HEALTH & ENVIRONMENT department

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
STEVEN ASHER, Director

TONEY ANAYA
GOVERNOR

Joseph Goldberg
SECRETARY

Ted Guambana
DEPUTY SECRETARY

JOSEPH F. JOHNSON
DEPUTY SECRETARY

May 15, 1984

Mr. Donald A. Nussbaumer
Assistant Director of State
Agreement Programs
Office of State Programs
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Nussbaumer:

This is to inform you that Gulf Mineral Resources Company requested termination of their Radioactive Material License, NM-GUL-IX-00 with all amendments thereto, which relates to the operation of an Ion Exchange Facility associated with mine dewatering at the Mariano Lake project, McKinley County, New Mexico.

Results of decommissioning, decontamination and restoration actions taken at the site have been reviewed and evaluated by NMEID and Bureau of Land Management staff. The majority of the waste products, consisting of sludge material from the evaporation pond were disposed of by mixing with uranium ore and transported to the licensed Quivira (Kerr-McGee) mill for processing. Attached is the radiological monitoring protocol which was coordinated with the Bureau of Land Management (BLM) as the project was located on Native American Land and results of the final radiological surveys of the site. We solicit your timely input and review for this project by June 15, 1984 in order to proceed with termination of the license if appropriate. The entire case file is available for the NRC staff review during your next audit visit.

Sincerely,

Felix R. Miera, Jr.
Program Manager
Uranium Licensing Section

FRM/cvg

enc.

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
3550 Pan American Freeway, N.E.
P.O. Box 6770
Albuquerque, New Mexico 87107

IN REPLY REFER TO
3500 (017)

April 20, 1984

Mr. Samuel Simpson
Project Manager, Uranium Licensing Section
New Mexico Environmental Improvement Division
P.O. Box 968
Santa Fe, New Mexico 87504-0968

Dear Mr. Simpson:

We have reviewed your April 11, 1984, final report on the reclamation of the ion exchange/lagoon area at Gulf's Mariano Lake Uranium Mine. The report accurately documents the procedures used to reclaim the area and the post-reclamation radiation levels.

Radiation levels are far below all current standards/guidelines. Therefore, we would have no objection to the termination of Gulf's Mariano Lake Radioactive Materials License.

Thank you for keeping us informed of your work at the Mariano Lake Mine and for allowing us to review the final report. We have enjoyed working with you on this project and look forward to future cooperative efforts.

Sincerely yours,

John M. Andrews, Jr.
Environmental Scientist

MARIANO LAKE SOIL SAMPLE

SOIL SAMPLE COMPOSITE # 14

Radionuclide	SLD[1]	EDA[2]
U-Nat (μg/g)	2.0	5.0
Ra-226 (pCi/g)	0.08±0.02	2.0±1.0
Th 230	--	1.4±0.5
Po 210	--	2.3±0.4
Pb 210	--	-0.3±1.0

1. Scientific Laboratory Division
2. EDA Instruments Inc.

MARIANO LAKE SOIL SAMPLES

SAMPLE COMPOSITE[a]	GROSS ALPHA (NAT URAN)	NATURAL URANIUM (μg/g)	RA-226 (pCi/g)
1	11±2	2.7	0.26±0.02
2	24±3	7.4	0.37±0.02
3	14±2	3.0	0.22±0.02
4	90±10	28.3	1.51±0.04
5	56+7	43.3	0.88±0.02
6	59±7	17.6	0.87±0.02
7	14±2	4.1	0.16±0.02
8	11±2	2.7	0.15±0.02
9	14±2	4.0	0.17±0.02
10	12±2	3.0	0.17±0.02
11	12±2	2.7	0.13±0.02
12	10±2	1.7	0.11±0.02
13	10±2	1.9	0.20±0.02
14	12±2	2.0	0.08±0.02
		8.8±12.4	.377±416

(a) Soils sieved through 2mm screen prior to analyses.

STATE LAB RESULTS

ATTACHMENT 1

surface, and (2) 15 pCi/g averaged over 15 cm thick layers of soil more than 15 cm below the surface.

b. The results achieved by the reclamation effort for Ra-226 levels in soil were well below the current EPA criterion and the EID guidance. Levels averaged 0.377 +.416 pCi/g with the highest measurements being 1.51+0.4 pCi/g, which is still considerably under the 5 pCi/g EPA standard. No general applicable standards are available for Unat. Averaged Unat Concentrations for Unat in in the reclaimed ION exchange site averaged 8.8 ±12.4 µg/g.

