ULTRA TECHNOLOGY INCORPORATED

3836 Brighton Drive N.W.
Calgary, Alberta, Canada
T2L 1G8

403-289-4507

July 3, 1985

Docket No. 030-20969
License No. 50-23363-01
Control No. ~~70146~~

United States Nuclear
Regulatory Commission
Suite 210
1450 Maria Lane
Walnut Creek, California
94596

Attn: Ms. Beth Riedlinger
Health Physicist (Licensing)

Dear Ms. Riedlinger:

Re: Requested Amendments to License No. 50-23363-01

Further to your letter of May 29, and our telephone conversation of July 1, 1985 we are providing additional material requested under your Control No: 70246.

As mentioned in our telephone conversation, your letter of May 29 did not reach me until July 1 because the letter had been sent to our lawyers address in Anchorage. Amendment No. 1 of July 17, 1984 (attached copy) changed the address to Pouch 340122, Prudhoe Bay, Alaska. It appears that this information needs to be changed on the document your typist works from.

After studying your letter, I found that the deficiencies noted would not take much time to correct, hence the additional time needed for response requested will not be required.

The attached material contains two copies of revised pages to the Ultra Technology Inc. Safety Manual (Revision 1) and the Ultra Technology Training Manual, Revision 0 for insertion in your copies. The revisions are marked with side bars.

70184

We believe the changes made conform to your intent but with one possible exception i.e. the 'naming' of a Deputy for the Senior Radiographer when he is absent from the site for short periods of time. We may be misinterpreting the effect of the regulation proposed in "Revision 2 To The Regulatory Guide 10.6"; but, because the Deputy is named in the License, would we not be in violation of a license condition should a named Deputy for any reason (sickness, quit the job or terminated for cause) not be available on site and an unnamed Deputy substituted ?

We can see that the NRC will be more comfortable knowing the exact qualifications and record of the individual; however,as we see it, the Licensee effectively becomes hostage to the 'named' Deputy if the Licensee is in violation of his License with a qualified but unnamed Radiographer (Deputy) in charge of the operation. There is no real problem here if the Licensee can telephone your office, explain the situation, receive verbal approval and follow through with the paper work timely. However a very restrictive operational problem exists if the Licensee must wait until NRC has processed an amendment application before action can be taken to replace an employee.

At the present time we are fortunate in that we could qualify and name several employees as Deputy to the Senior Radiographer. However, the business requires that staffing levels fluctuate, and because of the aforementioned, we feel we would be 'painting ourselves into a corner' should we name them, have to lay them off and not have a previously named Deputy available when staffing requirements increase again.

Yours very truly,

Donald S Heiken

Ultra Technology Inc.
Donald S. Heiken
Radiation Safety Officer

NRC Form 374A (8-82), U.S. NUCLEAR REGULATORY COMMISSION

PAGE 1 OF 1 PAGES

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
50-23363-01

Docket or Reference number
030-20969

Amendment No. 1

Ultra Technology, Inc.
Pouch #340122
Prudhoe Bay, Alaska 99734

In accordance with application dated June 7, 1984, License Number 50-23363-01 is amended to read as follows:

The licensee's address in License Condition 2. is changed from 509 West Third Avenue; Anchorage, Alaska 99503 to Pouch 340122; Prudhoe Bay, Alaska 99734.

License Conditions 10., 12. and 17. are amended:

10. Licensed material may be used at temporary job sites near Prudhoe Bay, Alaska, which are based at the ARCO MCC contractors camp approximately 4 miles north of the Deadhorse Airport and at temporary job sites of the licensee anywhere in the United States where the U. S. Nuclear Regulatory Commission maintains jurisdiction for regulating the use of licensed material.

12. Licensed material shall be used by, or under the supervision and in the physical presence of, D.S. Heiken, B.A. Servin, H. Kruschke, B. Vehrs, or individuals who have completed the training program described in application dated January 30, 1984 and letter dated April 23, 1984 and as amended in application with enclosures and letter dated June 7, 1984.

17. Except as specifically provided otherwise by this license, the licensee shall possess and use licensed material described in Items 6, 7, and 8 of this license in accordance with statements, representations, and procedures contained in application dated January 30, 1984; letter dated April 23, 1984, and application with enclosures and letter dated June 7, 1984. The Nuclear Regulatory Commission's regulations shall govern the licensee's statements in applications or letters, unless the statements are more restrictive than the regulations.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date JUL 17 1984

By R D Thomas

R. D. Thomas, Chief
Materials Radiation Protection
Inspection and Licensing Section
Region V

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CHAPTER XI

RADIATION SURVEY REQUIREMENTS

RADIATION SURVEY REQUIREMENTS

1. In general, a radiation survey is required whenever a source is manipulated or moved. Specifically, a survey must be carried out when

a) Removing the source and its exposure device from storage.

