UNC NAVAL PRODUCTS DECOMMISSIONING PLAN

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1.0 GENERAL INFORMATION:

Licensee's name: UNC Incorporated
67 Sandy Desert Rd.
Uncasville, CT 06382

Licenses to be terminated:

Special Nuclear Materials License: SNM-368, Docket 70-371
By-Products Materials License: 06-06884-1

2.0 DESCRIPTION OF PLANNED DECOMMISSIONING ACTIVITIES:

2.1 Decommissioning Objectives, Activities, Tasks, and Schedules

2.1.1 Decommissioning Objective, Activities, and Tasks

Decommissioning activities will 1) remove all accountable quantities of nuclear material from the site; 2) reduce contamination of building structures, fixtures, and releasable equipment to levels below those prescribed by Condition 11 of SNM-368; 3) verify that site soil, and building contamination levels are below those determined on the basis of NUREG/CR-5512, assuring that calculated exposures will remain below the NRC's dose guidelines of 10 mr/year, and other applicable guidelines. Performance and completion of these activities will:

a. Permit "unrestricted" use of the site and facilities;

b. Maintain exposures As Low As Reasonably Achievable (ALARA).

c. Accomplish the work in a safe and environmentally acceptable manner in accordance with all applicable federal and state laws and regulations;

d. Minimize the volume of waste shipments;

e. Meet these objectives while performing the work in the most cost effective manner practicable.

The Montville facility processed a form of fully enriched unirradiated uranium into encapsulated components. The starting material had physical characteristics which minimized the potential for dusting and was processed in glove boxes when unencapsulated. Fuel processing utilized mechanical operations.

2.0 DESCRIPTION OF PLANNED DECOMMISSIONING ACTIVITIES: (Cont'd)

2.1 Decommissioning Objectives, Activities, Tasks, and Schedules (Cont'd)

2.1.1 Decommissioning Objective, Activities and Tasks: (Cont'd)

Some of these encapsulated components were sampled by cutting through the cladding material to expose fuel sections for metallographic examination or chemical analysis. With few exceptions, the sample preparation operations (e.g. cutting and grinding) were mechanical in nature, resulting in sludge and dusted contamination. Process generated dusts and sludges were cleaned and collected on an ongoing basis.

Several small scale chemical and analytical operations were performed in the Chem Lab and Sectioning area. In addition to the fully enriched fuel bearing materials, some of these operations also involved small quantities of U-233, or natural uranium standards. Finally, a small number of components containing source material have been fabricated for verification of production parameters. However, these have not been cut for destructive inspection.

Altogether, unencapsulated fuel processing occupied approximately 15% of the total plant area.

Accordingly, decon activities for equipment and structures to be salvaged will utilize normal cleaning techniques . Items to be buried will be cleaned to remove accountable quantities of uranium, and then prepared for shipment to burial at a licensed burial site.

Future use for the structure and site have not been determined. However, the entire site is zoned for commercial use.

2.0 DESCRIPTION OF PLANNED DECOMMISSIONING ACTIVITIES: (Cont'd)

2.1 Decommissioning Objectives, Activities, Tasks, and Schedules (Cont'd)

2.1.1 Decommissioning Objective, Activities and Tasks: (Cont'd)

Listed below are the major activities and tasks related to decommissioning for the areas in which unclad fuel was processed. All work will be performed in accordance with the requirements of NRC License SNM-368.

Process Area	Activity
Unit 3 Vault Room	1. Clean all glove boxes and contained equipment items to remove visible quantities of fuel. Items to be released will meet the limits of Condition 11 of SNM-368. These items will be disassembled to the extent necessary to assure compliance with the limits.
	2. Remove contaminated ventilation equipment. These activities are identical to periodic maintenance operations performed when the plant was in operation.
	3. Final survey all structural and building surfaces to demonstrate compliance with License condition 11.
Unit 1, Unit 2, Chem. Lab., Met Lab., Pack Assy.,and Raw Fuel Vault	Cleanup activities are as described for the Unit 3 Vault Room.
Sectioning Area and Met Lab Sample Prep Area, Decontamination and Drum Storage Area	Initial cleanup activities will consist of dismantling the machine tools and cutting equipment to remove accountable quantities of fuel. The balance of the activities are as described for the Unit 3 Vault Room.

2.0 DESCRIPTION OF PLANNED DECOMMISSIONING ACTIVITIES: (Cont'd)

2.1 Decommissioning Objectives, Activities, Tasks, and Schedules (Cont'd)

2.1.1 Decommissioning Objective, Activities and Tasks: (Cont'd)

Process Area	Activity
Rad. Waste Basement	Cleanup activities will consist of disassembling standpipes, plumbing, and tanks, cleaning the above, and packaging these materials for burial. Floor cleanup may entail some removal of concrete, requiring appropriate safety controls. The balance of the cleanup is as described for the Unit 3 Vault Room.
Septic System and Outside Storage Areas	A detailed sampling plan (Attachment A) will assure that uranium concentrations are below levels determined on the basis of NUREG/CR-5512. Soil exceeding these levels will be evaluated to determine contribution to the 10 mr/year dose limit.

2.1.2 Description:

This section provides a description of the basic methods which will be utilized for performing the major cleanup activities. With the possible exception of the potential need for concrete removal from portions of the Rad. Waste basement, the steps listed in 2.1.1 above have all been performed at some time during the life of the plant, have been proceduralized, and do not present any potential hazards not previously dealt with. Decommissioning and Decontamination operations will be performed in accordance with procedures as specified by Section 2.5, and with Special Work Permits, as specified by Section 4.6.3, Part I, SNM-368. All procedures and Special Work permits will incorporate requirements relating to nuclear, chemical, fire, and industrial safety as appropriate, and will be approved by NIS.

2.0 DESCRIPTION OF PLANNED DECOMMISSIONING ACTIVITIES: (Cont'd)

2.1 Decommissioning Objectives, Activities, Tasks, and Schedules (Cont'd)

2.1.2 Description: (Cont'd)

The major decontamination projects are listed together with a reference to similar work which has been performed during the life of the facility. These activities have all been performed in accordance with procedures as specified in this section.

Glove box, hood, and equipment cleanup

These cleanups are performed in accordance with procedures which satisfy the requirements of Section 2.5 of SNM-368. When the plant was operating, some decontaminated items were released for rework by outside vendors.

Floor and area cleanup

These cleanups have been performed following spills, which although infrequent, have occurred in the Unit I, Unit II, Sectioning, Lab, and Rad. Waste areas.

Sectioning room cleanout, including machine disassembly and ventilation duct removal

The sectioning equipment has been cleaned on an ongoing basis in accordance with procedures which satisfy the requirements of Section 2.5 of SNM-268. Sectioning ventilation ducts have been cleaned in accordance with Special Work Permits several times through the life of the facility.

Rad. waste tank cleanout

The RT tanks have been cleaned several times. This entailed removal of all raschig rings from the tanks. Poison rings have also been cleaned from time to time. All work is performed in accordance with procedures as specified in this section.

2.0 DESCRIPTION OF PLANNED DECOMMISSIONING ACTIVITIES: (Cont'd)

2.1 Decommissioning Objectives, Activities, Tasks, and Schedules (Cont'd)

2.1.2 Description:

Rotoclone and Colag cleanout

The hydrostatic precipitator units used for fume scrubbing have been cleaned several times during the life of the facility, and one unit has been replaced. All work is performed in accordance with procedures as specified in this section.

Standpipe cleanout

The standpipes have been cleaned numerous times in accordance with approved procedures, and will be dismantled in accordance with procedures as specified in this section

Septic field

Soil exceeding 30 pCi/gm. gross alpha will be evaluated to determine its contribution to the 10 mr/year limit. This is further discussed in Attachment A.

Review of air sample and bio-assay data confirms that average concentration levels within and outside the facility were well within the respective regulatory limits. All planned decontamination steps will be evaluated in accordance with the provisions of SNM-368. These include an ALARA program, requirements for monitoring, for protective clothing, and for limiting exposures.

2.0 DESCRIPTION OF PLANNED DECOMMISSIONING ACTIVITIES: (Cont'd)

2.1 Decommissioning Objectives, Activities, Tasks, and Schedules (Cont'd)

2.1.3 Procedures

Decon activities and tasks will be performed in accordance with procedures as specified in Section 2.5, or Special work permits as specified in Section 4.6.3 of SNM-368. These will incorporate the requirements for radiological & nuclear, chemical and fire safety, as appropriate.

2.1.4 Schedules

Figure 2.1.4 shows the current schedule for decontamination operations.

2.2 Decommissioning Organization and Responsibilities:

The organization structure is as shown in Figure 2.2. Functional responsibilities are as specified in sections 2.1, 2.2, and 2.3, of SNM-368. Consistent with all licensed operations, NIS performs safety evaluations for all tasks involving radioactive and hazardous materials, and assures that all tools and materials leaving the site meet release limits. Qualifications for NIS personal having safety responsibilities under this license are specified in Section 2.2.2.4 of SNM-368. The minimum Qualifications of Vice Presidents, Managers, and Supervisors who are responsible for employees handling nuclear material are:

a. Two years work experience at UNC Naval Products or another facility engaged in the handling of formula quantities of nuclear materials, or

b. Specific approval by higher management, (e.g., the president, a Vice President, or Department Manager), and the Director of Technical Services, recognizing the competency and training given to an individual, and his/her demonstrated judgement and capability to manage or supervise the function.

c. UNC will endeavor to have the Executive Operating Officer and Vice Presidents of Operations, Engineering or Quality Control posses a Bachelor's degree or higher in Science of Engineering. In those cases of exceptional individuals not possessing these degrees, UNC will enclose a resume of their experience and other qualifications.

