Niagara Falls, New York
July 13, 1983

Design Memo No. 1

File No. 11309

1983

SUBJECT: Radiological Survey, Cleanup Options and Cost Estimates

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INTERNAL CORRESPONDENCE

METALS DIVISION

P.O. BOX 97, NIAGARA FALLS, NY

To (Name) Mr. R. J. Klotzbach
Division UCC-Metals Division
Location Niagara Falls, NY

Date July 13, 1983

Copy See Attached Distribution

Subject Design Memo No. 1
Radiological Survey, Cleanup
Options and Cost Estimates
File No. 11309

Dear Bob:

Attached is Design Memo No. 1 "Radiological Survey, Cleanup Options and Cost Estimates".

Union Carbide Corporation presently is out of compliance with its New York Radioactive Materials License No. 950-0139 due to radioactive source concentrations in excess of 500 ppm behind Niagara Building 166, where access to employees is unrestricted. To identify the area and depth of contamination, the area south of Building 166 was surveyed by Mr. D. R. Brosnahan and the author. The results indicate that a soil volume of 5130 $ft.^3$ must be restricted or removed for compliance with New York State regulations. An additional 1700 $ft.^3$ must be removed for delicensing and unrestricted use.

The following five alternatives have been considered and cost estimates prepared as part of the design memo.

Alternative	Description	Cost
1	Fence in Place	$ 10,000
2	Remove & Fence on Elkem Property	65,000
3	Remove & Fence on UCC Property	120,000
4	Remove & Bury - UCC Niagara	175,000
5	Remove & Ship to a Repository	335,000

The recommendation is to proceed with Alternative No. 3, based primarily on the condition that the property will be deeded to Elkem Metals Company. The material remains available for implementing Alternative No. 4, "Bury on UCC Property", or Alternative No. 5, "Ship to an Approved Repository", in the future. An R & D effort can also proceed to investigate ways to reduce the volume. Far less expense is required for the alternative to "Fence in Place", which is recommended if property ownership does not change.

L. G. Evans

LGE/dac
Attachments

Union Carbide Corporation
Metals Division
Technology Department - Engineering
Niagara Falls, New York

File No. 11309

DESIGN MEMORANDUM
SPONSOR: T. J. KAGETSU

PROJECT: Soil Decontamination - South of Building 166, Niagara

BY: L. G. Evans/D. R. Brosnahan

DATE: May 20, 1983

Design Memo No. 1
Revision 0
Subject: Radiological Survey, Cleanup Options and Cost Estimates

1.0 INTRODUCTION

1.1 Scope

To include an engineering evaluation of the alternatives available for disposal of the radioactive contaminants from areas south of Building 166.

1.2 History

The U. S. Department of Energy performed surveys in 1976 to assess the radiological status of facilities utilized under Manhattan Engineer District contract during the period 1943-1946. UCC's Metals Division at Niagara was one of those sites. They discovered contamination South of Building 166 and notified Union Carbide and New York State.

As a result, New York State Department of Labor performed a follow up survey on December 1, 1981 and cited UCC for violation of its New York Radioactive Materials License No. 950-0139 by storing source concentrations in excess of 500 ppm without restricting access to employees.

Later, thorium was found to be a major radioactive contaminate indicating that the radiation is unrelated to the Manhattan Engineer Project.

This problem is further complicated by the divestiture of the ferroalloys business and anticipated eventual ownership of the property by Elkem Metals Company.

2.0 DISCUSSION

2.1 General

All phases of a waste clean up project are directly affected by the quantity of waste to be handled. Therefore, the first priority was to develop a reasonably good estimate of the volume.

A gamma radiation survey was performed over the entire fenced area behind Building 166 to determine the area of involvement excluding areas covered by asphalt or concrete. Soil samples were obtained from several areas and analyzed for % U_3O_8 and % ThO_2. Samples were extracted at various levels in five holes to determine depth of involvement. Samples were also taken to obtain a rough correlation between gamma readings and uranium/thorium content.

2.2 Cleanup Criteria

2.2.1 General

The cleanup criteria is dependent upon the use or future use of the property. New York State Regulations would apply with continuance of license. NRC Regulations would apply for delicensing.

2.2.2 New York State Regulations

NYS requires restriction of access to areas where the radioactive contaminants exceed 500 ppm of source materials. Below 500 ppm radioactive materials can be stored with unrestricted access.

To facilitate a comparison of this limit to the NRC limits a conversion to pCi/gm is made assuming a 2:1 (thorium:uranium) ratio. (See calculations attached).

These limits for unrestricted access are the total of the following:

$\leq$36 pCi/gm Thorium
$\leq$57 pCi/gm Uranium

These limits are used only for determination of compliance with our license for restricted or unrestricted access.

If the State is approached by UCC for criteria for delicensing they probably will require compliance with NRC Regulations due to Agreement State principles.

2.2.3 NRC Regulations

The NRC proposed regulations[1] provide four options for burial and delicensing. A fifth option deals with continuing the license.

(1) Federal Register/Vol. 46 No. 205/Friday Oct. 23, 1981, Notices (attached).

Option 1	$\leq$10 pCi/gm Thorium and/or 10 pCi/gm Uranium - unrestricted use and delicensing. (Burial not required).
Option 2&3	$\leq$50 pCi/gm Thorium and 40 pCi/gm Uranium - deed amendment and delicense, restricted access by burial with minimum four foot cover. No residential building. Option 2 specifies thorium and Option 3 uranium.
Option 4	$\leq$500 pCi/gm Thorium and 200 pCi/gm Uranium - much more restricted use of the land than Options 2 and 3. No excavation or building.

Option 5 of the Regulation deals with on-site storage of higher concentrations pending the availability of space at an approved repository. No burial is permitted.

2.3 Radiological Survey

2.3.1 Gamma Survey

The survey was performed with a portable gamma ray spectrometer, Model GR-410 manufactured by Geometries Exploranium and detector Model No. GPX-21 employing a sodium iodide thallium activated crystal as a scintillation phosphor.

All of the area south of Building 166 and bounded by the chain link fence was surveyed except areas covered by concrete or asphalt. The actual area surveyed was approximately 26,000 ft.^{2}. Concrete and asphalt cover 63,000 ft.^{2}.

A 10' x 10' grid was established and readings were taken at the intersection points. Extra readings were taken along the west track center line and near the edge of the concrete on both sides.

A resurvey of a 400 ft.^{2} area was done using a 2' x 2' grid to assess the reliability of the general survey. The location of this area is shown on Drawing SF-7902 as Detail 1. The data are also displayed in Figure I (attached).