Conclusion

The Gulf ION exchange facility with associated equipment and supporting lagoon network was decommissioned and reclaimed in that the remaining residual radiation contamination is low enough to permit release of the land for unrestricted access. Termination of Gulf's Mariano Lake Radioactive Material License will not adversely affect public health or safety. Therefore, the EID anticipates termination of Gulf's Mariano Lake Radioactive Material License NM-GUL-IX-00 dated January 12, 1979 with all amendments thereto by May 31, 1984. It has been a distinct pleasure working with the BLM professional staff on this reclamation project and we look forward to cooperating on joint future endeavors involving uranium reclamation activites.

Sincerely,

Sam Simpson
Uranium Licensing Section

SS/cvg

cc: Felix Miera, Program Manager, ULS
Jere Millard, Program Manager, SAS
Ted Brough, Milan

immediately to remove contaminated soil for appropriate disposal. A resurvey of the spot on July 14, 1983 reflected essentially twice background gamma readings of 25 µR/hr.

b. Surface measurements obtained for the entire licensed facility are listed in attachment 2.

c. The PIC measurements compared favorably with PRM-7 readings. The comparision of the five measurements, taken at identical locations, reveals an average PRM-7 reading of 11.8 µR/hr vs. average PIC measurements of 13.6 µR/hr. The PIC measurements averaged 14% higher than the average PRM-7 readings. Background gamma levels were previously determined to average 13-15 µr/hr. The overall site gamma readings (PRM-7) averaged 14.8 µR/hr. Correcting PRM-7 measurements would result in an overall average of 16.9 µR/hr for the entire site.

d. The RGM-1 was operated continuously over a six hour period with 20 minute print-out readings. Radon values for this sampling period averaged .356 pCi/l. The 48-hour Tedlar bag samples taken on July 12-14, 1983 resulted in an estimated annual concentration level of .254 ± .252 pCi/l for Rn. Reference attachment 3. Background levels were previously established at .55± .07 pCi/l.

e. Results for Ra-226 and Unat content of soil samples are listed in Attachment 1. Ra-226 levels averaged 0.377 ±0.416 pCi/g and Unat levels average 8.8 ±12.4 µg/g. Background Ra-226 soil levels had been previously established at 0.5±.2 pCi/g.

Summary

a. The Ra-226 content in composited surface and subsurface soil samples, exposure rate surveys and radon in air measurements are well below the standards and the ALARA objectives outlined in the Radiation Protection Bureau letters to Gulf Resources Corporation, dated July 2, and November 23, 1982 (attachment 4). Minimum cleanup standards were established at 70 µR/hr for ambient gamma measurements @ 1 m and 3 pCi/l radon @ 5 feet. Target level goals for gamma were established at 25 µR/hr and 10 pCi/g Ra-226 in the soil. Target levels were established to ensure compliance with the ALARA principle. Current standards recently promulgated by EPA for inactive and active uranium mill tailings sites specify that concentrations of Ra-226 in land averaged over any area of 100 square meters shall not exceed the background levels by more than:

(1) 5 pCi/g averaged over the first 15 cm of soil below the

b. Direct Gamma Radiation on Site

Gamma measurements were taken at the 100' grid intersections over the entire site at 1 m above the surface. Additional measurements were taken at the midpoint of each 100 (ft^2) block. These measurements were taken with an Eberline Model PRM-7, portable micro "r" meter.

c. Soil Sampling

Soil samples were collected at the 100' grid pattern locales throughout the site and the soil samples were composited into fourteen groups. Rationale for the compositing array was determined from results of the gamma survey.

d. Instrumentation

(1) A micro-roentgen survey meter (Eberline PRM-7 lightweight portable NaI(Tl) scintillator), coupled to a photo multiplier tube was used to survey the site. Cross check of the micro-R meter readings was accomplished on the site using a pressurized ionization chamber (PIC), which is not so energy dependent.

(2) The PIC Reuter-Stokes Environmental Radiation monitor Model RSS-11 is an accurate and stable instrument for measurement of exposure rates. The PIC was positioned at five locations and measurements were compared with PRM-7 measurements.

(3) An RGM-1, Continuous Radon Sampler, was positioned in the center of the project site and operated over a six hour period using a portable electric generator as a power source.

