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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

WMUR:RTW  
Docket No. 40-8783

OCT 28 1981

MEMORANDUM FOR: Docket No. 40-8783

FROM: Roger T. Woolsey  
Operating Facilities Section II  
Uranium Recovery Licensing Branch

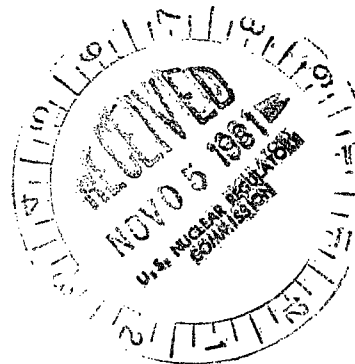
SUBJECT: SAFETY EVALUATION REPORT FOR URANERZ U.S.A., INC., THE  
RUTH ISLE PROJECT

Attached is the Safety Evaluation Report (SER) prepared in support of the issuance of Source Material License No. SUA-1387 for UUSA's R&D in situ leach uranium mine and recovery plant at the Ruth Isle Project in Johnson County, Wyoming.

*Roger T. Woolsey*

Roger T. Woolsey  
Operating Facilities Section II  
Uranium Recovery Licensing Branch

Attachment:  
As stated



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SAFETY EVALUATION REPORT  
SOURCE AND BYPRODUCT MATERIAL LICENSE  
URANERZ U.S.A., INC.  
RUTH ISL PROJECT  
JOHNSON COUNTY, WYOMING  
DOCKET NO. 40-8783  
LICENSE NO. SUA-1401  
OCTOBER 28, 1981

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## 1.0 DESCRIPTION OF THE PROPOSED ACTION

By an application dated November 25, 1980, Uranerz U.S.A., Inc., (UUSA) applied to the U.S. Nuclear Regulatory Commission (NRC) for a Source and Byproduct Material License to construct and operate a Research and Development (R&D) in situ leach uranium mine and recovery plant in Johnson County, Wyoming on its Ruth ISL site. The objectives of the leach test will be to investigate the technical feasibility of the proposed leach chemistry on the Ruth ISL ore body and to develop acceptable aquifer restoration procedures.

The solution mining will be accomplished using a dilute sodium carbonate-sodium bicarbonate lixiviant and an oxidant. The pilot program which will involve 24 wells forming a contiguous well field of five seven-spot patterns spaced 25-35 feet apart on approximately one acre (4045 m<sup>2</sup>). This well field will be surrounded by a system of environmental monitor wells completed in the aquifer to be mined. In addition, "in-field" monitors will be completed in the upper and lower aquifers respectively.

The proposed action is to grant a five-year license authorizing the operation of R&D in situ leach mining and uranium recovery facilities.

A Negative Declaration and Environmental Impact Appraisal dated \_\_\_\_\_ and this Safety Evaluation Report will provide the basis for the issuance of a five-year Source Material License.

## 2.0 REVIEW SCOPE

This document details the staff's review of in-plant radiological safety of the licensee's proposed Ruth ISL Project. This review included an evaluation of a partial radiological safety report included with the applicant's application and technical report transmitted to the NRC with NRC-2 form dated November 25, 1980.

### 3.0 AUTHORIZED ACTIVITIES

The proposed license will authorize Uranerz U.S.A., Inc. to solution mine uranium from a low-grade ore body using a dilute carbonate-bicarbonate lixiviant and an oxidant at a feed rate of 97 gpm and an extraction pumping rate of 100 gpm. The uranium-containing solution will be extracted and concentrated at the onsite process facility into a final  $U_3O_8$  slurry product.

#### 3.1 Facility Description

The proposed project site will be located in the north-central portion of Wyoming in Johnson County approximately 52 air miles north of Casper and 54 air miles south-southwest of Gillette. See Figures 1 and 3 enclosed. The project site includes approximately 40 acres in sections 13 and 14, T42N, and R77W.

#### 3.2 Process Operations

##### 3.2.1 Uranium Recovery Plant

In the recovery plant, which will have a design process rate of 100 gallons per minute, the uranium will be stripped from the ion exchange resin with either a  $NH_4HCO_3$  or an  $NaCl/Na_2CO_3$  eluant (enclosed find Figure 30). The pregnant liquor will then be decarbonated with acid at a pH below 2, and the yellowcake will be precipitated with either  $H_2O_2$  or  $Mg(OH)_2$  to form a yellowcake slurry. Enclosed find the flowsheet in Figure 23. The yellowcake slurry will be transported to a nearby mill for processing. No more than 11,000 pounds of  $U_3O_8$  will be stored at the site at any time.