2.0 DESCRIPTION OF PLANNED DECOMMISSIONING ACTIVITIES: (Cont'd)

2.3 Training:

Section 2.8 of SNM-368 specifies training requirements. These apply to all persons involved in the decommissioning efforts, including contractor personnel. Training shall cover nuclear, chemical, industrial safety, and fire safety as appropriate. In addition the HP SWP program will provide job specific training prior to the work being performed as needed. Training will cover the need for assuring that tools, trucks, etc. are verified for release before leaving the site.

2.4 Contractor Assistance:

Contractors may be used to provide the septic system drilling and sample acquisition. Other contractors may also be used to assist in the dismantling of ventilation and other equipment which requires rigging. These contractors, their qualifications and training requirements will be identified before they start work.

3.0 DESCRIPTION OF METHODS USED FOR PROTECTION OF OCCUPATIONAL AND PUBLIC HEALTH AND SAFETY:

3.1 Facility History:

Figure 3.1 shows the location of operations involving unclad fuel. This section describes these operations in terms of fuel form, typical contamination levels, and any unusual conditions leading to the potential of levels exceeding expectations.

All Montville process operations involved unirradiated fully enriched uranium, and did not involve licensed quantities of Thorium. This material was received in a form which has very low dusting potential, and after limited processing was encapsulated in a metal cladding. Samples of the encapsulated components were sectioned for inspection using cutting equipment, machined, and polished for metallographic inspection and chemical analysis. As part of the inspection preparation process, some samples were acid etched.

Contamination is primarily associated with cutting and machining equipment in the Sectioning area and in the Sample Prep area of the Met. Lab., with the Rad. Waste system and its associated plumbing, and with ventilation equipment. Figure 3.1 shows these areas.

UNC did not possess licensed quantities of Thorium under this license; however, Thorium bearing electrodes were used under general license. Areas of use will be included in the final surveys.

3.0 DESCRIPTION OF METHODS USED FOR PROTECTION OF OCCUPATIONAL AND PUBLIC HEALTH AND SAFETY: (Cont'd)

3.2 Ensuring that Occupational Radiation Exposures Are As Low As Reasonably Achievable (ALARA):

Section 4.8 of SNM-368 specifies UNC's ALARA program. The balance of Section 4 specifies the actions, instrumentation, and monitoring to achieve ALARA.

3.3 Health Physics Program:

Section 4 of SNM-368 specifies the Health Physics Program. Section 2 specifies staffing, qualifications, and auditing requirements associated with the program. Decommissioning operations fall within the scope of activities conducted during plant operation, and present no new sources of potential exposure to workers or the public.

3.4 Contractor Personnel:

Contractor personnel may be used for septic system sampling and some of the inside dismantling and rigging work. They will be trained, and will operate in accordance with the UNC radiological protection program specified in Section 4 of SNM-368. Contractor tools, trucks, etc. will be verified to meet release limits before leaving the site.

3.5 Radioactive Waste Management:

Radioactive waste management will be identical to current practices. All packaging and shipments to burial sites will be carried out in accordance with the UNC "Shipping Guide". This document includes all requirements pertaining to waste packaging, shipment, and disposal; and prescribes the controls and certifications necessary for each such shipment.

All waste is expected to be packaged by the end of 1991. However, shipments to burial will extend into 1992. Preliminary projections of waste burial volumes are as follows:

Year	Waste Volume
1990	1,548 cu. ft.
1991	19,000 cu. ft.
1992	9,200 cu. ft.

These volumes include contaminated equipment items and cleanup materials from which all readily removable quantities of uranium have been removed. Packages therefore present minimal radiation levels.

3.0 DESCRIPTION OF METHODS USED FOR PROTECTION OF OCCUPATIONAL AND PUBLIC HEALTH AND SAFETY: (Cont'd)

3.6 Review of Operations:

In order to aid in the development of the Decommissioning Plan and decontamination scheduling, production, quality control and support operations have been evaluated to predict and anticipate:

- o The presence of any potential radiological hazards such as material buildup in machines, exhaust systems, and other support equipment (ex. the Rad. waste treatment system).
- o The presence of any non-radiological hazards such as oils, chemicals, and in particular, pyrophoric material buildup.
- o The scoping of any activities related toequipment/ducting that would require professional riggers, movers, or demolition capabilities beyond that of the UNC decontamination team.

Operations which continued to the end of production were reviewed as well as operations which had been discontinued or modified over the past fifteen years.

Baseline contamination levels were established and initial planning done to segregate equipment to be deconned for release versus that to be buried, either directly or via a vendor super-compaction facility. Present and past operations which resulted in contamination that could have an effect on decontamination safety were identified for incorporation into the area-specific decon schedules.

As discussed in 3.1, equipment and associated ventilation and plumbing systems in the Sectioning area, the Met Lab sample preparation area and the Rad. waste treatment system were identified as requiring special planning and attention because of possible buildup of fuel bearing sludges and pyrophoric materials in ventilation, plumbing and aquipment systems.

3.7 Review of Incidents/Misoperations:

In addition to the area/equipment review discussed in 3.6, Health Physics records of significant incidents/misoperations were reviewed to identify situations that may have resulted in SNM buildup or contamination buildup of sufficient magnitude that it could have an effect on decontamination safety.

Incidents were grouped into the five categories shown:

A. Fuel Spill
B. Machine/Duct Fires
C. Pipe Breaks
D. Machine Misoperations
E. Other

3.0 DESCRIPTION OF METHODS USED FOR PROTECTION OF OCCUPATIONAL AND PUBLIC HEALTH AND SAFETY: (Cont'd)

3.7 Review of Incidents/Misoperations: (Cont'd)

Fuel spills were primarily confined to the lab areas and as such were always small quantities associated with laboratory analyses. Fuel spills in the production areas were in general confined to process equipment or in a few cases, to the process floor. In either case, material was accounted for and promptly cleaned up following standard Health Physics controls. No past incidents reviewed in this category will impact on the safety of planned decontamination efforts.

Machine/duct fires which occurred were due to the accumulation of small amounts of pyrophoric materials which ignited under dry conditions. Two duct fires associated with cutting machines have occurred over the years. The second (1983) led to corrective actions on both the equipment and increased frequency of exhaust duct disassembly and cleanout, thus precluding any further incidents. Nevertheless, buildup of pyrophoric material in certain ducts has been anticipated and action plans and awareness will be emphasized prior to disassembly and disposition.

Pipe break incidents have been associated with the Rad. waste treatment system. Contamination resulting from these types of incidents has been cleaned up and no effect on planned decontamination efforts is possible.

Machine misoperation incidents are all associated with non-B South operations none of which could have an effect on decontamination safety.

The category E incidents are associated with localized elevated airborne concentrations or non-nuclear such as chemical spills one of which could have an effect on decontamination safety.

Summary Statement:

The current licensed fire safety, nuclear criticality safety and industrial safety programs remain active and in effect along with the health physics and nuclear materials control programs. Hazard evaluations have been made and we anticipate that these programs, in conjunction with UNC's decommissioning plan, will enable the decommissioning project to proceed in a safe and environmentally sound manner.

4.0 PLANNED FINAL RADIATION SURVEY:

NUREG/CR-2082 will be used as a guide for final radiation surveys. Section 3.3.1 of that report will be used as guidance for surveying all areas in the L-Building Vault Room and in all B-South locations. Outdoor areas, and indoor areas other than L-Building Vault Room and all B-South locations will utilize the recommendations of Section 3.3.2.

In areas where unclad radioactive materials have been used, UNC will use a 1 m x 1 m grid size for surveying lower surfaces (i.e., floors, walls up to a height of 2 m, and surfaces easily accessible to a surveyor standing on the floor). However, some areas, by virtue of limited use (e.g. Unit 3 Vault), or maintenance of high levels of control (e.g. Met Lab reading area) do have a low probability of surface contamination. UNC will survey these areas using a 2 m x 2 m grid.

Following this rationale certain areas within B South are excepted from the 1 m x 1 m grid below two meters and will instead be gridded in a 2 m x 2 m layout:

Unit 3	Vault
Unit 3	Chem Lab Expansion Area
Unit 3	Hallways, corridors, vestibules, change rooms, offices, Unit 3 mezzanine and access stairs, Health Physics office. Janitors storage room
Met Lab	Reading area, office, and storage closet

A 2 m x 2 m grid will also be used for overhead surfaces, i.e., ceiling, walls more than 2 m above the floor, and surfaces not described in paragraph 2. This includes those areas specifically identified above.

In accordance with the NRC guidance in NUREG/CR-2082 "Monitoring for Compliance With Decontamination Termination Survey Criteria", UNC will survey overhead surfaces for each area with at least 30 measurements each spread over the vertical and horizontal surfaces. While UNC will not "grid" all of these surfaces, the location of each measurement will be marked on the surface and on a gridded map for future reference.

Additionally, subsurface soil from solution handling areas will be sampled if surveys show activity associated with cracks or joints in the floor. Except as otherwise approved, all underground pipes which have the potential for radioactive contamination will be surveyed, and if contaminated, will be cleaned or removed.

4.0 PLANNED FINAL RADIATION SURVEY: (Cont'd)

The government furnished fully enriched uranium has been well characterized in terms of isotopic composition and contract specification requirements by both UNC and the supplier of the fuel. These isotopic ratios confirm that compliance with Condition 11 limits for acceptable alpha surface contamination will insure compliance for beta/gamma as well. Nevertheless, analysis will be performed on a sampling basis to verify the radiation characteristics, and assure that beta/gamma dose rates at the surface and removable beta contamination need not be further evaluated.

