



**CTI**  
ALASKA

July 31, 1996

Mr. Ross A. Scarano, Director  
Division of Nuclear Materials Safety  
U. S. Nuclear Regulatory Commission, Region IV  
611 Ryan Plaza Drive, Suite 400  
Arlington, Texas 76011-8064

SUBJECT: NRC INSPECTION REPORT 030-17129/96-01

Dear Mr. Scarano:

This letter is prepared as a hand-out for the predecisional enforcement meeting to be held at the NRC Region IV office on August 6, 1996. It is intended to document the corrective actions accomplished; corrective actions that are in process; and other particulars to show that we have strengthened our safety program by taking steps to mitigate any potential recurrence of the stated violations.

First, we find the root cause of the violations to be the complacency and indifference towards safety exhibited by the two radiographers. Specifically, they admitted to the NRC inspector that they knowingly operated in violation of CTI's radiation safety program. Other contributing causes of their apparent lack of concern and negligent attitude was their disappointment in not achieving unionization of the CTI Alaska NDT field employees on the BPX project and the previous termination of some of their co-workers (and in some cases, close friends). We are now in a NLRB trial in which three of the four "claimants" (all radiation workers) claim that CTI terminated them for their union activities. One of the claimants is [REDACTED] and one of the claimants' witnesses is [REDACTED]

*Confidence  
Through  
Inspection*

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The root cause was not a result of lack of radiation safety training, lack of management support, lack of familiarity with the project duties nor lack of time or equipment. Both radiographers are highly trained and educated in their field. Their makeup as a radiography crew is of a higher professional level than most crews working together throughout the NDT industry.

These root causes were determined through exhaustive review of the incident, an individual being assigned to learn the complete operation and detailed mechanism of the exposure device, reenactment with the subject radiographers, interviews and statements from other radiation workers, statements from the NRC inspector, review of our operations procedures, and the morale issue and other circumstances leading up to the incident.

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██████████ the lead radiographer, was hired on April 8, 1991, and has worked in radiography since his date of hire. ██████████ received forty eight (48) hours of formal classroom radiation safety training plus ninety six (96) hours of formal classroom Radiography, Levels I and II (which also includes radiation safety training) while employed at CTI Alaska. ██████████ has forty eight (48) hours of radiation safety training and one hundred and twenty (120) hours of radiography training. With the exception of eight (8) hours of in-house radiation safety, the training was taught by an outside professional training organization.

██████████ had recent radiation safety field inspections performed on him (10-17-95 and 01-13-96) and attended an annual refresher course on August 8, 1995. ██████████ had a recent field inspection performed on him (11-07-95) and an annual refresher on January 14, 1996.

██████████, who was terminated on January 25, 1996, earned ██████████ in the year 1995 while assigned to the BPX project working approximately one-half time on a two week on, two week off rotation.

On September 5, 1995, I wrote a memorandum (follow-up to earlier company memorandums) to our company employees concerning union organizing drives at the BPX project. One of our growing concerns in late 1995 was that a small group of employees was trying to influence others to become negligent in their duties in order to cause problems for CTI. Some of these employees ended up being hostile, breaking company and client rules, and/or just having a bad attitude toward safety in general. This resulted in some of the employees being terminated.

The project that ██████████ and ██████████ were assigned to is contracted on a time-and-material basis (vs. paid on a piece rate basis) with very little pressure on production (averaging approximately 1.7 exposures per hour per 2 man crew) and that they were paid the same rate of pay for performing required safety procedures as for performing radiography duties. This represents an ideal safe working environment, not usually afforded radiographers in the lower 48 states.

I would like to make you aware that CTI has more than an adequate number of radiation safety instruments (73 survey meters, 160 pocket dosimeters, 159 rate alarms) with a maximum of 14 exposure devices in operation at any given time. CTI requires a minimum of two operable survey meters with each exposure device in operation. Radiographers are responsible for ensuring that each survey meter is within calibration, has charged batteries and reads radiation before conducting radiographic operations.



During the incident, the two radiographers had two calibrated survey meters and a new exposure device S/N 4369 (received 11-22-95) containing source S/N 5288 and a new control assembly, a system approved by the NRC as meeting the requirements of 10 CFR 34.20. There were 17 spare rate alarms (in addition to those assigned) on this project and there were 17 survey meters on this project.