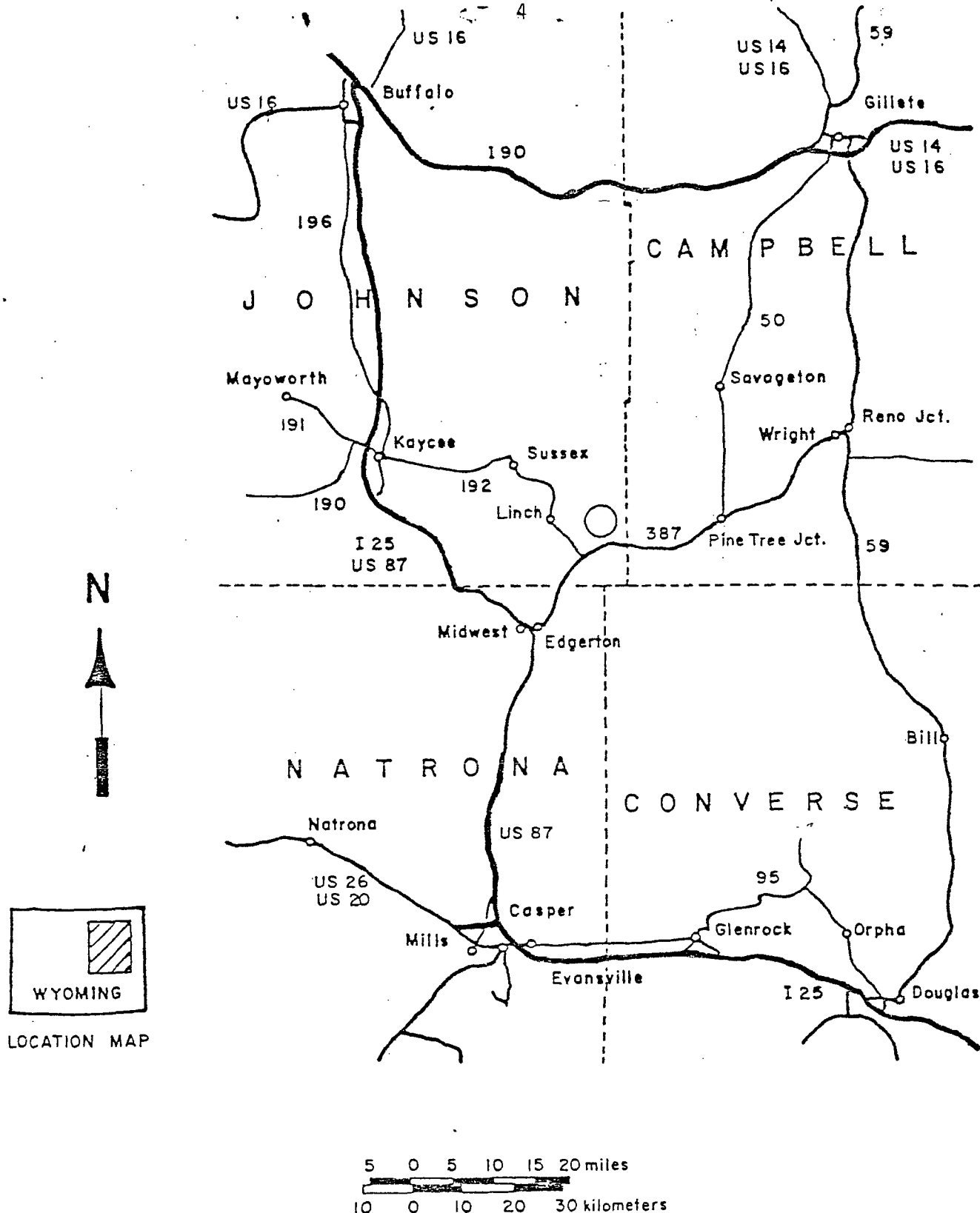
##### 3.2.2 Well Field Leach Circuit

The well field, as planned, will consist of 24 wells forming a contiguous well field of five seven-spot patterns (see Figure 24, enclosed). The wells will be spaced 25-35 feet apart and located on an approximately one-acre well field.

The well field will be surrounded by a system of environmental monitoring wells completed in the aquifer being mined. In addition, field monitoring wells will be completed in the upper and lower aquifers.

The total production rate will be 3% more than the total injection rate in order to maintain a net influx of groundwater into the well field.

A central well field waste solution tank will be established to receive all liquid wastes that may be generated as a result of maintenance work on the wells. This tank will be emptied into the waste evaporation ponds.