UNC will perform random surveys consisting of at least 30 points for all unaffected areas. UNC will also perform non-random surveys in selected areas which by virtue of their use (e.g. the pack welding room) could potentially have received some exposure to unclad radioactive materials. While UNC will not grid these areas, the location for each measurement will be marked or identified on a map for future reference.

Sufficient surveys will also be made to assure that drainage pathways, storm drains, and settling ponds are free of contamination in excess of release limits.

5.0 FUNDING:

DOE has agreed that decontamination and decommissioning costs are allowable costs under existing contracts. Copies of appropriate documentation will be available for review at UNC.

6.0 PHYSICAL SECURITY:

UNC security plans may be modified as fuel quantities are reduced. The revised plans will be resubmitted to the NRC as required.

References: Please refer to the introduction of Attachment A.

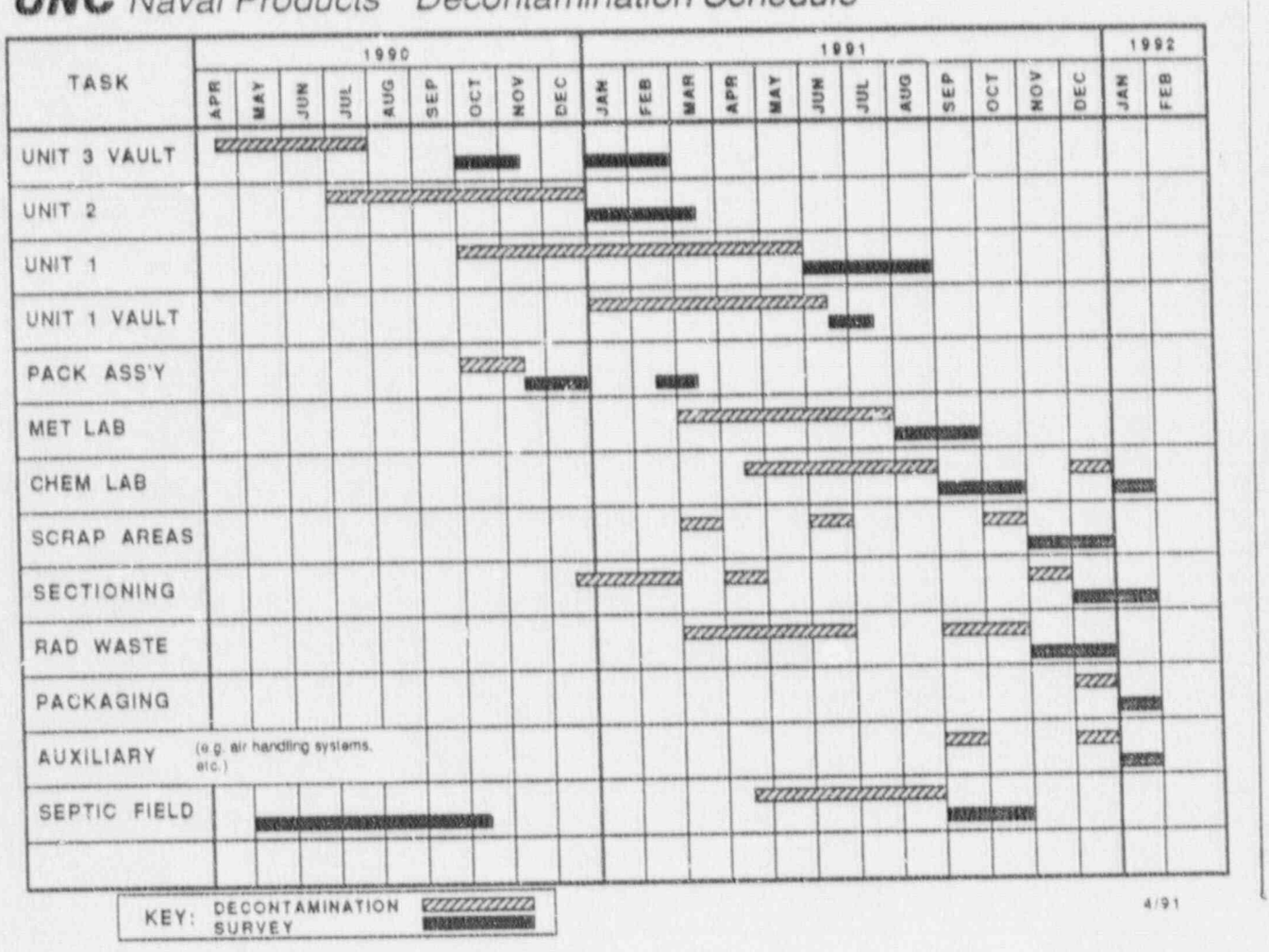

Figure 2.1.4
Schedule for Decontamination Operations

UNC NAVAL PRODUCTS
DECOMMISSIONING & DECONTAMINATION ORGANIZATION CHART

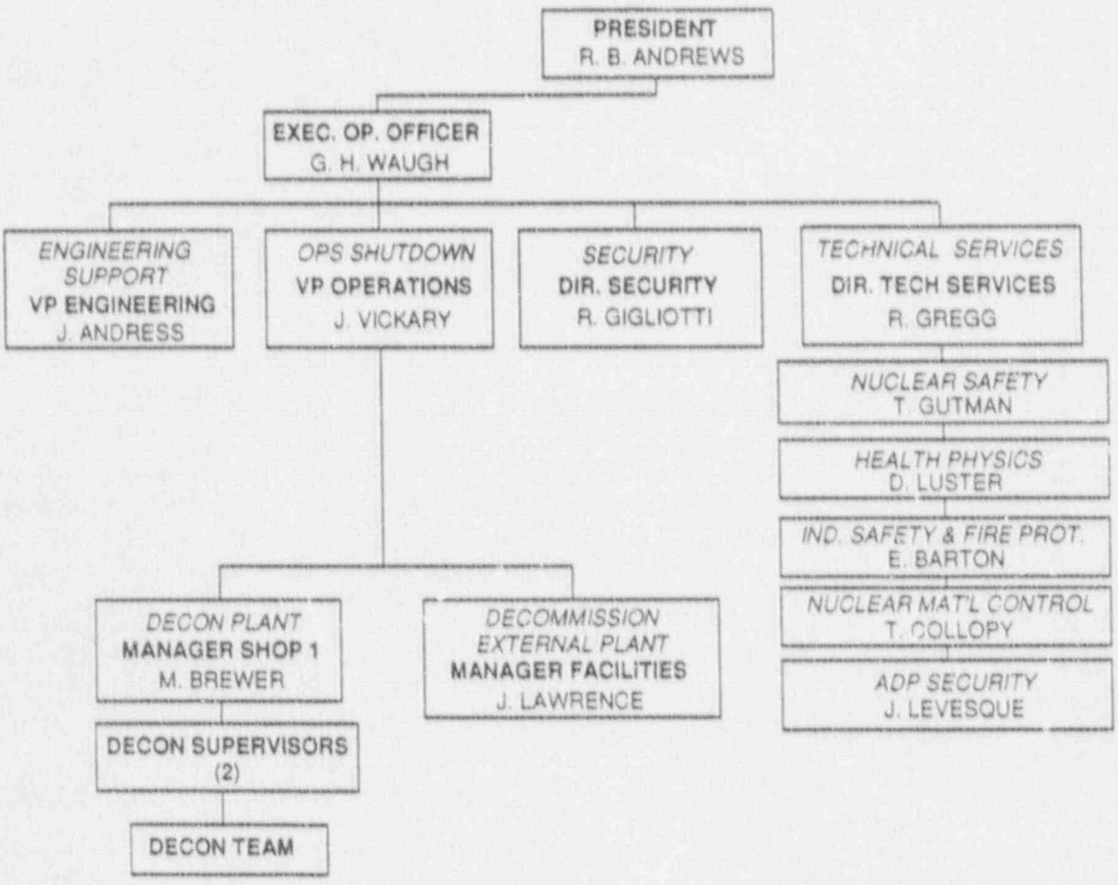

Figure 2.2
Decommissioning & Decontamination Organization Chart

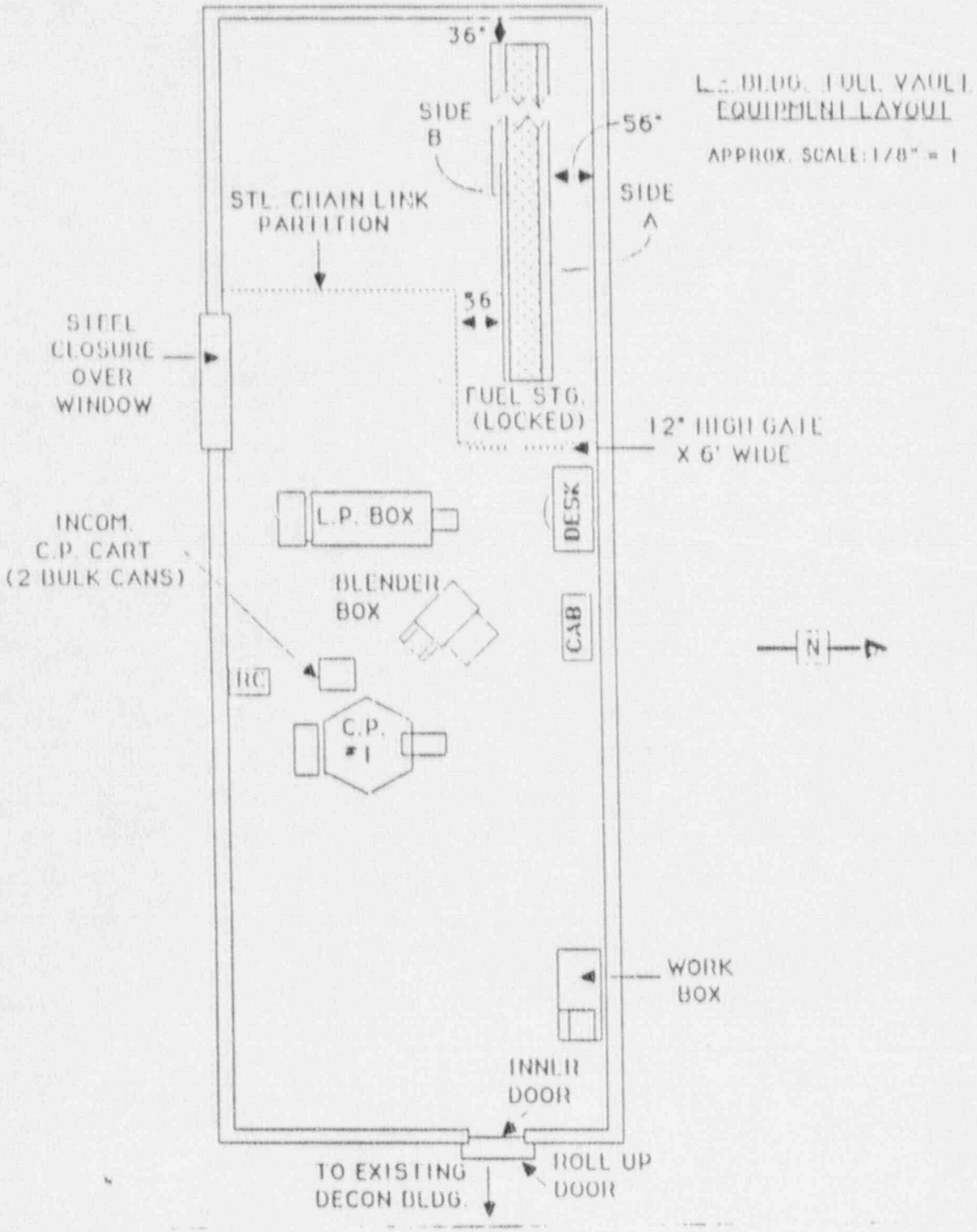

Figure 3.1
Locations of Unclad Fuel Operations

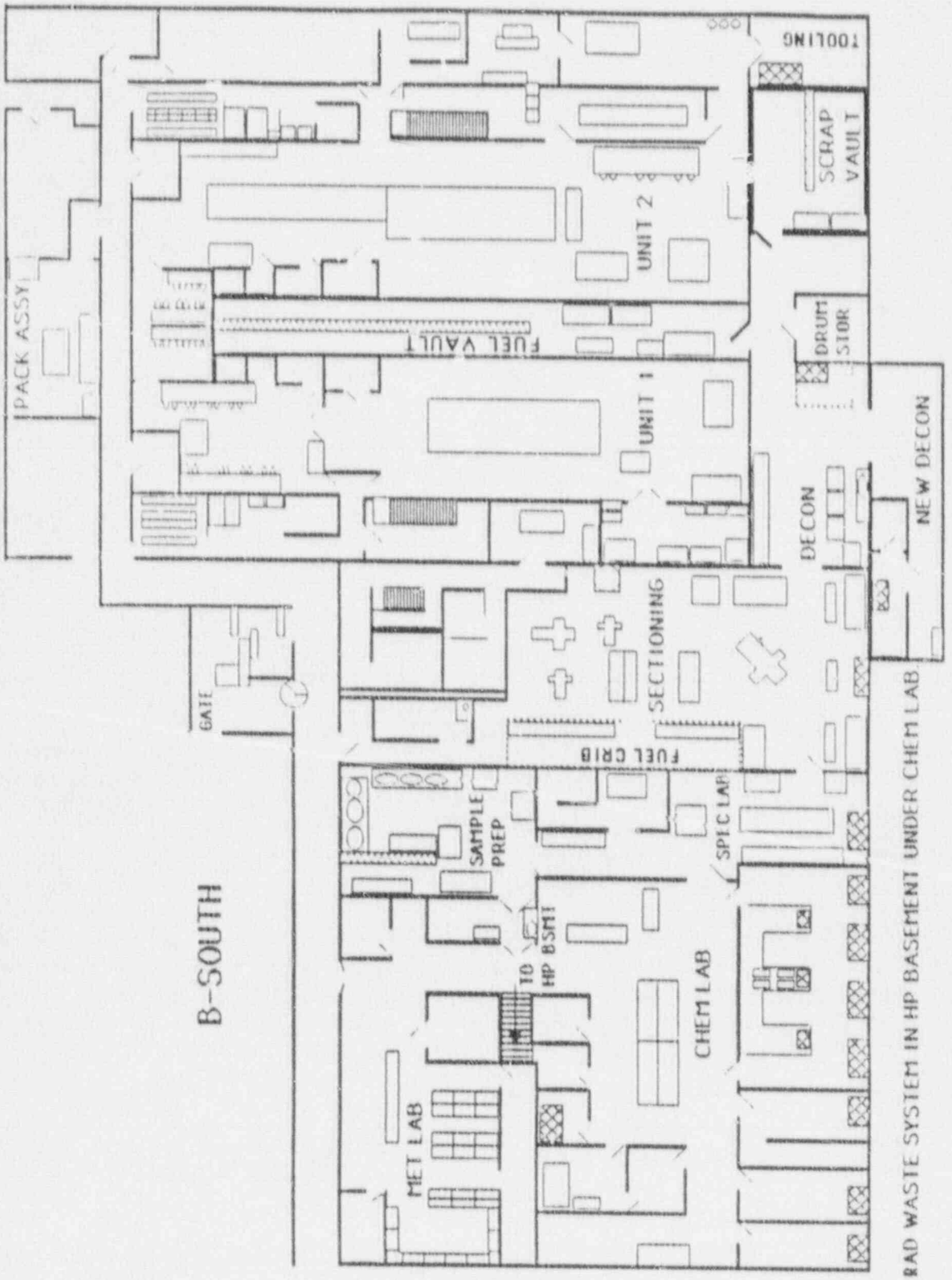

Figure 3.1 (Cont'd)
Locations of Unclad Fuel Operations

Analysis of Septic Leach Field for Decommissioning

Introduction

From 1958 to 1987, UNC discharged its sewage to an onsite septic system, since no municipal sewage system was available. A new septic field was initiated in 1973 south of Building A. Beginning in April, 1974, discharges to that newer system included licensed discharges of low levels of SNM which had been processed through our liquid rad waste treatment facility.

In 1978, an addition was added south of the original 1973 field in order to increase capacity. This is presented in Exhibit 1. The combination of these two fields will be identified as "the leach field" throughout this report. The use of the leach field continued until November, 1987 when UNC initiated discharge of radioactive waste water to the new Montville sewer system per NRC Condition No. 27 to SNM License 368.

This plan presents the survey methods which will be used to evaluate the leach field in order to allow decommissioning of the field. The following documents were utilized in preparation of this plan.

NUREG/CR-2082 "Monitoring For Compliance With Decommissioning Termination Survey Criteria".
NUREG/CR-5512 "Residual Radioactive Contamination From Decommissioning" Draft Report.
General Decommissioning Plan referenced in Condition No. 19 to Materials License SNM-368.

Field Layout

As stated above, the Leach Field can be divided into two sections.