All gamma meter readings were reduced to the number of times background and are reported on Drawing SF-7902.

2.3.2 Analytical Survey

Soil Samples - The physical samples were essentially 'grab' samples. No systematic sampling technique was used. The analytical work was performed by Elkem's laboratory at Niagara Falls. The results are shown in Table III (attached) and on Drawing SF-7902.

The chemical analyses of the surface soil samples ranged from 0.006% to 0.40% ThO_2 and from 0.002% to 0.17% U_3O_8.

2.4 Survey vs Regulations

The following Table I is a comparison of the surface soil sample analyses converted to pCi/g and the gamma radiation readings (times background). Below the table is a guide comparing gamma readings to cleanup or storage criteria. The gamma range is estimated based on the analyses of Table III (attached).

TABLE I

GAMMA X BKG	URANIUM pCi/gm	THORIUM pCi/gm	SAMPLE NO.	CONTAMINANTS PPM
1	3	2	11	20
3	11	11	9	131
5	6	6	8	70
6	11	19	2	210
8	8	22	5	228
9	14	40	1	401
12	26	61	3	650
13	8	12	10	140
17	26	66	4	674
21	42	105	12	1094
26	57	164	14	1664
33	82	201	13	2091
83	466	382	5	4957

GAMMA RANGE	NYS/NRC REQUIREMENTS
1 - 5	Will meet NRC proposed regulations for delicensing and unrestricted land use. NRC Option 1 (Sec. 2.3.3) - no burial required.
6 - 9	NYS allows unrestricted access and continue license. NRC allows burial and delicensing. Options 2 and 3 - burial required.
10 - 60*	NYS requires restricted access. NRC allows burial and delicensing - Option 4.
>60	NYS requires restricted access. NRC requires restricted access and storage until space is available at an approved repository, e.g., Barnwell, SC.

*Interpolated

2.5 Contamination Volume

2.5.1 General

The gamma survey, surface and subsurface soil analyses and the guide above are combined to estimate the quantity of material of each class in each area.

The depth of contamination varies throughout the area of involvement, but is generally less than six inches. However, to expedite cleanup, the rails and ties must be removed, requiring a minimum removal depth of eight inches.

2.5.2 High Concentration Area

This area contains material which exceeds NRC burial limits and must be disposed of (eventually) at an approved repository. Gamma readings are above 60 times background. This area is the most heavily contaminated both in radiation level and depth of contamination. Contamination can be found 12 inches below the surface.

Volume = 400 $ft.^2$ x 1 ft. deep = 400 $ft.^3$

2.5.3 Medium Concentration Area

This area contains material which requires restricted access. Gamma readings are 10-60 times background.

Volume = 6400 $ft.^2$ x 2/3 ft. deep = 4267 $ft.^{3*}$

*Approximately 30% of the area found to be low concentration on the general survey (10' x 10' Grid) was found to be medium concentration upon resurvey (2' x 2' Grid). See Drawing SF-7902 or Figure I. This volume is included.

2.5.4 Low Concentration Area

This area contains material which must be removed to delicense but which can remain with unrestricted access under current license. Gamma readings are 6-9 times background.

Volume = 2200 $ft.^2$ x 2/3 ft. deep = 1467 $ft.^3$

2.5.5 Summary

The following summarizes the above volumes including a 15 percent contingency:

High Concentration	- 230 $ft.^3$
Medium Concentration	- 4900 $ft.^3$
Low Concentration	- 1700 $ft.^3$
TOTAL	6830 $ft.^3$

NOTE: No exploration was done beneath any of the concrete or asphalt pads. The depth of involvement and the location of contamination along the railroad tracks indicates the radioactive materials were spilled during handling from rail cars and contamination under the pads is unlikely.

3.0 DESCRIPTION OF CLEANUP ALTERNATIVES

3.1 Summary

Five cleanup alternatives are considered in this memorandum. The major factors influencing final selection of an alternative are: term of solution (short or long), delicensing, property transfer to Elkem, compliance with NYS Regulations, and cost.

Table II below summarizes the alternatives opposite these factors.

TABLE II

ALTERNATIVE NO.	DESCRIPTION	TERM	DELICENSE*	TRANSFER PROPERTY TO ELKEM	COST $000
1	Fence in place	Short	No	No	10
2	Remove & fence on Elkem Property	Short	No	No	65
3	Remove & fence on UCC Property	Medium	No	Yes	120**
4	Remove & bury - UCC Niagara	Long	Yes	Yes	175
5	Remove & ship to repository	Permanent	Yes	Yes	335

* Assumes that this is the only contaminated area in the plant.

**If a concrete pad is available the cost would be $90,000.

3.2 Alternative No. 1 - Fence in Place

Simply enclose the contaminated area thus restricting access.

Requirements - 400 feet of fence.

Advantages
- Quick solution to come into compliance with NYS.
- Minimum cost.

Disadvantages
- Contamination remains requiring future action.
- Transfer of property to Elkem is not possible unless Elkem obtains a license or UCC removes the material.

3.3 Alternative No. 2 - Remove and Fence on Elkem Property

As mentioned earlier, much of the area South of Building 166 is covered with concrete and asphalt. The material (soil) could be removed and stored on an existing pad in the Southeast corner of the property. The pad and a plastic covering would provide stability and a fence would provide restricted access until final disposal.

Requirements
- Removal of railroad tracks.
- Disposal of scrap and debris**.
- 100 ft. fence required - S & E corner site.
- Concrete/asphalt pad - already available.
- Replacement of railroad track.

Advantages
- Consolidation of contaminants.
- Access can be restricted.
- This work is required for ultimate disposal in any event.

Disadvantages
- Short term solution.
- 1/10 acres of land would not be available for Elkem use.
- Transfer of property to Elkem is not possible unless Elkem obtains a license or UCC removes the material.

**This includes
- Three flat bed railroad cars loaded with induction furnaces.
- Stacks of deteriorating 55 gallon drums.
- Stacked wooden boxes containing steel shot, etc.
- Numerous 5' x 5' x 5' steel boxes.
- Various ladles, furnaces, carbon electrodes, etc.

3.4 Alternative No. 3 - Remove and Fence on UCC Property

The work required here is essentially the same as in 3.3 above. Costs increase and extra care must be taken to avoid contamination of other areas of the plant. However, the property can then be released for transfer to Elkem. An area in the Niagara Plant has been designated by plant personnel for possible use.

Requirement
- Same as 3.3 except more fence and a new concrete pad may be required.