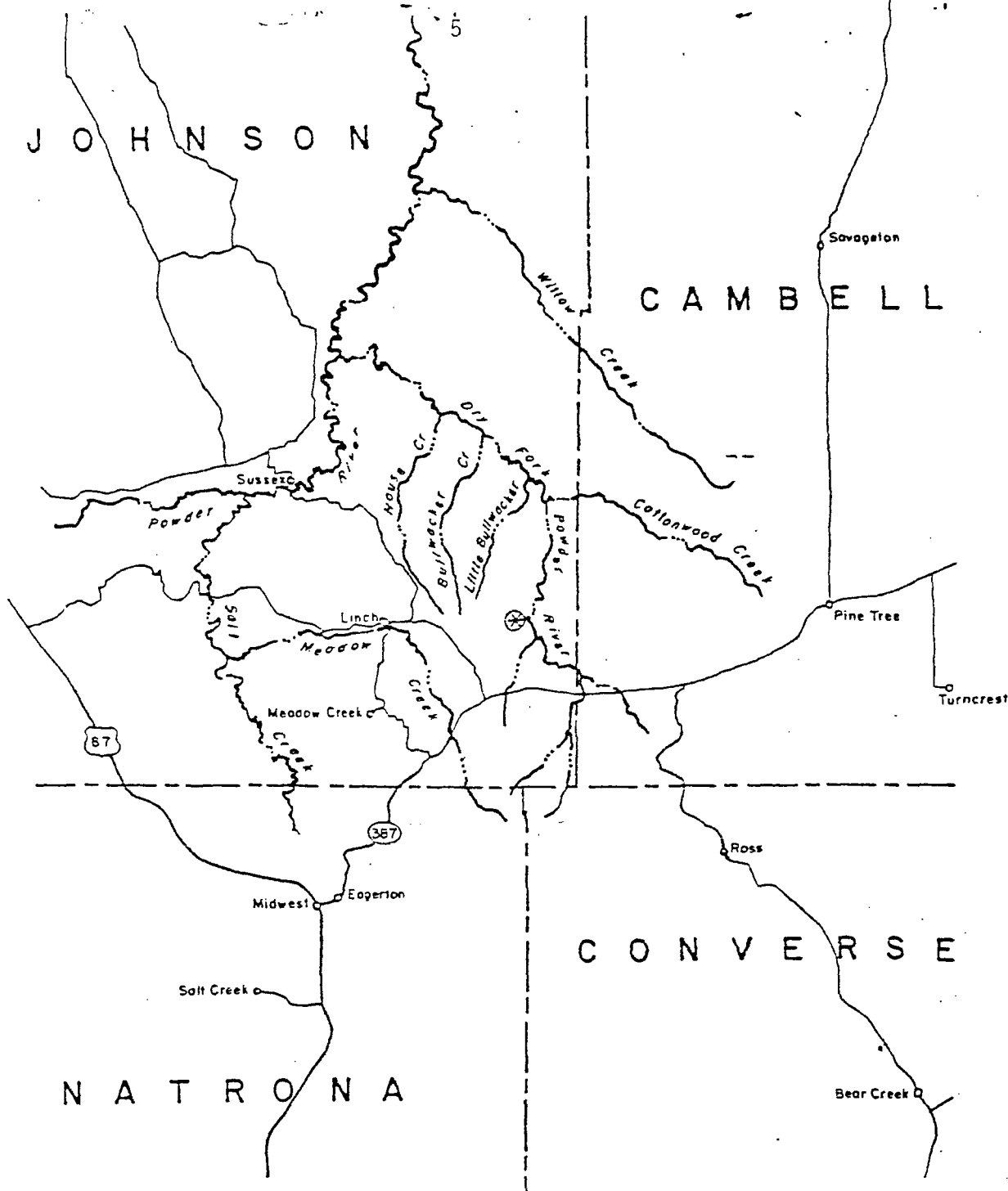
# LEGEND

- HIGHWAYS
- TOWNS & CITIES
- COUNTY LINES
- RUTH ISL. PROJECT

URANERZ U.S.A., INC.  
PROJECT: RUTH ISL. PILOT PROJECT



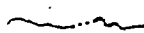


FIGURE 1



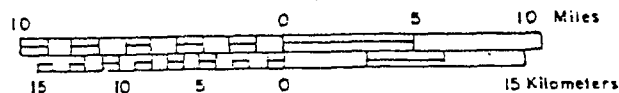


LOCATION MAP

LEGEND

-  RUTH ISL SITE
-  COUNTY LINES
-  RIVERS & CREEKS
-  TOWNS
-  ROADS

SCALE

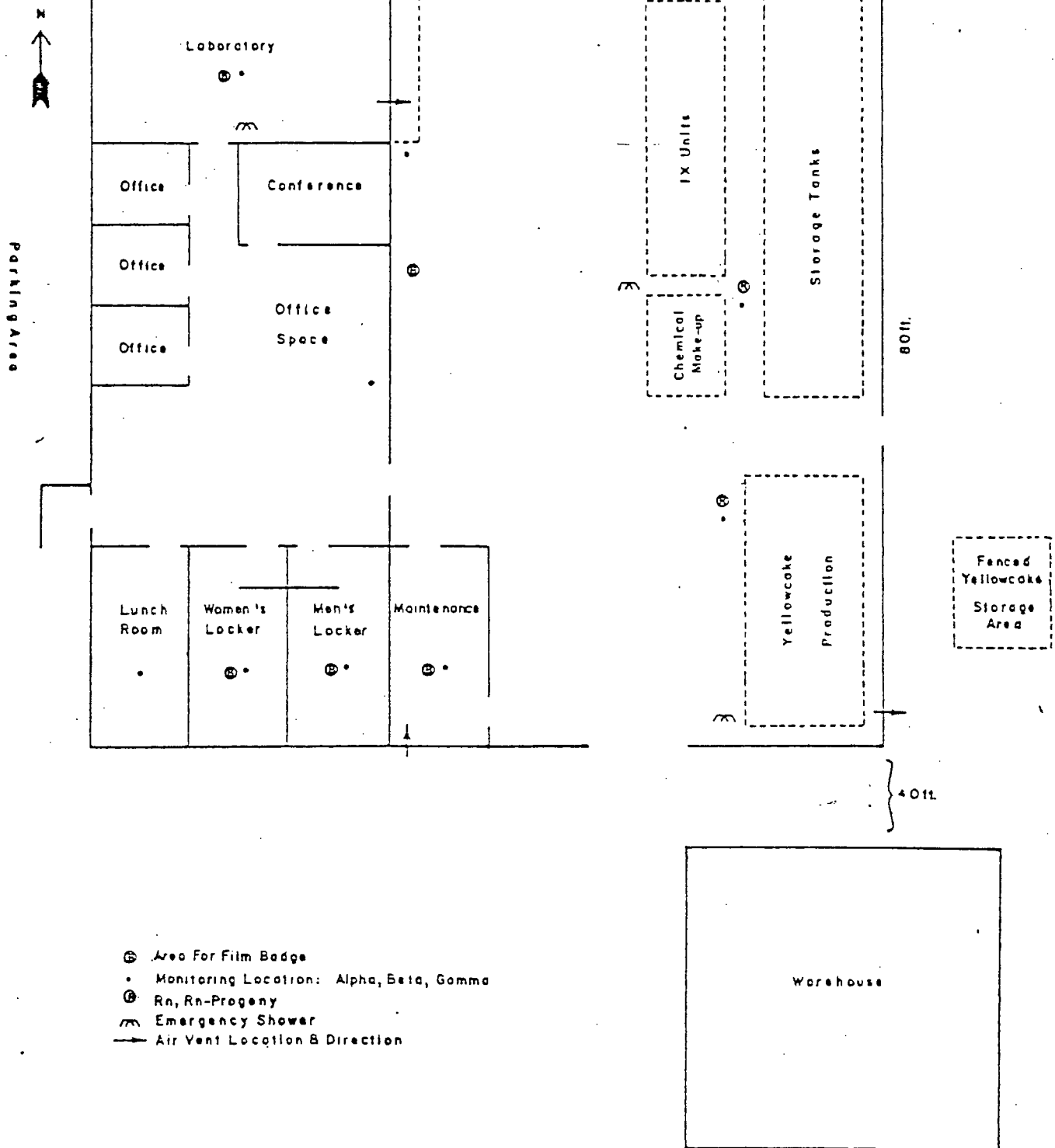


URANERZ U.S.A., INC.  
RUTH ISL PILOT PROJECT

Site Area Drainage  
Figure 3

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KM-RK



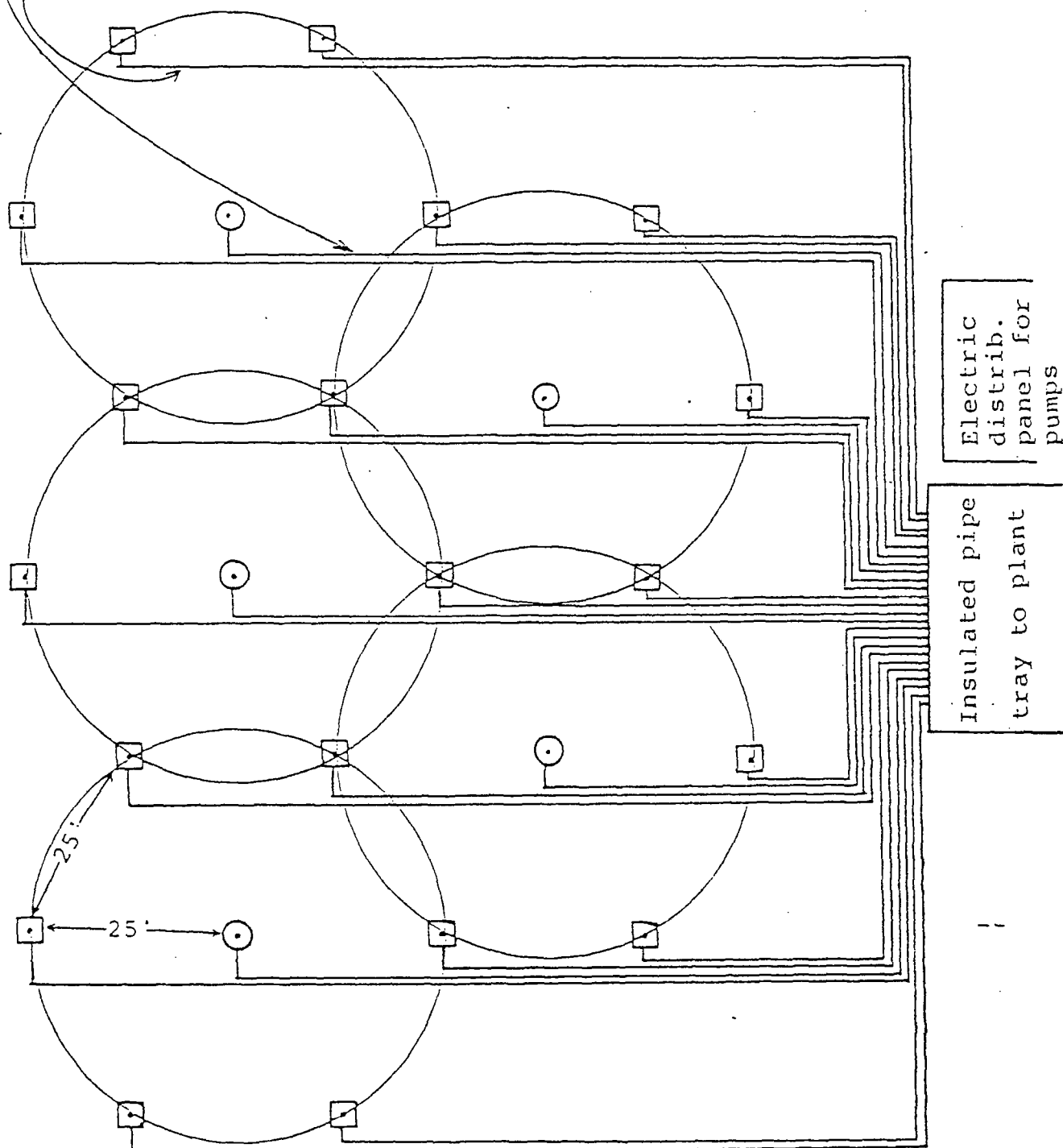
Preliminary Plant Layout

Figure 3C

Access for service vehicles

Production Lines: 1" Tubing, insulated, with heat tracing

Injection Lines: 3/4" Tubing, insulated with Heat tracing



○ Production Wells  
 □ Injection Wells

RUTH ISL TEST PATTERN  
 (Tentative)

Figure 24



#### 4.0 RADIATION SAFETY ORGANIZATION, RESPONSIBILITIES, AND QUALIFICATIONS

##### 4.1 Organization

The applicant states that the General Manager of Uranerz U.S.A., Inc. (UUSA) is responsible for all acts and decisions of the managing personnel of UUSA, and that responsibility for the solution mining project is delegated by the General Manager to the Project Manager, PM; also, that the project in all its aspects will be overseen by the PM. The Manager of Operations, the Radiation Safety Officer, as well as the Project Administrator report directly to the Project Manager (see enclosed Figure 31). The Manager of Operations is responsible for the technical part of the solution mining. The Well Field Superintendent, the Plant Superintendent, and the Project Geologist will report to the Manager of Operations. The applicant further stated that all working safety, radiation protection, health monitoring, and environmental monitoring will be the responsibility of the Radiation Safety Officer. He or the Radiation Safety Technician (see below) in his absence has the authority to request necessary operational changes through the Project Manager, and to stop, cancel, or request activities directly, in case of immediate hazards.