1. The original field was fed by a main incoming line to a master distribution box (see Exhibit 2). The waste stream was split at this point into a pair of two parallel feed lines which ran the length of the field. A series of leaching pipes run perpendicular to the feed lines. These leaching pipes have a series of holes which permits the material to uniformly leach into the ground. Each leaching pipe is laid in gravel to assist in the leaching. The leaching pipes are estimated to lie from 2 to 6 feet below the soil surface with the variance due to the slope of the land and additional clean fill added during the 1986 building construction. This field will be called Field 1 throughout this report.

2. The 1978 field addition was placed immediately south of the original system. This addition was fed by a feed line which was connected to the master distribution box and led into a secondary distribution point. Two lines led from this second box, each to yet another box. Each tertiary box fed six dry wells which were positioned around the box.

Field Layout continued:

Exhibit 3 shows these twelve dry wells. Each dry well is 12' deep and has an inside diameter of 5-1/2'. The well has a series of holes completely around the periphery which permits the leaching (see Exhibit 4). Approximately 2' of gravel surrounds each well to aid in the process. This field will be called Field 2 throughout this report.

Statistical Basis

Per NUREG/CR-2082, at least 30 sample points shall be obtained in each field. A statistical test at its 95% confidence level will be performed on the data to assure that the sample is an adequate approximation of the population. Failure to obtain an adequate sample will cause additional measurements to be taken until the criteria is met.

Background Sampling

The first step of the survey plan is to determine the radiation background levels of the site. This will consist of gamma measurements taken at 1 meter. Thirty background measurements will be taken from various locations both close to the field and significantly away from the field. Locations will be chosen which are believed to have relatively the same soil and rock composition (primarily gravel and sand) as the leach field.

The second part of the background sampling consists of soil analysis. Four holes will be drilled at random locations to the south and east of the leach field. Two holes will go down 15' while the other two will be drilled to the water table (approximately 20 - 24 feet). Samples will be taken every three feet for analysis. As above, locations will be chosen which best reflect the soil located in the leach field. This data will be added to the two background samples which were taken in 1985 (Report to W.T. Crow from W. F. Kirk dated 10-29-85 and revised by report dated 7-25-86). Therefore the soil from a total of six holes will be included in the data. Although less than 30 background sample points are used, the total number of background soil samples for analysis will exceed this value.