Advantage
- Same as 3.3 except it has the additional advantage of not interfering with Elkem property use. Property can be transferred to Elkem.

Disadvantage
- Medium term solution.

3.5 Alternative No. 4 - Remove and Bury - UCC Niagara

Burial on Union Carbide owned property was explored for the Marietta TaCb cleanup project. The main problems are: finding a suitable burial site, getting State and Local approval, future use or transfer of the burial site is restricted, and long term monitoring of the site is necessary.

Requirements
- Remove and replace railroad tracks.
- Dispose of scrap and debris at approved repository.
- A suitable burial site.
- Containers (55 gallon drums) may be required.
- Dispose of 400 $ft.^3$ soil at approved repository.

Advantages
- Long term solution.
- Delicense.

Disadvantages
- Use of the burial site will be restricted - no construction.

3.6 Alternative No. 5 - Remove and Ship to Repository

This alternative is permanent. Once the material is received at the repository, the host state becomes owner and the licensee's accountability ends. However, this is the most expensive alternative.

Requirements
- Remove and replace railroad tracks.
  Disposal of scrap and debris at approved repository.
  Containers.
  Loading system.

Advantage
- Permanent solution.

Disadvantage
- Highest cost.

3.7 Remove and Ship to Uravan

This alternative was selected for the TaCb residue cleanup project in Marietta. The uranium content of the TaCb residue was 0.13% U_3O_8 and processing to recover uranium values was feasible and acceptable to the Colorado Department of Health. The material (soil) analyses at Niagara indicate 0.01% U_3O_8. Therefore, transfer to Uravan cannot be considered.

4.0 COST ESTIMATES

As discussed in Section 2.4, the radiological survey indicates three levels of contamination above NRC delicensing limits. They are: 6-9 x BKG (background), 10-60 x BKG and greater than 60 x BKG. Volumes were calculated

for each area with the thought that some alternatives would not require the removal of the combined total volume but only those areas with the highest concentrations. However, to simplify costings and cost comparison, only the total volume of Section 2.5.5 is considered. All medium and high concentration material requires fencing or removal. The low concentration material adds an additional 25% to the volume, but adds only 10% to the cost. The volume for cost estimating is then 6830 $ft.^3$.

Cost Estimates No. 6342 through 6346 are attached.

Cost Estimate No. 6342	Fence in Place	$ 10,000
Cost Estimate No. 6343	Remove and Fence - Elkem	$ 65,000
Cost Estimate No. 6344	Remove and Fence - UCC Niagara	$120,000
Cost Estimate No. 6345	Remove and Bury - UCC Niagara	$175,000
Cost Estimate No. 6346	Remove and Ship to Barnwell	$335,000

Note: Costs do not reflect removal of debris which is assumed to be Elkem's accountability.

5.0 RECOMMENDATIONS

Removal and relocation of the contaminated soil to the Niagara plant as described in Alternative No. 3 is recommended based on the following.

1. The property will be deeded to Elkem Metals Company.

2. Any restriction to the use of the property behind Building 166, or any potential cleanup liability to Elkem, is unacceptable.

3. EPA and NRC regulatory uncertainties exist concerning burial. (Perpetual maintenance costs are not included in the estimate for Alternative No. 4.) Burial also makes the material unavailable for disposal at an approved repository as discussed below. New York state may ban all burial within the state in the near future.

4. Disposal at Barnwell, SC is too costly and there is reason to believe that a new repository will be opened in the Northeast by 1986 which may reduce the cost of that option.

Any remedial effort must be approved by the State of New York, Department of Labor. For the material to be left on-site, Radioactive Materials License No. 950-0139 must be amended. This amendment or some form of approval should be received prior to the beginning of any cleanup.

Niagara Falls, New York
May 19, 1983

Cost Estimate No. 6342

File No. 11309

Revised: July 6, 1983

UNION CARBIDE CORPORATION
METALS DIVISION
TECHNOLOGY DEPARTMENT - ENGINEERING
SPONSOR: T. J. KAGETSU

FEASIBILITY STUDY COST ESTIMATE
DECONTAMINATION BUILDING 166 - FENCE IN PLACE (ALTERNATIVE 1)

1983 DOLLARS	MATERIAL $000	LABOR $000	CAPITAL $000	NON-CAPITAL $000
100 MATERIAL				
101 400' Fence (6 ft.) Along 1100N	-	8	8	-
TOTAL		8	8	-
TOTAL DIRECTS		8	8	-
ENGINEERING			-	-
CONTINGENCY			2	
RADIOLOGIST/HEALTH PHYSICS (1 Mo.)			-	-
TOTAL			10	-

FRANGELORI/dac

cc: TJK(2): CGR: AJC: LGE: RGH: FRA(4)

Niagara Falls, New York
May 19, 1983

Cost Estimate No. 6343

File No. 11309

Revised: July 6, 1983

UNION CARBIDE CORPORATION
METALS DIVISION
TECHNOLOGY DEPARTMENT - ENGINEERING
SPONSOR: T. J. KAGETSU

FEASIBILITY STUDY COST ESTIMATE
DECONTAMINATION BUILDING 166 - REMOVE AND FENCE ELKEM (ALTERNATIVE 2)

	1983 DOLLARS	MATERIAL $000	LABOR $000	CAPITAL $000	NON-CAPITAL $000
100	SOIL REMOVAL				
101	Remove & Relocate Soil 7000 ft.^{3}	-	5	-	5
102	Fence 6 ft. - 100 ft.	-	2	-	2
	TOTAL		7		7
200	RECLAMATION				
201	Backfill	-	5	5	-
202	Equipment Decontamination (Loader & Trucks)	-	3	3	-
203	Replace RR Track	-	25	15	10
	TOTAL		33	23	10
	TOTAL DIRECTS		40	23	17
	ENGINEERING			7	5
	CONTINGENCY			8	3
	RADIOLOGIST/HEALTH PHYSICS			2	-
	TOTAL			40	25

FRANGELORI/dac
cc: TJK(2): CGR: AJC: LGE: RGH: FRA(4)

Niagara Falls, New York
May 19, 1983

Cost Estimate No. 6344

File No. 11309

Revised: July 6, 1983

UNION CARBIDE CORPORATION
METALS DIVISION
TECHNOLOGY DEPARTMENT - ENGINEERING
SPONSOR: T. J. KAGETSU

FEASIBILITY STUDY COST ESTIMATE
DECONTAMINATION BUILDING 166 - REMOVE AND FENCE - UCC NIAGARA (ALTERNATIVE 3)