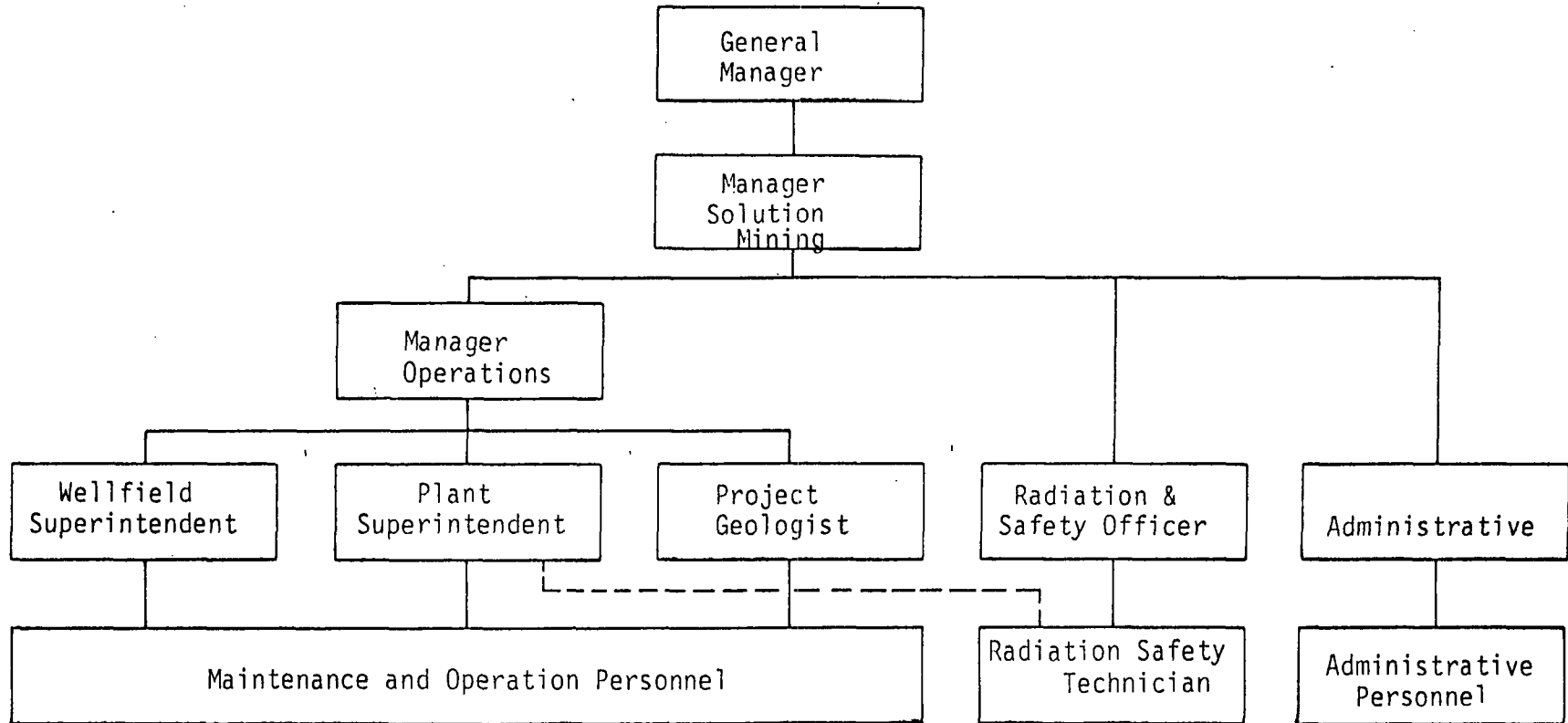
The staff has concluded that the proposed management organization is acceptable. The minimum qualifications of the site RST are presented later in the section. The staff recommends, but does not require, that the RST should not be assigned other production-related duties. The RST shall supervise any additional radiation safety staff assigned to the site. The RST may have other safety-related duties, such as responsibility for programs of industrial hygiene and fire safety.

##### 4.2 Radiation Safety Responsibilities

The applicant has provided a detailed description of the authority and responsibilities of the radiation safety personnel. The staff has concluded that this statement is fully adequate and provides reasonable assurance that the RSO and other applicable radiation safety staff will properly oversee and audit radiation safety activities at the site in order to achieve ALARA exposures to workers and the general public from this facility operation.

The purpose of the radiation safety program at a uranium recovery facility is to maintain radiation exposures ALARA for all employees, contractors, visitors, and members of the general public. Thus, the implementation of a successful ALARA program becomes the responsibility of everyone incidental to the operation of the facility. Responsibility to achieve ALARA is shared by licensee management, the Radiation Safety Officer (RSO), the site RST, and all facility workers. The staff also concludes that the licensee management, the RSO, and the RST have been provided the necessary authorities and responsibilities to direct the radiation safety program.

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Personnel Organization  
Ruth ISL Project  
URANERZ U.S.A., INC.

Figure 31  
Revised 10/8/81

#### 4.3 Qualifications of the Radiation Safety Personnel

##### 4.3.1 Radiation Safety Officer

The applicant provided the personal qualifications of the individual assigned the position of Radiation Safety Officer in Section 5.2 of their application dated November 25, 1980, as revised October 8, 1981. The staff agrees that the qualifications for the Radiation Safety Officer position and the personal qualifications of the designated individual for the RSO position are adequate.

##### 4.3.2 Radiation Safety Technician

The applicant has not yet designated the individual assignment of a radiation safety technician for the site; however, the staff has concluded that the qualifications for this position are adequate.

## 5.0 RADIATION SAFETY PROGRAM

### 5.1 Operating Procedures

The applicant provided for the development of standard written operating procedures. The staff has concluded that the mechanism for development and implementation of standard written operating procedures for all operational activities involving radioactive materials that are handled, processed, stored, or transported is consistent to the staff licensing policy. The licensee has also committed to establish written procedures for nonoperational activities to include health physics and environmental monitoring, sampling, analysis, and instrument calibration. However, the staff shall require by license condition that up-to-date copies of each written procedure shall be posted in each area where it is used.

The licensee has designated that all written procedures for both operational and nonoperational activities involving radioactive materials shall be reviewed and approved in writing by the RSO or other similarly qualified expert before being implemented and whenever a change in a procedure is proposed to ensure that proper radiation protection principles are applied. The RSO shall review all existing operating procedures on an annual basis. For work or nonroutine maintenance jobs where the potential for exposure to radioactive material exists and for which no standard written operating procedures exist, a radiation work permit (RWP) shall be required. Such permits shall describe the following:

1. The scope of the work to be performed.
2. Any precautions necessary to reduce exposure to uranium and its daughters.
3. The supplemental radiological monitoring and sampling necessary during and following completion of the job. Nonroutine maintenance involving exposure to airborne radioactivity shall require the use of continuous breathing zone monitoring.

The RST shall indicate by signature the review of each RWP prior to the initiation of work, and the work shall be carried out in strict adherence to the conditions of the RWP. The staff concludes this mechanism to implementing and reviewing procedures is adequate.