In addition to the ground-water sampling discussed above, water samples shall be obtained from wells (including some up-gradient from the field) located at various locations around the site.

Surface Radioactivity Level Sampling

Field 1

A series of 10 meter X 10 meter grids will be marked off to completely encompass Field 1 (See Exhibit 5). The starting point for the grids will be a location five feet east and ten feet south of the southeast corner pipe. Gamma readings will be measured at 1 meter from the surface at all locations.

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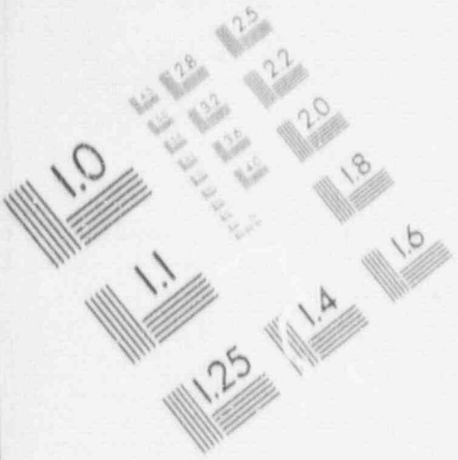
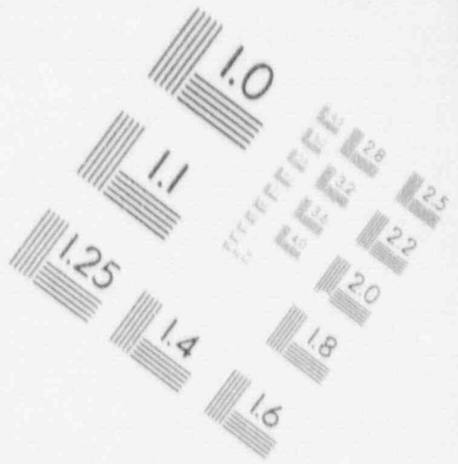
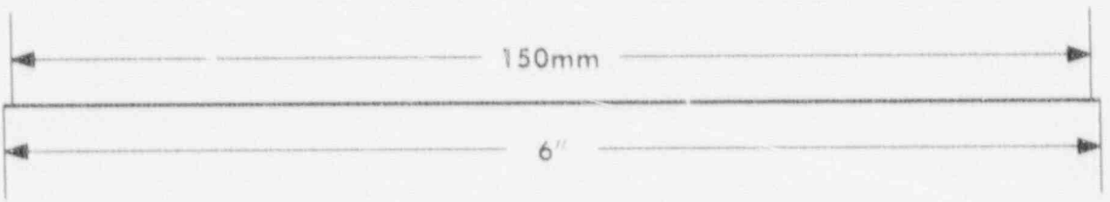
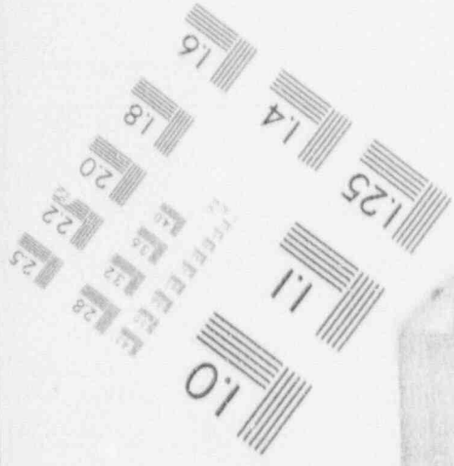
IMAGE EVALUATION TEST TARGET (MT-3)









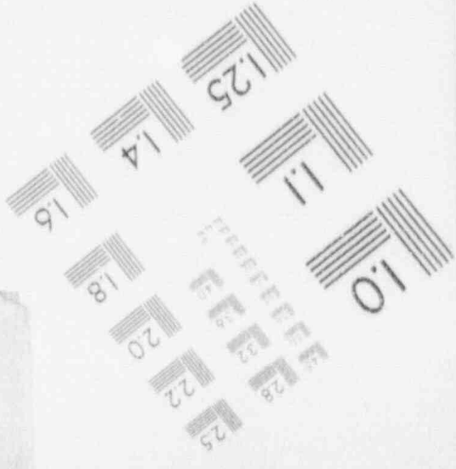


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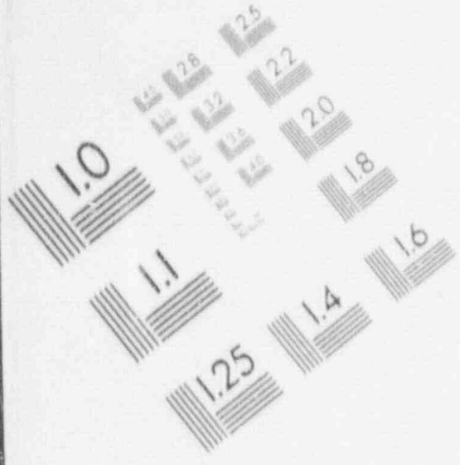
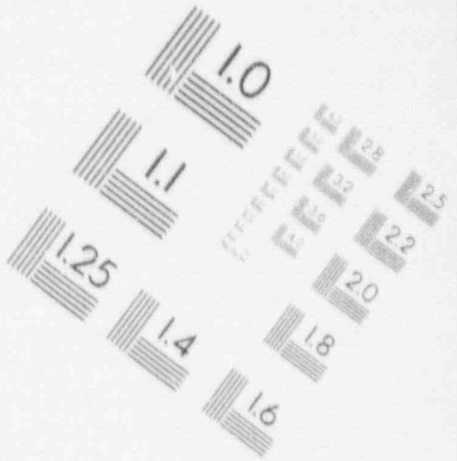
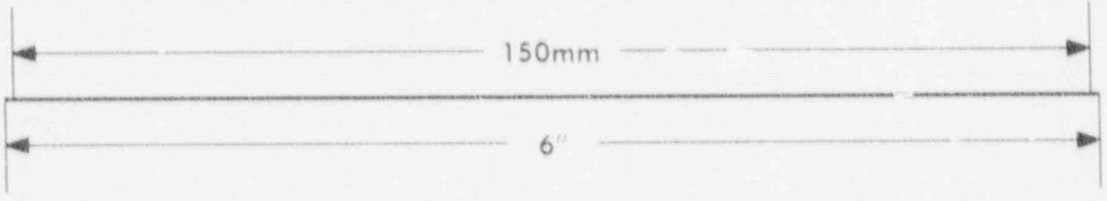
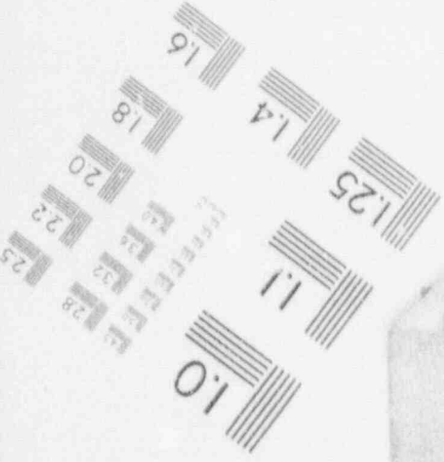
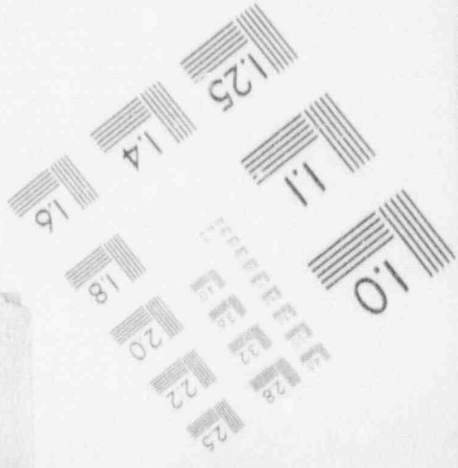
IMAGE EVALUATION TEST TARGET (MT-3)

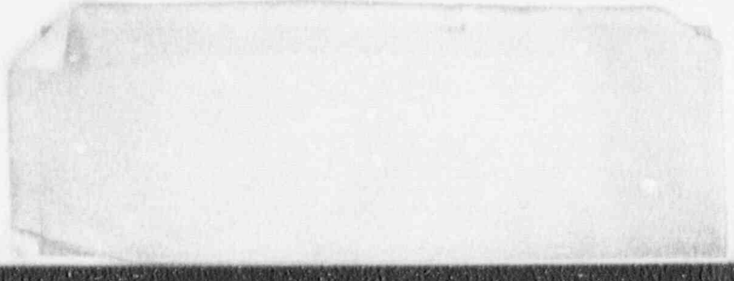












Surface Radioactivity Level Sampling continued:

Field 2

A series of 5 meter X 5 meter grids will be marked off to completely encompass Field 2 (See Exhibit 6). The starting point for the grids will be the secondary distribution box. Identical measurements to those stated above will be taken at each grid point. Measurements will not be taken at the center of each grid due to the smaller grid area.

Both Fields

A general walk over survey will also be performed in both fields in order to verify the absence of ary technologically enhanced areas of radiation. Should this not be verified, the identified areas will be included in the soil sampling discussed below.

Soil Sampling

Soil samples will be sent to an outside laboratory where they will be blended and analyzed for UNC. In addition, the samples will be split at the vendor if NRC/ORAU or CT. State DEP should request any samples.

Meter Readings Above Background

All locations (if any) which demonstrate an above background reading during the surface sampling discussed above, shall be subject to soil sampling. "Above background" will consist of readings which exceed the maximum statistical background reading which is the upper limits of the 95% confidence interval. These samples may be included as part of the random sampling discussed below.