Results

a. Analysis of measurements obtained with the PRM-7 indicate one hot spot, 240 μR/hr, which was localized in the northeast quadrant of the property. This turned out to be a relatively small lated area, approximately one square meter, of contaminated so These elevated levels were readily detectable in this ar and appropriately marked. Since the survey was conducted jointly with Gulf site personnel, corrective action was implemented

consistency in the radiological clean-up effort. During all phases of the reclamation program the two agencies continued to work closely to assure successful completion of the project.

Ion Exchange Facility:

The plant was decontaminated, dismantled and sold. EID personnel surveyed the ION exchange and holding tanks, piping network, plant building and equipment to verify that decontamination measures met the unrestricted usage criterion. The facility and associated equipment were decontaminated to acceptable levels for unrestricted use.

Lagoons:

The mine water holding lagoons were drained and the radioactive sludge material removed and mixed with uranium ore located at the site. The ore was then transported to a licensed uranium mill for processing. The synthetic lagoon liners were taken to the main mine yard former ore storage pad area for subsequent burial with mine overburden material.

Vegetation;

The land was contoured to essentially its original condition and reseeded with plant species native to the region. Revegetation efforts appear quite successful.

Protocol for Radiological Surveys

a. The protocol employed by the Radiation Protection Bureau for surface gamma measurements, and surface and subsurface soil sampling techniques, was to divide the licensed area into sections of 100 square feet (ft^2). The site was staked and marked with nylon cord. External gamma measurements were taken at 1 meter above the ground surface at each wooden stake and measurements were also taken in the center of each 100 (ft^2) section. The grid pattern was referenced to the southeast enclosure fenceline boundary of the ION exchange area to facilitate reestablishment of the grid pattern in the event this action was required at a later date.

   Surface soil samples (10cm width x 5 cm depth, sample size of 1 kg) were collected at each grid point inter-section throughout the ION exchange complex with surface and subsurface (15 cm depth 1kg sample size) soil samples collected and composited at five other locales. One sampling site was the location of the former ION exchange building. All soil samples were sent to the State Laboratory for radiochemical analysis of Ra-226, and Unat. As a quality assurance measure, a random selected split sample was submitted to an independent laboratory for analysis.

HEALTH & ENVIRONMENT department

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020
STEVEN ASHER, Director

TONEY ANAYA
GOVERNOR

ROBERT McNEILL
SECRETARY

ROBERT L. LOVATO, M.A.P.A.
DEPUTY SECRETARY

JOSEPH F. JOHNSON
DEPUTY SECRETARY

April 11, 1984

Mr. John Andrews
U.S. Department of Interior
Bureau of Land Management
3550 Pan American Freeway
Albuquerque, New Mexico 87107

Dear Mr. Andrews:

The purpose of this letter is to provide the BLM with a final progress report on Gulf's reclamation project at Mariano Lake as pertains to the EID radioactive material licensed ION exchange facility and the associated three lagoons with interconnected roadway. This letter reflects the subject content of our conversations during the meeting in your office on April 3, 1984 at which time this project was discussed in depth with Mr. Dale Jones and yourself.

OBJECTIVE OF RECLAMATION:

The objective of the remedial action project at the Gulf Mariano Lake licensed ION Exchange Facility with associated mine water treatment lagoons was to:

(1) decontaminate and dismantle the ION exchange plant for resale;
(2) drain the three lagoons and remove radioactive sludge;
(3) recontour the land to its original condition; and,
(4) revegetate the site with an appropriate grass seed mixture native to this region.

The underground mine, mine yard, ore storage pad, associated equipment and buildings, and ION exchange complex were considered one integral area that necessitated close cooperation and coordination between the Environmental Improvement Division and the U.S. Bureau of Land Management (BLM) during every phase of the reclamation project. The BLM exercised overall jurisdiction and provided the technical expertise to the Bureau of Indian Affairs, as the project was located on Indian Allotted Lands.

BLM managed the reclamation project in the areas of underground mine closure, above ground mine yard and ore storage pad restoration, associated mine complex buildings and equipment decontamination and dismantling, surface land decontamination and contouring, and revegetation for the main mining yard complex. The EID's jurisdiction was related to the adjacent ION exchange plant and associated lagoons. Early in the project the EID and BLM agreed to provide Gulf Oil Corporation with similar radiological clean-up standards to insure

GULF'S MARIANO LAKE PR

POINT (GAMMA RADIATION IN AIR SURVEY) mr/hr.