### 5.2 Training

The applicant has provided a description of his training program on pages 95 and 96 of the license application which will include such aspects as: process chemistry, plant design, pertinent rules and regulations (including dose limits), basic radiation physics, and radiation protection involving the radioactive material that will be handled and associated with the process. The new employee will receive written training material and will have to certify his basic understanding of the training that he received.

Also, the applicant proposes to provide all employees, on a regular basis, training in changes in the process or process design and changes in the



regulations. He will furnish training in responding to accidents and training in facility radiation safety procedures.

Upon completion of the initial training program, a written examination shall be given to each individual by the instructor. The worker must achieve a predetermined passing score on the exam. The exam scores shall be maintained on file. Each permanent facility worker shall be provided a refresher training course annually. Retraining shall include relevant information that has become available during the past year, a review of safety problems during the past year, changes in regulations and license conditions, exposure trends, and other current topics. Also, six times a year, all permanent site workers shall attend a general facility safety meeting at which radiation safety problems will be offered for discussion.

All permanent site workers shall be given specialized instruction on the radiation health and safety aspects of the specific jobs they will perform. This instruction shall be in the form of individualized on-the-job training performed by supervisors with the assistance of the RSO.

The staff concludes the training provided site workers is adequate.

### 5.3 Radiation Surveys--Area Monitoring

UUSA proposes to divide the plant into work stations with additional work stations at the well field and pond area. Each work station will have one or more marked points where monitoring will be reported at established intervals.

Air samples will be taken with an Eberline Model RAS-1, or equivalent. Air filter or swipe samples will be measured with an alpha scintillation counter such as an Eberline Model SAC-4 or equivalent. Personnel alpha contamination will be measured using an Eberline Model RM-19/AC-3, or equivalent.

The licensee has stated that surveys for natural uranium (resuspended yellowcake) shall be on a monthly basis with the exception that it shall be increased to weekly for any restricted area that meets the defined limits of an "airborne radioactivity area" as defined in 10 CFR Part 20.203(d), and a documented investigation of the cause of the high levels shall be made. Surveys for radon or its daughters shall be performed monthly in all enclosed process structures inhabited by workers. If the radon or radon progeny concentrations are found to exceed 8pCi/l or 0.08 WL (working levels) respectively, then radon surveys shall be performed on a weekly basis. Weekly sampling shall be maintained until four consecutive weekly samples exhibit concentrations less than 8pCi/l or 0.08 WL. Then radon surveys shall be resumed on a monthly basis.

The licensee, in Figure 33 dated October 9, 1981, has designated the locations for surveys of airborne natural uranium, radon, gamma, and alpha contamination. The staff advises that the fluorometric analysis for uranium in disequilibrium with its daughters is preferred over the radiometric method.

The applicant stated that workers shall wear TLD dosimeters that are changed and read out monthly.

The licensee shall survey numerous locations in the laboratory, offices, eating rooms, change rooms, and storage rooms for alpha contamination. Eating and change rooms shall be surveyed weekly whereas offices and laboratories shall be surveyed at least monthly. The applicant proposes that if the analyses of urine bioassay samples are at an onsite laboratory, then all surfaces used for sample preparation shall also be surveyed preceding the bioassay analyses. However, the licensee did not designate the levels requiring decontamination, therefore, the staff shall require that if the contamination levels exceed those listed in Annex A, "Guidelines for Unrestricted use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material, NRC, November 1976," i.e., the Uranium Recovery Licensing Branch Position, the area shall be decontaminated. The source of the contamination shall be determined, control measures initiated, and the results documented.

With the exception of the issue of alpha decontamination limits discussed above, the staff concludes that the licensee's proposed surveying program is adequate.

#### 5.4 Environmental Surveys

The details of an unrestricted area environmental monitoring program is beyond the scope of this document. For an explanation of the staff's conclusions on monitoring and surveys for radiological effluents, the reader is referred to Section 5 of the Environmental Impact Appraisal dated \_\_\_\_\_.

#### 5.5 Personnel Dosimetry

##### 5.5.1 Internal Dosimetry

The applicant has detailed the manner in which worker exposures due to the inhalation and ingestion of airborne radon and its daughters or radioactive particulates of uranium would be determined. The applicant's mechanism are consistent with 10 CFR 20.103(a)(1-2) which require the control and assessment of exposure to radon and its daughters on a calendar-year basis, whereas, the soluble form of uranium (yellowcake) must be evaluated and controlled on the basis of a 40-hour work week.

The applicant has stated that the calculation of internal exposure to radon or uranium shall be based upon a TWE (time-weighted exposure) calculation incorporating a consideration of both occupancy time and average airborne concentration. If occupancy times are established as an average for each category of workers, then the licensee shall reevaluate the basis upon which average occupancy periods are set by means of a semiannual time study.

For unusual or nonroutine maintenance procedures that require airborne sampling due to RWP requirements or where the work is of such nature that routine area surveys could not establish accurately the exposure of the worker, the exposure calculation shall be based on the actual occupancy time and the airborne concentration.

However, the staff has noted the applicant has not proposed an action limit on individual worker dose; whereupon, if an employee reaches this action level, then the RST will initiate an investigation of the employee's work record and exposure history to identify any problem areas. The staff believes an appropriate action limit is 25% of the MPE. Exposures exceeding 25% MPE shall be investigated. If any problem areas are noted, they will be studied and the necessary corrective measures will be taken to ensure reduction of future exposures to as low as is reasonably achievable. Records shall be maintained of these investigations. These requirements are contained in a license condition.

#### 5.5.2 Bioassay

The applicant has proposed a bioassay program in the form of a urinalysis which shall be conducted on a monthly basis. The applicant shall collect baseline urine samples from all employees prior to initial assignment at the facility. While workers are not routinely exposed to dry yellowcake, exposures may occur due to the drying and resuspension of spills or during maintenance activities. The possibility of ingestion also exists, especially for those workers who routinely handle the wet yellowcake product. Also, a bioassay program will aid in determining whether the airborne monitoring program is adequate.