CTI has had the operations procedures for the IR-100 exposure device in its radiation safety manual for some ten years.

This device and source was used almost daily on the BPX project for approximately one month prior to [REDACTED] and [REDACTED] incident. They had reported no problems with the device nor had any other radiographer reported a problem with the device prior to this incident.

The following is a list of actions and processes implemented by CTI Alaska since the incident of December 1995; to mitigate further violations and to increase awareness in radiation safety:

- a) Improved emphasis on reporting and investigation of incidents.
- b) Emphasized reporting of incidents to the RSO in a timely manner.  
Sent memorandum (02-28-96) on "Incident Reporting Requirements"
- c) Increased communication with employees by:
  - Posted safety memos at each project
  - Bi-monthly company news letter (with separate section on radiation safety) with message from president to all employees
  - More management people in the field
  - Increased frequency of safety audits by RSO
  - Every other week staff meetings in Anchorage where all employees are invited to attend
  - Increased lines of communications between supervisors, managers and workers
- d) Reprimanded or terminated employees who do not operate in accordance with the CTI Alaska radiation safety program.
- e) Additional training on IR-100 exposure device (INC owner to slope 1-5-96 followed by further training and testing) after the subject incident.



- f) Hired new administrative assistant to RSO on 2-1-96 [REDACTED] [REDACTED] Level II radiographer has college degree in NDT, 13 years experience and possesses computer skills).
- g) Hired new ASNT certified Level III radiographer for field QC and Radiation Safety control [REDACTED] has NDT degree and 14 years of experience).
- h) Assigned new Safety Coordinator to our field operations [REDACTED] [REDACTED] was previously the radiation safety administrative assistant to the RSO) in an office at the BPX project.
- i) Transferred [REDACTED], Field Operations Manager from the ARCO project to the BPX project.
- j) Transferred [REDACTED], Radiation Safety Field Manager, from the ARCO project to the BPX project to strengthen our radiation safety presence.
- k) The RSO has developed and instituted an updated "Incident Report" form to insure that all events and incidents are reported by the radiographers to the RSO in a timely manner and an "Incident Report" form to report incidents to the various NRC sections.
- l) On April 19, 1996, issued an additional emergency procedure bulletin for a dosimeter off-scale situation. This procedure is posted at all facilities and projects.
- m) The RSO developed and I published a more detailed discipline policy for radiation safety violations which will be incorporated into the company policy.
- n) Issued Memorandum on the use of audible rate alarms thus drawing attention to the fact that this requirement is stated in the radiation safety program manual.
- o) Assigned new copies of the radiation safety program manual to all radiographers and supervisors. All personnel who received a manual signed a receipt for that manual.
- p) Developed and administrated a specific examination on the radiation safety manual for radiation workers.



- q) Additional copies of the CTI exposure device operating instructions have been placed in the following areas:
- Each crew vehicle used for radiography
  - Storage vault
  - Crew room for radiographers
  - Supervisors and managers office at project locations
- r) Developed and administered a specific examination on the operation and maintenance of the exposure devices utilized by the field radiographers after receiving additional training on the devices.
- s) Based upon information provided by the manufacturer, the RSO made revisions, for clarification purposes, to the operating procedures for the INC IR-100 exposure device. Received revised IR-100 exposure device operations manual from INC on 6-20-96 and immediately put into system.
- t) Affixed laminated copies of the INC provided "Operations Instructions" for the IR-100 and the "Daily Check List" for the IR-100 on exposure devices as per the letter from Industrial Nuclear Company.
- u) Requested and received extended crank assembly ends with flag (drive assembly connector) for IR-100 which eliminated the tab from catching on the dust plug (drive cable storage housing). All crank assemblies had the shorter end piece replaced with the new, longer piece.
- v) On March 5, 1996, CTI purchased an IR-50 source changer and began training designated staff and supervisors on its use in case of emergency.
- w) Purchased an IR-100 specially manufactured training exposure device to be used in personnel training to practice with.
- x) The RSO re-issued a memorandum (initially sent 10-24-94) reaffirming radiographic personnel not to use unauthorized components or attachments on exposure devices that are not approved by CTI Alaska or do not meet the requirements of 10 CFR 34.20. The memorandum was ordered to be posted at each project and to be discussed during the next safety meeting.