	1983 DOLLARS	MATERIAL $000	LABOR $000	CAPITAL $000	NON-CAPITAL $000
100	SOIL REMOVAL				
101	Remove & Relocate Soil 7000 ft.^{3} (haul)	-	10	-	10
102	Concrete Pad - 60 cy.	-	30	30	-
103	Fence 6 ft. - 200 ft.	-	4	4	-
	TOTAL		44	34	10
200	RECLAMATION				
201	Backfill	-	5	5	-
202	Equipment Decontamination (Loader & Trucks)	-	3	3	-
203	Replace RR Track	-	25	15	10
	TOTAL		33	23	-
	TOTAL DIRECTS		77	57	20
	ENGINEERING			9	6
	CONTINGENCY			10	2
	RADIOLOGIST/HEALTH PHYSICS (1 Mo.)			14	2
	TOTAL			90	30

FRANGELORI/dac
cc: TJK(2): CGR: AJC: LGE: RGH: FRA(4)

Niagara Falls, New York
May 19, 1983

Cost Estimate No. 6345

File No. 11309

Revised: July 6, 1983

UNION CARBIDE CORPORATION
METALS DIVISION
TECHNOLOGY DEPARTMENT - ENGINEERING
SPONSOR: T. J. KAGETSU

FEASIBILITY STUDY COST ESTIMATE
DECONTAMINATION BUILDING 166 - REMOVE AND BURY - UCC NIAGARA (ALTERNATIVE 4)

	1983 DOLLARS	MATERIAL $000	LABOR $000	CAPITAL $000	NON-CAPITAL $000
100	SOIL REMOVAL				
101	Remove & Relocate Soil 7000 ft.^{3} (haul)	-	10	-	10
102	Clay Lined Pit w/Drain System 40 ft.^{2} x 5 ft.	-	15	15	-
103	Clay Cap	-	15	15	-
	TOTAL		40	30	10
200	RECLAMATION				
201	Backfill	-	5	5	-
202	Equipment Decontamination (Loader & Trucks)	-	3	3	-
203	Replace RR Track	-	25	15	10
	TOTAL		33	23	10
300	DISPOSAL				
301	Transportation	-	1	-	1
302	Burial Fee (200 ft.^{3})	1	8	-	9
	TOTAL	1	9		10
	TOTAL DIRECTS	1	82	53	30
	ENGINEERING			8	8
	CONTINGENCY			15	5
	RADIOLOGIST/HEALTH PHYSICS (1 Mo.)			4	2
	SITE SELECTION			35	
	TOTAL			125	50

FRANGELORI/dac
cc: TJK(2): CGR: AJC: LGE: RGH: FRA(4)

Niagara Falls, New York
May 19, 1983

Cost Estimate No. 6346

File No. 11309

Revised: July 6, 1983

UNION CARBIDE CORPORATION
METALS DIVISION
TECHNOLOGY DEPARTMENT - ENGINEERING
SPONSOR: T. J. KAGETSU

FEASIBILITY STUDY COST ESTIMATE
DECONTAMINATION BUILDING 166 - REMOVE AND SHIP TO BARNWELL, SC (ALTERNATIVE 5)

	1983 DOLLARS	MATERIAL $000	LABOR $000	CAPITAL $000	NON-CAPITAL $000
100	SOIL REMOVAL				
101	Remove Soil 7000 ft.^{3} (haul)	-	5	-	5
102	Containers (80 boxes - 100 ft.^{3})	20	-	-	20
103	Loading Trucks (incl. Pallets, etc.)	5	4	-	9
	TOTAL	25	9		34
200	RECLAMATION				
201	Backfill	-	5	5	-
202	Equipment Decontamination (Loader & Trucks)	-	3	3	-
203	Replace RR Track	-	25	15	10
	TOTAL		33	23	10
300	DISPOSAL				
301	Transportation $1000 (10 loads)	-	10	-	10
302	Burial Fee (8000 ft.^{3} incl Container)	-	160	-	160
	TOTAL		170		170
	TOTAL DIRECTS	25	212	23	214
	ENGINEERING			5	28
	CONTINGENCY			3	46
	RADIOLOGIST/HEALTH PHYSICS (1 Mo.)			4	2
	TOTAL			45	290

FRANGELORI/dac
cc: TJK(2): CGR: AJC: LGE: RGH: FRA(4)

CALCULATIONS

New York State regulations require that access be restricted to areas where the source material exceeds 500 ppm. For the purpose of comparison with NRC regulations a Thorium/Uranium ratio of 2:1 is assumed.

Therefore, the maximum activities for unrestricted access are:

NYS maximum Thorium activity equals:

$$330 \text{ parts/million} \times 1.09 \times 10^5 \text{ pCi/gm} = 36 \text{ pCi/gm}$$

NYS maximum Uranium activity equals:

$$170 \text{ parts/million} \times 3.33 \times 10^5 \text{ pCi/gm} = 57 \text{ pCi/gm}$$

The Assistant Secretary finds that good cause exists for not publishing the supplement to the Puerto Rico State Plan as a proposed change and making the Regional Administrator's approval effective upon publication for the following reasons:

1. The standards are identical to the Federal standards which were promulgated in accordance with Federal law meeting requirements for public participation.

2. The standards were adopted in accordance with the procedural requirement of State Law and further participation would be unnecessary.

The decision is effective October 23, 1981.

(Sec. 18 Pub L. 91-596, 84 Stat. 1608 (29 U.S.C. 667))

Signed at New York City, New York, this 15th day of June 1981.

Roger A. Clark,

Regional Administrator

[FR Doc. 81-30745 Filed 10-22-81, 8:45 am]

BILLING CODE 4510-26-M

NUCLEAR REGULATORY COMMISSION

Advisory Committee on Reactor Safeguards, Subcommittee on Callaway Plant; Location Change

The ACRS Subcommittee on Callaway Plant will hold a meeting on November 4 and 5, 1981, at the HOLIDAY INN-WEST, 1900 I-70 Drive Southwest, Columbia, MO instead of the Hilton Inn.

Notice of this meeting was published in the Federal Register on October 19, 1981 (46 FR 51329), and all other items remain the same except for the location change as indicated above.

Dated. October 19, 1981.

John C. Hoyle,

Advisory Committee, Management Officer.

[FR Doc. 81-30733 Filed 10-22-81, 8:45 am]

BILLING CODE 7590-01-M

Disposal or Onsite Storage of Thorium or Uranium Wastes From Past Operations

AGENCY: Nuclear Regulatory Commission (NRC).

ACTION: Discussion of options for NRC approval of applications for disposal or onsite storage of thorium or uranium wastes; interim use and public comment.

