 21st open. Time 7:30 p.m. A panel and discussion will take place in the Meeting Room, main floor of the B.C. Hydro building, Vancouver. Subject: B.C. amendments and new rules in the 13th edition Canadian Electrical Code. Members of the EIA and the Electrical Industry are invited to attend.

Panel

A.R. Luck, Chief Electrical Inspector,
Province of B.C.
G.W. Brand, Chief Electrical Inspector,
City of Vancouver.
Don MacIntyre, Chief Electrical Inspector
Municipality of Surrey

Joe Laminski, Manager Field Operations,
Provincial Inspection Branch

March 5th, 1980

Dinner and EIA Meeting at the Magic Chef Restaurant, 601 Agnes Street, New Westminster, B.C. Jay Sehgal, Assistant Manager of Pirelli Cable Ltd. Toronto, will be speaking on High Voltage 15 kV and 25 kV class distribution cables, their application, termination and splicing, handling, construction and factory testing. Mr. Sehgal is a Power Cable Specialist. Time to be announced later. Guests welcome.

REPORT OF THE ELECTRICAL SAFETY REVIEW COMMITTEE ACTIVITIES FOR 1978/79

by Mr. Don MacIntyre

I am pleased to submit a report briefly out-

lining a number of items which have been discussed at meetings of the Electrical Safety Review Committee.

I have enjoyed serving on the Committee and consider it a progressive step forward when a group which represents most of the electrical industry in the Province meets approximately four times per year to assist in the provision of an efficient Safety Electrical Inspection service for the Province.

1. Appeals Procedure

Bulletin 0-4-1 has been published as a guide for the procedure in administering the appeals process. The procedure outlined in the Bulletin was decided upon following a considerable amount of work by an Ad Hoc Committee and other members of the Electrical Safety Review Committee (E.S.R.C.). Proposed revisions to the Electrical Energy Inspection Act will contain a section to formally establish an Appeal Board.

2. Submission from E.C.A. RE: Expanded Role for E.W.E.S.C.

It was agreed by the Committee that a proposal which was submitted by the Electrical Contractors Association (ECA) be adopted on a limited trial basis. The object of the proposal is to increase input from the E.W.E.S.C. to the Canadian Electrical Code (C.E.C.) Part 1. The Part 1 Subcommittee Chairmen have been contacted and have agreed in principle to the proposed expanded role of the E.W.E.S.C. and authorized their participation to Sections 6, 12, and 26 for a trial period. This will be a new approach to provide input to the C.E.C. and will be observed with interest by the electrical industry in other Provinces.

3. Proposed Revisions to Electrical Energy Inspection Act

The draft of the proposed changes to the Act are now complete and have been sent to the various committees for review. It is proposed that interim changes will be presented to the Ministry before the next session of the Legislature. They include provision for an Appeals Procedure, Certification of Inspectors, Recognition of the E.S.R.C., and other significant matters.

4. Emergency Exit Lighting Level Requirements, National Building Code (N.B.C.) and Fire Marshal's Act

This subject concerns inadequate lighting levels in buildings and the over-lap of jurisdictions. A report has now been prepared by the Ad Hoc Committee and will be forwarded to the appropriate Ministries for action.

5. Acceptance of E.S.R.C. Policies and the E.W.E.S.C. Decisions Pertaining to Municipal Jurisdiction

Meetings were held with Mr. Lawson, Executive Director, Safety Engineering Services and Municipal Chief Electrical Inspectors. These meetings resulted in a letter, on behalf of the Municipalities, being forwarded to the E.S.R.C. endorsing both Committees. However, certain reservations were expressed concerning technical and administrative decisions where Municipal legal opinions may differ from that expressed by other legal officers.

6. Proposed Revision to B.C. Overhead Line Regulations

This matter is currently being dealt with by an E.W.E.S.C. Ad Hoc Committee, representing Power and telephone utilities, industry, contractors, the Electrical Safety Branch and other interested groups.

7. Electrical Safety Requirements in Hospitals

The electrical requirements of the B.C. Hospitals group is not a requirement under the E.E.I. Act. This subject was referred to the E.W.E.S.C. with the thought that perhaps a number of requirements should be covered by regulation, however the Committee recommended that no further action be taken at this time as Section 24 of the C.E.C. is presently being revised.