- y) The RSO re-sent and posted memorandum on tagging out of equipment requiring repairs, replacement parts or out-of service status.
- z) The RSO implemented a maintenance and repair check list form for exposure devices.
- aa) Made laminated emergency telephone number cards (CTI, state and NRC phone numbers) to be worn with their safety and health cards and identification badge.
- bb) On January 25, 1995, I wrote a forceful letter emphasizing our commitment to our radiation safety program, increased training, testing and inspections and also the consequences to those who do not comply with the requirements of the program.
- cc) We are in the process of retraining radiographic personnel on the use and limitations of exposure devices, survey meters, pocket dosimeters, rate alarms (with ear phones); and use of film badges, radiation warning signs (caution and high). This is being accomplished by application of the annual refresher course.
- dd) I have made a long term commitment to increase radiation safety awareness on a consistent level (with special emphasis at the BPX project) by insisting on a turnabout in personnel's attitude regarding the established radiation safety program and toward company authority in general. I believe this has been accomplished.

The CTI Alaska RSO has conducted unannounced radiation safety audits on five occasions at 11 field projects on the North Slope of Alaska since October, 1995. These inspections are in addition to the field inspections and annual refresher courses conducted at the projects by the Radiation Safety Manager and the project supervisors. None of the inspections revealed any of the violations so noted in the NRC's inspection report of July 15, 1996, including the use of high radiation signs.

CTI has a proven history of reporting all incidents to the RSO. Even "incidents" discovered by hearsay have been investigated and those determined to be factual have been reported to the NRC as required. The RSO has on several occasions called the NRC to inquire if they think a certain radiography incident is a reportable incident or is even close to the intent of the code.

CTI Alaska has spent approximately \$278,174.00 in recent years on training of personnel by outside professional training organizations. All training costs and



expenses provided to CTI employees in radiation safety are paid by CTI and is open to all employees regardless of whether they work as a radiation worker.

CTI currently has 116 employees who have received forty (40) hours of radiation safety training by outside professional training organizations plus eight (8) hours radiation safety training by the CTI radiation safety department (while utilizing a maximum of fourteen exposure devices throughout the company at any given time).

I have been told by journeyman employees that they "have never worked for a company that places such emphasis on safety and spends as much time and money on training and the purchase of quality personal protection equipment as does CTI Alaska".

CTI Alaska certainly has not exhibited a derelict attitude toward its safety and health and radiation safety programs as we have operated for a period of just under 1.5 million man-hours without a lost-time accident. CTI estimates it has worked over 1.3 million man-hours in radiography since 1988 without a violation requiring a written response.

CTI Alaska has an outstanding radiation safety history of which you are aware; the company has always worked openly and honestly with the NRC and not hesitated to report all incidents to the NRC; the company has actively participated in radiation safety seminars and NRC sponsored conferences; and actively kept abreast of new requirements and been an advocate of improving our industry. CTI has spent an exceptional (or unprecedented) amount of time and money to develop a radiation safety program to be proud of; which has us perplexed as to how we could end up being considered for enforcement fines with the attitude this company has always had toward safety. The violations cited were solely related to the actions of two radiographers who stated they were knowingly violating safety requirements.

Have we as a company jeopardized the safety of our employees or the public? Absolutely not! CTI Alaska has demonstrated total commitment to compliance with federal and state radiation safety and safety and health requirements and has placed a premium on our safety programs.

CTI established a safety merit award program in 1991 to reward personnel with points to redeem for products and to earn bonus money for working safely. CTI has awarded an annual average safety bonus of almost \$3,000.00 per employee who has worked a full year on the North Slope of Alaska.

In conclusion, I believe that the NRC should consider reprimanding the radiographers involved in this incident for not performing their safety duties, and



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making false statements; thus jeopardizing CTI's license. If no action is taken against the radiographers beyond our terminating them, the wrong message is being sent to the other radiographers and assistants working for us, as well as to other companies in our industry.

We are confident that safety awareness has been restored at the BPX project and that the negative attitude is a thing of the past.

CTI Alaska believes it has taken prompt and comprehensive corrective action to address the violations (which were identified early in the incident) and to mitigate the possibility of recurrence.

Further, we believe this incident is a singular event and is not indicative of our radiation safety program.

All documents supporting the statements made in this letter are not made a part of this submittal, but are either in our possession or are on file in our office and are made available for inspection by the NRC.

Sincerely,

George E. Haugen  
President

ENCL.: Available upon request  
CC: [REDACTED]