Any locations which are above background due to proximity to fuel handling buildings will not require soil sampling. Proximity is defined as a radioactive material storage area being close enough to the meter location to cause a recognizable increase in the radiation level. This increase must be present as one approaches the storage area from several different angles thus confirming this to be the source of the elevated counts.

Field 1

Systematic Sampling: Ten locations will be chosen based on technical knowledge of the field. Holes will be dug at these locations with care not to hit any pipes. Every hole will penetrate at least 12' with every fifth hole being dug down to the water table where the ground water shall also be obtained for sampling. Soil samples will be taken every 24".

Soil Analysis continued - Field 1:

Random Sampling: Another twenty grid points will be randomly chosen from the grid shown in Exhibit 5. Additional random grid points will also be selected in case an inaccessible location is initially chosen. An inaccessible location would be that covered by a very large boulder or by a concrete slab but would not include soil covered by blacktop. Sampling will occur as stated above. The combination of the systematic and the random sampling provides for 30 sampling locations.

Pipe Analysis: In addition, following the soil sampling, the interiors of twelve pipes will be individually sampled. Also, the main distribution box and primary incoming and discharge lines of Field 1 will be sampled. Based on this sampling, a decision shall be made on whether to remove all pipes from the field. Prior to the completion of the project, all leach pipes will have been sampled and shown to be below Annex C levels, or they will have been removed and packaged for burial. Care will be exercised to prevent any potential contamination from leaving broken pipes and entering into the adjacent soil.

Field 2

Systematic Sampling: The soil above and below each dry well (W1 through W12) shall be sampled. Holes will be dug at these locations down to the water table where water samples will be obtained (this may not be possible in all locations due to rocks). Soil samples will be taken every 24".

Random Sampling: Eighteen grid points will be randomly chosen from the grid shown in Exhibit 6. Holes will be dug down 20 feet or to the water table, whichever is higher . If a grid point is above the gravel which surrounds the dry wells, the hole shall be dug just outside the gravel since the auger can not penetrate through the rocks. If the grid point falls over a dry well, a new random point shall be selected since the soil in the dry wells is being sampled under "Systematic Sampling" listed above. Inaccessible locations will be treated as in Field 1. The combination of the systematic and random sampling makes a total of thirty sample locations.

Dry Well Analysis: In addition, all dry wells and distribution boxes (W1 through W15) will be sampled. This sampling will consist of sludge collection and subsequent meter analysis at varying depths within the well or box. Pipes connecting the wells and distribution boxes will be treated as in field 1. Soil which is greater than 30 pCi/gm shall be removed from the bottom of the well unless otherwise mutually agreed upon by UNC and the NRC.

Sunk Well Water Sampling

Three water sampling wells will be sunk as shown in Exhibit 1. These wells shall be sampled a total of four times at different time intervals. The wells shall be sampled per existing procedures (pumped and circulated prior to sampling).

Related Equipment

The main discharge pipe, the 5000 gallon septic tank, and any other related equipment not discussed in this report will be evaluated under a separate project. These equipment items are still required for the present discharge system. These will be sampled at the end of the decommissioning effort in accordance with the criteria discussed in the Decommissioning Plan. The outflow pipe from the septic tank has been capped to prevent possible spread of contamination into the field.

Hazardous Materials

Some soil samples will also be analyzed for the presence of various hazardous materials to assure compliance with all applicable regulations.

Analysis And Instrumentation

The general walkover survey will be taken with a uR meter. Instrumentation used shall be as specified in SNM-368, Part I Section 4.5. Calibration techniques shall follow existing procedures. Soil samples will be taken using a 24" split sampler and other standard excavation equipment. All soil analysis will be performed by a properly certified outside laboratory.

Soil samples will be measured for gross alpha. Isotopic Uranium analyses shall be performed whenever the total alpha activity of the soil or water samples exceed 30 pCi/gm or 15 pCi/l respectively. Some water samples previously collected are no longer available for isotopic analysis and can not be further tested. At least a total of ten soil samples will be selected from various locations to be tested for Ra-226 (based on several factors including gross alpha values). In addition, Ra-226 shall be tested in any sample which has cumulative isotopic uranium values less than the gross alpha figure and in any water sample which falls between 5 and 15 pCi/l.

Ground-water contamination levels shall be analyzed per a procedure based on the EPA guide "Statistical Analysis of Ground-water Monitoring Data at RCRA (Resource Conservation and Recovery Act) Facilities" unless otherwise mutually agreed upon by UNC and the NPC.

The acceptable average alpha radiation release level for soil at UNC will be 30 pCi/gm per the NRC Branch Technical Position.

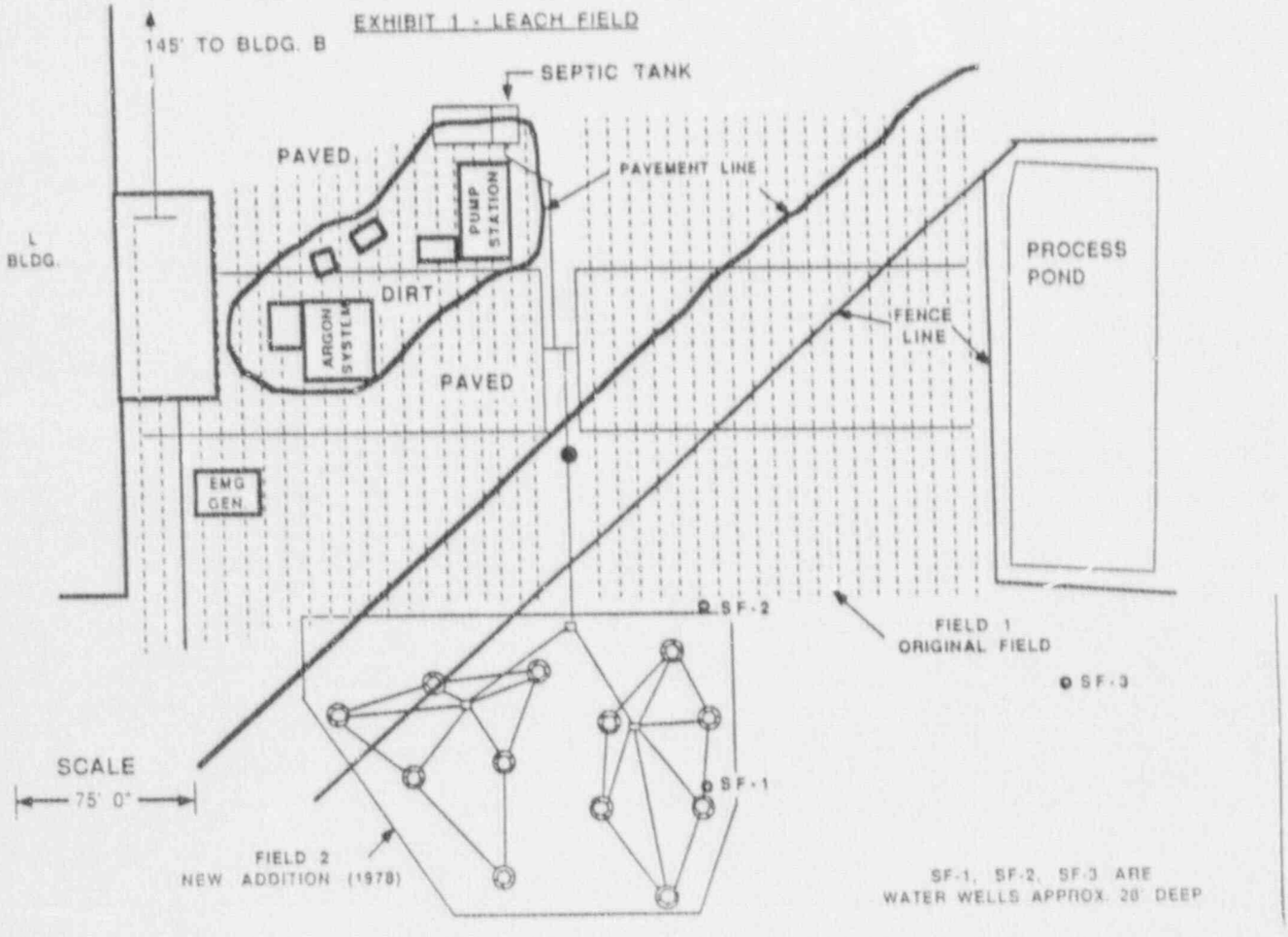
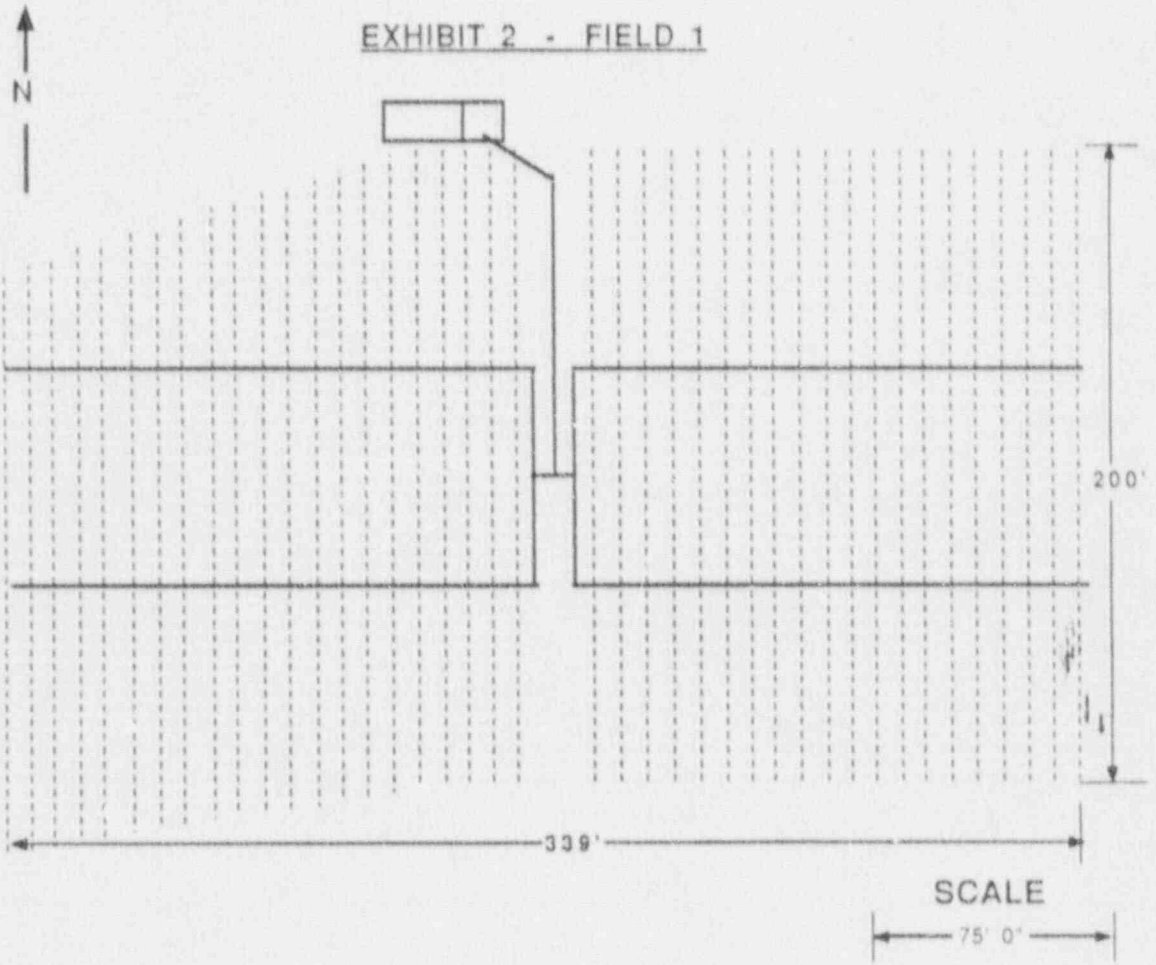