8. Application by International Association of Electrical Inspectors for Membership on the E.S.R.C.

Separate membership by Inspector groups was discussed and it was decided that this was not acceptable to the Committee. Representation by the I.A.E.I. with the I.A.E.I. (International Association of Electrical Inspectors) as an alternate was acceptable.

9. Revised Procedure for Authorization of Contractor's Work

This procedure was approved by the E.S.R.C.

at the March 1979 meeting. Bulletin 2-10-0 has since been published, detailing the procedure to be followed by Contractors. It should be noted that procedures outlined in the Bulletin are acceptable only in areas within Provincial Electrical Safety Branch jurisdiction.

Other items dealt with during the year were as follows:

- (a) Consumers' Association Representation on the E.S.R.C.
- (b) Qualification of Electrical Inspectors.
- (c) Appeal re Electrical Installation at U.B.C.
- (d) Report re Issuance of Restricted Certificates.
- (e) Branch Proposal for Aiding in Uniform Application of Code Rules.
- (f) Proposed Revised Regulations Governing Electrical Contractors.
- (g) Application by E.S.R.C. for Membership on the Provincial Standards Board.

EDITOR'S NOTE

Mr. Don MacIntyre, who represents the Electrical Inspectors' Association on the Review Committee is the Chief Electrical Inspector for the Municipality of Surrey. He began his career in the electrical industry in 1944 by serving a five year apprenticeship as an electrician in Scotland. This included taking technical training at the Dingwall Academy. He later moved to Canada where he worked for large electrical concerns in Eastern Canada, some of the time being spent specializing in high voltage cable splicing work. He assumed his present position with the Municipality of Surrey in 1968. He spends much of his leisure time in the vicinity of the Gulf Islands, where he has a summer home, doing his darndest to deplete B.C.'s salmon resources.

KEEPING IN TOUCH

Address news items and all copy for THE INSPECTOR to:

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KONSENSUS KORNER

This is a feature originated by Chuck Moon of Burnaby assisted by Denis Lessard of the Provincial Office in New Westminster. Al Luck will also provide assistance by commenting on a number of questions which are submitted.

Konsesus Korner will appear in future issues of your INSPECTOR and is intended to promote interest and participation. The success of the article requires your response - a postage stamp and a few minutes.

Questions on ANY topic, Code or otherwise will be accepted, with the sole proviso being that the questions be structured for YES or NO responses. In subsequent issues of the INSPECTOR, your submitted question(s) will be introduced and those of the previous issue will be repeated together with a consensus tabulation.

Your questions should be brief and concise.

THIS ISSUE'S QUESTION

Mark your response and PROMPTLY mail together with your question to:

EIA, P.O. Box 80479, Burnaby, B.C. V5H 3X9

Question No. 001

Do you feel that a gradient control mat is needed for a primary switch on a grade level outdoor station?

YES NO

MEMBERSHIPS

CONTRACTORS, ENGINEERS, ELECTRICAL INSPECTORS, SUPPLIERS, and others interested in the Electrical Industry are invited to join in on an opportunity to promote uniform understanding and application of the Canadian Electrical Code and to increase cooperation between inspectors, the electrical industry, and the public.

Application for renewals or new memberships in the EIA should be sent to,

Electrical Inspectors Assoc. of B.C.
P.O. Box 80479
S. Burnaby, B.C. V5H 3X9

Applicants Name: _____

Address: _____

	Renewal	New Membership
I have enclosed \$15.00 as an Inspector Member	<input type="checkbox"/>	<input type="checkbox"/>
I have enclosed \$20.00 as an Associate Member	<input type="checkbox"/>	<input type="checkbox"/>

1980 Membership Cards will be returned with Dues Receipts.

I require a membership pin.

I require a certificate of membership.

Hope your Christmas was made up of good things and that you didn't sample too much of Uncle Josh's Blackberry wine!

It's the end of a decade. "Au revoir, 1979, Good morning, 1980." With the dollar, the stockmarket and Trudeau sinking there's only one way left to go and that is up.