SUMMARY: This notice discusses five options for NRC approval of disposal or onsite storage or thorium or uranium wastes from past nuclear operations The options are contained in a Branch Technical Position for administration by the Uranium Fuel Licensing Branch, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards.

DATES: Comments on the options for disposal or onsite storage of thorium or uranium are encouraged. Such comments will be considered in any subsequent revision of the Branch Technical Position. Comments are due December 22, 1981.

Note.—Comments received after the expiration date will be considered if it is practical to do so, but assurance of consideration cannot be given except as to comments filed on or before that date.

FOR FURTHER INFORMATION CONTACT: Ralph G Page, Chief, Uranium Fuel Licensing Branch, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards, Washington, D C. 20555, telephone 301-427-4309.

SUPPLEMENTARY INFORMATION:

I. Introduction

Some of the sites formerly used for processing thorium and uranium are known today to be contaminated with residual radioactive materials. Some are currently covered by NRC licenses. Others were once licensed, but the licenses to possess and use material have expired. In many cases, the total amount of contaminated soil is large, but the activity concentrations of radioactive materials are believed sufficiently low to justify their disposal on privately owned lands or storage onsite rather than their transport to a licensed radioactive materials disposal (commercial) site. In many instances packaging and transporting these wastes to a licensed disposal site would be too costly and not justified from the standpoints of risk to the public health or cost-benefit. Furthermore, because of the total volume of these wastes, limited commercial waste disposal capacity, and restrictions placed on receipt of long-lived wastes at commercial sites, it is not presently feasible to dispose of these wastes at commercial low-level waste disposal sites.

Effective January 28, 1981, NRC regulations in 10 CFR 20, "Standards for Protection Against Radiation", were amended (45 FR 71761-71762) to delete § 20 304 which provided general authority for disposal of radioactive materials by burial in soil. Under the amended regulations, licensees must apply for and obtain specific NRC approval to dispose of radioactive materials in this manner under the provisions of 10 CFR 20.302. A case-by-case review was believed needed to assure that burial of radioactive wastes would not present an unreasonable health hazard at some future date.

The deleted provisions of § 20.304 previously permitted burial of up to 100 millicuries of thorium or natural uranium at any one time, with a yearly limitation of 12 burials for each type of material at each site. The only disposal standards specified were (1) burial at a minimum depth of four feet, and (2) successive burials separated by at least six feet. Thus a total of 1.2 curies of these materials were permitted to be disposed of each year by burial in a 12 foot by 18 foot or larger plot of ground.

Under the amended regulations, it is incumbent on an applicant who wants to bury radioactive wastes to demonstrate that local land burial is preferable to other disposal alternatives. The evaluation of the application takes into account the following information:

- Types and quantities of material to be buried
- Packaging of waste
- Burial location
- Characteristics of burial site
- Depth of burial
- Access restrictions to disposal site
- Radiation safety procedures during disposal operations
- Recordkeeping
- Local burial restrictions, if any

For applications involving disposal of soils contaminated with low level concentrations of thorium and uranium (other than concentrations not exceeding EPA cleanup standards), the matters of principal importance are:

- Concentrations of thorium and uranium (either in secular equilibrium with their daughters or without daughters present)
- Volume of contaminated soil
- Costs for offsite and onsite disposal
- Availability of offsite burial space
- Disposal site characteristics
- Depth of burial and accessibility of buried wastes
- State and local government views

II. Branch Technical Position

There are five acceptable options for disposal or onsite storage of thorium and uranium contaminated wastes. Applications for disposal or storage will be approved if the guidelines discussed under any option are met. Applications for other methods of disposal may be submitted and these will be evaluated on their own merits.

1. Disposal of acceptably low concentrations (which meet EPA cleanup standards) of natural thorium with daughters in secular equilibrium, depleted or enriched uranium, and

uranium ores with daughters in secular equilibrium with no restriction on burial method.

er this option, the concentrations of natural thorium and depleted or enriched uranium wastes are set sufficiently low that no member of the public is expected to receive a radiation dose commitment from the disposed materials in excess of 1 millirad per year to the lung or 3 millirads per year to the bone from inhalation and ingestion, under any foreseeable use of the material or property. These radiation dose guidelines were recommened by the Environmental Protection Agency (EPA) for protection against transuranium elements present in the environment as a result of unplanned contamination (42 FR 60956–60959). In addition, the concentrations are sufficiently low so that no individual may receive an external dose in excess of 10 microroentgens per hour above background. This is compatible with guidelines EPA proposed as cleanup standards for inactive uranium processing sites (46 FR 2556–2563).

For natural uranium ores having daughters in equilibrium, the concentration limit is equal to that set by the EPA (46 FR 2556–2563) for radium-226 (i.e., 5 pCi/gm, including background) and its decay products.

concentrations specified below are believed appropriate to apply. It is expected, however, that currently licensed operations will be conducted in such a manner as to minimize the possibility of soil contamination and when such occurs the contamination will be reduced to levels as low as reasonably achievable

Kind of material	Concentration (pCi/gm)
Natural thorium (Th-232 plus Th-228) if all daughters are present and in equilibrium	10
Depleted Uranium	35
Enriched Uranium	30
Natural Uranium Ores (U-238 plus U-234) if all daughters are present and in equilibrium	10

The analysis upon which the Branch Technical Position is based is available for inspection at the Commission's Public Document Room at 1717 H St., N.W., Washington, D.C.

The concentrations specified under this option may be compared with naturally occurring thorium and uranium ore concentrations of 1.3 pCi/gm in igneous rock and uranium cc ntrations of 120 pCi/gm in Florida phosphate rock and 50–80 pCi/gm in Tennessee bituminous shale Concentration limits for natural thorium and natural uranium ore wastes containing daughters not at secular equilibrium can be calculated on a case-by-case basis using the applicable isotopic activities data.

2. Disposal of certain low concentrations of natural thorium with daughters in secular equilibrium and depleted or enriched uranium with no daughters present when buried under prescribed conditions with no subsequent land use restrictions and no continuing NRC licensing of the material.

Under this option the concentrations of natural thorium and uranium are set sufficiently low so that no member of the public will receive a radiation dose exceeding those discussed under option 1 when the wastes are buried in an approved manner absent intrusion into the burial grounds. This option will require establishing prescribed conditions for disposal in the license, such as depth and distribution of material, to minimize the likelihood of intrusion. Burial will be permitted only if it can be demonstrated that the buried materials will be stabilized in place and not be transported away from the site.