EXHIBIT 1 - LEACH FIELD
145' TO BLDG. B
SEPTIC TANK
PAVED
PAVEMENT LINE
PUMP STATION
L BLDG.
DIRT
ARGON SYSTEM
PROCESS POND
FENCE LINE
PAVED
EMG GEN.
SF-2
FIELD 1
ORIGINAL FIELD
SF-3
SCALE
75' 0"
SF-1
FIELD 2
NEW ADDITION (1978)
SF-1, SF-2, SF-3 ARE
WATER WELLS APPROX. 20' DEEP

EXHIBIT 2 - FIELD 1



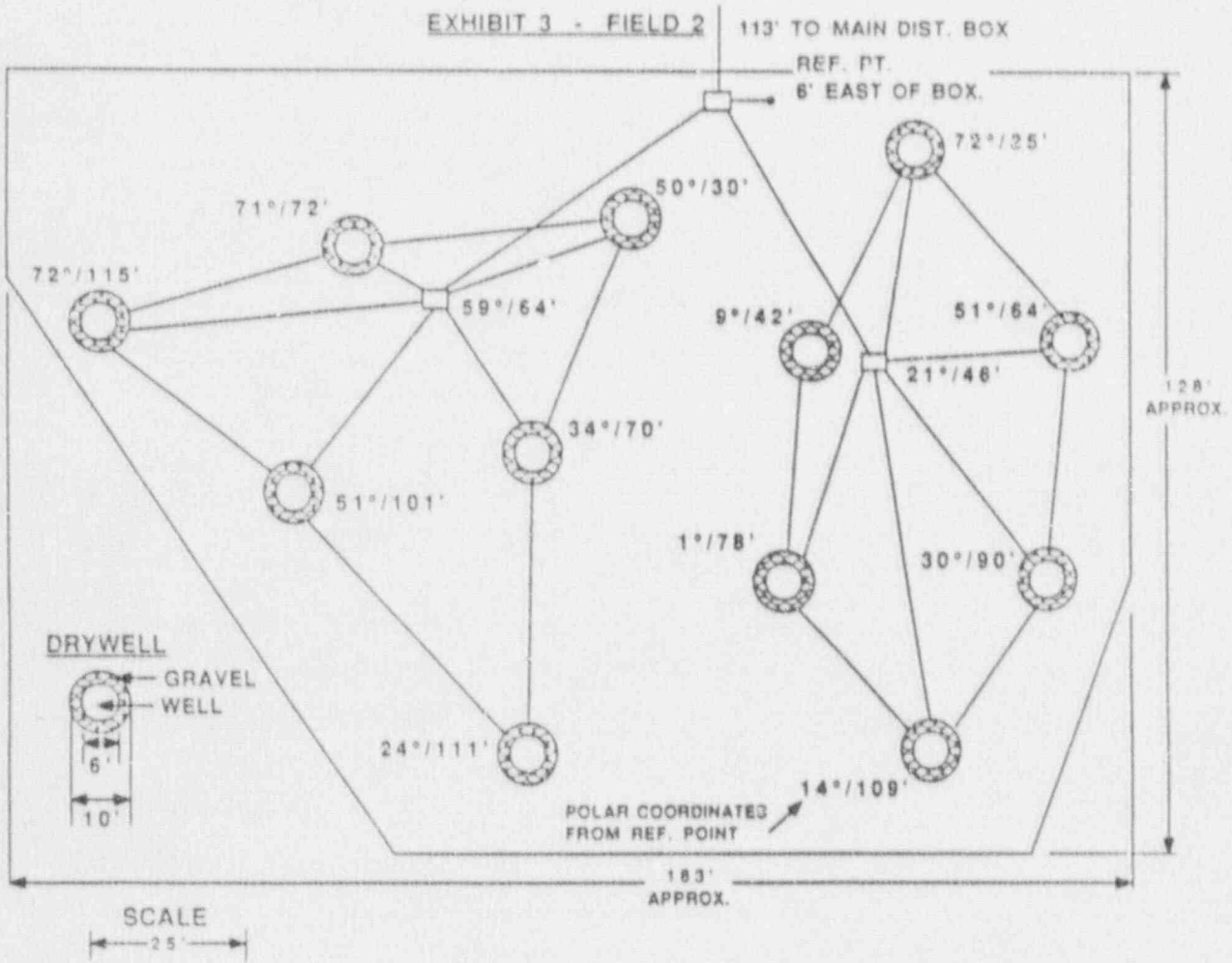


EXHIBIT 3 - FIELD 2
113' TO MAIN DIST. BOX
REF. PT.
6' EAST OF BOX.
72°/25'
50°/30'
71°/72'
72°/115'
59°/64'
9°/42'
51°/64'
21°/46'
128'
APPROX.
34°/70'
51°/101'
1°/78'
30°/90'
DRYWELL
GRAVEL
WELL
6'
10'
24°/111'
14°/109'
POLAR COORDINATES
FROM REF. POINT
183'
APPROX.
SCALE
25'

