

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

<p>Licensee</p> <p>1. Kennecott Greens Creek Mining Company</p> <p>2. 3000 Vintage Blvd. Suite 200 P.O. Box 32199 Juneau, Alaska 99803-2199</p>	<p>In accordance with letter dated September 5, 1996</p> <p>3. License Number 50-23276-01 is amended in its entirety to read as follows:</p> <p>4. Expiration Date March 31, 2003</p> <p>5. Docket or Reference No. 030-20447</p>	
<p>6. Byproduct, Source, and/or Special Nuclear Material</p> <p>A. Cesium-137</p> <p>B. Americium-241</p> <p>C. Cesium-137</p> <p>230034</p>	<p>7. Chemical and/or Physical Form</p> <p>A. Sealed sources registered either with NRC under 10 CFR 32.210 or with an Agreement State and incorporated in a compatible gauging device as specified in Item 9 of this license</p> <p>B. Sealed sources registered either with NRC under 10 CFR 32.210 or with an Agreement State and incorporated in a compatible gauging device as specified in Item 9 of this license</p> <p>C. Sealed sources registered either with NRC under 10 CFR 32.210 or with an Agreement State and incorporated in a compatible gauging device as specified in Item 9 of this license</p>	<p>8. Maximum Amount that Licensee May Possess at Any One Time Under This License</p> <p>A. See Condition 9.A.</p> <p>B. See Condition 9.B.</p> <p>C. See Condition 9.C.</p>

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number

50-23276-01

Docket or Reference Number

030-20447

Amendment No. 4

9. Authorized use

- A. and B. To be used, for measurement purposes, in compatible portable Troxler Electronic Laboratories, Inc. or Boart Longyear Company (formerly Campbell Pacific Nuclear Company) gauging devices that have been registered either with NRC under 10 CFR 32.210 or with an Agreement State and have been distributed in accordance with an NRC or Agreement State specific license authorizing distribution to persons specifically authorized by an NRC or Agreement State license to receive, possess, and use the devices.
- C. To be used, for evaluated and approved licensing purposes, in Ohmart Corporation fixed gauging devices that have been registered either with NRC under 10 CFR 32.210 or with an Agreement State and have been distributed in accordance with an NRC or Agreement State specific license authorizing distribution to persons specifically authorizing distribution to persons specifically authorized by an NRC or Agreement State license to receive, possess, and use the devices.

CONDITIONS

10. Licensed material may be stored at the licensee's warehouse located at the Hawk Inlet facility on Admiralty Island. Licensed materials may be used at the Green's Creek Mine/Mill site on Admiralty Island, 18 air miles southwest of Juneau, Alaska. Licensed material described in Items A. and B. may also be used 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.
11. A. Licensed material shall only be used by, or under the supervision and in the physical presence of individuals who have successfully completed the manufacturer's training program for gauge users, have received copies of, and training in, the licensee's operating and emergency procedures, and have been designated by the Radiation Safety Officer.
- B. The Radiation Safety Officer for this license is Timothy F. Gibson.
12. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210 or by an Agreement State.
- B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed 3 months.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number

50-23276-01

Docket or Reference Number

030-20447

Amendment No. 4

- C. In the absence of a certificate from a transferor indicating that a leak test has been made within 6 months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.
- D. Sealed sources need not be leak tested if:
- (i) they contain only hydrogen-3; or
 - (ii) they contain only a radioactive gas; or
 - (iii) the half-life of the isotope is 30 days or less; or
 - (iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or
 - (v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transferred to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.
- E. The leak test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 30.50(b)(2), and the source shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011, ATTN: Director, Division of Nuclear Materials Safety. The report shall specify the source involved, the test results, and corrective action taken.
- F. The licensee is authorized to collect leak test samples for analysis by TN Technologies, Technical Services Group; The Ohmart Corporation; or Boart Longyear Corporation. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.
13. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
14. The licensee shall conduct a physical inventory every 6 months to account for all sources and/or devices received and possessed under the license.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number
50-23276-01

Docket or Reference Number
030-20447

Amendment No. 4

15. Each portable gauge shall have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. The gauge or its container must be locked when in transport, storage, or when not under the direct surveillance of an authorized user.
16. Except for maintaining labeling as required by 10 CFR Part 20 or 71, the licensee shall obtain authorization from NRC before making any changes in the sealed source, device, or source-device combination that would alter the description or specifications as indicated in the respective Certificates of Registration issued either by the Commission pursuant to 10 CFR 32.210 or by an Agreement State.
17. Any cleaning, maintenance, or repair of the portable gauges that requires removal of the source rod shall be performed only by the manufacturer or by other persons specifically licensed by the Commission or an Agreement State to perform such services.
18. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
19. The licensee shall not use sealed sources or probes containing sealed sources at depths exceeding 3 feet below the surface.
20. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities below the minimum limit specified in 10 CFR 30.35(d) for establishing decommissioning financial assurance.
21. Installation, initial radiation survey, relocation, or removal from service of Ohmart devices containing sealed sources shall be performed by Timothy F. Gibson or by persons specifically licensed by the Commission or an Agreement State to perform such services. Maintenance and repair of devices and installation, replacement, and disposal of sealed sources shall be performed only by persons specifically licensed by the Commission or an Agreement State to perform such services.
22. Each Ohmart gauge shall be tested for the proper operation of the on-off mechanism and indicator, if any, at no longer than 6-month intervals or at such longer intervals as specified by the manufacturer and approved by U.S. Nuclear Regulatory Commission.
23. Prior to initial use and after installation, relocation, dismantling, alignment, or any other activity involving the source or removal of the shielding, the licensee shall assure that a radiological survey is performed to determine radiation levels in accessible areas around, above, and below the Ohmart gauge with the shutter open. This survey shall be performed only by persons authorized to perform such services by the Commission or an Agreement State.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number

50-23276-01

Docket or Reference Number

030-20447

Amendment No. 4

24. The licensee shall operate each fixed gauge within the manufacturer's specified temperature and/or environmental limits such that the shielding and shutter mechanism of the source holder are not compromised.
25. The licensee shall assure that the fixed gauge shutter mechanism is locked in the closed position during periods when a portion of an individual's body may be subject to the direct radiation beam. The licensee shall review and modify as appropriate its "lock-out" procedures whenever a new gauge is obtained to incorporate the device manufacturer's recommendations.
26. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.
- A. Letter dated November 3, 1992
 - B. Letter dated January 22, 1993
 - C. Letter dated February 18, 1993
 - D. Letter dated March 17, 1993
 - E. Letter dated March 22, 1993
 - F. Letter dated September 9, 1993
 - G. Letter dated September 5, 1996
 - H. Two letters dated November 14, 1996
 - I. Telefacsimile dated December 11, 1996

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date DEC 11 1996

By

Beth A. PrangeMaterials Branch
Region IV, WCFO
Walnut Creek, California 94596

BETWEEN:

License Fee Management Branch, ARM
and
Regional Licensing Sections

(FOR LFMS USE)
INFORMATION FROM LTS

Program Code: 03120
Status Code: 0
Fee Category: 3P
Exp. Date: 20030331
Fee Comments: STORAGE ONLY EFF 4/16
Decom Fin Assur Req'd: N

RECEIVED
96 OCT 25 PM 12:49

LICENSE FEE TRANSMITTAL

A. REGION V

1. APPLICATION ATTACHED

Applicant/Licensee: KENNECOTT GREENS CREEK MINING CO.
Received Date: 960918
Docket No.: 3020447
Control No.: 572409
License No.: 50-23276-01
Action Type: Amendment

2. FEE ATTACHED

Amount:
Check No.: none

3. COMMENTS

Signed
Date

Jan Garcia
9-14-96

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered 1)

1. Fee Category and Amount: 3P \$300

2. Correct Fee Paid. Application may be processed for:

Amendment 1
Renewal
License

3. OTHER

Signed
Date

Rita Messier
10/21/96

Log	<u>Sep 1</u>
Remitter	
Check No.	<u>154421</u>
Amount	<u>\$300</u>
Fee Category	<u>3P</u>
Type of Fee	<u>amd</u>
Date Check Rec'd.	
Date Completed	<u>10/21/96</u>
By	<u>Ren</u>

1996 SEP 26 PM 1:47

LICENSE FEE REQUIREMENTS

LICENSE FEE AND DEBT COLLECTION BRANCH
DIVISION OF ACCOUNTING AND FINANCE
OFFICE OF THE CONTROLLER
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20565-0001KENNECOTT GREENS CREEK MINING COMPANY
ATTN: CLYNT NAUMAN
GENERAL MANAGER
P. O. BOX 32199
JUNEAU, AK 99803-2199

TYPE OF ACTION

- ☐ NEW LICENSE
☐ RENEWAL OF LICENSE
☒ AMENDMENT TO LICENSE

REQUESTED DATE

9-5-96

LICENSE NUMBER

50-23276-01

CONTROL NUMBER

572409 ATTN: RITA MESSIER, LFARB, T9E10

I. APPLICATION FEE DUE

Your request for a licensing action is subject to the fee(s) in the category(ies) noted below in accordance with Section 170.31 of the enclosed Federal Register notice. Payment of the fee is required prior to the issuance of the license, renewal, or amendment.

FEE CATEGORY	APPLICATION	RENEWAL	AMENDMENT
3P	\$	\$	\$ 300.00
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$
	\$	\$	\$

FEE(S) DUE	\$	300.00
PAYMENT RECEIVED	\$	
AMOUNT DUE	\$	300.00

☒ Your request was received without the prescribed application fee.

☐ We received your Check No. _____ in the amount of \$ _____. Payment of the additional fee noted above is required.

☐ Your request will increase the scope of your license program. Therefore, your request is subject to the application fee(s) noted above. Refer to Section 170.31 and Footnote 1(d)(2).

☐ Your license expired prior to the receipt of your application for renewal. Therefore, your request is subject to the application fee(s) noted above. Refer to Section 170.31 and Footnote 1(a).

MAKE PAYMENT OF THE FEE(S) TO THE U.S. NUCLEAR REGULATORY COMMISSION AND MAIL THE PAYMENT TO THE ADDRESS LISTED AT THE TOP OF THIS FORM. IF WE DO NOT RECEIVE A REPLY FROM YOU WITHIN 30 CALENDAR DAYS FROM THE DATE LISTED BELOW, WE SHALL ASSUME THAT YOU DO NOT WISH TO PURSUE YOUR APPLICATION AND WILL VOID THIS ACTION.

SIGNATURE -- LICENSE FEE ANALYST

RITA MESSIER

LFDCB

REMessier

9/26/96

LFDCB

Rita Messier

II. FEE NOT REQUIRED

☐ Enclosed is Check No. _____ which accompanied your request. The fee is not required because:

☐ We received your Check No. _____ in payment of the fee.

☐ The Licensing staff has informed us that your request is to be considered as a continuation of your request dated _____, Control No. _____.

☐ Your request was combined, prior to review, with your _____ request, Control No. _____.

III. CHECK RETURNED

☐ Enclosed is Check No. _____ which was returned to us by the bank for:

- ☐ INSUFFICIENT FUNDS
☐ ACCOUNT CLOSED
☐ OTHER

MAIL THE REPLACEMENT CHECK TO THE ADDRESS LISTED AT THE TOP OF THIS FORM AND REFERENCE THE ABOVE CONTROL NUMBER.

IV. LICENSE ISSUED WITHOUT THE REQUIRED FEE

☐ License No. _____, Amendment No. _____, issued on _____ was issued without the required fee being collected. The fee required is noted in Section I of this form.

☐ The scope of your licensed program was increased. Therefore, your request is subject to the application fee(s) noted in Section 1 of this form. Refer to Section 170.31 and Footnote 1(d)(2).

☐ Because of the urgency of your request, the license was issued without remittance of the prescribed fee noted in Section 1 of this form.