The applicant has also proposed action levels for the bioassay program that are consistent with or are more stringent than those specified in Regulatory Guide 8.22. The staff concludes that the applicant's proposed bioassay program is acceptable.

### 5.6 Inspection and Auditing Program

#### 5.6.1 Inspection Program

The applicant has stated that the in-plant inspection program shall be conducted by the RST, whose responsibility will be to perform a daily "walk through" inspection of the operating area to ensure that all personnel maintain a safe working environment. Any items of noncompliance or violations of procedures, policies, regulations, or license conditions shall be documented and maintained on file. All problems requiring remedial action shall be brought to the attention of the Project Manager or the RSO and proper action taken.

#### 5.6.2 Auditing Program

The applicant has stated that the RSO shall perform a formal semiannual ALARA audit of the radiation safety program and submit a detailed report (written) to the PM. In order to evaluate the ALARA objective, the RSO shall review the following records as part of the semiannual audit:

1. Bioassay results including any actions taken when the results exceeded action levels in Table 1 of Regulatory Guide 8.22.
2. Exposure records, both external and internal time-weighted calculations.

3. Safety meeting minutes, training program records, and attendance records.
4. Daily log entries and summary reports of the monthly reviews.
5. In-plant radiological survey and monitoring data as well as environmental radiological effluent and monitoring data.
6. Surveys required by radiation work permits.
7. Reports on overexposure submitted to NRC, MSHA, or the state.
8. Reviews of operating and monitoring procedures completed during this period.

The written semiannual audit report shall be specific in addressing any noticeable trends in personnel exposures for identifiable categories of workers and types of activities, any trends in radiological effluent data, the performance of exposure and effluent control equipment, and whether it is being properly used, maintained, and inspected. Any recommendations to further reduce personnel exposures or environmental releases of uranium or radon and radon progeny shall be included in the report.

The staff concludes the inspection and audit program outlined by the applicant is acceptable and meets licensing policy; however, the staff shall require that a copy of the semiannual audit report be sent to the NRC.

## 6.0 FACILITY AND EQUIPMENT

### 6.1 Facility Design

The applicant provided a facility floor diagram as indicated in Figure 30 to the application dated November 25, 1980, as revised September 1, 1981, showing the proposed layout for the process area; offices, the laboratory, and worker change and eating areas. The proposed layout is acceptable.

### 6.2 Ventilation Design

The applicant stated that general plant air will be ventilated at a rate of four air volume per hour. The air will enter and leave the plant building as indicated in the plant layout, Figure 32, as revised September 1, 1981.

In addition to the general ventilation of the building, all tanks where radon can be released are closed and ducted to the outside. The applicant expects that under these ventilation conditions the concentration of Rn-222 and radon daughters in the plant will be maintained below 0.1 WL.

The staff concludes the ventilation system is adequate.

### 6.3 Spillage and Leakage Prevention

In order to minimize the possibility of leaks and spills, the applicant plans to install such protective safety measures as curbs, retention walls, check and pressure valves, and alarm devices. If solutions should be spilled, despite these built-in precautions, they will flow into a sump. The plant will have a concrete floor with a slight slope towards the sump and the licensee will apply an appropriate seal to prevent seepage of solution into the foundation and ground. Additional curbs will enclose the production surge tanks, the yellowcake precipitation, and other tanks that will contain higher concentrated uranium solutions, thus enabling spillage to flow into the sump directly.

### 6.4 Protective Clothing and Equipment

The applicant has stated that process and maintenance workers who work in yellowcake areas, or work on equipment contaminated with yellowcake, shall wear protective clothing including coveralls and boots or shoe covers. Workers who package yellowcake slurry for transport shall also be provided gloves. Before leaving the change area, all process workers involved in the precipitation, handling, packaging, or transport of yellowcake slurry shall either shower and/or monitor their face, hands, and shoes using a calibrated alpha survey instrument. Where alpha monitoring is used exclusive of showering, the monitoring results shall be documented and maintained on file. In addition, the applicant shall perform spot surveys for alpha contamination at least quarterly on workers leaving the facility-controlled area.

Alpha contamination greater than 1000 dpm/100 cm<sup>2</sup> on skin or clothes shall be cause for decontamination and resurveying, and for an investigation by the radiation safety staff. Records shall be maintained of these investigations.

This program is acceptable to the staff.

#### 6.5 Access Control

The applicant has committed to restrict the access to the proposed project site by locating the processing area, well field, and pond area within a fenced area. Gates and fencing will be posted with warning signs. Entrances into the process building will be conspicuously posted: "CAUTION. ANY AREA OR ROOM WITHIN THIS FACILITY MAY CONTAIN RADIOACTIVE MATERIAL."

By license condition, the staff will exempt the applicant from the requirements of Section 20.203 of 10 CFR Part 20 for posting areas within the process facility.

#### 6.6 Release of Equipment and Materials

The applicant has provided information concerning the release of contaminated equipment. The applicant stated any equipment, materials, and packages released from the restricted area will be in accordance to "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," dated November 1976.

The applicant did not address the disposition of solid radioactive waste products. The staff will require by license condition that degraded resin and other solid wastes shall be transferred to an NRC-licensed uranium recovery facility for disposal in their tailings impoundment, or shall be shipped to a licensed radioactive waste disposal site.

#### 6.7 Quality Assurance and Equipment Calibration

UUSA has not addressed quality assurance in this application.

The applicant has provided that all radiation monitoring, sampling, and detection equipment shall be recalibrated after each repair and as recommended by the manufacturer or at least semiannually, whichever is more frequent. In addition, all radiation survey instruments shall be operationally checked with a radiation source before each use.

The applicant will also be required by license condition to develop a quality assurance program for all sampling and analyses performed as part of the in-plant radiation safety and environmental monitoring programs that includes all of the recommended elements of a quality assurance program specified in Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Stream and the Environment." In addition, prior to commencing operations, the applicant will be required to submit to the U.S. Nuclear Regulatory Commission, Uranium Recovery Licensing Branch, for approval, in the form of a license amendment, complete specifications for this quality assurance program.