This requirement applies if the source is being removed for a radiographic operation or any other time a source is moved from its designated storage.

Page 5 - 5 of 19 of the Radiation Safety Manual specifies that the Radiographer carry out this survey to determine that the radiation level 6" form the surface does not exceed 50 mr/hr. This survey is accomplished as follows.

Determine where the Gieger Mueller or ionization chamber is located within the survey instrument in use. Locate the tube 6" from the surface of the device an a line drawn 90 degrees from the side of the device and note the radiation level is not greater than 50 mr/hr. Maintain this distance as the meter is moved around the sides, ends, top and bottom of the device.

Record the radiation level in the "stored location" column of the Daily Utilization Log page 5 - 17 of 19.

b) A survey of the outside surfaces of the transporting vehicle is required to ensure that no surface reading exceeds 2 mr/hr at 18" from any outer surface or in the drivers compartment. The results of this survey are to be entered in the "stored location column" of the Daily Utilization Log. Note that two entries are required in the same column. Enter both measurements in this column as shown below.

Stored Location

20

2

where 20 is the 6" from the surface reading and
2 is the reading at 18" from the surface of the vehicle

c) Although not specifically defined as a survey, the requirement that a survey meter be in use when the controls and source delivery tubes are assembled and disassembled, in reality is a radiation survey. It is requirement is that that the survey meter be turned on and the meter visible to the Radiographer at all times he is working with an exposure device.

For instance, what could happen if the Radiographer removed the safety plug, removed the rear dust cap, unlocked the device and upon attempting the hook-up requests his Assistant to crank out an inch of control cable. The Assistant complies but drops the crank on a rock in such a way that the handle turns and extends more than the required inch the Radiographer expects. Obviously the source is going to move out of the safe position and subject the Radiographer to a higher than expected radiation field.

Never trust an exposure device with the safety plugs removed. Always approach the device with a survey meter (turned ON) in hand.

d) A radiation survey of the posted "Restricted Area" i.e. the 2 mr/hr level, is required by NRC Regulations and the Company's License.

Note that our license requires that the perimeter of the Restricted Area is determined by calculation using source strength, distance and shielding. The perimeter in not established by cranking out the source and using the survey meter to determine the location of the 2 mr/hr line around the source.

Once the 2 mr/hr perimeter is established and barriers erected, the perimeter radiation level is measured to ensure that the actual radiation field at that point does not exceed legal limits. If it is found that this limit is exceeded, the source is to be withdrawn and the barriers moved or additional shielding provided to obtain this limit.

e) A radiation survey is required when the source is withdrawn at the completion of an exposure. This is a very important survey and must be conducted as follows -

i. With the meter held in front of the body and observing the survey meter, approach the device and determine that the source has with- drawn to its safe position by measuring the the radiation field on the surface of the device. This survey must meet the requirements of 10 CFR 34.43 (b) which requires a survey of the entire circumference (including the top surface) and source guide tube of the exposure device.

10 CFR 34.43 (c) also requires a FINAL survey of the device upon completion of the last exposure and recording the results of the survey in the Source Utilization Log. (Just determining that there is not a high field of radiation from an exposed source is not good enough).

ii. Lock the device.

iii. Observing the survey meter proceed to the end of the exposure tube and service the film.

iv. Return to the device, unlock it and return to the controls.

f) A survey must be conducted when the source is placed in the transporting vehicle to ensure that the radiation level 18" from any exterior surface or in the drivers compartment does not exceed 2 mr/hr. If the reading is 2 mr/hr or less enter a 2 beside the number previously entered in the "stored location" column. The result could read 20-2 or 20/2, but either way the Radiation Safety Officer will know that the required surveys were made and safe levels existed.

g) Should the Company at some future time operate from a fixed location where a storage vault is provided, a survey of the vault, by the Radiographer returning the source to the vault, will be required and recorded in the manner above.

h) Radiation surveys are required when new sources are received and spent sources returned to the supplier. The required radiation levels for various labels are quite specific and are shown on Page I- 2 of 8 of our Safety Manual. Note that these surveys must be completed within three hours of receipt of the source.