Distribution: ☒ Pending Fee File
LFARB R/F (2)

OC/DAF RF
OC/DAF/SF(LF-3.2.7)
Region -- WCFO

DATE

9-26-96



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV

Walnut Creek Field Office
1450 Maria Lane
Walnut Creek, California 94596-5368

DEC 11 1996

Kennecott Greens Creek Mining Company
ATTN: Clynt Nauman
General Manager
P.O. Box 32199
Juneau, Alaska 99803-2199

SUBJECT: LICENSE AMENDMENT

Please find enclosed License No. 50-23276-01. You should review this license carefully and be sure that you understand all conditions. If you have any questions, you may contact the reviewer who signed your license at (510) 975-0250.

You should note that License Condition 20. has been added to your license relative to the maximum amount of material you may possess under the license. This licensing action was necessary to preclude you from exceeding possession limits of materials requiring that decommissioning financial assurance be provided. Should you determine that you require possession of material in excess of 10 CFR 30.35(d) amounts, please notify us regarding an amendment to your license.

NRC expects licensees to conduct their programs with meticulous attention to detail and a high standard of compliance. Because of the serious consequences to employees and the public which can result from failure to comply with NRC requirements, you must conduct your program involving radioactive materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, note that you must:

1. Operate in accordance with NRC regulations 10 CFR Part 19, "Notices, Instructions and Reports to Workers: Inspection and Investigations," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.
2. Possess radioactive material only in the quantity and form indicated in your license.
3. Use radioactive material only for the purpose(s) indicated in your license.
4. Notify NRC in writing of any change in mailing address (no fee required if the location of radioactive material remains the same).
5. Request and obtain written NRC consent before transferring your license or any right thereunder, either voluntarily or involuntarily, directly or indirectly, through transfer of control of your license to any person or entity. A transfer of control of your license includes not only a total change of ownership, but also a change in the controlling interest in your company whether it is a corporation, partnership, or other entity. In addition, appropriate license amendments must be requested and

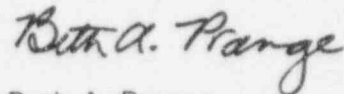
other entity. In addition, appropriate license amendments must be requested and obtained for any other planned changes in your facility or program that are contrary to your license or contrary to representations made in your license application, as well as supplemental correspondence thereto, which are incorporated into your license. A license fee may be charged for the amendments if you are not in a fee-exempt category.

6. Maintain in a single document decommissioning records that have been certified for completeness and accuracy listing all the following items applicable to the license:
 - Onsite areas designated or formerly designated as restricted areas as defined in 10 CFR 20.3(a)(14) or 20.1003.
 - Onsite areas, other than restricted areas, where radioactive materials in quantities greater than amounts listed in Appendix C to 10 CFR 20.1001-20.2401 have been used, possessed, or stored.
 - Onsite areas, other than restricted areas, where spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site have occurred that required reporting pursuant to 10 CFR 30.50(b)(1) or (b)(4), including areas where subsequent cleanup procedures have removed the contamination.
 - Specific locations and radionuclide contents of previous and current burial areas within the site, excluding radioactive material with half-lives of 10 days or less, depleted uranium used only for shielding or as penetrators in unused munitions, or sealed sources authorized for use at temporary job sites.
 - Location and description of all contaminated equipment involved in licensed operations that is to remain onsite after license termination.
7. Submit a complete renewal application with proper fee, or termination request at least 30 days before the expiration date on your license. You will receive a reminder notice approximately 90 days before the expiration date. Possession of radioactive material after your license expires is a violation of NRC regulations.
8. Request termination of your license if you plan to permanently discontinue activities involving radioactive material.

You will be periodically inspected by NRC. Failure to conduct your program in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in enforcement action against you. This could include issuance of a notice of violation; imposition of a civil penalty; or an order suspending, modifying, or revoking your license as specified in the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), 60 FR 34381, June 30, 1995.

Thank you for your cooperation.

Sincerely,

A handwritten signature in cursive script that reads "Beth A. Prange".

Beth A. Prange
Sr. Health Physicist (Licensing)
Materials Branch

Docket: 030-20447
License: 50-23276-01
Control: 572409

Enclosures: As stated

bcc:

Docket File

WCFO Inspection File

LFDCB, T-9 E10

State of AK (License Only)

DOCUMENT NAME: G:\beth\572409

To receive copy of document, indicate in box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

RIV:MB	N	C:MB							
BPrange <i>BAP</i>		Fwenslawski							
12/11/96		12/ /96		12/ /96		12/ /96		12/ /96	

OFFICIAL RECORD COPY

KENNECOTT GREENS CREEK MINING CO.
P.O. BOX 32199
JUNEAU, ALASKA 99803



United States
Nuclear Regulatory Commission
Region IV
Walnut Creek Field Office
1450 Maria Lane
Walnut Creek, California 94596-5368

December 5, 1996

ATTN: Beth Prange
Senior Health Physicist (licensing)
Materials Branch

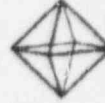
SUBJECT: LICENSE AMENDMENT REQUEST
Response to Telephone/Verbal conversation

- ☐ Personnel dosimetry will be used for Mr. Timothy Gibson and others as required and requested. Quarterly TLD's will be processed by TMA/Eberline, which is a NVLAP accredited processor.
- ☐ Mr Greg Majeran is a contact person in the event of a emergency involving a gauge but will only isolate the area and will call Mr. Timothy Gibson.
- ☐ The Kay-Ray gauges we are utilizing are all located on pipelines with no access possible to the interior of that pipeline while the shutter of the given devices are open. In conversation with Ray Parsons, Kay-Ray technical services, an interlock is not required.
- ☐ I have no problem with the condition of the portable gauge source not being lowered more than 3' in test materials.

Timothy F. Gibson
Radiation Safety Officer

572409

KENNECOTT GREENS CREEK MINING COMPANY
PO BOX 32199
JUNEAU, ALASKA 99803



**Kennecott
Minerals**

PHONE: (907) 790-8452

FAX: (907) 790-8458

TO: BETH PRANGE

LOCATION: WALNUT CREEK FIELD OFFICE, NRC

FROM: TIM GIBSON

PAGES (including cover) 2

Beth,

Thanks for the quick response. I made the changes to this letter you requested to clarify what we are doing in regard to personnel dosimetry.

The original will go out in tonight's mail.

Thanks again.

U.S. NUCLEAR REGULATORY COMMISSION
REGION V

DATE

00/00/00 11/25/96

TELEPHONE OR VERBAL CONVERSATION RECORD

Deficiency

Telecom

TIME

00:00 am/pm

MS-15

[] INCOMING CALL

☒ OUTGOING CALL

[] VISIT

PERSON CALLING:

OFFICE/ADDRESS:

PHONE NUMBER:

PERSON CALLED:

OFFICE/ADDRESS:

PHONE NUMBER:

Timothy Gibson

Kennecott Greens Creek
Mining Co.

(907) 790-8452

CONVERSATION

SUBJECT -

Two letters dated 11/14/96

SUMMARY -

- 1.) As Mr. Gibson will be authorized to install, survey, relocate, or ship gauges, these are considered service operations (see p.9 of the licensing guide), and personnel dosimetry is needed. At least Mr. Gibson should have either a film or TLD badge which will be processed by a NVLAP vendor, as required by 10CFR 20.1501 (c). Film badges must be processed at least monthly, and TLDs at least quarterly.
- 2.) Mr. Greg Majeran, who is referenced in the emergency procedures, is the Safety Dept. Supervisor. If an emergency were to arise involving the ~~the~~ gauges, Mr. Majeran would direct personnel to isolate the area. He would call Mr. Gibson.

REFERRED TO:

[] ADVISE ME ON ACTION
TAKEN

ACTION REQUESTED:

INITIALS:

DATE:

ACTION TAKEN:

INITIALS:

DATE:

U.S. NUCLEAR REGULATORY COMMISSION
REGION V

TELEPHONE OR VERBAL CONVERSATION
RECORD

DATE 00/00/00

TIME 00:00 am/pm

☐ INCOMING CALL ☐ OUTGOING CALL ☐ VISIT

PERSON CALLING:

OFFICE/ADDRESS:

PHONE NUMBER:

PERSON CALLED:

OFFICE/ADDRESS:

PHONE NUMBER:

CONVERSATION

SUBJECT -

SUMMARY -

- 3) Mr. Gibson was aware of the 2m/hr limit in 10 CFR 20.1301(a)(2). The 2.8 m/hr limit was the maximum level at 30 cm from one of their gauges.
- 4) Portable gauge sources will not be lowered more than 3' in hot materials. A condition to this effect will be on the license.
- 5) I asked Mr. Gibson to verify whether the generally-licensed Kay-Ray gauges had interlock systems to prevent access while the shutter mechanism is open. This is a condition of Registry Sheet IL-412-D-129-B.

Requires response

-B. Prange

REFERRED TO:

☐ ADVISE ME ON ACTION TAKEN

ACTION REQUESTED:

INITIALS:

DATE:

ACTION TAKEN: I faxed a copy of Registry Sheet

INITIALS: BAP

IL-412-D-129-B to Mr. Gibson

DATE: 11/25/96

TELECOPIER TRANSMITTAL

11/25/96

TIME

3:15pm

WARNING: Most facsimile machines produce copies on thermal paper. The image produced is highly unstable and will deteriorate significantly in a few years. Reproduce copies onto plain paper prior to filing as a record.

TO

NAME

Timothy Gibson

TELEPHONE

(907) 790-8452

NAME AND LOCATION OF COMPANY (If other than NRC)

Kennecott Guelo Creek

TELECOPY NUMBER

(907) 790-8458

VERIFICATION NUMBER

FROM

NAME

Beth Prange

FAX: (510) 975-0381

TELEPHONE

(510) 975-0250

MAIL STOP

RTH; WFO

TELECOPY DATA

NUMBER OF PAGES

THIS PAGE + 2 PAGES = 3 TOTAL

PRIORITY

IMMEDIATE

OTHER
(Specify)

SPECIAL INSTRUCTIONS

Per your request.

If you have questions, feel free to call or send a fax.

PROBLEMS

If any problems occur or if you do not receive all the pages, call:

TELEPHONE

PROCESSED BY (INITIALS)

DISPOSITION OF ORIGINAL

After telecopy has been sent, process the original as requested below. (If none are checked, the original will be discarded.)

RETURN TO SENDER

CALL AND SENDER WILL PICK UP

DISCARD

VERIFIED BY (INITIALS)

11/25/96

TELECOPIER TRANSMITTAL

TIME

2:30

WARNING: Most facsimile machines produce copies on thermal paper. The image produced is highly unstable and will deteriorate significantly in a few years. Reproduce copies onto plain paper prior to filing as a record.

TO

NAME

Timothy Gibson

TELEPHONE

(407) 790-
~~8452~~ 8452

NAME AND LOCATION OF COMPANY (if other than NRC)

Kennecott Minerals

TELECOPY NUMBER

(907) 790-8458

VERIFICATION NUMBER

FROM

NAME

Beth Prange

FAX: (510) 975-0381

TELEPHONE

(510) 975-0250

MAIL STOP

RIV; W(FU)

TELECOPY DATA

NUMBER OF PAGES

THIS PAGE + 6 PAGES = 7 TOTAL

PRIORITY

IMMEDIATE

OTHER
(Specify)

SPECIAL INSTRUCTIONS

Here is the registry sheet we were discussing.
See page 5.

Telecon record to follow.

- Beth

PROBLEMS

If any problems occur or if you do not receive all the pages, call:

TELEPHONE

PROCESSED BY (INITIALS)

DISPOSITION OF ORIGINAL

After telecopy has been sent, process the original as requested below. (If none are checked, the original will be discarded.)