SOIL SAMPLES (SURFACE)

SOIL SAMPLES (SUBSURFACE)

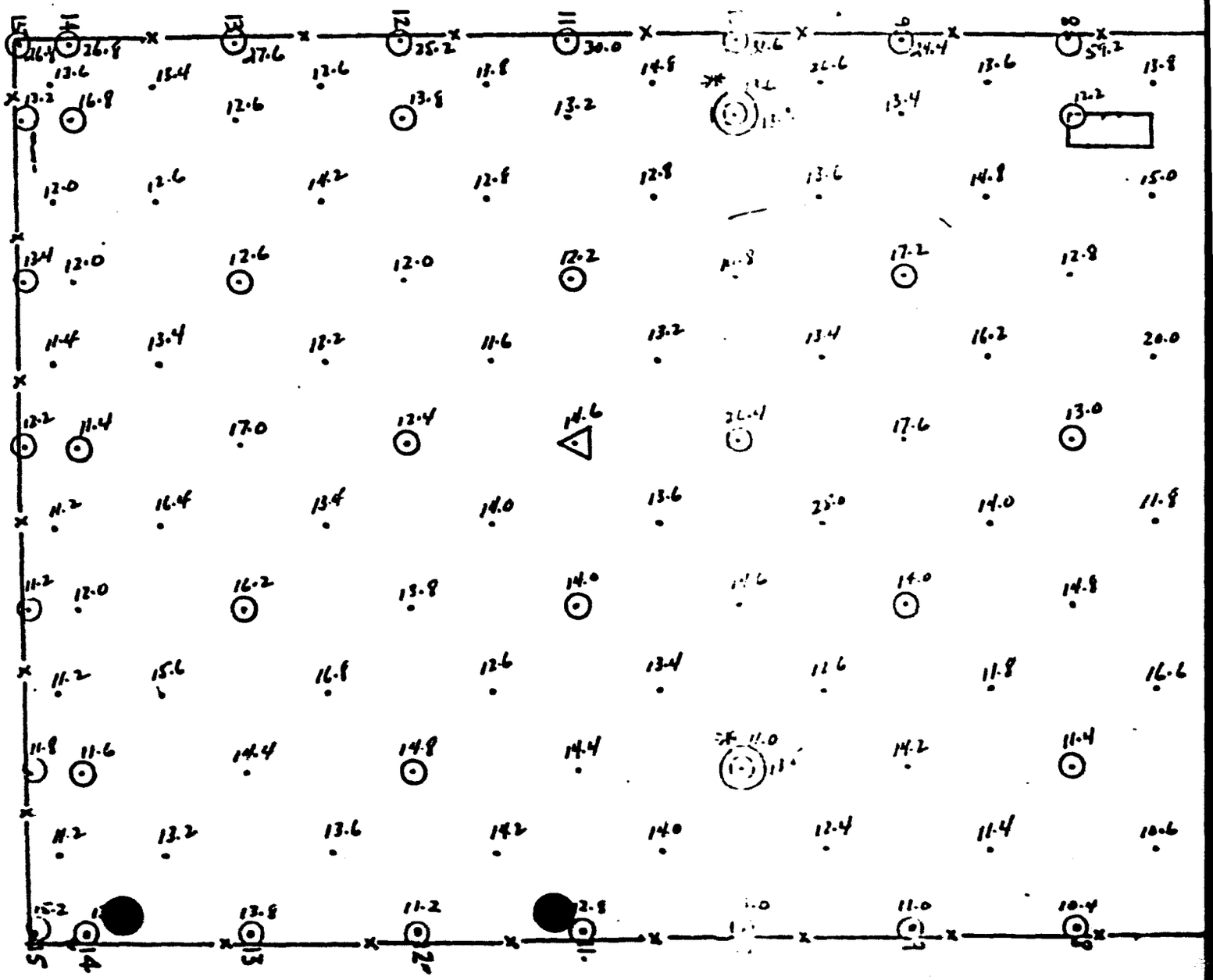
FORMER LOCATION OF ION EXCHANGE FACILITY

RGM-1 LOCATION & PARTICULATE AIR SAMPLERS

PIC (WHITER-STOKES ENVIRONMENTAL RADIATION MONITOR, GAMMA IN AIR SURVEY) mr/hr.