Acceptability of the site for disposal will depend on topographical, geological, hydrological and meteorological characteristics of the site At a minimum, burial depth will be at least four feet below the surface. In the event that there is an intrusion into the burial ground, no member of the public will likely receive a dose in excess fo 170 millirems to a critical organ. An average dose not exceeding 170 millirems to the whole body for all members of a general population is recommended by international and national radiation expert bodies to limit population doses With respect to limiting doses to individual body organs, the concentrations are sufficiently low that no individual will receive a dose in excess of 170 millirems to any organ from exposure to natural thorium, depleted uranium or enriched uranium.

The average activity concentration of radioactive material that may be buried under this option in the case of natural thorium (Th-232 plus Th-228) is 50 pCi/gm, if all daughters are present and in equilibrium; for enriched uranium it is 100 pCi/gm if the uranium is soluble and 250 pCi/gm if insoluble, for depleted uranium it is 100 pCi/gm if the uranium is soluble and 300 pCi/gm if insoluble Natural uranium ores containing radium 226 and its daughters are not included under this option, because of possible radon 222 emanations and resultant higher than acceptable exposure of individuals in private residences if houses were built over buried materials.

3. Disposal of low concentrations of natural uranium ores, with all daughters in equilibrium, when buried under prescribed conditions in areas zoned for industrial use and the recorded title documents are amended to state that the specified land contains buried radioactive materials and are conditioned in a manner acceptable under state law to impose a covenant running with the land that the specified land may not be used for residential building. (There is no continuing NRC licensing of the material.)

Disposal will be approved if the burial criteria outlined in option 2 (including burial at a minimum of 4 feet) are met. Depending upon local soil characteristics, burials at depths greater than 4 feet may be required. In order to assure protection against radon 222 releases (daughter in decay chain of uranium 238 and uranium 234), it is necessary that the recorded title documents be amended to state in the permanent land records that no residential building should be permitted over specified areas of land where natural uranium ore residues (U-238 plus U-234) in concentrations exceeding 10 pCi/gm has been buried. Industrial building is acceptable so long as the concentration of buried material does not exceed 40 pCi/gm of uranium (i.e., Ra-226 shall not exceed 20 pCi/gm).

4. Disposal of land-use-limited concentrations of natural thorium or natural uranium with daughters in secular equilibrium and depleted or enriched uranium without daughters present when buried under prescribed conditions in areas zoned for industrial use and the recorded title documents are amended to state that the land contains buried radioactive material and are conditioned in a manner acceptable under state law to impose a covenant running with land that the land (1) may not be excavated below stated depths in specified areas of land unless cleared by appropriate health authorities, (2) may not be used for residential or industrial structures over specified areas where radioactive materials in concentrations higher than specified in options 2 and 3 are buried, and (3) may not be used for agricultural purposes in the specified areas. (There is no continuing NRC licensing of the disposal site.)

Under this option, conditions of burial will be such that no member of the public will receive radiation doses in excess of those discussed under option 1 absent intrusion into the burial ground Criteria for disposal under these conditions is predicated upon the assumption that intentional intrusion is less likely to occur if a warning is given

in land documents of record not to excavate below burial depths in specified areas of land without clearance by health authorities; not to construct residential or industrial building on the site; and not to use specified areas of land for agricultural purposes. Because of this, we believe it appropriate to apply a maximum critical organ exposure limit of 500 millirems per year to thorium and uranium buried under this restriction instead of 170 millirems as used in options 2 and 3. In addition, any exposure to such materials is likely to be more transient than assumed (essentially continual exposure) under those options. These two factors combine to increase the activity concentration limits calculated under option 2 by about 10. Thus, the average concentration that may be buried under this option for thorium (Th-232 plus Th-228) is 500 pCi/gm if all daughters are present and in equilibrium, for enriched uranium it is 1000 pCi/gm if the uranium is soluble and 2500 pCi/gm if insoluble, and for depleted uranium it is 1000 pCi/gm if the uranium is soluble and 3000 pCi/gm if insoluble.

With respect to natural uranium with daughters present and in equilibrium, the concentration that may be buried under this option is 200 pCi/gm of U-238 plus U-234, i.e., 100 pCi/gm Ra-226. This concentration is based on a limited exposure of 2.4 hours per day to limit the radon dose to less than 0.5 working level month (WLM) which is equivalent to continuous exposure to 0.02 working level (WL). Depending upon local soil characteristics, burials at depths greater than 4 feet may be required.

SUMMARY OF MAXIMUM CONCENTRATIONS PERMITTED UNDER DISPOSAL OPTIONS

Kind of Material	Disposal Options			
	1 [1]	2 [2]	3 [3]	4 [4]
Natural Thorium (Th-232 + Th-228) with daughters present and in equilibrium	10	50		500
Natural Uranium (U-238 + U-234) with daughters present and in equilibrium	10		40	200
Depleted Uranium:				
*Soluble	35	100		1,000
*Insoluble	35	300		3,000
Enriched Uranium:				
*Soluble	30	100		1,000
*Insoluble	30	250		2,500

[1] Based on EPA cleanup standards.
[2] Concentrations based on limiting individual doses to 170 mrem/yr.
[3] Concentration based on limiting equivalent exposure to 0.02 working level or less.
[4] Concentrations based on limiting individual doses to 500 mrem/yr and, in case of natural uranium, limiting exposure to 0.02 working level or less.

5. Storage of licensed concentrations of thorium and uranium onsite pending the availability of an appropriate disposal site.

When concentrations exceed those specified in option 4, long term disposal other than at a licensed disposal site will not normally be a viable option under the provisions of 10 CFR 20.302. In such cases, the thorium and uranium may be permitted to be stored onsite under an NRC license until a suitable method of disposal is found. License conditions will require that radiation doses not exceed those specified in 10 CFR Part 20 and be maintained as low as reasonably achievable.

Before approving an application to dispose of thorium or uranium under options 2, 3, or 4, NRC will solicit the view of appropriate State health officials within the State in which the disposal would be made.

Dated at Silver Spring, Maryland this 19th day of October, 1981

Richard E. Cunningham,

Director, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards.