RETURN TO SENDER

CALL AND SENDER WILL PICK UP

DISCARD

VERIFIED BY (INITIALS)

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SEALED SOURCE
(AMENDED IN ENTIRETY)

NO: IL-412-D-129-B
(previously NR-412-D-129-B)

DATE: October 22, 1992

PAGE: 1 of 6

SOURCE TYPE: Gamma Source Housing

MODEL: 7062B and 7062BP

MANUFACTURER/DISTRIBUTOR:

Rosemount
Kay-Ray/Sensall, Inc.
1400 Business Center Drive
Mount Prospect, Illinois 60056

SEALED SOURCE MODEL DESIGNATION:

Kay-Ray/Sensall Source Series
Model 7700-Y
(Y denotes activity in millicuries)

ISOTOPE:

Cesium-137

MAXIMUM ACTIVITY:

100 millicuries

LEAK TEST FREQUENCY:

3 years

PRINCIPAL USE:

(D) Gamma Gauges

CUSTOM SOURCE:

_____ YES

_____ X _____ NO

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SEALED SOURCE
(AMENDED IN ENTIRETY)

NQ: IL-412-D-129-B
(previously NR-412-D-129-B)

DATE: October 22, 1992

PAGE: 2 of 6

SOURCE TYPE: Gamma Source Housing

DESCRIPTION:

The 7062B and 7062BP source housings are designed to provide both mechanical and radiation shielding characteristics. This is accomplished by use of cast lead shielding material with stainless steel outer jacket. Prior to serial number 86A221, the jacket was constructed of mild steel. The design of these source housings differ only slightly from the currently approved models 7062 and 7062P. These differences involve reduction in mass and improved structural characteristics. Both are intended to improve the ability of the source housings to withstand potential vibration which may be encountered during use.

LABELING:

The Models 7062B and 7062BP are labeled in accordance with the requirements of 32 Ill. Adm. Code 330.280 (10 CFR 32.51) or 340.2030 (10 CFR 20.203)

DIAGRAMS:

See Attachments 1, 2, and 3.

CONDITIONS OF NORMAL USE:

The 7062B and 7062BP source housings are designed as general purpose devices to be used in any application where the source activity requirement does not exceed the authorized limits of the housing. Typically, the 7062B will be used in continuous level monitoring or belt scale applications where a requirement for a fan-shaped beam of radiation exists. The 7062BP, with a highly collimated point beam, will typically be used for density and point level measurements. These source housings are designed for use in normal industrial work environments.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SEALED SOURCE
(AMENDED IN ENTIRETY)

NO: IL-412-D-129-B
(previously NR-412-D-129-B)

DATE: October 22, 1992

PAGE: 3 of 6

SOURCE TYPE: Gamma Source Housing

PROTOTYPE TESTING:

A number of prototype units have been manufactured. A vibration test was performed based on Method 201 of MIL-STD-202E. Vibration was conducted in each of the three mutually perpendicular axis. Vibratory motion consisted of cycling from 10 Hz to 55 Hz and returning to 10 Hz in one minute at a motion of 0.060 inch double amplitude.

Inspection during and upon completion of the test revealed no evidence of damage or deterioration as a result of the test conducted. This test exposes the device to vibration much more severe than that expected in the intended application.

EXTERNAL RADIATION LEVELS:

With the device loaded with 129 millicuries of Cesium-137 (Cs-137), readings were:

<u>Shutter Closed:</u>	Surface -- less than 50 mr/hr
	12 inches -- less than 5 mr/hr
<u>Shutter Open:</u>	Surface -- less than 50 mr/hr except in beam
	12 inches -- less than 5 mr/hr except in beam

QUALITY ASSURANCE AND CONTROL:

Each unit will be manufactured to the standard Kay-Ray/Sensall quality control procedures. These procedures include the following checks by the Kay-Ray Production Department.

- Conformance of material in completed device to bill-of-material specifications.
- Conformance of fabrication (welding, machining and assembly) to detail and assembly drawings of the device.
- Conformance of proper operation of device (shutter mechanism).
- Check of radiation levels when the device is loaded with a radiation source to assure conformance of radiation levels to previously approved isodose curves submitted to the Illinois Department of Nuclear Safety.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SEALED SOURCE
(AMENDED IN ENTIRETY)

NO: IL-412-D-129-B
(previously NR-412-D-129-B)

DATE: October 22, 1992

PAGE: 4 of 6

SOURCE TYPE: Gamma Source Housing

LIMITATIONS AND OTHER CONSIDERATIONS OF USE:

- A. These devices may be distributed to either specific or general licensees of the NRC or an Agreement State.
- B. Installation, Initial Radiation Survey, Maintenance, Repair and Disposal: These services shall be performed by Kay-Ray/Sensall, Inc., or other persons specifically licensed by the NRC or an Agreement State or perform these services.
- C. When installed, the Models 7062B and 7062BP source housings should be protected from exposure to environmental factors such as highly corrosive chemicals, temperature extremes, impact, vibration, fire or explosion as appropriate to the intended use. In cases where Models 7062B and 7062BP source housings (serial numbers 89B0801 through 90L1250) may be exposed to high levels of shock and vibration, Kay-Ray/Sensall, Inc. must provide an additional support bracket for the source housing to ensure that the source housing and mounting plate remain intact.
- D. User Training: The licensing authority should determine the extent of user training and experience with gauging devices. Normally, the training should be provided by the gauge manufacturer/distributor and should include a description of the nature and extent of potential radiation hazards and the necessary procedures to protect against these hazards. Both routine and emergency operations should be considered. A copy of the manufacturer's radiation safety instructions should be provided to each user.
- E. Leak Testing and Shutter Test: These tests shall be performed by Kay-Ray/Sensall, Inc. or other persons specifically licensed by the NRC or an Agreement State. Tests shall be performed in accordance with procedures specified by Kay-Ray/Sensall, Inc. or other procedures authorized by the licensing authority. Users may be authorized to collect leak test samples for analysis by the manufacturer or other authorized vendors. Tests shall be conducted at intervals not to exceed three years.
- F. The Models 7062B and 7062BP source housings shall be removed from service and transferred to a licensed disposal agency only by Kay-Ray/Sensall, Inc. or by other persons specifically licensed by the NRC or an Agreement State to perform these services.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SEALED SOURCE
(AMENDED IN ENTIRETY)

NQ: IL-412-D-129-B
(previously NR-412-D-129-B)

DATE: October 22, 1992

PAGE: 5 of 6

SOURCE TYPE: Gamma Source Housing

LIMITATIONS AND OTHER CONSIDERATIONS OF USE: (continued)

- G. { The Models 7062B and 7062BP are approved for distribution under general license provided that in cases where access to the interior of the vessel is possible, an interlock system will be installed to prevent access while the shutter mechanism is in the open position. }
- H. This registration sheet and the information contained within shall not be changed without the written consent of the Illinois Department of Nuclear Safety (IDNS).

SAFETY ANALYSIS SUMMARY:

The 7062B/7062BP was approved for distribution both to specific licensees and general licensees in 1980 by the NRC. At that time, Kay-Ray submitted sufficient information to provide reasonable assurance that:

- The device can be safely operated by persons not having training in radiological protection.
- Under ordinary conditions of handling, storage and use of the device, the byproduct material contained in the device will not be released or inadvertently removed from the device, and it is unlikely that any person will receive in any period of one calendar quarter a dose in excess of 10 percent of the limits specified in the table in Section 340.1010(a), 32 Ill. Adm. Codes or 20.101(a), 10 CFR 20.
- Under accident conditions (such as fire and explosion) associated with handling, storage and use of the device, it is unlikely that any person would receive an external radiation dose or dose commitment in excess of the dose to the appropriate organ as specified in the following chart:

<u>PART OF THE BODY</u>	<u>rem</u>
Whole body; head and trunk; active blood-forming organs; gonads; or lens of eye	15
Hands and forearms; feet and ankles; localized areas of skin averaged over areas no larger than 1 square centimeter	200
Other organs	50

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SEALED SOURCE
(AMENDED IN ENTIRETY)

NO: IL-412-D-129-B
(previously NR-412-D-129-B)

DATE: October 22, 1992

PAGE: 6 of 6

SOURCE TYPE: Gamma Source Housing

SAFETY ANALYSIS SUMMARY: (continued)

Based on the above, the information referenced below, and the fact that the stainless steel jacket improves the devices resistance to corrosive environments, we continue to conclude that these source housings are acceptable for distribution to specific and general licensees. Further, we conclude that the source housings can be expected to maintain their containment integrity adequately for normal conditions of use and for accidental conditions that might occur during use.

REFERENCES:

The following documents for the Kay-Ray/Sensall, Inc. Models 7062B and 7062BP source housings are hereby incorporated by reference and are made a part of this registry document:

- Superceded registration document number NR-412-D-129-B.
- Kay-Ray Sensall, Inc. letters, with attachments, dated January 16, 1980, February 11, 1980, April 25, 1980, May 16, 1980, April 25, 1985, March 5, 1986, April 19, 1991, June 7, 1991, August 27, 1991, February 17, 1992, April 15, 1992, April 27, 1992, July 21, 1992 and October 19, 1992.

ISSUING AGENCY: Illinois Department of Nuclear Safety

DATE: 10/22/92

REVIEWED BY:

Charles A. V.

DATE: 10/28/92

CONCURRENCE:

Joseph C. Klueger

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SEALED SOURCE
(AMENDED IN ENTIRETY)

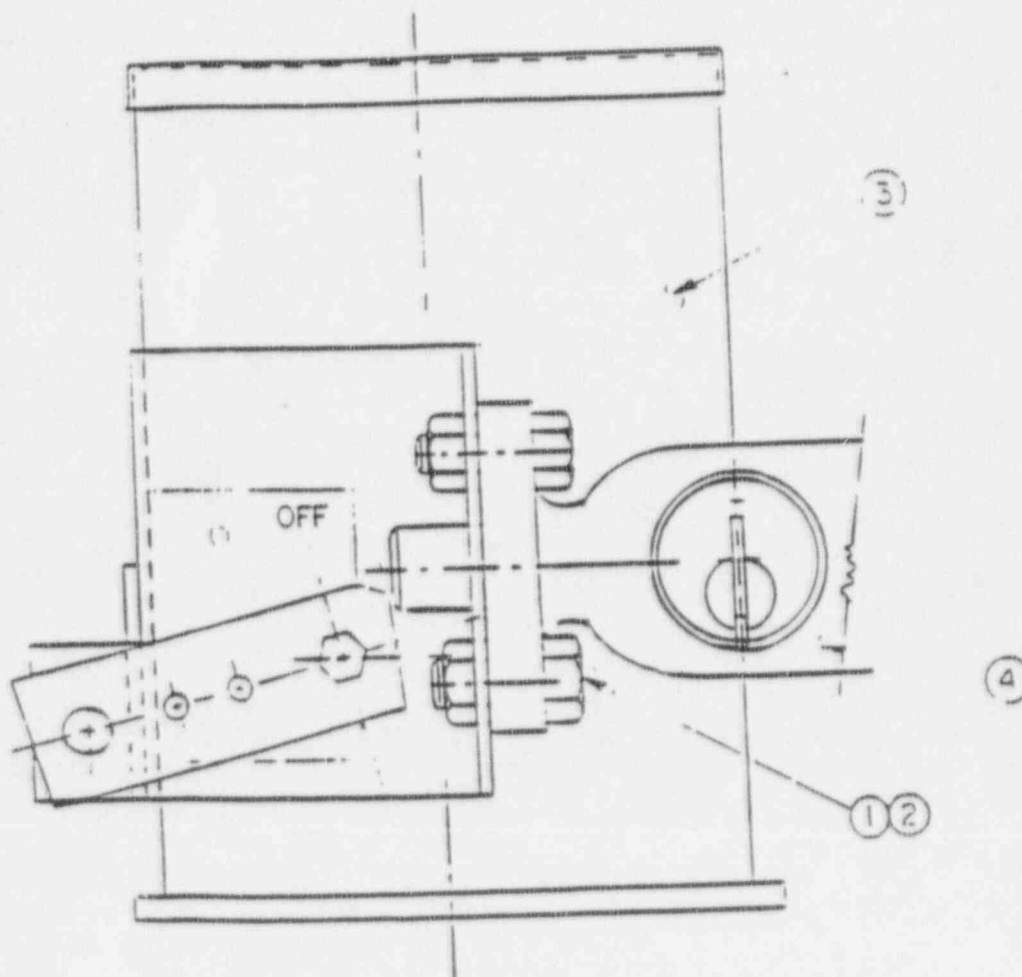
NO: 1L-412-D-129-B
(previously NR-412-D-129-B)