EXHIBIT 4

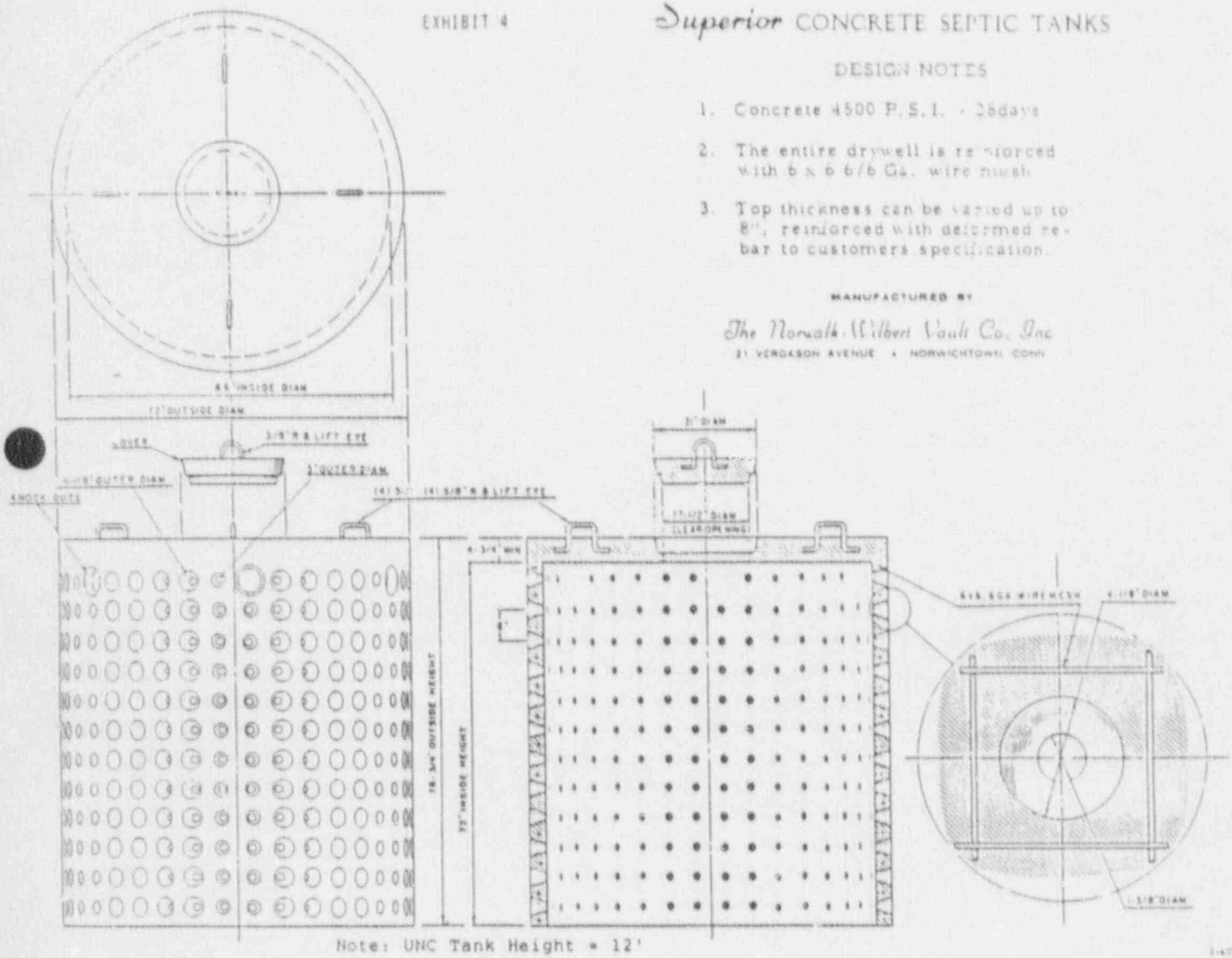
Superior CONCRETE SEPTIC TANKS

DESIGN NOTES

1. Concrete 4500 P.S.I. - 28days
2. The entire drywell is reinforced with 6 x 6 6/6 Ga. wire mesh
3. Top thickness can be varied up to 8", reinforced with deformed re-bar to customers specification.

MANUFACTURED BY

The Norwalk Wilbert Vault Co. Inc.
21 VERGASON AVENUE • NORWICHTOWN, CONN.



Note: UNC Tank Height = 12'

EXHIBIT 5 - FIELD 1 GRID POINTS

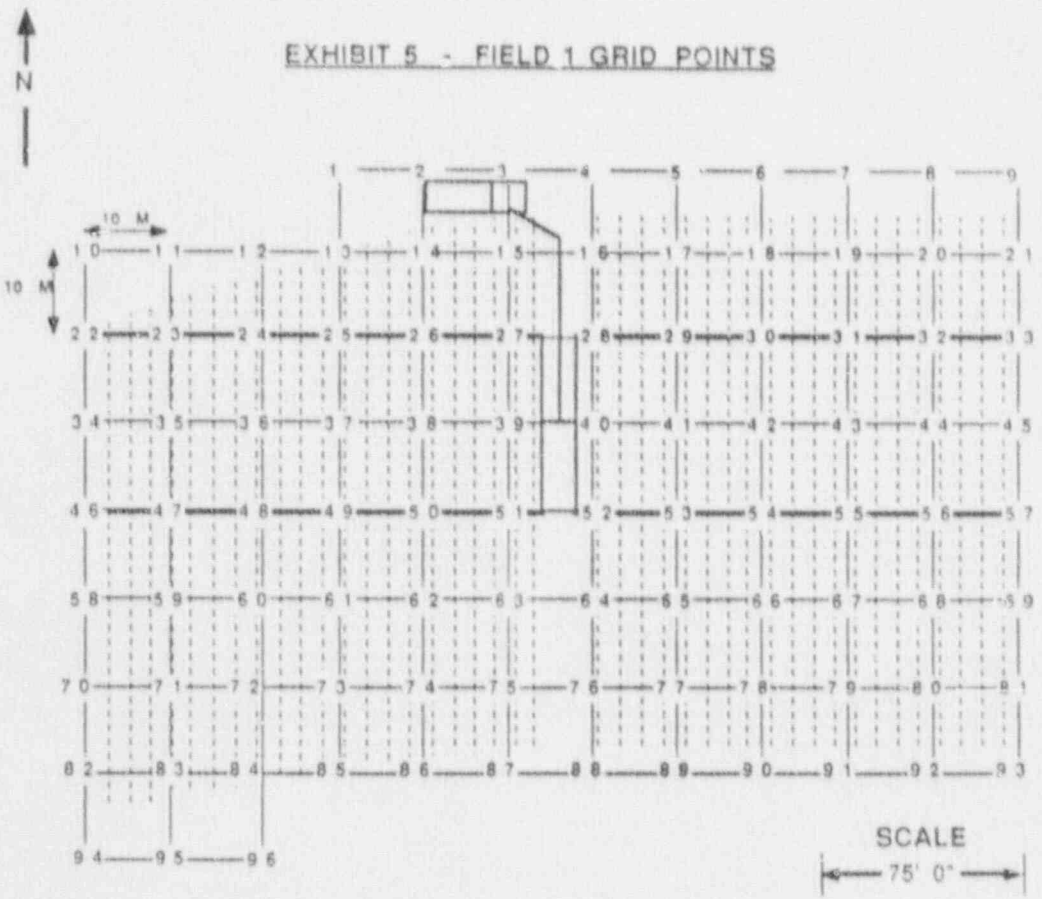


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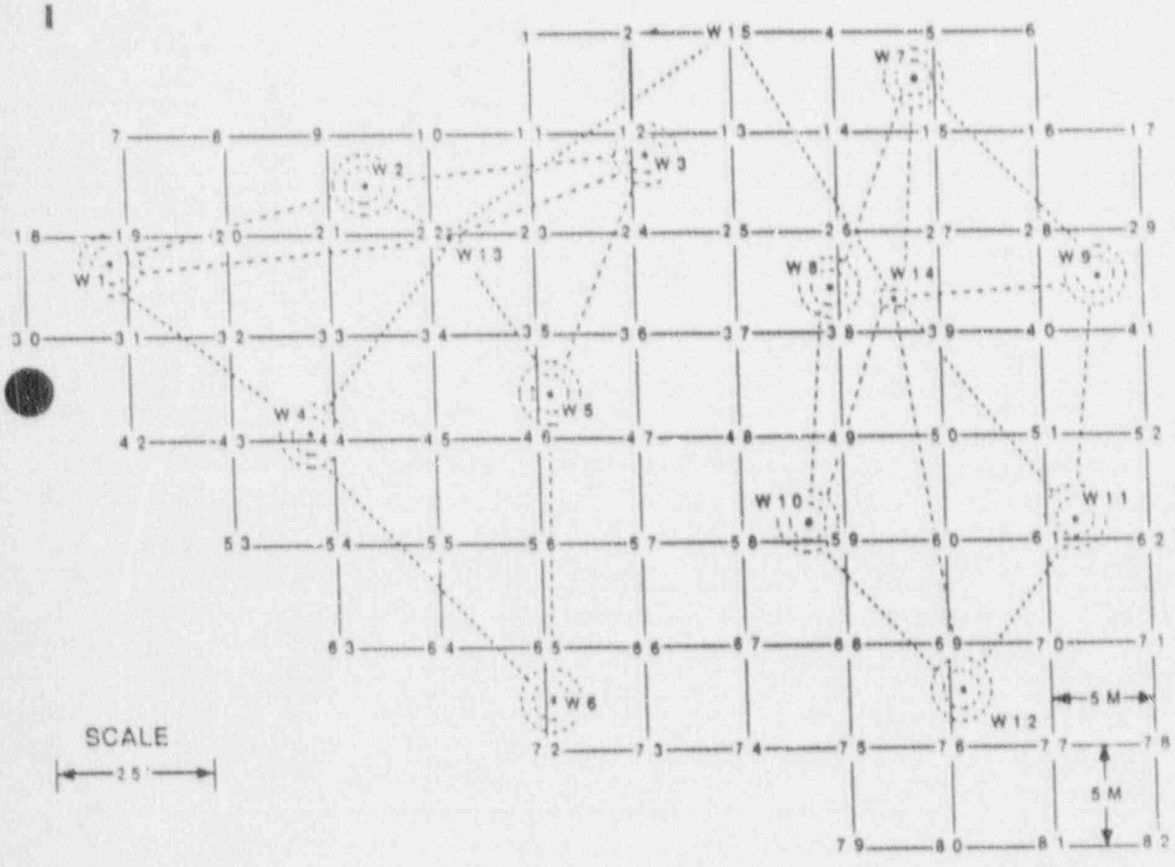
EXHIBIT 6 - FIELD 2 GRID POINTS



James J. Vickary

Vice President, Quality Operations (Shown as Vice President, Operations in the Decommissioning Plan)

Experience Summary:

Mr. Vickary has 32 years of diversified technical and management experience in the Naval Nuclear Industry. His principle expertise is in manufacturing, quality inspection, production control/ planning and projects management. He has successfully managed major projects from award, through development and production, to delivery; and thoroughly understands the system and resources needed to accomplish projects on time and within budget.

Education:

Masters Degree in Business Administration, University of New Haven.
Associates Degree in Business/Management Development, University of New Haven.

Relevant Management Experience:

1984-Present; Vice President, Quality Operations;
UNC Naval Products, Uncasville, Connecticut;
Mr. Vickary manages and directs the activities of manufacturing, quality control, planning/production control, maintenance, and facilities engineering to produce Naval nuclear components on schedule and with effective utilization of resources.

1979-1984; Senior Project Manager/Data Processing Manager;
Mr. Vickary managed all aspects of a Naval contract from award to delivery. He was responsible for the implementation of a new automated inventory control system in manufacturing while managing the Data Processing and Quality Control/Engineering Mini-Computer Systems.

1958-1979; Planning and Control/Special Projects Manager;
Mr. Vickary held various management positions for component manufacturing, assembly fabrication, division planning responsibilities, resulting in experience in all phases of manufacturing and government interface.