[FR Doc. 81-30808 Filed 10-22-81; 8:45 am]

BILLING CODE 7590-01-M

OFFICE OF PERSONNEL MANAGEMENT

Postponement of Application Deadline for Fund-Raising Privileges Among Federal Employees by Private Voluntary Organizations

Section 5.43 of the "Manual on Fund-Raising Within the Federal Service for Voluntary Health and Welfare Agencies" sets December 1 of each year as the deadline by which national voluntary agencies must submit applications for participation in the Combined Federal Campaign (CFC) to be conducted in the fall of the following year. This year's deadline is being postponed from December 1, 1981, to February 1, 1982. In June 1981, the U.S. Office of Personnel Management (OPM) announced that the eligibility criteria for participation in the 1982-83 CFC are being reviewed. The deadline date is being postponed to avoid national voluntary agencies having to revise their applications to meet eligibility criteria which may be changed.

Donald J. Devine,

Director.

[FR Doc. 81-30730 Filed 10-22-81; 8:45 am]

BILLING CODE 6325-01-M

OFFICE OF THE UNITED STATES TRADE REPRESENTATIVE

Resolution of Complaint of Price-Undercutting of Subsidized Cheese Imports

On October 1, 1981, the United States Trade Representative received a letter from the Secretary of Agriculture informing him of the Secretary's finding that imported Grade A Swiss type cheese produced in Finland has been offered for sale in the United States at duty-paid wholesale prices which are five cents per pound less than the domestic wholesale market price of similar cheese produced in the United States.

In accordance with Section 702(c)(2) of the Trade Agreements Act of 1979 (the Act) (19 U.S.C. 1202 note), the Offic of the United States Trade Representative notified Finland of the price undercutting determination made by the Secretary of Agriculture, requested that corrective action be taken, and asked for appropriate assurances concerning the commitment made in the Arrangement Between the United States and Finland Concerning Cheese.

On October 14, 1981, Finland notifiec the United States Trade Representative that measures have been taken to ensure that the duty-paid wholesale price of imported Grade A Swiss type cheese produced in Finland will not be less than the domestic wholesale mark price of similar cheese produced in the United States. In addition, Finland gav assurance that it will respect the price commitments in the Arrangement. Sinc the above notification by Finland has occurred within the 15-day period provided in Section 702(c)(3) of the Ac the United States Trade Representativ has notified the Secretary of Agricultu of his belief that no further action is required.

William E. Brock,

United States Trade Representative

[FR Doc. 81-30884 Filed 10-23-81; 8:45 am]

BILLING CODE 3190-01-M

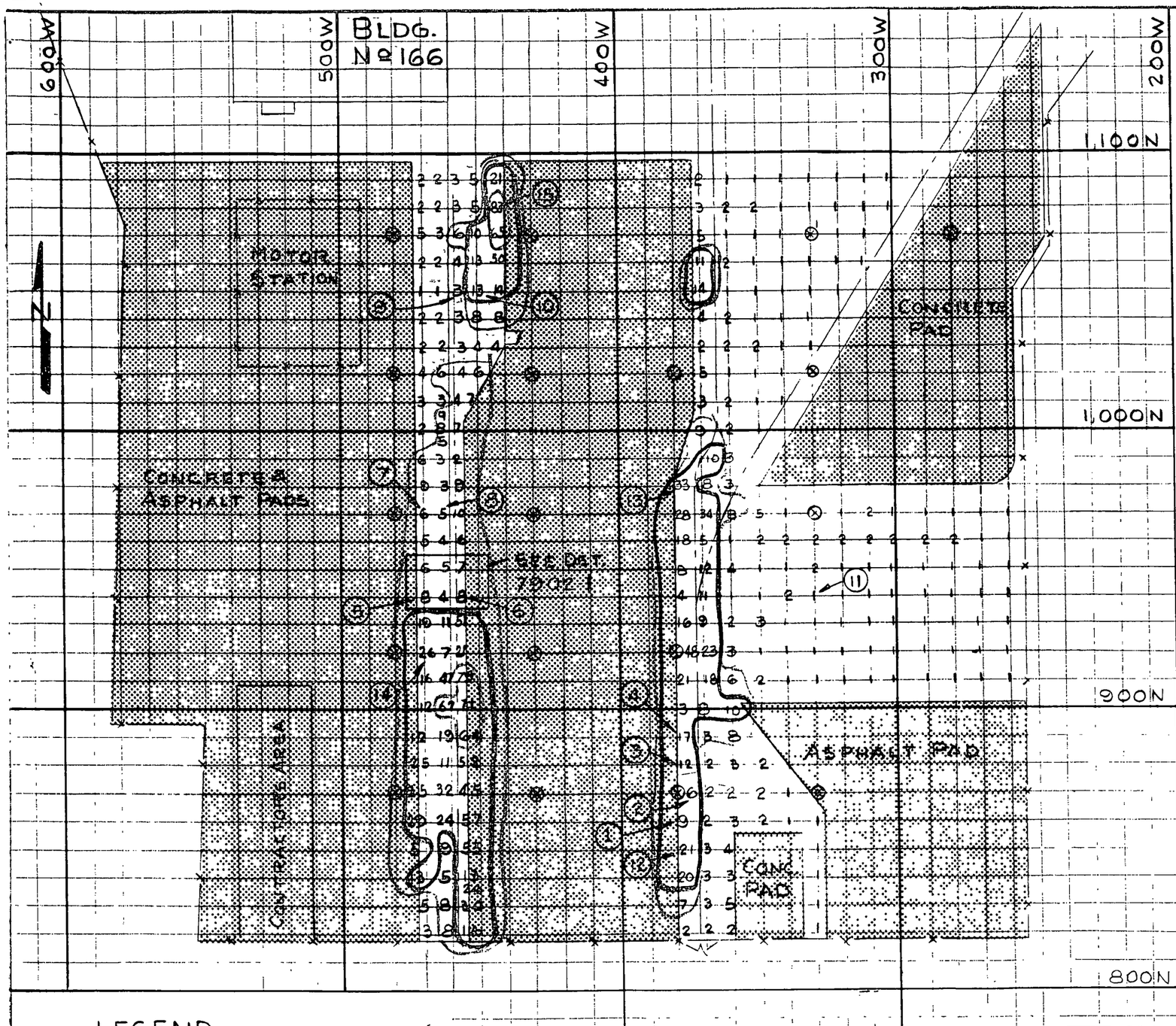
SECURITIES AND EXCHANGE COMMISSION

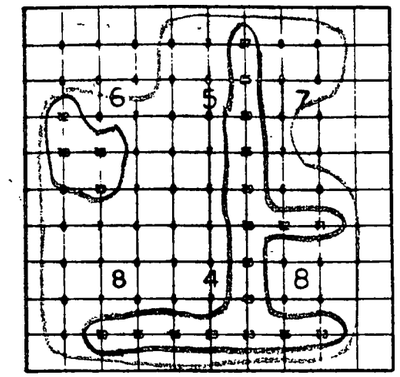
[Release No. 22236; 70-6650]

Arkansas Power & Light Co.; Propos Issuance and Sale of First Mortgage Bonds

October 19, 1981.