DATE: October 22, 1992

ATTACHMENT 2

SOURCE TYPE: Gamma Source Housing

INTERLOCK MECHANISM



REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SEALED SOURCE
(AMENDED IN ENTIRETY)

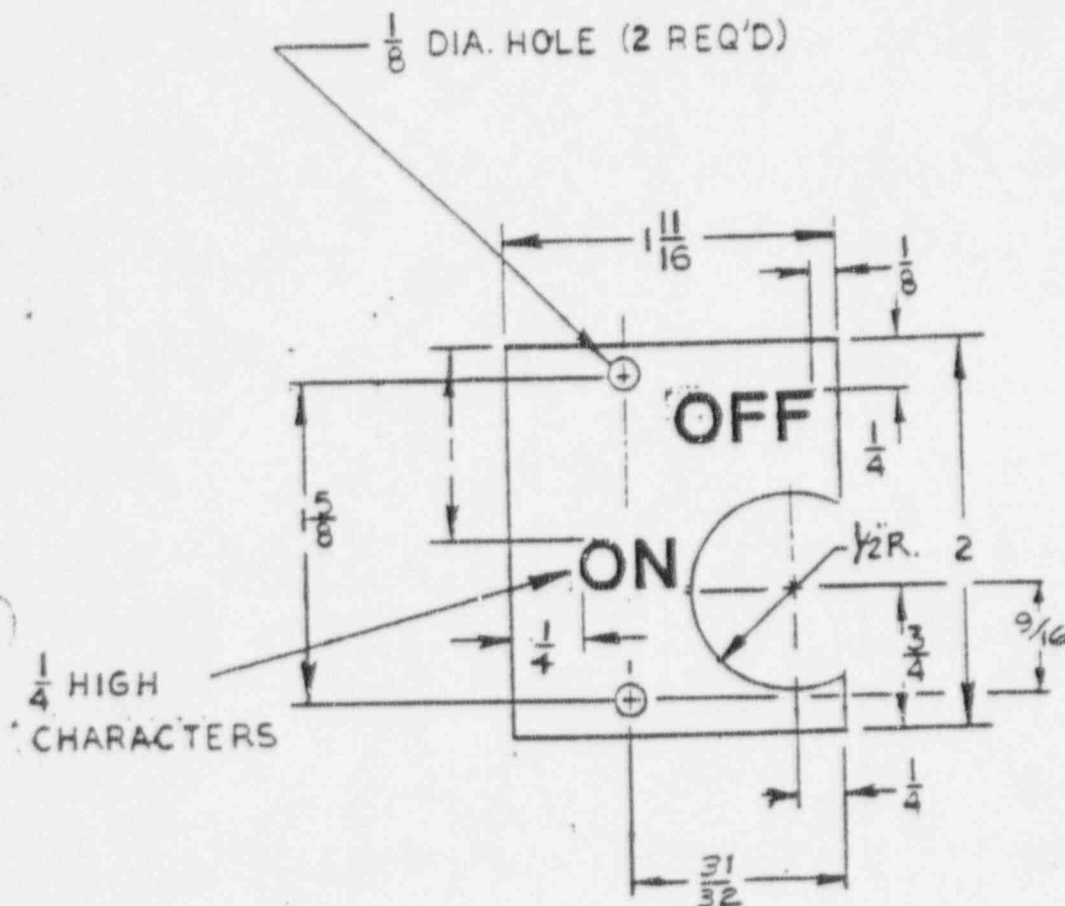
NO: IL-412-D-129-B
(previously NR-412-D-129-B)

DATE: October 22, 1992

ATTACHMENT 3

SOURCE TYPE: Gamma Source Housing

NEW SHUTTER MECHANISM LABEL



MAT'L:

.020" THK. STAINLESS STEEL
WITH PRESSURE
SENSITIVE ADHESIVE
BACKING. BLACK
ENAMEL ON ETCHED
BACKGROUND.

Kennecott Greens Creek Mining Company
P.O. Box 32199
Juneau, Alaska 99803-2199
(907) 789-8110
FAX (907) 789-8108

Clynt Nauman
General Manager

NOV 21 7 42:16

November 14, 1996

Kennecott
Minerals

Beth Prange
Sr. Health Physicist (Licensing)
U.S. Nuclear Regulatory Commission
Region IV
Walnut Creek Field Office
1450 Maria Lane
Walnut Creek, California 94596-5368

Re: Amendment to Radioactive Material License 50-2376-01

Dear Ms Prange:

We wish to change the ammendment request to our Radioactive Materials license to read as follows;

1. Change License Conditions 11 and 14 to remove Mr. C. Wayne Armbrust and add Mr. Timothy F. Gibson as Radiation Safety Officer. Mr. Gibson's certificates of training from TN Technologies Inc. And Radiation Technology Inc. are attached for your reference.
2. Kennecott Greens Creek Mining has been shut down since April 1993. We are currently resuming operations and we wish to begin using our Ohmart gauges. Please change License conditions 9A and 9B removing the STORAGE ONLY provisions.
3. Amend license to include a CPN or Troxler density/moisture gauge.

Nuclide	Cesium 137	not to exceed 10 mCi
	Am-241/Be	not to exceed 50 mCi

Form	Sealed Sources
------	----------------

Authorized Use	For use in a portable gauge to measure moisture and density in material.
----------------	--

Sincerely,



Clynt Nauman
General Manager

Kennecott Greens Creek Mining Company
P.O. Box 32199
Juneau, Alaska 99803-2199
(907) 789-8110
FAX (907) 789-8108

Clynt Nauman
General Manager

Kennecott
Minerals

November 14, 1996

Beth Prange
Sr. Health Physicist (Licensing)
U.S. Nuclear Regulatory Commission
Region IV
Walnut Creek Field Office
1450 Maria Lane
Walnut Creek, California 94596-5368

Re: License Amendment Request

Dear Ms Prange:

On September 4 of this year Kennecott Greens Creek Mining Co. contracted with TN Technologies to perform an audit of our gauges, records and radiation protection programs. Mr. Ralph S. Heyer, TN's manager of regulatory affairs came from Texas to do that work.

The results of that audit are as follows:

1. (NRC) Radioactive Materials License # 50-23276-01, expiration date 3-31-98.
This document was found in order. However some amendments are needed..
2. Radiation Safety Procedures, submitted w/ January 22, 1993 renewal, were appropriate. However, changes to Title 10 CFR Part 20, "Standards for Protection Against Radiation" having taken effect in January 1994, some procedures may need to be modified.
3. Inventory, required every 6 months, records were located and placed in file for inspection and review. A modified device inventory check list was advised and adopted.
4. Leak tests were performed as required. Records are in order.
Kennecott is on TN's Leak Test service.
TN Technologies, Technical Services Group
PO Box 800
Round Rock , Texas 78680 512-388-9303
5. Survey Meter Calibration and Certification Records. Our Ludlum Model 3 w/ Model 447 Probe is current on its annual calibration frequency.
6. Safety procedures were reviewed and the following recommendations were indicated.

Procedures for emergency, device inventory and inspection, contractor/vendor services, employee information be more fully developed.

7. RSO training was reviewed and found to be appropriate.
See enclosed description of training.
8. Proposed use of a CPN density/moisture gauge would require both an ammendment to the license and personnel training before taking delivery for the same.
(KGCMC has been approached by Toxler Electronic as an alternate to the CPN gauge)

Kennecott Greens Creek Mining Company possesses the following generally licensed gauges:

Company	Model	Serial #	Isotope	Activity (mCi)
Kay-Ray	7062BP	S92D2201	Cs-137	100
"	"	S92D2202	"	100
"	"	S92D2203	"	50
"	"	S92D2204	"	50
"	"	S92D2205	"	100
"	"	S92D2206	"	100

These Kay-Ray gauges were inspected and surveyed. All had appropriate model #, serial#, Isotope, Activity, Assay Date, and general license tag.

Kennecott Greens Creek Mining Company also possesses the following specifically licensed gauges:

Company	Model	Serial #	Isotope	Activity(mCi)
Ohmart	SO F703011091-B	M-1828	Cs-137	250
"	SO F703011091-A	60512	Cs-137	80
"	SO F903003037	6567	Cs-137	50

These gauges were inspected and surveyed. Tags on these gauges found w/ appropriate information.

All areas were surveyed and the highest reading at 30 cm was 2.8 mR/hr. Since these areas do not exceed 5 mR/hr at 30cm they do not pose a radiation hazard and don't need to be posted as such.

The following procedures will be incorporated in support of and part of Kennecott Greens Creek Mining Company's radiation safety manual and radiation safety program.

- ▶ *Lock out - Tag out*
- ▶ *Emergency Procedures*
- ▶ *Device Inventory and Inspection*
- ▶ *Receipt of devices Containing Radioactive Material*
- ▶ *Periodic Leak Testing*
- ▶ *Contractor/Ver.dor Services*
- ▶ *Employee Information Notice*

Kennecott Greens Creek employees will be instructed that only individuals specifically licensed can install, remove, relocate and perform surveys of devices and that there is no access to the beam area as long as the gauge is installed. Any activity presenting potential for access to the beam area is addressed in the *lock-out/ tag-out procedure*.

Leak tests will be performed by the licensee or other supplier authorized to provide such service by the USNRC. In the event of 0.005 microcuries or more of removable contamination, the gauge will be removed from service. The original supplier will be notified and technical assistance to repair or dispose of the device will be obtained from the supplier. A report will be filed with the NRC within 5 days as required.

Kennecott Greens Creek will conduct physical inventories of the devices every 6 months. At that time, each device will be visually inspected to signs of damage, that tags are clean and legible, and ensure proper shutter operation. The *Device Inventory and Inspection* chart will be used as a checklist.

Alara Position and Policy Statement:

Kennecott Greens Creek Mining Company has a strong and firm written commitment to all on-site personnel to institute safe working practices which will prevent unauthorized use or unnecessary radiation exposure.

Kennecott Greens Creek Mining Company will make every effort and shall use to the extent practicable, procedures, and engineering controls based on sound radiation protection principles to achieve occupational doses and doses to members of the public as low as reasonably achievable.

Posting:

We have the most current NRC FORM-3, NOTICE TO EMPLOYEES, and it is posted where employees can read the information. The Employee information notice has not yet been posted with this form but will be.

Radiation Protection Program (RPP);

At Kennecott Greens Creek Mining Company, our RPP is our operating, safety and emergency procedures. These procedures serve as a basis for the RPP and radiation safety manual. The RPP will be reviewed at least on an annual basis.

Occupational and Individual Members of the Public Doses:

Based on the working conditions, physical accessibility and occupancy factors it is estimated that not more than 2-3 people will routinely be within two to three feet of the devices, for more than 30 minutes a week. The occupancy time for an occupational worker, in a worst case, with the measured exposure being 2.8 mrem per hour is 62.8 mrem/year

Our workers would not exceed the 500mrem annual limit or require monitoring. This is also well below the 100mrem annual limit for members of the public.