## 7.0 EMERGENCY PROCEDURES

The applicant discussed emergency procedures for five types of accidents; uncontrolled liquid release, underground excursions, fires, accidents in the pond area, and transportation accidents. The applicant is committed to rapid cleanup of spills using wet methods, washing the material into the sump, transferring back into the process, and radiation instrument surveys to assure satisfactory cleanup. The underground excursion will be addressed in the Environmental Impact Appraisal for the Ruth ISL Project. Fire extinguishers will be installed throughout the plant. The extinguisher types will be provided in accordance with appropriate regulations for chemical plants. The applicant will be required by a license condition that any uncontrolled liquid release or release from a transportation accident involving radioactive materials will be cleaned up in accordance with the criteria contained in the Uranium Recovery Licensing Branch Position, "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material" dated November 1976. The staff shall additionally require by license condition that the applicant develop and submit for NRC review and approval, prior to commencing operations, a general emergency action plan establishing authorities and procedures to be followed for the above accidents.

## 8.0 DECOMMISSIONING

The applicant has committed to reclaiming disturbed areas in accordance with the regulations of Wyoming Department of Environmental Quality. In addition, the reclamation and decommissioning shall be in conformance with NRC Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of License for Byproduct Source, or Special Nuclear Material," November 1976, and with U.S. EPA Environmental Standards in effect at the time for cleanup of open lands and buildings. This topic is covered in detail in the Environmental Impact Appraisal.



## 9.0 SURETY

See the Environmental Impact Appraisal dated \_\_\_\_\_ for a description of the surety arrangements.

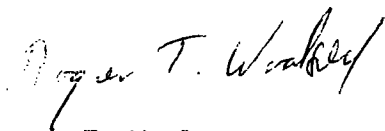
## 10.0 CONCLUSION

Upon completion of the safety review of the applicant's license application and supplement, the staff has concluded that the proposed Uranerz U.S.A. Inc., Ruth ISL Project operations described in this SER and the EA, subject to all conditions imposed by the staff, will be protective of public health and safety and fulfills the requirements of 10 CFR Part 20.

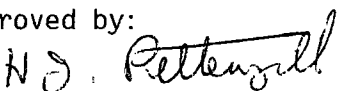
The staff, therefore, recommends that Uranerz U.S.A., Inc. be issued a license subject to the following conditions:

9. Authorized Place of Use: Section 13 and 14, T42N, R77W., Johnson County, Wyoming, approximately 12 air miles southeast of Sussex and 14 air miles northeast of Edgerton.
10. Authorized Use: For uranium recovery from pregnant lixiviant in accordance with statements, representations, and conditions contained in Figure 23 of Section 3.0, Figure 30 of Section 3.2, and Sections 5.0 and 7.3 of the licensee's application enclosed with NRC-2 form dated November 25, 1980. Wherever the word "will" is used in the licensee's submittals, it shall denote a requirement. Notwithstanding the above, the following conditions shall override any conflicting statements contained in the licensee's application and supplements.
11. All sampling and monitoring data, calibration records, reports on audits, inspections, and other analyses, training records, and safety meeting minutes, as well as any subsequent reviews, investigations, and corrective actions, shall be documented. Unless otherwise specified in the U.S. Nuclear Regulatory Commission regulations, all such documentation shall be maintained for a period of at least five (5) years.
12. The licensee shall maintain an up-to-date copy of each written operating and monitoring procedure in each area where it is used.
13. The licensee shall investigate the exposure history of any worker that exceeds 25 percent of the maximum permissible exposure on limits as specified in 10 CFR 20 based on a calculated TWE for the week or calendar quarter, dependent on the solubility of the material. Further, the licensee shall identify the source of the exposure areas and take necessary corrective measures to ensure reduction of future exposures to as low as is reasonably achievable. Records shall be maintained of these investigations.
14. If the alpha contamination levels exceed those listed in the attached "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct Source or Special Nuclear Material" dated November 1976, the area shall be decontaminated. The source of the contamination shall be determined, control measures shall be initiated, and the results shall be documented.

15. The licensee shall submit a copy of the semiannual ALARA audit report to the U.S. Nuclear Regulatory Commission, Uranium Recovery Licensing Branch, Washington, D.C. 20555, and the Office of Inspection and Enforcement, Region IV, 611 Ryan Plaza Drive, Suite 1000, Arlington, Texas 76011.
16. The licensee is hereby exempted from the requirements of Section 20.203(e)(2) of 10 CFR 20 for posting areas within the facility, provided that all entrances to the facility are conspicuously posted in accordance with Section 20.203(e)(2) and with the words, "ANY AREA WITHIN THIS FACILITY MAY CONTAIN RADIOACTIVE MATERIAL."
17. The licensee shall develop a quality assurance program for all sampling and analyses performed as part of the in-plant radiation safety and environmental monitoring programs that includes all of the recommended elements of a quality assurance program specified in Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Stream and the Environment." In addition, prior to commencing operations and within ninety (90) days of issuance of this license, the licensee shall submit to the U.S. Nuclear Regulatory Commission, Uranium Recovery Licensing Branch, for approval in the form of a license amendment, complete specifications for this quality assurance program.
18. Within ninety (90) days of the issuance and prior to commencing operations, the licensee shall develop and submit to the Uranium Recovery Licensing Branch, for NRC review and approval in the form of a license amendment, a general emergency action plan establishing authorities and procedures to be followed for likely accidents resulting in the release of yellowcake.
19. Solid radioactive wastes shall be transferred to an NRC-licensed uranium recovery facility for disposal in their tailings impoundment or shall be shipped to a licensed radioactive waste disposal site.

  
Roger T. Woolsey  
Operating Facilities Section II  
Uranium Recovery Licensing Branch  
Division of Waste Management

Approved by:

  
H. J. Pettengill, Section Leader  
Uranium Recovery Licensing Branch