Arkansas Power & Light Company





ENLARGED DETAIL 7902-1
2' x 2' GRID

SAMPLE NO	CHEMICAL ANALYSIS URANIUM/THORIUM pCi/gm DEPTH IN INCHES 0	3	6	9	12	15	21	24	26	GAMMA X BKg SURFACE
1	14/40									9
2	11/19									6
3	26/61									12
4	26/66									17
5	8/22	11/19								8
6	6/12									8
7	11/28									6
8	6/6									5
9	11/11									3
10	8/12									13
11		3/2		<3/3						1
12	42/105	<3/1		<3/3	<3/3					21
13	82/201		<3/1		<3/2					33
14		57/164		<7/<8		<7/3	7/2		3/3	26
15	466/382		27/7	30/12		30/3		23/3		83

NEW YORK STATE REGULATIONS - LICENSE BUT UNRESTRICTED
URANIUM 57 pCi/gm (See report for calc)
THORIUM 37 pCi/gm

NRC PROPOSED REGULATIONS - DELICENSE & UNRESTRICTED
URANIUM 10 pCi/gm
THORIUM 10 pCi/gm

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> 60 Times Background

LEGEND

⊗ - SURVEY STAKES
○ - SAMPLE NO.
READINGS - NO TIMES BACKGROUND @ SURFACE

REV	DATE	BY	DESCRIPTION

TITLE
RADIOLOGICAL SURVEY - BALL FIELD AREA

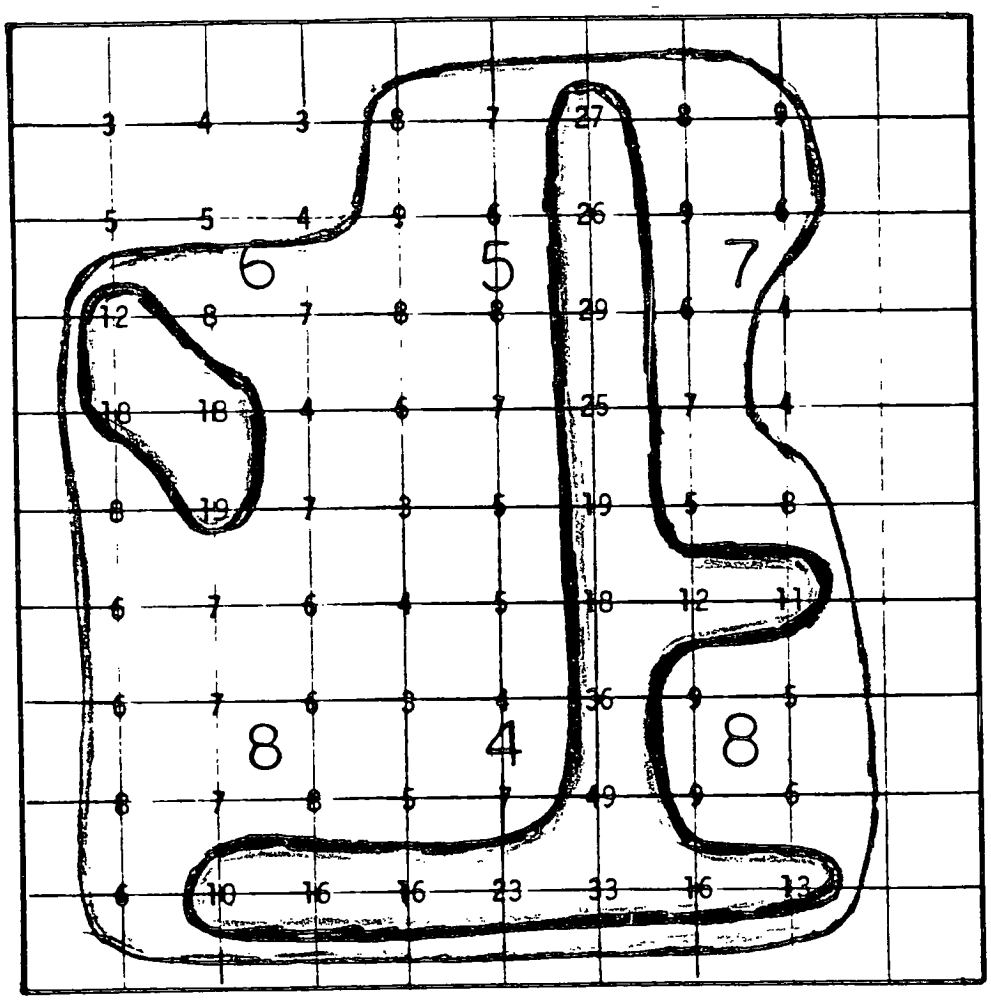
UNION CARBIDE CORPORATION
METALS DIVISION

FILE NUMBER	DRAWING SCALE
930/256	1" = 40'-0"

PLANT	BLDG NO	DWN BY	CHKD BY	STAFF ENG	ACC ENG	EX	DATE	DRAWING NUMBER
NIAGARA		DGF			LJE		1-14-83	SF-7902

UCCNHT0000654

FIGURE I



ENLARGED DETAIL 7902-1

2' x 2' GRID

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TABLE III

SAMPLE NO.	CHEMICAL ANALYSIS URANIUM/THORIUM pCi/gm									GAMMA X BKg
	DEPTH IN INCHES									
	0	3	6	9	12	15	21	24	26	SURFACE
1	14 / 40									9
2	11 / 19									6
3	26 / 61									12
4	26 / 66									17
5	8 / 22	11 / 19								8
6	6 / 12									8
7	11 / 28									6
8	6 / 6									5
9	11 / 11									3
10	8 / 12									13
11		3 / 2		<3 / 3						1
12	42 / 105	<3 / 1		<3 / 3	<3 / 3					21
13	82 / 201		<3 / <1		<3 / 2					33
14		57 / 164		<7 / <8		<7 / 3	7 / 2		3 / 3	26
15	466 / 382		27 / 7	30 / 12		30 / 3		23 / 3		83

NEW YORK STATE REGULATIONS - LICENSE BUT UNRESTRICTED
URANIUM 57 pCi/gm
THORIUM 37 pCi/gm (See report for calc.)

NRC PROPOSED REGULATIONS - DELICENSE & UNRESTRICTED
URANIUM 10 pCi/gm
THORIUM 10 pCi/gm