i) Source transfers from the source changer/shipping container to the exposure device must be monitored and the device, changer or shipping container surveyed upon completion of the transfer. A survey of the exposure device is made as described earlier to ensure that the 6" from the surface limits are not exceeded. In the same manner, the surface of the source exchanger is surveyed to assure that the spent source is safely positioned.

j) A radiation survey is required to ensure that the packaging of the spent source complies with the labeling requirements cited in h) above. As explained in Section 2. b).3.. the reading obtained three feet from the surface of the exchanger package is recorded on the shipping documents as the Transport Index.

h) Although the location of the measurement is not specified by NRC, Ultra Technology's personnel will record the radiation level at 6" from the surface of the device and record the number in the "6 in" column of the Radiation Survey columns of the Source Utilization Log. The numbers will be shown as follows:

1. The survey meter reading recorded at 6" from the surface of the device will be shown thus:

   20(0) where (0) means "out of storage"

2. The survey meter reading recorded at 6" from the surface of the device will be shown thus:

   20(I) where (I) means "into storage"

Hence, the entries in the 6" from Surface Column should appear:

20(2)/20(I)

The following completed sample of the Source Utilization Log illustrates the proper entries.

2. SURVEY METER SCALE SELECTION

For technical reasons, manufacturers provide a three or four position switch to select the appropriate range of radiation levels to be measured. Always select the lowest scale when turning on an instrument before approaching a device containing a source. This should prevent one from entering a high radiation field unexpectedly.

If the meter pegs while measuring a field of radiation select higher scales until you reach a scale which does not read off-scale.

INDUSTRIAL RADIOGRAPHY

UTILIZATION LOG — SOURCE NO.

Date	Isotope	Curies	Model and Serial No. of Device	Time Out	Time In	Location Used	Max. Radiation Level at the Perimeter of Restricted Area	Radiation Survey of Device After Securing (MR/HR)			Stored Location	Responsible Radiographer
								Contact	6 In.	3 Ft.		
85/07/02	Ir 192	43	Tech Ops 660	07.30	18.30	Prudhoe Bay	2 mr/hr	150(O) 150(I)	20(O) 20(I)		20 / 2	

DUTIES OF A SENIOR RADIOGRAPHER

Because the Company does not maintain a permanent radiographic facility and carries out radiographic operations at field sites only, the large distances involved between the Radiation Safety Officers' office and the site, making daily personal supervision impossible; the following responsibilities of the Radiation Safety Officer are delegated to the Senior Radiographer who is responsible for all Company activities at the field site.

1. The Senior Radiographer is the custodian for all licensed by-product materials held by the Company at a specific field site and as such is delegated responsibility by the Radiation Safety Officer for the following:

   a) Receiving new, high activity by-product material and returning low activity material to the supplier.

   b) Carrying out the surveys and reporting procedures required in Section I of the manual.

   c) Maintaining the daily records of dosimeter readings, source utilization reports, daily equipment inspection reports etc. as required by various paragraphs in this manual.

   d) Ensuring that only calibrated survey instruments and dosimeters are used on thejob site.

   e) Ensuring that the radiation levels at the surface of vehicles carrying or used for storage of by-product materials do not exceed the limits specified in this manual.

   f) Assuming control of instituting corrective action on behalf of the Radiation Safety Officer in emergency situations.

   g) On behalf of the Radiation Safety Officer, ensure compliance with the procedures described in this manual.

2. The Senior Radiographer will appoint a Deputy who has had a minimum of one years experience as Radiographer and has used radioactive sources for a period of one year, to act on his behalf during brief absences from the field site. The appointment of a "Deputy" will be contingent upon approval of the Radiation Safety Officer and will be an individual who in the judgement of the Radiation Safety Officer and the Senior Radiographer is qualified by experience, training and attitude to act in this capacity. In the absence of the Senior Radiographer, the appointed "Deputy" will be responsible to the Radiation Safety Officer for all the items listed in 1.a) through g) above.

A. Initial Training

a) Initial Training will be conducted by the Radiation Protection Officer in accordance with the Ultra Technology Inc. training program.

b) Following the above training, personnel will be given an additional 8 hours training in all aspects of the Company Operating and Emergency Procedure and utilizing the Company equipment. This training will be give by the Radiation Safety Officer or a qualified instructor appointed by the Radiation Safety Officer. This instructor will have handled radaioactive materials a minimum of one year as a Radiographer. Instruction will cover daily documentation (Daily Dosimeter Readings, Daily Equipment Inspection Report, Source Utilization Log etc.), determination of satisfactory survey meter operation and proper useage, setting of Radiation Area boundaries, and emergency procedures defined in Chapter 5.