HOT SPOT (35'6" W OF 5G)

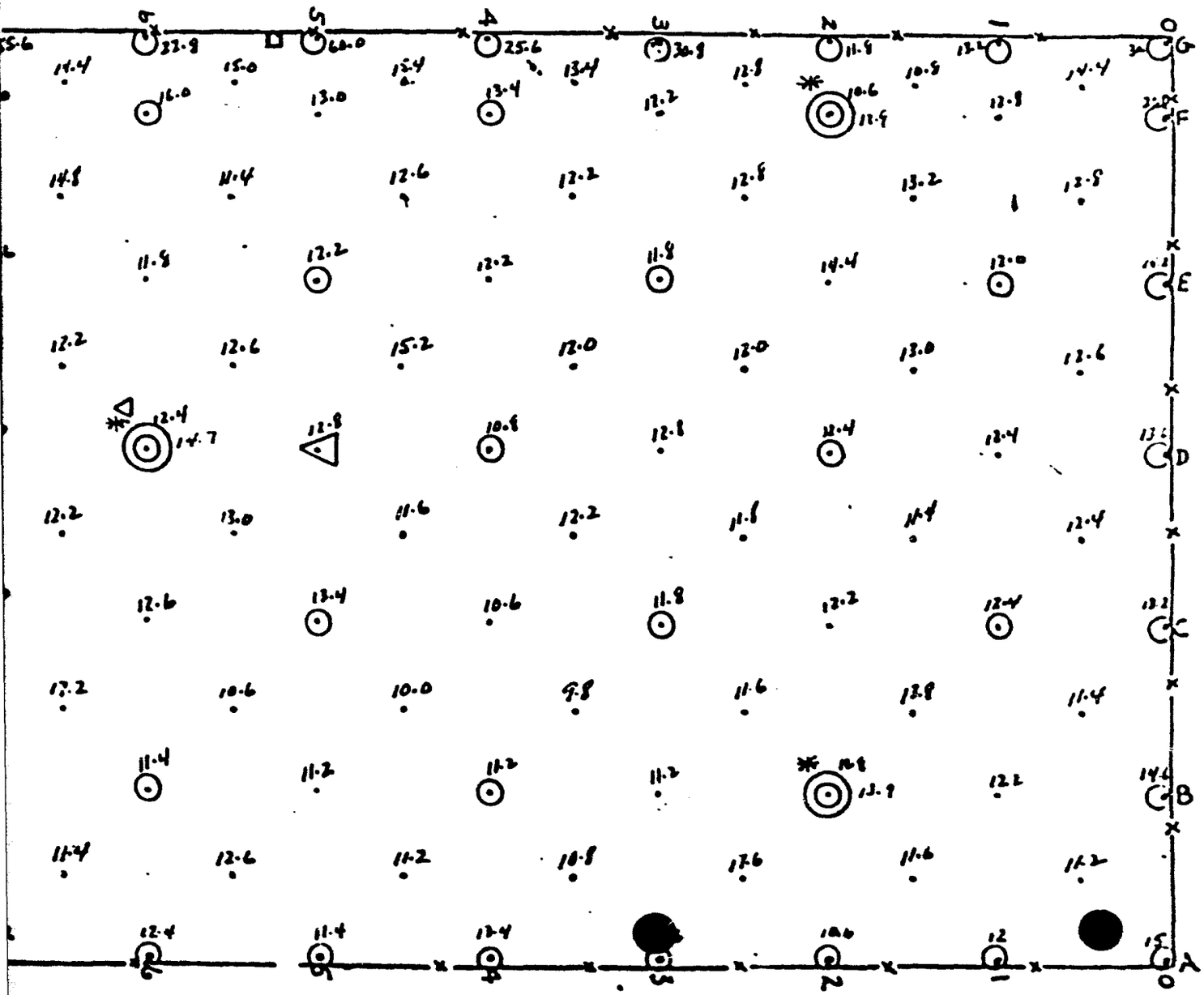
RADON 4B11R TEDLAR BAG SAMPLES.



