

DIVISION OF HEALTH

BUREAU OF CONSUMER HEALTH PROTECTION SERVICES

CAPITOL COMPLEX

CARSON CITY, NEVADA 89710

CC CFC

TELEPHONE (702) 385-4750

June 29, 1977

RECEIVED

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NECO LOUISVILLE

Mr. James N. Neel, President Nuclear Engineering Company Post Office Box 7246 Louisville, Kentucky 40207

Dear Mr. Neel:

Enclosed are three (3) copies of State Radioactive Material License No. 13-11-0043-02 which replaces State License No. 04-03766-01 in its entirety.

Please note that the authorization for possession of special nuclear material contained in State License No. 13-11-0043-02 does not become effective until NRC Radioactive Material License No. 04-03766-01 is terminated by the NRC.

For your information, we are still reviewing your company's request that certain portions of the license reapplication be regarded as proprietary and therefore should be withheld from the public.

Sincerely,

W. C. Horton

W. C. Horton, Supervisor Radiological Health

WCH: hpc

CC: R. S. Trounday
J. H. Carr, M.D.

Ernst Volgenau

G. Wayne Kerr T. S. Baer

W. H. Button

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NECC-Washington, D.C.



STATE OF NEVADA

CARSON CITY, NEVADA 89710

NEVADA STATE BOARD OF HEALTH

RADIOACTIVE MATERIAL LICENSE

Pursuant to Nevada Revised Statute 459.040 and State of Nevada Rules and Regulations for Radiation Control and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, possess, and dispose of by land burial radioactive materials. This license is subject to all applicable rules, regulations, and orders now or hereafter in effect and to any conditions specified below.

1. Licensee: Nuclear Engineering Company, Incorporated

2. Address: 9200 Shelbyville Road, Suite 526

Post Office Box 7246

Louisville, Kentucky 40207

3. License Number: 13-11-0043-62

4. Expiration Date: June 30, 1980

5. Reference: NRC License No. 04-03766-01

CONDITIONS

6. Radioactive material shall be disposed of by burial at a site in Nye County, Nevada, within the boundary of the land area described as follows:

NW 1/4 NE 1/4; NE 1/4 NW 1/4 of Section 35, Township 13 South, Range 47 East, Mount Diablo Baseline and Meridian

7. The licensee shall comply with the provisions of Article 3, "Standards for Protection Against Radiation" of the Nevada Rules and Regulations for Radiation Control, "Radioactive Materials".

- 8. The licensee shall not possess at any one time unburied radioactive material in excess of:
 - A. 50,000 curies of radioactive material excluding source and special nuclear material. Radium 226 shall be limited to 1 curie.
 - B. 25,000 pounds of source material.
 - C. 350 grams of Uranium 235; 200 grams of Uranium 233; 200 grams of Plutonium; or any combination of them in accordance with the following formula: For each kind of special nuclear material, determine the ratio between the quantity of that special nuclear material and the quantity specified above for the same kind of special nuclear material. The sum of such ratios for all kinds of special nuclear materials in combination shall not exceed unity.
 - D. Notwithstanding the provisions of 8.2 above, the average concentration of radioactive materials with atomic numbers greater than 92, including Plutonium, shall not exceed 10 nanocuries per gram of waste in any container. Also, the authorization contained in this license for possession of special nuclear material does not become effective until NRC Radioactive Material License No. 04-03766-01 has been terminated.
- 9. A. Any radioactive liquids received for disposal shall not exceed the concentration limits specified for the U. S. Department of Transportation transport groups listed below:

Transport Group I - 0.01 microcuries per milliliter
Transport Group III and IV - 30 microcuries per milliliter

- B. All liquid radioactive wastes shall be solidified prior to burial.
- C. Notwithstanding the requirements of 9.B, small quantities of liquid waste may be disposed of without solidification provided that the concentration, quantities, and packaging of these liquids is in accordance with Section 5 of the licensee's "Site Operations Manual".
- D. Certification of the concentration of all liquid wastes shall be obtained by the licensee and records thereof maintained.
- E. No special nuclear material will be received in liquid form.
- 10. The licensee is authorized to possess and dispose of gaseous waste, Krypton 85 and/or Hydrogen 3, provided that:

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- A. Each primary container does not exceed 1000 curies.
- B. Each primary container containing 100 curies but less than 1,000 curies be encased in concrete with at least six (6) inches of concrete surrounding the primary container in every direction from the outside surfaces of the primary container.
- C. Each primary container containing less than 100 curies may be buried in its U. S. Department of Transportation approved shipping container as received.
- D. No container of gaseous waste shall be received or buried if the pressure within the container exceeds one atmosphere.
- 11. All waste shall be placed in a disposal trench or hole within three
 (3) working days of receipt, except in the event of an equipment
 breakdown or other emergency. A report of such breakdown or emergency
 shall be given within 24 hours to the Radiological Health Section,
 Nevada Division of Health.
- 12. All radioactive waste shall be disposed of by the licensee within sixty (60) days from the date of receipt. Disposal shall mean that the containers of waste have been covered by backfilling with three (3) feet of earth or have been completely covered by random placement of other waste. Certification of disposal shall be made on the "Radioactive Shipment Record" by authorized management personnel.
- 13. The licensee may seal or place in undamaged containers such packages received by the licensee which have been damaged in transit. Damaged packages shall not be opened.
- 14. The licensee shall not remove solid radicactive waste from shipping containers except as follows:
 - A. Any inner containers with not more than 1600 curies of Cobalt 60 or radiation equivalent may be removed from shipping casks provided that the inner containers are immediately buried without interim storage or processing. The 1600 curie limit may be exceeded only if prior written approval has been obtained from the licensee's Chief Radiation Control and Safety Officer and the Radiological Health Section, Nevada Division of Health.
 - B. Any sealed source with not more than 50 curies of Cobalt 60 or the equivalent of 50 curies of Cobalt 60 in terms of radiation may be removed from shipping casks provided that the sealed sources are immediately disposed of in the special burial wells without interim storage or processing. The 50 curie limit may be exceeded only if prior written approval has been obtained from the licensee's Chief Radiation Control and Safety Officer and the Radiological Health Section, Nevada Division of Health.

- 15. Radioactive waste having hazardous properties other than radiological hazards shall not be accepted for burial by the licensee until the licensee has evaluated all hazards and has determined that safe long-term burial can be effected. Records of hazard evaluation of all such wastes performed by the licensee shall be maintained for inspection by the Radiological Health Section, Nevada Division of Health.
- 16. Within twenty (20) days following the end of each calendar month, the licensee shall submit to the Supervisor of Radiological Health, Nevada Division of Health, Capitol Complex, Carson City, Nevada, 89710, a report indicating the total volume in cubic feet, and activity of radioactive material, other than source and special nuclear materials, in curies; the total amount of source materials in pounds (or kilograms); and the total amount of special nuclear materials in grams buried during the referenced month. The report shall also indicate the cumulative totals for the above.
- 17. After the excavation of each burial trench has been completed, and prior to commencement of burial in a trench, the boundaries of the trench shall be located by engineering survey referenced to bench marks or other permanent features such that the boundaries can be accurately relocated by future engineering surveys. The trench shall then be depicted on a scale drawing of the disposal site (plot plan) showing its location with respect to other trenches and other physical features of the site such as buildings, fences, and sampling wells. A copy of this scale drawing shall be submitted to the Radiological Health Section, Nevada Division of Health, within sixty (60) days of completion of the engineering survey.
- 18. Upon completion of burial operations in a burial trench, the licensee shall backfill the trench so that there is a minimum of three feet of earth between the last layer of buried waste and the surface of the ground. The licensee shall then mound earth over the trench to a ground two feet at the trench centerline in such a manner minimum height of two feet at the trench over which the earth as to drain runoff water away from the trench over which the earth is mounded and away from any trench in the process of being filled. The radiation levels of completed trenches shall not exceed 0.5 mR/hour at ground level. Once a trench has been completed and mounded, the licensee shall not conduct any activities, other than those necessary for maintenance, which disturbs the mounding over the trench and the drainage patterns around the trench.
- 19. Within thirty (30) days of completion of burial operations in a trench, concrete monuments shall be installed on the centerline at each end of the trench. A permanent brass sign with the following information clearly engraved or stamped into it shall be permanently affixed to each monument:
 - A. The number assigned to the trench.

- B. The date of start and completion of burial operations in the trench.
- C. The total activity of radioactive materials in curies, excluding source materials and special nuclear materials; the total amount of source materials in pounds (or kilograms); and the total amount of special nuclear materials in grams.
- D. The total volume in cubic feet of waste buried in the trench.
- E. The dimensions of the boundaries of the trench.

The information required by this condition, in addition to being referenced on the permanent trench monuments, shall be filed by written report to the Supervisor of Radiological Health, Division of Health, Capitol Complex, Carson City, Nevada, 89710, within thirty (30) days after closing of a trench.

- 20. All radioactive materials accepted for disposal shall be packaged in accordance with current U. S. Department of Transportation (D.O.T.) regulations for the transportation of radioactive material, and shall be disposed of in these D.O.T. containers unless otherwise specified by this license. Improperly packaged radioactive materials shall not be disposed of by the licensee unless specific authorization for disposal is granted by the Radiological Health Section, Nevada Division of Health.
- 21. Except as specifically provided otherwise by this license, the licensee shall receive, possess, and dispose of radioactive materials in accordance with statements, representations, and procedures contained in the following documents:
 - A. Nevada State Board of Health Form NRC-5, "Application for Radioactive Material License", signed by James N. Neel, dated December 8, 1976.
 - B. "Relicensing Application and Geotechnical and Waste Management Studies for the Beatty Nuclear Disposal Site, Nye County, Nevada December 1976".
 - C. "Nuclear Engineering Company, Inc., Radiological Controls and Safety for Burial Sites Manual".
 - D. "Site Operations Manual for Low Level Radioactive Waste Disposal at Beatty, Nevada".

JOHN H. CARR, M.D., STATE HEALTH OFFICER FOR THE NEVADA STATE BOARD OF HEALTH

Date June 29, 1977

By W. O Starton

W. C. Horton, Supervisor, Radiological Health

LICENSE #13-11-0043-02

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AMENDMENT NO. 1

MAY 2 3 1979

NECO-Washington, D.C.

All radioactive material received for burial shall be in approved Department of Transportation containers. These containers shall be constructed, as a minimum, of wood. No containers constructed of fiberboard, cardboard or other similar materials containing radicactive materials shall be accepted for disposal. The only exceptions are as noted in Section 5.0 of the Site Operations Manual for Low Level Radioactive Waste Disposal at Beatty, Nevada, as submitted See amendments want #1 December 8, 1976.

APPROVED THIS

State of Nevada

DEPARTMENT OF HUMAN RESOURCES

RALPH R. DISIBIO, Ed.D.

Director

NUCLEAR ENGINEERING COMPANY, INC.

STATE OF NEVADA EXECUTIVE CHAMBER CARSON CITY

AN EXECUTIVE ORDER BY THE GOVERNOR:

Effective immediately, all shipments of low level radioactive waste from the following companies and institutions may not be received for disposal at the Nuclear Engineering Company's burial facility at Beatty, Nevada:

Aerojet Corporation, Harbor General Hospital, Los Angeles
County Hospital, Veterans Administration Hospital and the
Jennings Laboratory.

This action is in response to a fire that occurred in a trailer containing radioactive waste shipments from these companies and institutions.

It is taken as a public safety measure and shall remain in effect until the cause of the fire is determined.

IN WITNESS THEREOF, I have hereunto set my hand and caused the Great Seal of the State of Nevada to be affixed at the State Capitol in Carson City this 16th day of May in the year of our Lord, one-thousand nine hundred and seventy-nine.

GOVERNOR

SECRETARY-OF STATE

NEVADA STATE BOARD OF HEALTH

RADIOACTIVE MATERIAL LICENSE SUPPLEMENTARY SHEET

License Number 13-11-0 Amendment No. 2

James N. Neel, President Nuclear Engineering Company, Inc. 9200 Shelbyville Road, Suite 526 Post Office Box 7246 Louisville, Kentucky 40207

License No. 13-11-0043-02 is hereby amended to add License Condition 22:

22. The licensee will notify the Radiological Health Section, Nevada Division of Health, upon delivery at the Beatty site of any shipment of material not accompanied by shipping papers or for which no shipping papers have been received. Such shipments shall be temporarily stored above ground in a secure area until their contents can be determined by inquiry, or until otherwise directed by the Radiological Health Section.

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Ву....

John Vaden, Supervisor, Radiological H

Date......August 21, 1979.

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RANGACTIVE MATERIAL METERS

SUPPLEMENTARY SHEET

License Number 13-11-0043-02

Amendment No. 3

Mr. James N. Neel, President Nuclear Engineering Company, Inc. Post Office Box 7246 Louisville, Kentucky 40207

Amendment No. 1 to License No. 13-11-0043-02 is hereby deleted.

John H. Carr, M.D., State Health Officer FOR THE NEVADA STATE BOARD OF HEALTH

By..

John Vaden, Supervisor, Radiological Health

Date September 4, 1979

NEVADA STATE BOARD OF HEALTH RADIOACTIVE MATERIAL LICENSE SUPPLEMENTARY SHEET

License Number 13-11-0043-02 Amendment No. 4

Mr. James N. Neel, President Nuclear Engineering Company, Inc. 9200 Shelbyville Road, Suite 526 Louisville, Kentucky 40207

Amendment No. 4 to License Number 13-11-0043-02, is hereby issued to add Condition 23 to the license:

Condition 23. Liquid radioactive waste solidified by the urea-formaldehyde process shall not be received by the licensee for burial at the Beatty, Nevada site. The licensee shall notify all its customers of this license condition and shall immediately inform all power companies known to them to be using the urea-formaldehyde process for solidification of liquid radioactive waste that any such packaged waste now on hand cannot be received at the Beatty, Nevada site.

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JOHN H. CARR, M.D., STATE HEALTH OFFICER FOR THE NEVADA STATE BOARD OF HEALTH

By JoVoden

. Waden, Supervisor, Radiological Health

NEVADA STATE BOARD OF HEALTH

RADIOACTIVE MATERIAL LICENSE

SUPPLEMENTARY SHEET

License Number 13-11-0043-0

Mr. James W. Neel, President Nuclear Engineering Company Post Office Box 7246 Louisville, Kentucky 40207

Amendment No. 5 to License Number 13-11-0043-02 temporarily modifies Condition 18 of the license to permit the U. S. Geological Survey personnel, contractors, and equipment to drive over the tops of trenches 2 and 4 to conduct radar profile surveys. This modification shall expire on November 16, 1979, unless extended in writing.

JOHN H. CARR, M.D., STATE HEALTH OFFICER FOR THE NEVADA STATE BOARD OF HEALTH

By John Vaden, Supervisor, Radiological Health

Date October 26, 1979



STATE OF NEVADA

DIVISION OF HEALTH

CAPITOL COMPLEX
CARSON CITY, NEVADA 89710

NEVADA STATE BOARD OF HEALTH

RADIOACTIVE MATERIAL LICENSE

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Licensee: Nuclear Engineering Company, Incorporated

2. Address: 9200 Shelbyville Road, Suite 526

Post Office Box 7246

Louisville, Kentucky 40207

3. License Number: 13-11-0043-02

4. Expiration Date: June 30, 1980

5. Reference: NRC License No. 04-03766-01

CONDITIONS

6. Radioactive material shall be disposed of by burial at a site in Nye County, Nevada, within the boundary of the land area described as follows:

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7. The licensee shall comply with the provisions of Article 3, "Standards for Protection Against Radiation" of the Nevada Rules and Regulations for Radiation Control, "Radioactive Materials".

- 8. The licensee shall not possess at any one time unburied radioactive material in excess of:
 - A. 50,000 curies of radioactive material excluding source and special nuclear material. Radium 226 shall be limited to 1 curie.
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 - C. 350 grams of Uranium 235; 200 grams of Uranium 233; 200 grams of Plutonium; or any combination of them in accordance with the following formula: For each kind of special nuclear material, determine the ratio between the quantity of that special nuclear material and the quantity specified above for the same kind of special nuclear material. The sum of such ratios for all kinds of special nuclear materials in combination shall not exceed unity.
 - D. Notwithstanding the provisions of 8.C above, the average concentration of radioactive materials with atomic numbers greater than 92, including Plutonium, shall not exceed 10 nanocuries per gram of waste in any container. Also, the authorization contained in this license for possession of special nuclear material does not become effective until NRC Radioactive Material License No. 04-03766-01 has been terminated.
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Transport Group II - 0.5 microcuries per milliliter
Transport Group III and IV - 30 microcuries per milliliter

- B. All liquid radioactive wastes shall be solidified prior to burial.
- C. Notwithstanding the requirements of 9.B, small quantities of liquid waste may be disposed of without solidification provided that the concentration, quantities, and packaging of these liquids is in accordance with Section 5 of the licensee's Site Operations Manual".
- D. Certification of the concentration of all liquid wastes shall be obtained by the licensee and records thereof maintained.
- E. No special nuclear material will be received in liquid form.
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- A. Each primary container does not exceed 1000 curies.
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- C. Each primary container containing less than 100 curies may be buried in its U. S. Department of Transportation approved shipping container as received.
- D. No container of gaseous waste shall be received or buried if the pressure within the container exceeds one atmosphere.
- 11. All waste shall be placed in a disposal trench or hole within three
 (3) working days of receipt, except in the event of an equipment
 breakdown or other emergency. A report of such breakdown or emergency
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- 12. All radioactive waste shall be disposed of by the licensee within sixty (60) days from the date of receipt. Disposal shall mean that the containers of waste have been covered by backfilling with three (3) feet of earth or have been completely covered by random placement of other waste. Certification of disposal shall be made on the "Radioactive Shipment Record" by authorized management personnel.
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 - A. Any inner containers with not more than 1600 curies of Cobalt 60 or radiation equivalent may be removed from shipping casks provided that the inner containers are immediately buried without interim storage or processing. The 1600 curie limit may be exceeded only if prior written approval has been obtained from the licensee's Chief Radiation Control and Safety Officer and the Radiological Health Section, Nevada Division of Health.
 - B. Any sealed source with not more than 50 curies of Cobalt 60 or the equivalent of 50 curies of Cobalt 60 in terms of radiation may be removed from shipping casks provided that the sealed sources are immediately disposed of in the special burial wells without interim storage or processing. The 50 curie limit may be exceeded only if prior written approval has been obtained from the licensee's Chief Radiation Control and Safety Officer and the Radiological Health Section, Nevada Division of Health.

- 15. Radioactive waste having hazardous properties other than radiological hazards shall not be accepted for burial by the licensee until the licensee has evaluated all hazards and has determined that safe long-term burial can be effected. Records of hazard evaluation of all such wastes performed by the licensee shall be maintained for inspection by the Radiological Health Section, Nevada Division of Health.
- 16. Within twenty (20) days following the end of each calendar month, the licensee shall submit to the Supervisor of Radiological Health, Nevada Division of Health, Capitol Complex, Carson City, Nevada, 89710, a report indicating the total volume in cubic feet, and activity of radioactive material, other than source and special nuclear materials, in curies; the total amount of source materials in pounds (or kilograms); and the total amount of special nuclear materials in grams buried during the referenced month. The report shall also indicate the cumulative totals for the above.
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- 18. Upon completion of burial operations in a burial trench, the licensee shall backfill the trench so that there is a minimum of three feet of earth between the last layer of buried waste and the surface of the ground. The licensee shall then mound earth over the trench to a minimum height of two feet at the trench centerline in such a manner as to drain runoff water away from the trench over which the earth is mounded and away from any trench in the process of being filled. The radiation levels of completed trenches shall not exceed 0.5 mR/hour at ground level. Once a trench has been completed and mounded, the licensee shall not conduct any activities, other than those necessary for maintenance, which disturbs the mounding over the trench and the drainage patterns around the trench.
- 19. Within thirty (30) days of completion of burial operations in a trench, concrete monuments shall be installed on the centerline at each end of the trench. A permanent brass sign with the following information clearly engraved or stamped into it shall be permanently affixed to each monument:
 - A. The number assigned to the trench.

- B. The date of start and completion of burial operations in the trench.
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JOHN H. CARR, M.D., STATE HEALTH OFFICER FOR THE NEVADA STATE BOARD OF HEALTH

Date (ine 29, 1977

By U. C. History

W. C. Horton, Supervisor, Radiological Healt

LICENSE #13-11-0043-02

AMENDMENT NO. 1

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No containers constructed of fiberboard, cardboard or other similar materials containing radioactive materials shall be accepted for disposal. The only exceptions are as noted in Section 5.0 of the Site Operations Manual for Low Level Radioactive Waste Disposal at Beatty, Nevada, as submitted December 8, 1976.

DEPARTMENT OF HUMAN RESOURCES
RALPH R. DISIBIO, Ed.D. Director
NUCLEAR ENGINEERING COMPANY, INC
JAMES N. NEEL, President