Should any device be required to move these calculations will be redone to ensure compliance below the limit of this regulation. This survey will only be done by persons authorized to do so by the commission.

Answers to specific questions raised by your October 2, 1996 letter;

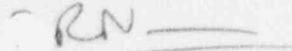
1. Outlines of RSO training for Timothy F. Gibson are enclosed
2. Training and accompanying certificates for portable devices will be obtained before any are purchased and brought onto the property. This has not been done to this date because we are not licensed for and have not purchased these devices.
3. A sketch is enclosed where gauges in use are located. The device not in use is located at our Hawk Inlet warehouse facility in a locked "job box" in a marked and secured area of that warehouse. The RSO has a key to the job box. Our facility is located on an Island reachable only by boat or float plane. Everyone coming to or leaving this facility is known. Only those personnel that are fully safety trained are allowed in the concentrator where the devices are in use. This training includes an awareness of the devices and their potential hazards. The survey you request was completed by Ralph Heyer and submitted as part of his report and noted in this letter under the heading of "occupational and individual members of the public doses".
4. **Duties of the RSO - i.e. Timothy F. Gibson:**
 - Spearhead Kennecott Greens Creek Mining Companies efforts to keep radiation exposures as low as reasonably achievable.
 - Kennecott Greens Creek Mining Company compliance to all requirements of the NRC.
 - Performance of radiological surveys and calculations
 - Leak Tests
 - Inventory of devices
 - Installation and relocation of nuclear devices as required within the scope of his training.
 - Personnel training and training record maintenance oversight, ensuring that all safety, operational and emergency procedures as outlined are understood and followed.
 - Annual review of RPP. Outside consultants may be brought in to assist with this function
 - Maintenance of all postings related to radiation safety

- Submittal of incident reports and investigation in the event of a radiation accident.
5. Leak test procedures. See the enclosure, "Periodic Leak Testing"
 6. Enclosed are our most recent inventory and inspection sheets.

If you have any questions regarding this matter, please call Tim Gibson at 907-~~789~~-8452.

190

Sincerely,



Clynt Nauman
General Manager

LOCK-OUT/TAG-OUT PROCEDURE

PURPOSE:

This procedure is to safeguard all employees against personal injury, and prevent property damage from operation of equipment.

RESPONSIBILITY:

All employees are responsible for taking protective measures in accordance with this procedure to insure against inadvertent start-up. In addition, notify supervision of the intent to lock-out/tag-out if operations must cease to perform the required test. If the shutter must be closed and locked on a gauge containing a radioactive source, notify the RSO prior to initiating lock-out/tag-out. Loss of signal at the detector should be verified with the operator or control room. The RSO must also be notified when the locks are ready to be removed and the shutter opened.

GENERAL:

No system (electrical, mechanical, nuclear or process piping) shall be worked on by an employee unless that system has been de-energized (i.e., brought to a zero energy state), locked/tagged out to prevent accidental contact with electricity, hazardous materials, release of stored energy or moving parts.

EMERGENCY PROCEDURE

A. EMERGENCY PROCEDURES

Emergency procedures are to be instituted at the time of an incident involving devices containing radioactive material. Incidents could include fire or explosion on the site in an area where devices are installed or stored; the dislocation of a gauging device from its installed position; etc. The following guidelines should be followed in the event of an emergency.

1. Notify all other persons in the area, and evacuate at once.
 2. Notify the necessary emergency response agencies, i.e., fire department.
 3. Notify the RSO.
 4. Attempt to put out any fire by approved means if a radiation hazard is not immediately evident.
 5. Govern fire fighting or other emergency activities by the restrictions of the RSO.
 6. In the case of a dislocated source, the shutter will be closed, if possible; and a visual inspection completed to determine physical damage to the device. If the shutter cannot be closed, the beam will be measured to determine potential exposure levels around the device. Personnel other than those working with the device will be directed away from the immediate area. The RSO or designee will supervise movement of the device to the storage area where it will be maintained until arrangements can be made for repair and reinstallation.
- If the device is directly involved in a fire or explosion, the RSO or designee will provide emergency response personnel with information regarding the locations of gauges, isotopes and activities involved. After the immediate threat has been resolved, the shutter will be closed, if possible; a visual inspection will be completed, and a radiation survey done to determine potential exposure levels in the immediate area. If necessary, the area will be controlled and properly posted until steps can be taken to affect any necessary repairs, or relocate the device to a storage area. Removal of any gauges shall be performed only by specifically licensed persons.
7. No person should be permitted to return to the area without the approval of the RSO or designee. A list should be maintained of all entries.
 8. Call for any additional advice or assistance necessary.
 9. If possible contamination is involved, the area of the accident should be restricted. Plant personnel should make only necessary entries and investigations in the accident area. No attempt should be made to open or examine contained material. No attempt should be made to clean up any debris or material involved in the accident prior to the arrival of properly trained and equipped individuals.
 10. Prepare a complete history of the emergency and subsequent actions taken.
 11. If notification is required under the regulations, such notification will be performed by the RSO or designee in a timely manner.

Contacts:

Tim Gibson
Greg Majeran

TN Technologies Inc.

Telephone Numbers:

During Work
907-790-8452
907-789-8192

512-388-9100

After Duty
907-789-1844
907-789-5898
907-723-8987
512-388-9310

B. INCIDENT REPORT

In the event of a radiation accident, certain essential facts must be obtained as promptly and accurately as possible. These facts are needed to estimate the magnitude of the incident, limit the extent of damage, and begin remedial measures. Contact the RSO at once and relay the following information:

- What happened;
- When incident occurred (give time and date);
- Who was involved;
- Who was exposed;
- The present location of injured or exposed persons;
- Amount of damage to facilities; whether or not damage was confined to company property; damage done to property of others;
- Whether or not radioactive contamination is suspected; if so, can the extent of contamination be determined, and what is being done to control the contamination;
- Whether or not outside help is required;
- Whether or not medical assistance is required;
- Whether or not personnel should be evacuated from the incident area, the site, or off-site locations;
- Who, other than RSO has been notified;
- Where the reporting person can be reached, if needed.

This information will be included in the complete history report required by Item A.10, if appropriate.

PERIODIC LEAK TESTING

1. Periodic leak testing will be performed using TN Technologies Inc., (or other suitable vendor) mailable leak testing kits.
2. Wipes will be taken by properly trained personnel following instructions provided with the kit, then returned to the specifically licensed distributor for analysis.
3. Certification provided as a result of each analysis will be maintained in the appropriate device file.
4. Leak test intervals will be as specified in manufacturer's instructions or on device labels.

CONTRACTOR/VENDOR SERVICES

1. All contractors providing radiation services on site will work in accordance with site safety procedures and the contractor's approved operating procedures.
2. Before beginning any licensed activities, contractors are required to review their operating license and emergency procedures with the RSO or designee. In addition, contractors will have certification of instrument calibration and appropriate personnel monitoring devices, if such are required.
3. Contractors bringing radioactive material onto the site must advise the RSO of the isotope(s) and activities prior to beginning work.
4. Contractors will properly post and control the areas in which they are working.
5. Before leaving the site, the contractor shall:
 - Assess potential dose to licensee personnel working in the area or with the contractor;
 - Advise the RSO of any procedural violations which occurred while the contractor was on site.

EMPLOYEE INFORMATION NOTICE

Kennecott Greens Creek Mining Company is specifically licensed under the United States Nuclear Regulatory Commission Radioactive Material License Number 50-23276-01 to use a number of radioactive material devices in plant instrumentation.

The radiation is produced by Cesium-137 sources. These radioactive sources are installed in lead filled assemblies which contain the radioactive material and direct it only into the material being measured. Each source housing has a shutter which can be locked closed in the event it is necessary to work in a monitored vessel.

The radiation produced by the sources is gamma radiation -- a form of energy. There is no radon gas or other radioactive by-product produced in the decay of the sources. Material exposed to the radiation does not become radioactive.

Greens Creek has a number of personnel trained in radiation safety. Every effort is made to use these devices in a safe, conscientious manner and to keep personnel exposures As Low As Reasonable Achievable (ALARA). If there are questions about the application of these devices, our license, regulations, procedures, or if anything unusual is observed, the following personnel should be contacted:

PERSONNEL	EXTENSION	HOME PHONE
Tim Gibson	8452	907-789-1844
Greg Majeran	8192	907-789-5898
		907-723-8987

Kennecott Greens Creek Mining Company is required to report any significant exposure incidents or unusual situations happening to the source housing to the United States Nuclear Regulatory Commission as a condition of our license. If, after contacting the persons listed above any employee has concern that the matter is not being properly handled, the employee may contact:

United States Nuclear Regulatory Commission
Region IV
Harris Tower
611 Ryan Plaza Drive, Suite 300
Arlington, Texas 76011-8064

Telephone Number: 817/860-8100

November 22, 1994

Mr. Timothy F. Gibson
Electrical Supervisor
Kennecott Greens Creek Mining Co.
P.O. Box 32199
Juneau, AK 99803

Dear Mr. Timothy F. Gibson:

We are pleased to confirm your successful completion of the Radiation Safety Training Course conducted November 7-11, 1994 by TN Technologies Inc.

Enclosed are the following

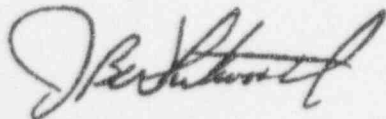
Record of Performance
Certificate of Training
Letter of Certification
Course Outline
American Board of Industrial Hygiene information
Guide for Specific License Amendment

This form letter suggests what may be said to your regulatory agency to obtain the license amendments necessary to conduct installation, relocation, and leak testing on the listed TN Technologies industrial devices. Copies of procedures, survey and leak test forms from your course manual, with necessary changes to meet your specific requirements, should be sent with you license application as necessary.

Congratulations on completing the Radiation Safety Training Course. If we can be of further assistance, do not hesitate to let us know.

Sincerely,

TN TECHNOLOGIES INC.



J. B. Whitworth, Director
Environmental & Technical Services

Enclosures

TN Technologies, Inc.

an EnviroTech company

P.O. Box 800 Round Rock, Texas 78680-0800
(512) 388-9100 Fax: (512) 388-9200 Telex 77-6413

Certificate of Training

This is to certify that
Timothy F. Gibson
Has Successfully Completed

A Comprehensive {40-Hour} Radiation Safety Training Course

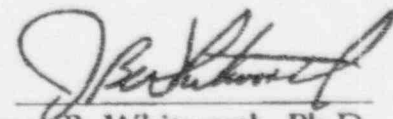
Presented by TN Technologies

TN Technologies

A Thermo Instruments Company

P.O. Box 800, Round Rock, Texas 78680-0800
Tel.: (512) 388-9100, Fax: (512) 388-9333

Issued November 22, 1994



James B. Whitworth, Ph.D.
Director of Technical Services

AGENDA **TN TECHNOLOGIES, INC.** **40-HOUR INDUSTRIAL RADIATION SAFETY TRAINING COURSE**

Radioactive Materials

- A. Isotopes
- B. Decay
- C. Half-life

Types of Radiation

Radiation Interaction with Matter

- A. Ionizing Radiation
 - 1. Electromagnetic
 - 2. Charged Particle
 - 3. Neutron
- B. Specific Ionization

Radiation Dosimetry

- A. Units & Dose Determination
- B. Quality Factor
- C. Gamma Exposure Rate
- D. Neutron Exposure Rate

Shielding

- A. Inverse Square Law
- B. Time, Distance, Shielding
- C. Half-Value Layer
- D. Calculating Shield Thicknesses

Biological Effects

- A. Radiosensitivity
- B. General Cell Structure
- C. Radiation Exposure
- D. Radiation Damage
- E. Long Term Effects
- F. Dose Limits
- G. Total Accumulated Dose

Biological Effects (Con't)

- H. Radiation Protection Guides
- I. Natural Background Radiation

Radiation Detection

- A. Detection Instruments
 - 1. Basic Operation
 - 2. Survey Meters

Personnel Monitoring

- A. Requirements
- B. Devices

Industrial

- A. Posting
- B. Industrial Device Installation
 - 1. Requirements
 - 2. Surveying & Leak Testing Demonstration

"Hands-On" At Factory

- A. Demonstration/discussion of different types of survey meters
- B. Re-briefing on use of portable radiation survey meters
- C. Survey a Fixed Gauge
- D. Prepare Survey Forms
- E. Leak Test Devices using QT/IS Procedure
- F. Count Swabs
- G. Prepare Leak Test Certificates

TN Technologies, Inc.