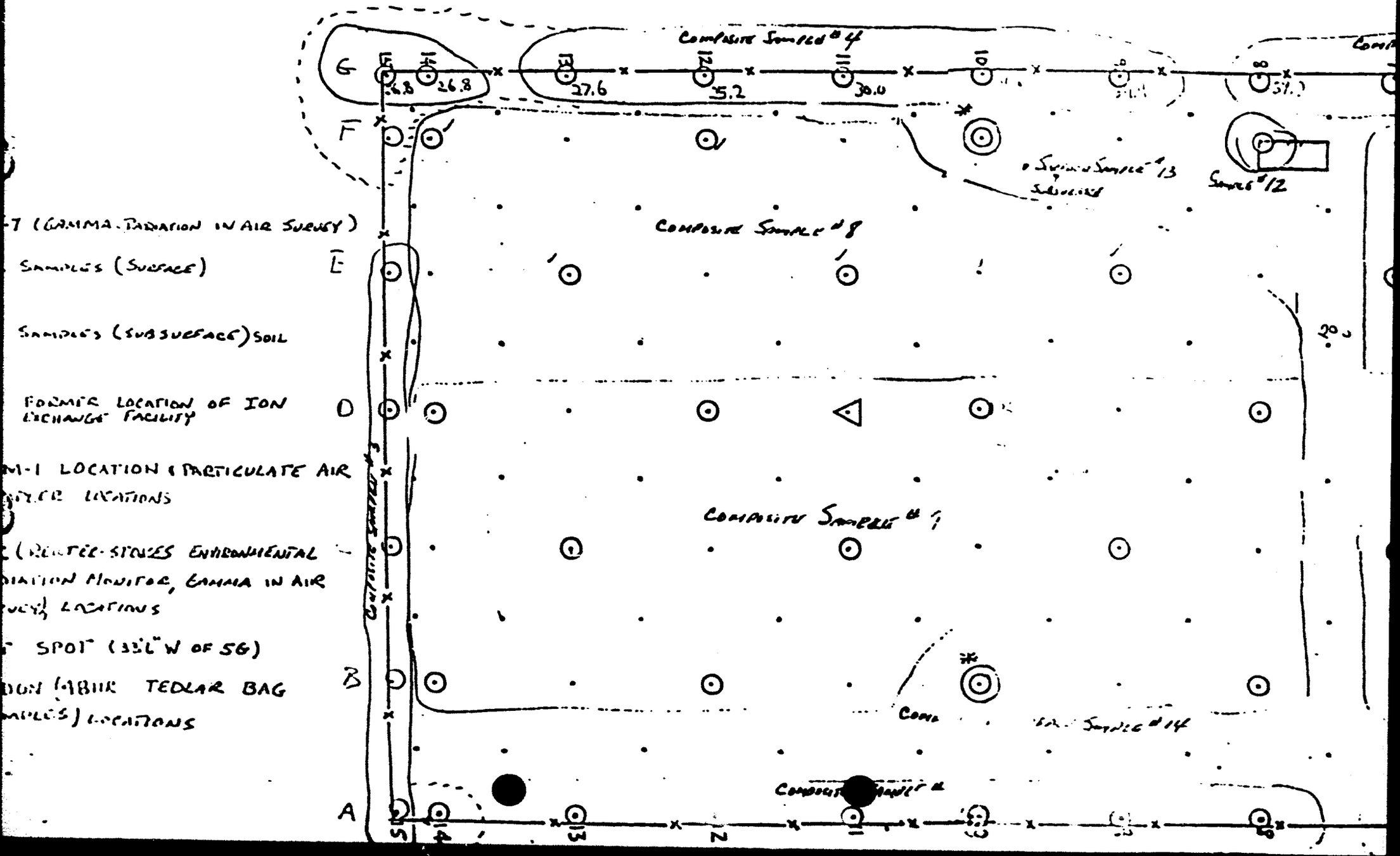
N

1" = 100'