Personnel will be required to demonstrate a thorough understanding of the Operating and Emergency Procedures and also demonstrate competency in the use of Company equipment. This will be determined by the administration of tests similar to the two final examinations contained on pages E-8 through E- 17 of this procedure. Additionally an "on the job" evaluation will be conducted of the items contained on page E - 7 of this procedure. Personnel successfully completing this phase of training will be designated "Radiographers Assistants" by the Radiation Protection Officer. The Training Outline for this phase of the training is contained on page E - 3.

c) Training courses, equivalent in content to the Ultra Technolgy Inc. Training Program, (formally recognized in a list of approved training programs published by the Nuclear Regulatory Commission or otherwise approved by the Commission), either totally or in part, may be substituted for the Ultra Technology Inc. Training Program of Paragraph (a). When "approved" course content fails to cover material covered in the Ultra Technology Training Program, additional instruction will be given in deficient subjects. The Specific Training, Paragraph (b) above, will be required regardless of the source of Initial Training.

1. Initial training may be conducted by F. L. Clifford in accordance with the F. L. Clifford training program on file with N.R.C.

2. Initial training may be conducted by instructors of the Hutchinson Area Vocational Institute (Hutchinson, Minn.) in accordance with the Hutchinson Area Vocational Institutes Radiation Safety Training Program on file with N.R.C.

3. Personnel who are graduates of the Anchorage Community College's Weld-263 course will be given credit for Chapters 2 through 7 of the Ultra Technology Inc. Training Program. The Radiation Safety Officer will ensure, either by personal instruction or through delegation to a qualified instructor, that graduates of the Anchorage Community College receive instruction to ensure understanding of the additional Chapters of the Ultra Technology Inc. Training Progam. Personnel who are graduates of Weld-236 will be evaluated as per b) above and will require additional training as required by b).

d) In the case of previously qualified personnel who have been trained in accordance with 10 CFR, 34, have at least 6 months experience and qualified as a "Radiographer" by another licensee, the initial training requirements of a) may be waived provided compliance with the conditions of (e) below are established.

e) All individuals, irrespective of the source of intial training, will be trained in accordance with b) above and will be required to attain a passing grade on all examinations. Personnel who do not attain passing grades will be required to attend the entire initial training program.

B. On-The-Job Training

a) Personnel designated as "Radiographers Assistants" will be required to have on-the-job training under the direct supervision of a "Radiographer" who has agreed in writing to act as the "Trainee Supervisor" for a named "Raiographers Assistant".

1. New Trainees: At least three months training during which time at least 80 radiographic exposures will be conducted by the trainee.

2. Previously Qualified Personnel: At least 16 hours training during which time at least 16 radiographic exposures will be conducted.

b) At the completion of on-the-job training, each individual will be evaluated by the Trainee Supervisor and the Radiation Safety Officer. This evaluation will be conducted by observing the trainee's operation for at least 8 hours. During this phase, the trainee will be orally examined in questions similar to those on pages E - 5 through E - 8. Additionally, the trainee will be "on-the-job" evaluated in the items contained on Page E - 4 of this procedure.

Persons who, in the opinion of the Radiation Safety Officer, are thoroughly knowledgeable of the equipment operation, radiation safety, and Operating and Emergency Procedures will be designated as "Radiographers" by the Radiation Safety Officer.

C. Retraining

a) Periodic retraining will be conducted at least every 12 months or whenever changes in the radiography program are made.

b) Retraining will provide instructions in such subjects as amend ments to regulations, changes in equipment, operating procedure revisions and review of subjects contained in the basic training program. Retraining will be conducted by the Radiation Safety Officer or his designate.

D. Records

a) Records of all training will be maintained on file for inspection.

E. General

a) A passing grade of 75 is required on written and oral examinations.

b) All examinations are reviewed with the trainee with particular emphasis on questions missed.

c) Trainees failing to achieve a grade of 75 on any examination will be given another examination within 15 days. Personnel receiving a passing grade will be allowed to continue in the program but personnel receiving a failing grade will be dropped from the program.

d) The tests attached to this procedure are samples of those that will be administered during this training program. Tests will be changed at least every six months so as not to reduce the effectiveness of the test procedure.