An EnviroTech company

P.O. Box 800 Round Rock, Texas 78680-0800
 (512) 388-9100 Fax: (512) 388-9200 Telex: 77 6413

Occupational and Individual Members of the Public Doses:

Based on the working conditions, physical accessibility and occupancy factors it is estimated that not more than 2-3 people will routinely be within two to three feet of the devices, for more than 30 minutes a week. The occupancy time for an occupational worker, in a worst case, with the measured exposure being 2.8 mrem per hour is 62.8 mrem/year

Our workers would not exceed the 500mrem annual limit or require monitoring. This is also well below the 100mrem annual limit for members of the public.

Should any device be required to move these calculations will be redone to ensure compliance below the limit of this regulation. This survey will only be done by persons authorized to do so by the commission.

Answers to specific questions raised by your October 2, 1996 letter;

1. Outlines of RSO training for Timothy F. Gibson are enclosed
2. Training and accompanying certificates for portable devices will be obtained before any are purchased and brought onto the property. This has not been done to this date because we are not licensed for and have not purchased these devices.
3. A sketch is enclosed where gauges in use are located. The device not in use is located at our Hawk Inlet warehouse facility in a locked "job box" in a marked and secured area of that warehouse. The RSO has a key to the job box. Our facility is located on an Island reachable only by boat or floatplane. Everyone coming to or leaving this facility is known. Only those personnel that are fully safety trained are allowed in the concentrator where the devices are in use. This training includes an awareness of the devices and their potential hazards. The survey you request was completed by Ralph Heyer and submitted as part of his report and noted in this letter under the heading of "occupational an individual members of the public doses".
4. **Duties of the RSO, ie , Mr Timothy F. Gibson**
 - ☐ Spearhead Kennecott Greens Creek Mining Companies efforts to keep radiation exposures as low as reasonably achievable.
 - ☐ Kennecott Greens Creek Mining Company compliance to all requirements of the NRC.
 - ☐ Performance of radiological surveys and calculations
 - ☐ Leak Tests

RECEIPT OF DEVICES CONTAINING RADIOACTIVE MATERIAL

1. Receiving personnel will visually inspect the outside shipping container for evidence of damage to all packages containing radioactive material.
2. If inspection indicates any damage, the RSO or designee shall be notified immediately. The package will not be moved; however, access to the immediate area will be controlled until the RSO or designee arrives to assess the condition of the package.
3. If no damage is apparent, the package will be moved to a designated area in the receiving department not routinely populated by personnel, but where it can be monitored against unauthorized access or removal.
4. The RSO or designee, shall in a timely manner, relocate the package to a properly labeled and secured storage area, or to the area where the device will be mounted.



RECORD OF PERFORMANCE

Timothy F. Gibson
Electrical Supervisor
Kennecott Greens Creek Mining Co.

<u>HOMEWORK AVERAGE</u>	<u>TEST</u>	<u>FINAL GRADE</u>
98.8	88	90.7

Class Average = 89.7

TN Technologies, Inc.

An EnerTech company

P.O. Box 800 Round Rock, Texas 78680-0800
(512) 388-9100 Fax: (512) 388-9200 Telex: 77-6413



LETTER OF CERTIFICATION

This is to certify that

Timothy F. Gibson
Kennecott Greens Creek Mining Co.

has attended and successfully completed a course of instruction, conducted under the auspices of TN Technologies Inc. and described in the attached course agenda. The course covers fundamentals of radiation, units of dose and quality of radiation fields, hazards of radiation exposure, detection devices, regulatory controls, industrial devices and specific training on installation and leak testing of TN Technologies density, level, and weigh gauges.

The said course of instruction, together with prior experience, is structured to qualify persons who complete it to understand and safely perform various operations involving nuclear devices including the installation, relocation, and leak testing of such equipment. The operations are to be performed in accordance with the rules and regulations of the United State Nuclear Regulatory Commission and/or "Agreement States", and are in all respects subject to such rules and regulations.

This letter cannot be used in lieu of a specific license from or other sanction by an appropriate regulatory agency.

TN TECHNOLOGIES INC.

J. B. Whitworth, PhD.
Director, Technical Services

TN Technologies, Inc.

An EnerTech company

P.O. Box 800 Round Rock, Texas 78680-0800

Industrial Radiation Safety Training Course

Agenda

Page Two

Regulatory Control

- A. Title 10 Code of Federal Regulations
- B. Agreement States
- C. Licensing Procedures
- D. General vs Specific License
- E. User Responsibility
- F. Radiation Protection Program/ALARA
 - 1. Recordkeeping
 - 2. Posting
 - 3. Training
 - 4. Incident Reporting
 - 5. Emergency Procedures

Shipping Radioactive Material

Summary of Topics

- A. Role of Radiation Safety Personnel
- B. Class Discussion

Written Test on Lectures and Homework Assignments

Note: Homework is assigned each night during the course.



LETTER OF CERTIFICATION

This is to certify that

TIMOTHY F. GIBSON
KENNECOTT GREENS CREEK MINING COMPANY

attended a course of instruction conducted under the auspices of Radiation Technology, Inc. October 10-12, 1995 and described in the attached course agenda. This refresher training class covers fundamentals of radiation, units of dose and quality of radiation fields, hazards of radiation exposure, regulatory compliance, radiation safety program design and implementation.

This letter cannot be used in lieu of a specific license from or other sanction by an appropriate regulatory agency.

Radiation Technology, Inc.

A handwritten signature in cursive script that reads 'W. G. Hendrick'.

W. G. (Jack) Hendrick
Health Physicist

CERTIFICATE OF ATTENDANCE

TIMOTHY F. GIBSON

has attended

RADIATION SAFETY AND REGULATORY REFRESHER TRAINING
(24 HOURS)

conducted by radiation technology, inc.



Instructor

W. Hendrick

Date

October 13, 1995

KENNECOTT GREENS CREEK MINING COMPANY
NUCLEAR GAUGE INSPECTION CHECKLIST

INSPECTION DATE: 9-4-96

GAUGE LOCATION: MILL TAILINGS CIRCUIT

INSPECTOR: TIM GIBSON

MANUFACTURER: OHMART (KAY-RAY) OTHER: _____

APPLICATION: LEVEL MOISTURE DENSITY IN STORAGE

SOURCE HSG MODEL #: 7062 BP

SERIAL #: 572 D 2206

ACTIVITY: 100 (millicuries)

ISOTOPE: Cs-137

SHUTTER OPERATION: ✓ OK

ON/OFF INDICATOR: ✓ OK

DEVICE TAG: ✓ OK

MOUNTING BRACKET: ✓ OK

MOUNTING BOLTS: ✓ OK

SHUTTER LOCK: ✓ OK

GENERAL PHYSICAL CONDITION: 5

- 1. LIKE NEW
- 4. CANNOT READ TAG
- 7. LOCK IS CORRODED
- 10. SEVERE CORROSION

- 2. TAGS NEED CLEANING
- 5. MILD SURFACE CORROSION
- 8. SHUTTER FROZEN ON/OFF

- 3. SHUTTER AREA FULL OF STUFF
- 6. YELLOW/MAGENTA ON TAG FADED
- 9. NEEDS LUBRICATION

CORRECTIVE ACTION: _____

- 1. CLEAN & LUBE SHUTTER
- 4. REPLACE MAIN TAG

- 2. CLEAN TAGS
- 5. REPLACE ON/OFF TAGS

- 3. REPLACE SHUTTER LOCK
- 6. TAKE OUT OF SERVICE

KENNECOTT GREENS CREEK MINING COMPANY
NUCLEAR GAUGE INSPECTION CHECKLIST

INSPECTION DATE: 9-4-96

GAUGE LOCATION: MILL ZINC CIRCUIT

INSPECTOR: TIM GIBSON

MANUFACTURER: OHMART KAY-RAY OTHER: _____

APPLICATION: LEVEL MOISTURE DENSITY IN STORAGE

SOURCE HSG MODEL #: 7062 BP

SERIAL #: SA2 D2205

ACTIVITY: 100 (millicuries)

ISOTOPE: Cs-137

SHUTTER OPERATION: ☒ O.K.

ON/OFF INDICATOR: ☒ O.K.

DEVICE TAG: ☒ O.K.

MOUNTING BRACKET: ☒ O.K.

MOUNTING BOLTS: ☒ O.K.

SHUTTER LOCK: ☒ O.K.

GENERAL PHYSICAL CONDITION: 5

- 1. LIKE NEW
- 4. CANNOT READ TAG
- 7. LOCK IS CORRODED
- 10. SEVERE CORROSION

- 2. TAGS NEED CLEANING
- 5. MILD SURFACE CORROSION
- 8. SHUTTER FROZEN ON, OFF

- 3. SHUTTER AREA FULL OF STUFF
- 6. YELLOW/MAGENTA ON TAG FADED
- 9. NEEDS LUBRICATION

CORRECTIVE ACTION: _____

- 1. CLEAN & LUBE SHUTTER
- 4. REPLACE MAIN TAG

- 2. CLEAN TAGS
- 5. REPLACE ON/OFF TAGS

- 3. REPLACE SHUTTER LOCK
- 6. TAKE OUT OF SERVICE

KENNECOTT GREENS CREEK MINING COMPANY
NUCLEAR GAUGE INSPECTION CHECKLIST

INSPECTION DATE: 9-4-96
GAUGE LOCATION: Mill Lead Circuit
INSPECTOR: TIM GIBSON
MANUFACTURER: OHMART KAY-RAY OTHER: _____
APPLICATION: LEVEL MOISTURE DENSITY IN STORAGE
SOURCE HSG. MODEL #: 7062 BP
SERIAL #: 59202203
ACTIVITY: 50 (millicuries)
ISOTOPE: Cs-137
SHUTTER OPERATION: ✓ OK
ON/OFF INDICATOR: ✓ OK
DEVICE TAG: ✓ OK
MOUNTING BRACKET: ✓ OK
MOUNTING BOLTS: ✓ OK
SHUTTER LOCK: ✓ OK
GENERAL PHYSICAL CONDITION: 5

- 1. LIKE NEW
- 4. CANNOT READ TAG
- 7. LOCK IS CORRODED
- 10. SEVERE CORROSION

- 2. TAGS NEED CLEANING
- 5. MILD SURFACE CORROSION
- 8. SHUTTER FROZEN ON, OFF

- 3. SHUTTER AREA FULL OF STUFF
- 6. YELLOW/MAGENTA ON TAG FADED
- 9. NEEDS LUBRICATION

CORRECTIVE ACTION: _____

- 1. CLEAN & LUBE SHUTTER
- 4. REPLACE MAIN TAG

- 2. CLEAN TAGS
- 5. REPLACE ON/OFF TAGS

- 3. REPLACE SHUTTER LOCK
- 6. TAKE OUT OF SERVICE

KENNECOTT GREENS CREEK MINING COMPANY
NUCLEAR GAUGE INSPECTION CHECKLIST

INSPECTION DATE: 9-4-96
GAUGE LOCATION: Mill Regrind
INSPECTOR: Tim Gibson
MANUFACTURER: OHMART KAY-RAY OTHER _____
APPLICATION: LEVEL MOISTURE DENSITY IN STORAGE
SOURCE HSG. MODEL # 7062 BP
SERIAL # S92 D2202
ACTIVITY: 100 (millicuries)
ISOTOPE: Cs-137
SHUTTER OPERATION: ☒ OK
ON/OFF INDICATOR: ☒ OK
DEVICE TAG: ☒ OK
MOUNTING BRACKET: ☒ OK
MOUNTING BOLTS: ☒ OK
SHUTTER LOCK: ☒ OK
GENERAL PHYSICAL CONDITION: 1

1. LIKE NEW
4. CANNOT READ TAG
7. LOCK IS CORRODED
10. SEVERE CORROSION

2. TAGS NEED CLEANING
5. MILD SURFACE CORROSION
8. SHUTTER FROZEN ON, OFF

3. SHUTTER AREA FULL OF STUFF
6. YELLOW/MAGENTA ON TAG FADED
9. NEEDS LUBRICATION

CORRECTIVE ACTION: _____

1. CLEAN & LUBE SHUTTER
4. REPLACE MAIN TAG

2. CLEAN TAGS
5. REPLACE ON/OFF TAGS

3. REPLACE SHUTTER LOCK
6. TAKE OUT OF SERVICE

KENNECOTT GREENS CREEK MINING COMPANY
NUCLEAR GAUGE INSPECTION CHECKLIST

INSPECTION DATE 9-4-96

GAUGE LOCATION MILL REGRIND

INSPECTOR TIM GIBSON

MANUFACTURER OHMART KAY-RAY OTHER _____

APPLICATION LEVEL MOISTURE DENSITY IN STORAGE

SOURCE HSG MODEL # 7062 BP

SERIAL # S 92 D2201

ACTIVITY _____ (millicuries)

ISOTOPE Cs-137

SHUTTER OPERATION ☒ O.K.

ON/OFF INDICATOR ☒ O.K.

DEVICE TAG ☒ O.K.

MOUNTING BRACKET ☒ O.K.

MOUNTING BOLTS ☒ O.K.

SHUTTER LOCK ☒ O.K.

GENERAL PHYSICAL CONDITION 1

- 1. LIKE NEW
- 4. CANNOT READ TAG
- 7. LOCK IS CORRODED
- 10. SEVERE CORROSION

- 2. TAGS NEED CLEANING
- 5. MILD SURFACE CORROSION
- 8. SHUTTER FROZEN ON, OFF

- 3. SHUTTER AREA FULL OF STUFF
- 6. YELLOW/MAGENTA ON TAG FADED
- 9. NEEDS LUBRICATION

CORRECTIVE ACTION _____

- 1. CLEAN & LUBE SHUTTER
- 4. REPLACE MAIN TAG

- 2. CLEAN TAGS
- 5. REPLACE ON/OFF TAGS

- 3. REPLACE SHUTTER LOCK
- 6. TAKE OUT OF SERVICE

KENNECOTT GREENS CREEK MINING COMPANY
NUCLEAR GAUGE INSPECTION CHECKLIST

INSPECTION DATE: 9-4-96
GAUGE LOCATION: Apron Feeder (1)
INSPECTOR: TIM GIBSON
MANUFACTURER: OHMART KAY-RAY OTHER: _____
APPLICATION: LEVEL MOISTURE DENSITY IN STORAGE
SOURCE HSG. MODEL # L-1015-250
SERIAL # M1828
ACTIVITY: 250 (millicuries)
ISOTOPE: Cs-137
SHUTTER OPERATION: ☒ O.K.
ON/OFF INDICATOR: ☒ O.K.
DEVICE TAG: ☒ O.K.
MOUNTING BRACKET: ☒ O.K.
MOUNTING BOLTS: ☒ O.K.
SHUTTER LOCK: ☒ O.K.
GENERAL PHYSICAL CONDITION: 5

- 1. LIKE NEW
- 4. CANNOT READ TAG
- 7. LOCK IS CORRODED
- 10. SEVERE CORROSION

- 2. TAGS NEED CLEANING
- 5. MILD SURFACE CORROSION
- 8. SHUTTER FROZEN ON, OFF

- 3. SHUTTER AREA FULL OF STUFF
- 6. YELLOW/MAGENTA ON TAG FADED
- 9. NEEDS LUBRICATION

CORRECTIVE ACTION: N/A

- 1. CLEAN & LUBE SHUTTER
- 4. REPLACE MAIN TAG

- 2. CLEAN TAGS
- 5. REPLACE ON/OFF TAGS

- 3. REPLACE SHUTTER LOCK
- 6. TAKE OUT OF SERVICE

THIS UNIT IS LOCKED OUT OF SERVICE

KENNECOTT GREENS CREEK MINING COMPANY
NUCLEAR GAUGE INSPECTION CHECKLIST

INSPECTION DATE: 9-4-96

GAUGE LOCATION: Ball Mill (4)

INSPECTOR: TIM GIBSON

MANUFACTURER: OHMART KAY-RAY OTHER _____

APPLICATION: LEVEL MOISTURE DENSITY IN STORAGE

SOURCE HSG. MODEL #: D-3450-06

SERIAL #: 65012

ACTIVITY: 80 (millicuries)

ISOTOPE Cs-137

SHUTTER OPERATION: ☒ OK

ON/OFF INDICATOR: ☒ OK

DEVICE TAG: ☒ OK

MOUNTING BRACKET: ☒ OK

MOUNTING BOLTS: ☒ OK

SHUTTER LOCK: ☒ OK

GENERAL PHYSICAL CONDITION: 2

- 1. LIKE NEW
- 4. CANNOT READ TAG
- 7. LOCK IS CORRODED
- 10. SEVERE CORROSION

- 2. TAGS NEED CLEANING
- 5. MILD SURFACE CORROSION
- 8. SHUTTER FROZEN: ON, OFF

- 3. SHUTTER AREA FULL OF STUFF
- 6. YELLOW/MAGENTA ON TAG FADED
- 9. NEEDS LUBRICATION

CORRECTIVE ACTION: 2

- 1. CLEAN & LUBE SHUTTER
- 4. REPLACE MAIN TAG

- 2. CLEAN TAGS
- 5. REPLACE ON/OFF TAGS

- 3. REPLACE SHUTTER LOCK
- 6. TAKE OUT OF SERVICE

KLNNECOTT GREENS CREEK MINING COMPANY
NUCLEAR GAUGE INSPECTION CHECKLIST

INSPECTION DATE: 9-4-96

GAUGE LOCATION: STORAGE HALL INLET (04-G-01)

INSPECTOR: TIM GIBSON

MANUFACTURER: OHMART KAY-RAY OTHER _____

APPLICATION: LEVEL MOISTURE DENSITY IN STORAGE

SOURCE HSG. MODEL #: D-3430-06

SERIAL #: 6567

ACTIVITY: 50 (millicuries)

ISOTOPE: Cs-137

SHUTTER OPERATION: OK LOCKED OUT

ON/OFF INDICATOR: OK

DEVICE TAG: OK

MOUNTING BRACKET: N/A OK

MOUNTING BOLTS: N/A OK

SHUTTER LOCK: OK

GENERAL PHYSICAL CONDITION 1

- 1. LIKE NEW
- 4. CANNOT READ TAG
- 7. LOCK IS CORRODED
- 10. SEVERE CORROSION

- 2. TAGS NEED CLEANING
- 5. MILD SURFACE CORROSION
- 8. SHUTTER FROZEN: ON, OFF

- 3. SHUTTER AREA FULL OF STUFF
- 6. YELLOW/MAGENTA ON TAG FADED
- 9. NEEDS LUBRICATION

CORRECTIVE ACTION _____

- 1. CLEAN & LUBE SHUTTER
- 4. REPLACE MAIN TAG

- 2. CLEAN TAGS
- 5. REPLACE ON/OFF TAGS

- 3. REPLACE SHUTTER LOCK
- 6. TAKE OUT OF SERVICE

THIS UNIT HAS NEVER BEEN IN USE

KENNECOTT GREENS CREEK MINING COMPANY
NUCLEAR GAUGE INSPECTION CHECKLIST

INSPECTION DATE 9-4-96

GAUGE LOCATION MILL BULK CIRCUIT

INSPECTOR TIM GIBSON

MANUFACTURER OHMART KAY-RAY OTHER _____

APPLICATION LEVEL MOISTURE DENSITY IN STORAGE

SOURCE HSG. MODEL # 7062 BP

SERIAL # D92 D2204

ACTIVITY 50 (millicuries)

ISOTOPE Cs-137

SHUTTER OPERATION ✓ O.K.

ON/OFF INDICATOR ✓ O.K.

DEVICE TAG ✓ O.K.

MOUNTING BRACKET ✓ O.K.

MOUNTING BOLTS ✓ O.K.

SHUTTER LOCK ✓ O.K.

GENERAL PHYSICAL CONDITION 5

- 1. LIKE NEW
- 4. CANNOT READ TAG
- 7. LOCK IS CORRODED
- 10. SEVERE CORROSION

- 2. TAGS NEED CLEANING
- 5. MILD SURFACE CORROSION
- 8. SHUTTER FROZEN ON, OFF

- 3. SHUTTER AREA FULL OF STUFF
- 6. YELLOW/MAGENTA ON TAG FADED
- 9. NEEDS LUBRICATION

CORRECTIVE ACTION _____

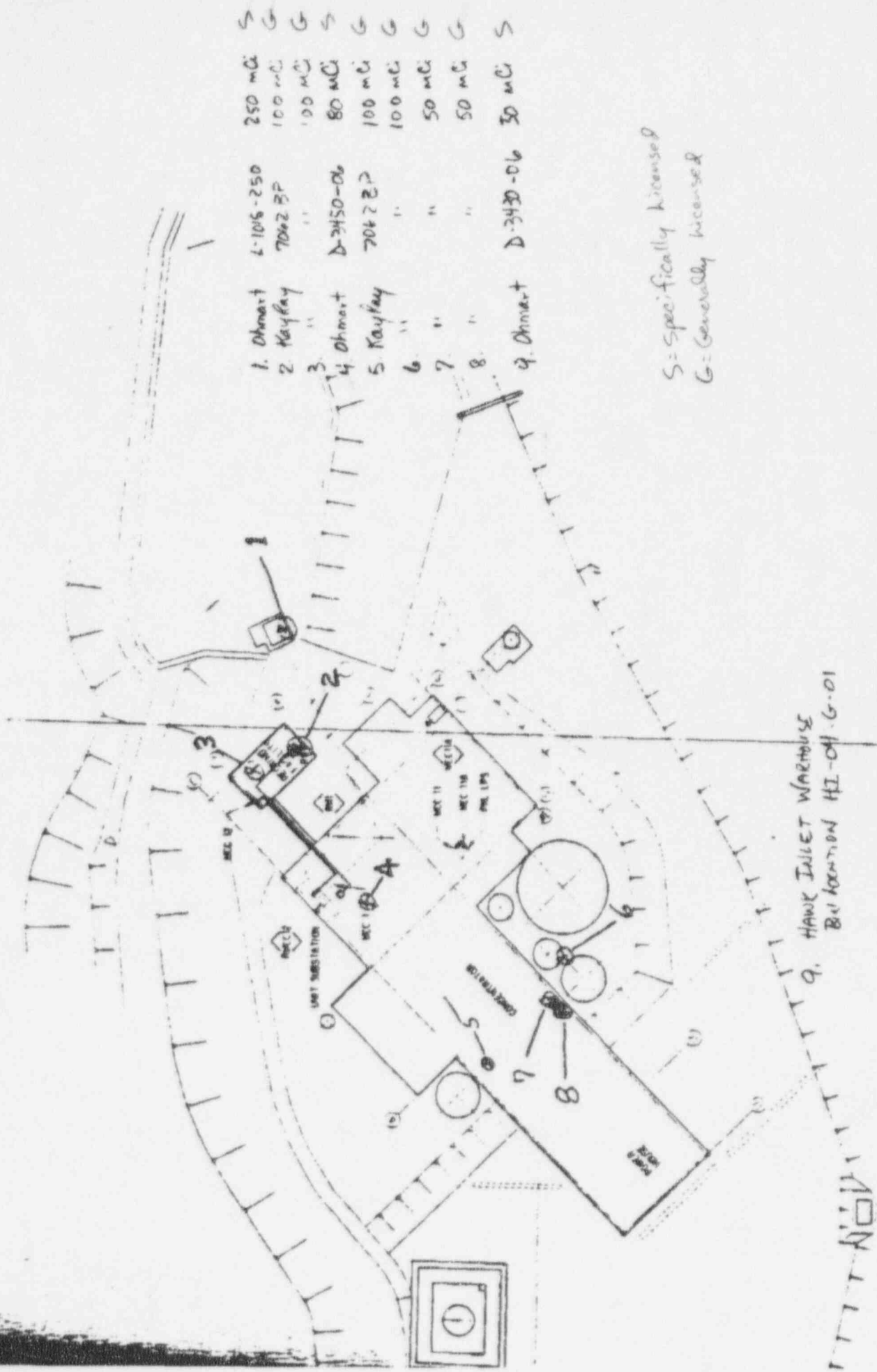
- 1. CLEAN & LUBE SHUTTER
- 4. REPLACE MAIN TAG