ECT

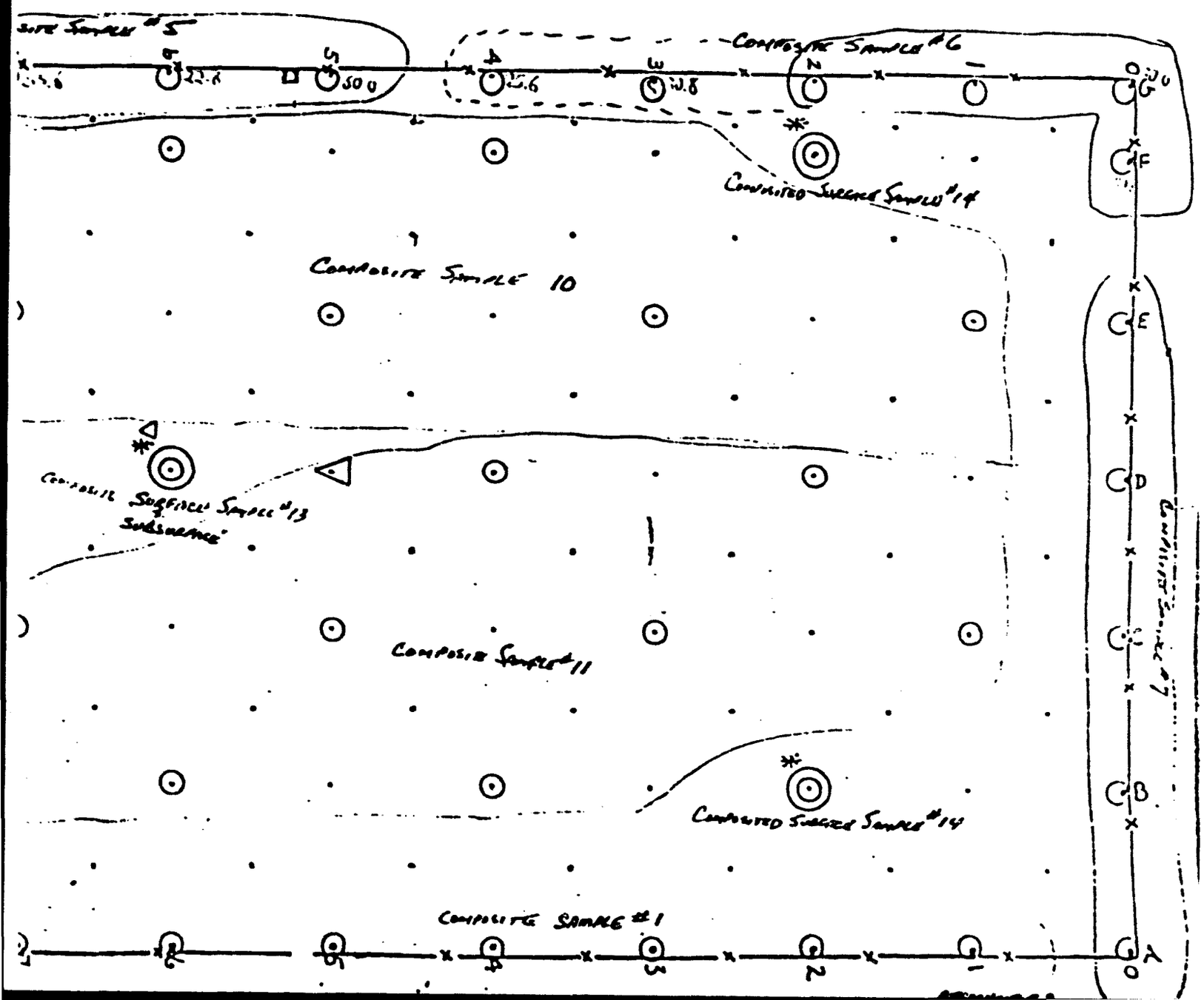


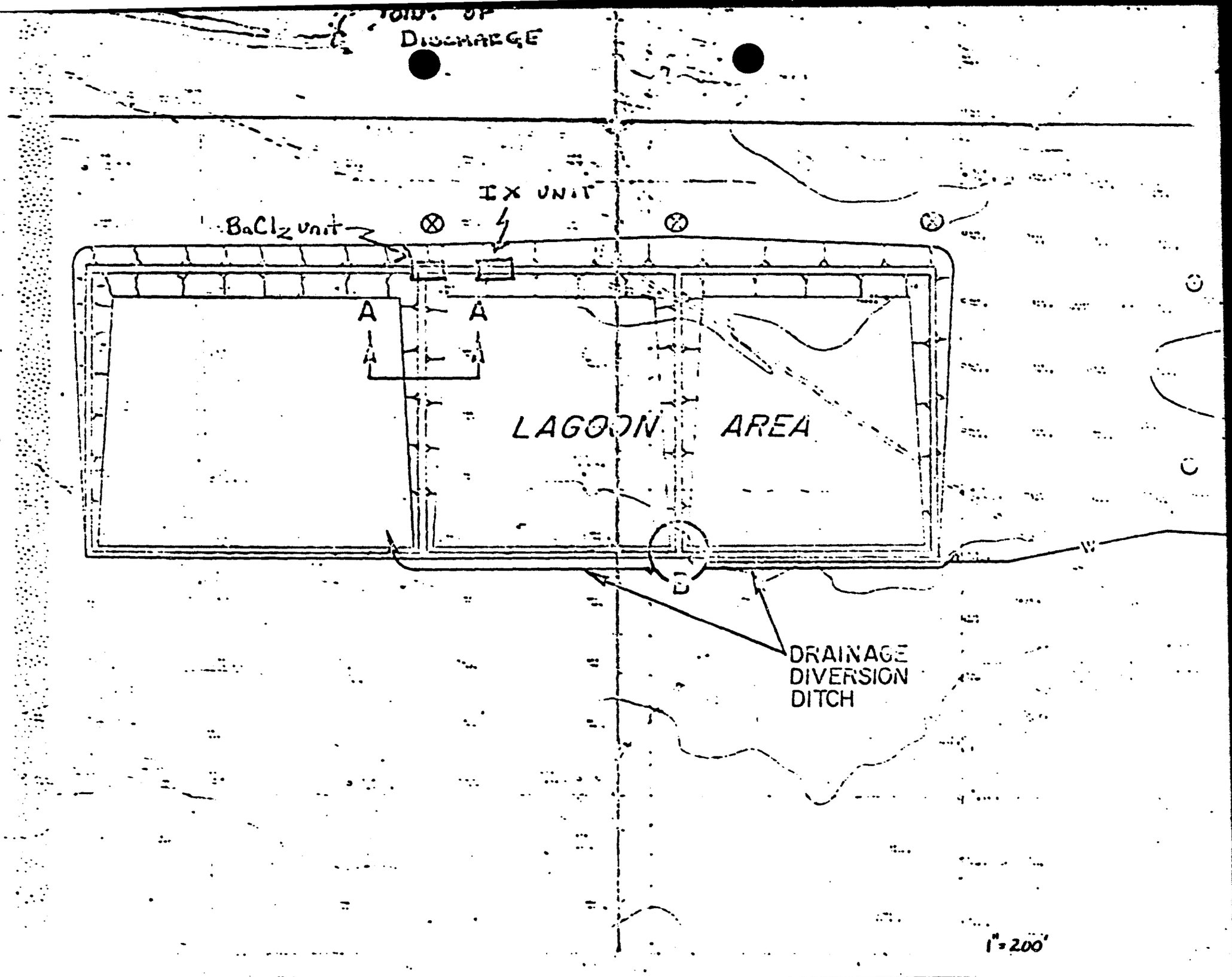
GULF'S MARIANO LAKE PROJ



TECT

N 1" = 0'


Composite Sample #6
Composite Surface Sample #14
Composite Sample 10
Composite Surface Sample #13
Subsurface
Composite Sample #11
Composite Surface Sample #14
Composite Sample #1
Composite Sample #7
A
B
C
D
E
F
G



ATTACHMENT 2

MEMORANDUM

STATE OF NEW MEXICO
ENVIRONMENT

DATE: August 1, 1983

TO: Sam Simpson, Radiation Licensing, Santa Fe

FROM: T. G. Brough, Radiation Licensing, Milan

SUBJECT: RADON CONCENTRATION MEASUREMENTS: GULF MARIANO LAKE SITE

Results at Mariano Lake (Gulf IX - Project)

48-hr. Tedlar Samples:	Pci/l
E ponds 7/12 - 7/14/83	0.31 ± .063
W ponds 7/12 - 7/14/83	0.027 ± .062
Simultaneous measure (control) (412)	
E Grants 7/11 - 7/13/83	0.37 ± .071
E. ponds 7/25 - 7/27/83	0.0605 ± .0708
W. ponds 7/25 - 7/27/83	0.1049 ± .0576
Simultaneous measure (control) (412)	
E Grants 7/24 - 7/26/83	0.1221 ± .0643

Average of 4 measures: 0.126 ± 0.125 pci/l

Average of 2 controls: 0.246 ± 0.173 pci/l

Average of control over two years (1978 - 1980): 0.496 pci/l

Probable annual average at Mariano Lake:

$$\frac{0.496}{0.246} \times 0.126 = 0.254 \pm 0.252$$

Estimated Annual Concentration: 0.254 ± 0.252 pci/l

Range: 0.0544 to 0.625 pci/l

Theodore G Brough

Attachment 3

ENVIRONMENT department

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
DISTRICT I - P.O. