

REC 4 1974

In Reply Refer To:  
RO:II:PRG  
74-01

Chem-Nuclear Systems, Inc.  
Attn: Mr. Bruce W. Johnson, President  
P. O. Box 1866  
Bellevue, Washington 98009

Gentlemen:

This refers to the inspection conducted by Messrs. P. R. Guinn and G. L. Troup of our Region II office on November 26, 1974, of activities authorized by AEC Byproduct, Source and Special Nuclear Material License No. 46-13536-01 at your Barnwell, South Carolina burial site, and to the discussions of our findings held by Messrs. Guinn and Troup with Thomas J. McCord at the conclusion of the inspection.

The inspection was an examination of the activities conducted under your license as they relate to radiation safety and to compliance with the Commission's rules and regulations and the conditions of your license. The inspection consisted of selective examination of procedures and representative records, interviews with personnel, and observations by the inspector.

During the inspection it was found that certain activities under your license appear to be in violation of AEC requirements. The violations and references to pertinent requirements are identified in the enclosure to this letter.

This notice is sent to you pursuant to the provisions of Section 2.201 of the AEC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Section 2.201 requires you to submit to this office, within 20 days of your receipt of this notice, a written statement or explanation in reply including: (1) corrective steps which have been taken by you, and the results achieved; (2) corrective steps which will be taken to avoid further violations; and (3) the date when full compliance will be achieved.

Chem-Nuclear Systems, Inc.

-2-

You should note that this letter and your reply to this letter will be disclosed to the public by being placed in an AEC Public Document Room.

Should you have any questions concerning this letter, we will be glad to discuss them with you.

Very truly yours,

R. H. Engelken  
Director

cc: S. C. Moseley, Region II  
T. J. McCord, Chem-Nuclear

A-9.2

OFFICE	RO:II	RO:II	RO			
SURNAME	PRGuinn:pw	JTSutherland	R.H.Engelken			
DATE	12/4/74	12/4/74	12/ /74			

ENCLOSURE

License No. 46-13536-01

Certain activities under your license appear to be in violation of regulation requirements as indicated below:

Violations considered to be of Category II severity were as follows:

- A. Condition 1C of the license establishes the requirement that up to 850 grams of uranium 235 may be possessed at any one time provided that no single package contains more than 15 grams of uranium 235.

Contrary to the above, on numerous occasions since July 1, 1973, packages of wastes for burial have been received which contained more than 15 grams of uranium 235. Included in this total were 91 packages received during the period of October 18 through October 31, 1974, which contained from 15.1 to 49.0 grams each of uranium 235.

- B. Condition 2 of the license references the application dated November 18, 1971, and the amendment dated February 24, 1972, which establish the requirement in Appendix 6 that the environmental monitoring program shall include sampling and analysis of water, soil, vegetation and animal material at established frequencies and locations.

Contrary to the above, the environmental monitoring program being conducted is not of the prescribed scope in that the required number of wells and municipal water supplies are not being sampled and no animal material sampling has been conducted.

DEC 1974

R. H. Engleken, Director, Region V, Directorate of Regulatory Operations  
INSPECTION - CHEM-NUCLEAR SYSTEMS, INC., BELLEVUE, WASHINGTON (BARNWELL,  
SOUTH CAROLINA, BURIAL SITE) LICENSE NO. 46-13536-01

Enclosed is a draft enforcement letter to the subject licensee.

Although we found two violations during the inspection, neither involved a health and safety problem. We believe that the licensee's environmental sampling program as now being conducted is adequate to detect migrations of the buried wastes but is inadequate in that it does not meet the requirements found in Appendix 6 of the license. Also, although the licensee is exceeding the 15 grams of uranium 235 per package limit established in Condition 1C of the license, we found no evidence that this had created any safety problems. The total amounts of uranium 235 possessed at any one time had been limited to 350 grams but with individual packages containing up to 50 grams of uranium 235. These were the limits previously stipulated in the State of South Carolina license.

For your information we are enclosing a copy of our draft inspection report which was submitted to J. G. Davis on November 27, 1974, pursuant to his memorandum of November 25, 1974.

Original  
J. G. Davis

Norman G. Moseley  
Director

A-10.1

OFFICE →	RO:II <i>76</i>	RO:III <i>76</i>	RO:IV <i>76</i>		
SURNAM →	PRGuinn:pw	JTSutherland	NCMoseley:pw		
DATE →	12/4/74	12/4/74	12/4/74		

8508190010

*Inspection 12/26/74*

## Files

ASSIST INSPECTION FOR REGION V CHEM-NUCLEAR SYSTEMS, INC., BELLEVUE, WASHINGTON (BARNWELL, S.C., BURIAL SITE) LICENSE NO. 46-13536-01 (THRU AMMENDMENT NO. 5 DATED MAY 20, 1973)

## General Information

On November 26, 1974, an announced inspection was made by P. R. Guinn and G. L. Troup, Region II, of the licensee's activities at the Barnwell, South Carolina burial site. This inspection was made primarily for the purpose of determining if the buried materials had migrated into the environs as requested by J. G. Davis, RO Headquarters, in his memorandum dated November 25, 1974. This part of the inspection was covered in the Region II inspection report mailed to RO Headquarters on November 27, 1974. <sup>(copy attached)</sup> Also, a routine inspection was conducted which revealed two apparent violations. These were covered in the draft enforcement letter sent to Region V on December 4, 1974, for dispatch to the licensee.

Although the State of South Carolina was notified of the proposed inspection they did not have a representative present during the inspection.

## Persons Contacted

Thomas J. McCord, Manager, Nuclear Operations (In charge of the Barnwell site)  
R. Posick, Manager, Industrial and Nuclear Safety  
H. R. Oakley, Operations Manager

## Activities Under The License

The licensee is continuing to collect radioactive wastes throughout the Southeastern U.S.A. for burial at the Barnwell, South Carolina burial site. Most of these wastes are transported to the site in licensee trucks. Most solid wastes are being received in cardboard or wooden boxes which are taken directly to the trenches and buried. Some internally contaminated metal pipes are also being buried. Liquid wastes are being transported in DOT approved containers which are mixed with cement in 55 gallon drums and then buried. Spent resins are being transported in DOT approved containers and are buried in metal containers after the resins have been screened to remove the resin <sup>water</sup>.

All burials of byproduct and source material wastes have been conducted under State of South Carolina License No. 097. Since July 1, 1973, burial of special nuclear materials have been conducted under the AEC license.

A-10.2

### Records of Receipts

An examination of licensee records showed that since October 28, 1971, a total of 61,586 curies of byproduct material (mostly Cobalt 60), 187,796 pounds of source materials (mostly depleted uranium) and 258,326 grams of special nuclear material (all uranium 235) wastes have been received and buried at the Barnwell, South Carolina site. (copies of licensee records are attached to the Region II inspection report). On the average, 30 to 35 truck loads of waste (all types) are being received each week. Questioning of licensee personnel and an examination of records pertaining to special nuclear material receipts showed that individual packages of wastes contained up to 49 grams of uranium 235 while the total amount contained in all packages in each shipment contained up to 350 grams. (Condition 1C of the license states that no single package may contain more than 15 grams of uranium 235) An audit of records for the period of October 18 through October 31, 1974, showed that a total of 427 packages of uranium 235 wastes (14 truck loads) had been received and of this total 91 packages contained from 15.1 to 49 grams of uranium 235. The total amount of uranium 235 contained in each of the 14 truck loads ranged from 292 to 350 grams.

### Burial Procedures

No apparent changes have been made in the burial operations noted during the last inspection. The burial methods are designed to contain the materials within the burial trenches thereby preventing migration of the materials into the environs. The trenches are about 500 feet long and 20 feet deep and are excavated in a clay soil. During the burial operations clay is placed over the top of the trenches, compacted and then seeded. (The attached copy of the inspection report, dated December 4, 1974, which was submitted to RO Headquarters gives further details of the burial operations)

### Radiation Surveys

Interviews with licensee personnel revealed that radiation <sup>surveys</sup> are being made as follows:

1. Surveys, including readings with radiation survey meter and random wipe tests are made on all incoming shipments <sup>and</sup> trenches. The records showed that only occasional low level contamination (under 500 d/m) has been found on trenches and shipments. If above 2600 dpm beta-gamma or 220 dpm alpha; decontamination is conducted. Readings on shipments must not exceed 200 mr/hr on the surface and 10 mr/hr at 3 feet. The reading in the cab of the trucks must not exceed 2 mr/hr.

2. Daily instrument readings are taken in all areas of the burial site including the burial site office.
3. Weekly instrument readings are taken around all filled trenches. (Daily surveys are made on the trenches which are being filled)
4. Licensee <sup>truck</sup> ~~trench~~ drivers make surveys of each package of waste as it is loaded into the truck. If readings exceed those shown in item #3 the packages are rejected.
5. Air samples are taken at random intervals in various work areas. (The records show no significant results to date)

#### Personnel Monitoring

The licensee's personnel monitoring program involves the following:

1. All workers in the burial trench area and truck drivers are required to wear TLD's and direct reading dosimeters. Eberline is providing the TLD's on a monthly service basis. A review of these results showed that six employees had received 3150 mrem to 7020 mrem doses to the whole body during 1973 but only one had exceeded 3 rem during any calendar quarter. Employee Boyles had received 3370 mrem during the 1st calendar quarter and a total of 7020 mrem for the year. This was reported to the State of South Carolina who conducted an investigation. Boyles had assisted in unloading and burying some irradiated reactor components. A Form AEC-4 had been established for all employees. Through October 31, 1974, no employee had received in excess of 3 rem during any calendar quarter although one employee, <sup>NOE,</sup> ~~NOE~~ had received a total accumulated dose to the whole body of 4350 mrem.
2. Urine samples are collected from all burial site employees each calendar quarter and sent to Eberline for analysis. The highest results noted to date was up to 25 dpm/sample which is considered <sup>by the licensee</sup> to indicate little or no uptake of materials.
3. Each burial site employee is whole body counted by Helgeson once a year. The results for eight employees counted on March 2, 1973, was "zero". The results for 13 employees counted on May 23, 1974, revealed four employees with results indicating some low level uptake of uranium 235. These results were 60, 69, 70 and 78 micrograms or up to 30 percent on a permissible lung burden. (Approximately)
4. Personnel are required to monitor themselves for contamination each time exit is made from the burial site area. Only slight amounts of contamination have been detected on employees to date.

Environmental Monitoring

This program is discussed on pages 3 and 4 of the attached inspection report which was submitted to RO Headquarters on November 27, 1974. It was noted that the licensee has not been conducting an environmental sampling program of the required scope as established in Appendix 6 of the license.

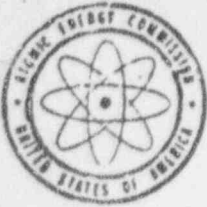
Management Review

At the conclusion of the inspection the two apparent violations were discussed with McCord. He said they would be corrected.

P. R. Guinn  
Radiation Specialist

A-10.5

OFFICE →	RO:II	RO:II	RO:II		
SURNAME →	PRGuinn:pw	J.Sutherland	<del>NCMacy</del>		
DATE →	12/15/74	12/18/74	<del>12/17/74</del>		



UNITED STATES  
ATOMIC ENERGY COMMISSION  
DIRECTORATE OF REGULATORY OPERATIONS  
REGION II - SUITE 818  
230 PEACHTREE STREET, NORTHWEST  
ATLANTA, GEORGIA 30303

TELEPHONE: 14041926-4009

John G. Davis, Deputy Director for Field Operations, Directorate of Regulatory Operations, Headquarters

SPECIAL INSPECTION - CHEM-NUCLEAR SYSTEMS, INC., BELLEVUE, WASHINGTON  
(BARNWELL, SOUTH CAROLINA BURIAL SITE) LICENSE NO. 46-13536-01

As requested in your memorandum of November 2<sup>5</sup>, 1974, enclosed in a report of an inspection conducted by Messrs. P. R. Guinn and G. L. Troup on November 26, 1974.

Our inspection revealed no evidence that radioactivity had migrated from the licensee's burial trenches into the environs. As a further evaluation of the licensee's environmental sampling program we have sent water, soil and vegetation samples to HSL for analysis.

Our inspection revealed two apparent violations which we plan to cover in separate correspondence.

A handwritten signature in cursive script, reading "Norman C. Moseley".

Norman C. Moseley  
Director

Transmitted Via Facsimile  
11/29/74 4:00 P.M. tlh

550819009

A-11

NOV 1 1974

John G. Davis, Deputy Director for Field Operations, Directorate of Regulatory Operations, Headquarters

SPECIAL INSPECTION - CHEM-NUCLEAR SYSTEMS, INC., BELLEVUE, WASHINGTON (BARNWELL, SOUTH CAROLINA BURIAL SITE) LICENSE NO. 46-13536-01

As requested in your memorandum of November 29, 1974, enclosed in a report of an inspection conducted by Messrs. P. R. Guinn and G. L. Troup on November 26, 1974.

Our inspection revealed no evidence that radioactivity had migrated from the licensee's burial trenches into the environs. As a further evaluation of the licensee's environmental sampling program we have sent water, soil and vegetation samples to HSL for analysis.

Our inspection revealed two apparent violations which we plan to cover in separate correspondence.

Original signed by  
N. C. Moseley

Norman C. Moseley  
Director

A-12.1

OFFICE →	RO:II	RO:II	RO:II			
SURNAME →	PRGuinn:jag	JTSutherland	NCMoseley			
DATE →	11/29/74	11/ /74	11/ /74			
	850819009					

DRAFT

RO Rpt. No. 74-1

Inspection Report

Chem-Nuclear Systems, Inc.,  
P. O. B. x 1866  
Bellevue, Washington 98009  
(Barnwell, South Carolina  
Burial Site)  
License No. 46-13536-01

Prepared By:

\_\_\_\_\_  
F. R. Ginn, Radiation      Date  
Specialist  
Radiological and Environmental  
Protection Branch

\_\_\_\_\_  
G. L. Troup, Radiation      Date  
Specialist  
Radiological and Environmental  
Protection Branch

Inspection Date: November 26, 1974

Reviewed By:

\_\_\_\_\_  
J. T. Sutherland, Chief      Date  
Radiological and Environmental  
Protection Branch

Licensed Activities Authorized By The State and By The AEC

1. AEC License No. 46-13536-01 authorizes the licensee to receive and process packaged waste byproduct, source and special nuclear material in the amounts specified in the license, in any State in the United States, except Agreement States, and to dispose of by burial packages containing uranium-235 in accordance with the amounts, procedures, and at the designated location specified in the license.
2. State of South Carolina License No. 097 authorizes the licensee to receive, process, store for disposal by burial byproduct and source material waste in accordance with the amounts, procedures and at the designated location specified in the license.

Licensee Activities

The licensee is receiving, possessing, transporting and storing byproduct, source and special nuclear material wastes in liquid and solid form. Most of the solid wastes are received and buried in packaged containers, although some internally contaminated pipes and other metal objects are received and buried without containers. Liquid wastes are transported in DOT authorized containers and are buried in metal drums after solidifying with cement. Spent resins are being transported in DOT authorized containers in semi-liquid form and are buried in special metal containers after de-watering. During the period of October 28, 1971, through November 12, 1974, a total of

DRAFT

A-12.2

61,586 curies of byproduct (mostly cobalt 60), 187,796 pounds of source material (mostly depleted uranium) and 258,326 grams of special nuclear (all uranium-235) material wastes have been received and disposed of by burial in nine burial trenches.

#### Burial Ground Operations

Most solid wastes are being received in wooden or cardboard packages and are taken directly to the trenches for burial. Some amounts of internally contaminated metal pipes and other metal objects are received and buried without containers. Liquid wastes are stored in a designated storage area and as time permits are mixed with cement in 55 gallon drums and after solidification are taken to the trenches and buried. Resins are screened to remove the liquids and placed in metal containers which are then placed in the trenches and buried.

#### Radiation Control Program

The licensee is requiring all employees to wear protective clothing, TLD badges and direct reading dosimeters. Radiation surveys, including instrument surveys and smear tests, are conducted on all incoming shipments. During operations where dusts are encountered, air samples are taken. Daily instrument surveys are conducted in all work areas, including the trenches in which burials are being made. After unloading of the trucks, instrument surveys and smear tests are conducted inside the trucks. Contamination surveys are made on each employee when exiting from the work area. Employees are given annual whole body counts and are required to submit quarterly urine samples for analysis. Whole body counts in 1974 for three employees indicated some uptake of uranium 235, but were only a fraction of lung burden limits. The only indication of an excessive exposure to any employee was that one employee's film badge result during the first calendar quarter of 1974 showed an exposure of 3.3 rem. This was attributed to an exposure to cobalt 60 and was reported to the State of South Carolina.

#### Control of Releases to the Environment

The licensee is controlling releases of radioactivity from the buried wastes by (1) the burying of solid wastes only and (2) by following burial methods which are designed to prevent the entrance of water into the burial trenches, thereby preventing migration of radioactivity from the trenches. Most of the wastes are buried in wooden or cardboard packages or metal drums. These are placed in the burial trenches which are excavated in a clay soil to a depth of 20 feet (about 20 feet above the water table) and are 500 feet in length. A layer of sand and rock, about three feet thick, is placed in the bottom of each trench for the purpose of collecting surface rainwater. The only other treatment for the trenches is that during excavation operations clay is piled on the sides of the trenches to a thickness of at least three feet. Wast

containers are stacked to a height of 12 feet but no higher than five feet from the top of the trench and then covered with soil. A layer of clay, at least six-feet-thick is placed over the top of the filled trench and then compacted and seeded. Each filled trench is marked with a permanent granite marker.

Environmental Monitoring Program

1. The AEC and State of South Carolina licenses specify that an environmental monitoring program shall be conducted, consisting of the following:
  - (a) thirty-five well water samples on annual basis (gross alpha, gross beta) except all wells within 1500 feet of trench boundaries shall be samples on a semi-annual period
  - (b) trench well water samples prior to burial operations and on a quarterly period.
  - (c) soil samples prior to burial operations
  - (d) animal and vegetable material sampled "periodically"
  - (e) Water samples from five municipal water supplies off-site on an annual basis
  - (f) "small number" of air samples to be obtained initially
  - (g) determination of water table configuration in March and September annually
  - (h) water level recorder installed in one well
  
2. The licensee is conducting an environmental monitoring program which was described by licensee representatives to consist of the following:
  - (a) nine well water samples on annual basis (gross alpha, gross beta, gamma isotopic and tritium); one well water sample semi-annually
  - (b) trench well water samples quarterly (Note: records indicate this is being performed semi-annually; review of records revealed no trench well samples were collected prior to burial).
  - (c) soil samples from six locations annually (gross beta, gamma isotopic) weekly samples from areas around site (no specific number) (gross beta as check for spread of contamination)

DRAFT

RO Rpt. No. 74-1

-4-

- (d) vegetation samples from six locations annually (gross beta, gamma isotopic); no animal samples are collected
- (e) no municipal water supply samples are collected; the State of South Carolina collects and analyzes the municipal water supply samples and furnishes results to the licensee
- (f) one continuous air particulate monitor changed weekly and analyzed (gross beta)
- (g) water levels in wells logged semi-annually, but not necessarily in March and September.
- (h) continuous water level indicated with strip chart recorder installed in one well (installed October 1974)

All samples are collected by licensee personnel. Water, annual soil and annual vegetation samples are analyzed by Eberline Instrument Corporation. Weekly soil samples and air particulate samples are analyzed on site by the licensee.

3. A review of the environmental monitoring program records indicates a gap in the performance of the required samples between 1970 and 1973 for peripheral well samples and no data prior to 1973 for other samples (soil, vegetation, animal material, trench well water). The trench well water sample data indicates that samples are being collected and analyzed semi-annually, not quarterly as stated by the licensee. Also, the wells around the site boundary which are not on the licensee's property are not being sampled and analyzed nor are animal samples being collected. The licensee is not conducting an environmental monitoring program in accordance with the conditions of the license.
4. A review of the available sample results for peripheral well water, trench well water, soil and vegetation does not indicate any apparent migration of radioactivity from the burial trenches to the surrounding environs. Examples of data collected by the licensee to substantiate this are:

DRAFT

A-12.5

DRAFT

RO Rpt. No. 74-1

-5-

Well B-18 (peripheral well)

gross beta : 12/70 1.25 E + 1 pCi/l  
3/73 <2.25 ± 2.25 E-2 pCi/l  
(reported as <1.00 E+01 d/m/200 ml ± 100%)

Well B-14 (peripheral well)

gross beta : 3/73 <2.25 ± 2.25 E-2 pCi/l  
5/74 01 ± 3.0 EO pCi/l  
(reported as <1.00 E+1 d/m/200 ml ± 100%)

Well 2-W-W (trench well)

gross beta : 8/73 0 ± 5.5 EO pCi/l  
5/74 0 ± 3.6 EO pCi/l

Well 1-E-W (trench well)

gross beta : 8/73 5.7 ± 5.7 EO pCi/l  
5/74 0 ± 3.6 EO pCi/l

Soil sample location #1: 11/74 9/73

Cs-137	1.1 ± 0.9 E-01 pCi/g	3.39 ± 1.05 E-01 pCi.
Co-60	6.2 ± 5.7 E-02	2.19 ± 0.85 E-01
Bi-214	5.4 ± 2.1 E-01	8.06 ± 2.53 E-01
Pb-212	7.8 ± 2.7E-01	1.01 ± 0.26 EO

Vegetation sample location #4: 11/74 9/73

Cs-137	<1.4 EO pCi/g	8.19 ± 4.68 E-01 pCi
Ph-212	<4.0 EO	<1.23 EO
Co-60	4.2 ± 1.4 EO	9.14 ± 3.94 E-01

DRAFT

A-12.6

A-12.7

files.

12/30/74

Attached are results of analysis of liquid samples which were collected during the 11/26/74 inspection of the Barnwell Burial Site (license no. 46-13536-01). The results do not appear to be above ~~levels~~ normal background levels.

AY Gibson  
RO: II Sr. HP

MISSION  
ICE  
RANCH  
I EET

REFERENCE: HEALTH SERVICES  
LABORATORY  
SERIAL NO. 00277  
A-12.8

ANALYZED BY: J. BOE, LRM, JRM

TOTAL COUNT	GROSS COUNT c/p	BRGD. c/p ml/l	NET COUNT c/p	RESULTS (DPM/ml)
21	10	15	60 ± 10	< 0.06
		22 c/p	1 ± 1 c/p	2.3 ± 0.4 × 10 <sup>-6</sup>
				0.11/ml on 11
				10 <sup>-8</sup>
				1.0 × 10 <sup>-5</sup> c/p
				(1.2 ± 0.4) × 10 <sup>-5</sup>
10	274/m	3	99 ± 7	< 0.04
		22 c/p	5 ± 1 c/p	1.7 ± 0.4 × 10 <sup>-6</sup>
				0.11/ml on 11
				< 10 <sup>-10</sup>
				10 <sup>-10</sup>
				1.0 × 10 <sup>-5</sup>
		15	40 ± 8	< 0.04
		22 c/p	1 ± 1 c/p	1.0 × 10 <sup>-5</sup>
		0.47	17	1.0 × 10 <sup>-5</sup>
			26	1.0 × 10 <sup>-5</sup>

ES  
NO.

APPROVED: *[Signature]*  
SECTION CHIEF

U.S. ATOMIC ENERGY COMMISSION  
IDAHO OPERATIONS OFFICE  
ANALYTICAL CHEMISTRY BRANCH

REFERENCE: HEALTH SERVICES  
LABORATORY

ROUTINE        SPECIAL   7  

SAMPLE RECORD SHEET

SERIAL NO. 627

A-13.9

ORIGIN: 10: 11 South Carolina

SAMPLES RECEIVED: 1/1/74

ANALYZED BY: W. H. H. L. H. H. H.

COLLECTED BY: \_\_\_\_\_

ANALYSIS COMPLETED: 1/13/74

DATE SUBMITTED: \_\_\_\_\_

SAMPLE			SAMPLE DESCRIPTION	ANAL. FOR	INST. USED	QUANT. USED ml	TIME CNTD.	COUNT TIME min	TOTAL COUNT	GROSS COUNT c/p	BKGD. c/m	NET COUNT c	RESULTS Bq/ml
N.	DATE	HOUR											
1	11/20		Water	Pose		10	12/1	100	70		16	60 ± 10	< 0.06
				Pose	relat.	10	12/12	100		10	22 c/r	± 1 c/m	2.3 ± 0.4 × 10 <sup>-6</sup>
				Pose			12/11						0.01/ml on 11/20
				Pose	to. 1	100	12/11	1538	912.35				1.5 × 10 <sup>-4</sup>
				Pose	"	"	"	"	"				0.1 ± 0.1 × 10 <sup>-4</sup>
				Pose	"	"	"	"	"				(1.2 ± 0.4) × 10 <sup>-4</sup>
2	11/20		Water	Pose		10	12/11	100	100		3	99 ± 7	< 0.04
				Pose	relat.	10	12/12	100		27 d/m	22 c/m	± 1 c/m	1.7 ± 0.4 × 10 <sup>-6</sup>
				Pose			12/11						0.01/ml on 11/20
				Pose	to. 2	100	12/11	1532	973.62				< 1 × 10 <sup>-6</sup>
				Pose	"	"	"	"	"				< 8 × 10 <sup>-7</sup>
				Pose	"	"	"	"	"				< 2 × 10 <sup>-7</sup>
3	11/20		Water	Pose		10	12/11	100	100		14	40 ± 8	< 0.04
				Pose	relat.	10	12/12	100		27 d/m	22 c/m	± 1 c/m	1.7 ± 0.4 × 10 <sup>-6</sup>
				Pose			12/11						0.01/ml on 11/20
				Pose	"	"	"	"	"				< 0.1
				Pose	"	"	"	"	"				< 0.1

NOTIFIED: \_\_\_\_\_ TIME: \_\_\_\_\_ RESAMPLING YES \_\_\_\_\_  
RECOMMENDED: NO \_\_\_\_\_

APPROVED: [Signature]  
SECTION CHIEF

U.S. ATOMIC ENERGY COMMISSION  
 IDAHO OPERATIONS OFFICE  
 ANALYTICAL CHEMISTRY BRANCH  
 SAMPLE RECORD SHEET

LABORATORY SERIAL NO. 6027-4  
 A-12.10

DATE FROM: 12/11/76  
 COLLECTED BY: ED. J. ...

SAMPLES RECEIVED: 12/10/76  
 ANALYSIS COMPLETED: 12/13/76

ANALYZED BY: ED. J. ...

SAMPLE NO.	DATE	HOUR	SAMPLE DESCRIPTION	ANAL. FOR	INST. USED	QUANT. USED	TIME CNTD.	COUNT TIME	TOTAL COUNT	GROSS COUNT CP	BKGD. C/m	NET COUNT C/m	RESULTS D/(m)
1	12/11	10	...	...	...	...	12/11	1000	185	270/m	22 c/m	39±8	< 0.01
2	12/11	10	...	...	...	...	12/11	937.07	...	...	...	...	...
3	12/11	10	...	...	...	...	12/11	...	...	...	...	...	...
4	12/11	10	...	...	...	...	12/11	...	...	...	...	...	...
5	12/11	10	...	...	...	...	12/11	...	...	...	...	...	...
6	12/11	10	...	...	...	...	12/11	...	...	...	...	...	...
7	12/11	10	...	...	...	...	12/11	...	...	...	...	...	...
8	12/11	10	...	...	...	...	12/11	...	...	...	...	...	...
9	12/11	10	...	...	...	...	12/11	...	...	...	...	...	...
10	12/11	10	...	...	...	...	12/11	...	...	...	...	...	...

NOTIFIED: \_\_\_\_\_ TIME: \_\_\_\_\_ RESAMPLING YES \_\_\_\_\_ RECOMMENDED: NO \_\_\_\_\_ APPROVED: [Signature] SECTION CHIEF