- 2. CLEAN TAGS
- 5. REPLACE ON/OFF TAGS

- 3. REPLACE SHUTTER LOCK
- 6. TAKE OUT OF SERVICE

Nuclear Gauge Location Sketch

Kennecott Greens Creek Mining Co
920 MINESITE CONCENTRATION Bldg



9. HAWK INLET WAREHOUSE
BUTLER HAWK INLET G-01



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV

Walnut Creek Field Office
1450 Maria Lane
Walnut Creek, California 94596-5368

OCT - 2 1996

Kennecott Greens Creek Mining Company
ATTN: Clynt Nauman
General Manager
P.O. Box 32199
Juneau, Alaska 99803-2199

SUBJECT: LICENSE AMENDMENT REQUEST

This is in reference to your request dated September 5, 1996 for amendment of your byproduct material license. As many changes have occurred both in your organization and procedures and in our regulatory requirements, we are asking you to resubmit your license application in its entirety, without reference to documents which were previously submitted.

To assist you in this process, we are forwarding a copy of the current information in your docket file, as you requested. We are also enclosing copies of the leak testing guide and of the portable and non-portable licensing guides and checklists, copies of an NRC Form 3 and an NRC Form 313, and copies of 10 CFR 19, 20, 21, 30, 31, 71, 150, 170, and 171.

The following license conditions, which affect the use of non-portable gauges, will be added to your license when it is amended:

- A. Each gauge shall be tested for the proper operation of the on-off mechanism and indicator, if any, at no longer than 6-month intervals or at such longer intervals as specified by the manufacturer and approved by U.S. Nuclear Regulatory Commission.
- B. Prior to initial use and after installation, relocation, dismantling, alignment, or any other activity involving the source or removal of the shielding, the licensee shall assure that a radiological survey is performed to determine radiation levels in accessible areas around, above, and below the gauge with the shutter open.

This survey shall be performed only by persons authorized to perform such services by the Commission or an Agreement State.

- C. The licensee shall operate each gauge within the manufacturer's specified temperature and/or environmental limits such that the shielding and shutter mechanism of the source holder are not compromised.

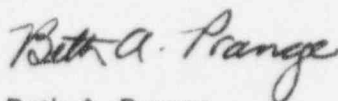
- D. The licensee shall assure that the shutter mechanism is locked in the closed position during periods when a portion of an individual's body may be subject to the direct radiation beam. The licensee shall review and modify as appropriate its "lock-out" procedures whenever a new gauge is obtained to incorporate the device manufacturer's recommendations.

Also, during our review of your amendment request to reactivate your non-portable gauge license and to add a portable gauge program, we noted a number of concerns that you should address in your response to this letter:

1. You should submit outlines of the training which was (or will be) completed by Timothy Gibson to document whether the classes included (or will include) training in installation, initial radiation surveys, gauge relocation, removal from service, and leak testing. Specify the duration of each class in hours, and indicate whether actual practice in performing the services was (or will be) included as part of the training.
2. Supply copies of the portable gauge training certificates for the Radiation Safety Officer (RSO) and for any other personnel who will be authorized to use the gauges. If this training was supplied by someone other than the device manufacturer, supply the name, address, and license number of the organization which provided the training. Also, specify whether personnel have experience in actual use of portable gauges.
3. Submit sketches of areas where portable and non-portable gauges may be stored. Describe their locations as precisely as possible. Describe the security procedures to be used at each location to assure that only authorized users will have access to the gauges. Also, supply a survey for each location to assure that members of the public will not receive exposures in excess of 100 mrem/year as required by 10 CFR 20.1301.
4. Specify the RSO's duties and the services which he will perform.
5. Describe your leak test procedures. If a vendor will analyze leak tests, specify their name, address, and license number.
6. As your license file indicates that you possess both specifically and generally-licensed gauges (Refer to 10 CFR 31.5), it would be helpful for you to submit a current inventory of all the gauges at your facilities. In your reply, please indicate where the gauges are located and whether they are specifically or generally licensed. This will be useful for both licensing and inspection purposes.

We will continue the review of your amendment request upon receipt of this information. In order to continue prompt review of your application, we request that you submit your response to this letter within 30 days from the date of this letter. Please reply in duplicate, and refer to Mail Control 572409. If you have questions concerning these matters, I can be reached at (510) 975-0250.

Sincerely,

A handwritten signature in cursive script that reads "Beth A. Prange".

Beth A. Prange
Sr. Health Physicist (Licensing)
Materials Branch

Enclosures: As Stated

Docket: 030-20447
License: 50-23276-01
Control: 572409

bcc:

Docket File
WCFO Inspection File
LFDCB, T-9 E10

DOCUMENT NAME: G:\beth\572409

To receive copy of document, indicate in box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

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10/1/96		10/ /96	10/ /96	10/ /96	10/ /96	10/ /96	10/ /96	

OFFICIAL RECORD COPY



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV

Walnut Creek Field Office
1450 Maria Lane
Walnut Creek, California 94596-5368

SEP 19 1996

Kennecott Greens Creek Mining Company
ATTN: Clynt Nauman
General Manager
P.O. Box 32199
Juneau, Alaska 99803-8108

SUBJECT: ACKNOWLEDGMENT OF REQUEST FOR LICENSING ACTION

REFERENCE: Application received September 18, 1996

We have completed the administrative review and initial processing of your application.

Please note that the technical review may identify additional omissions in the submitted information or technical issues that require additional information.

Amendment actions are normally processed within 90 days, unless the technical review identifies:

- Major technical deficiencies
- Policy issues are identified that require input and coordination with other NRC Regional offices, Agreement State offices, or NRC's Office of Nuclear Materials and Safeguards

A copy of your correspondence has been forwarded to our License Fee and Accounts Receivable Branch, Office of the Controller, who will contact you separately if the appropriate license fee has not been submitted for your request, or for billing if your request is subject to full cost recovery.

Any correspondence about this application should reference the Control number listed below.

Sincerely,

Beth A. Prange
Sr. Health Physicist (Licensing)
Materials Branch

Enclosures:
As stated

License No. 50-23276-01
Docket No. 030-20447
Control No. 572409

bcc:
Docket File

To receive a copy of this document, indicate in the box "C" - Copy without attachment/enclosure "E" - Copy with attachment/enclosure "N" - No Copy

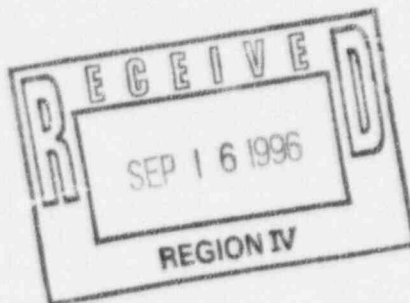
OFFICE	RIV:AO:NMLB	N		N				
NAME	B. Prange <i>rap</i>							
DATE	9/19/96		/	/	96			

Kennecott Greens Creek Mining Company
P.O. Box 32199
Juneau, Alaska 99803-2199
(907) 789-8110
FAX (907) 789-8108

Clynt Nauman
General Manager

September 5, 1996

Mr. Jack Whitten
Licensing Specialist
U.S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza, Suite 400
Arlington, TX 76011-8064



**Kennecott
Minerals**

Dear Mr. Whitten,

We wish to make the following changes to our Radioactive Materials License 50-2376-01.

1. Change License Conditions 11 and 14 to remove Mr. C. Wayne Armbrust and add Mr. Timothy F. Gibson as Radiation Safety Officer. Mr. Gibson's certificate of training from TN Technologies Inc. is attached for your reference.
2. Kennecott Greens Creek Mining has been shut down since April 1993. As we are currently resuming operations, we wish to begin using our Ohmart gauges. Please change License conditions 9A and 9B, removing the Storage Only provisions.

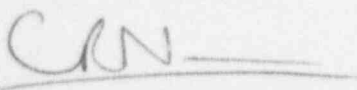
3. Amend license to include a CPN density/moisture gauge.

Nuclide	Cesium 137	10 mCi
	Am-241/Be	50 mCi
Form	Sealed Sources	(CPN Model MC-3 Portaprobe)
Authorized Use	For use in the CPN Model MC-3 for determination of moisture and density in material.	

In addition, we request a copy of all the license and compliance related information that is currently in our license file (Docket Number 030-20447). Please advise as to any cost associated with the reproduction of these documents.

Should you require any additional information, please call Tim Gibson at 907-790-8452.

Sincerely,


Clynt Nauman
General Manager

Amendment
030-20447
50-23276-01

572409

Certificate of Training

This is to certify that
Timothy F. Gibson
Has Successfully Completed

A Comprehensive {40-Hour} Radiation Safety Training Course

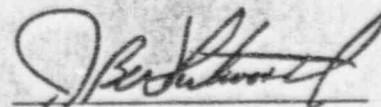
Presented by TN Technologies

TN Technologies

A Thermo Instruments Company

P.O. Box 800, Round Rock, Texas 78680-0800
Tel.: (512) 388-9100, Fax: (512) 388-9333

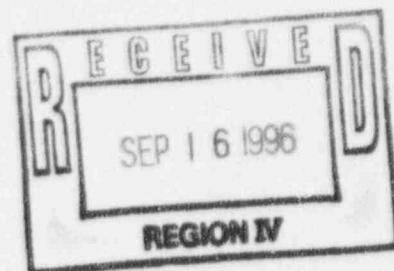
Issued November 22, 1994



James B. Whitworth, Ph.D.
Director of Technical Services



LETTER OF CERTIFICATION



This is to certify that

TIMOTHY F. GIBSON
KENNECOTT GREENS CREEK MINING COMPANY

attended a course of instruction conducted under the auspices of Radiation Technology, Inc. October 10-12, 1995 and described in the attached course agenda. This refresher training class covers fundamentals of radiation, units of dose and quality of radiation fields, hazards of radiation exposure, regulatory compliance, radiation safety program design and implementation.

This letter cannot be used in lieu of a specific license from or other sanction by an appropriate regulatory agency.

Radiation Technology, Inc.

A handwritten signature in cursive script that reads 'W. G. Hendrick'.

W. G. (Jack) Hendrick
Health Physicist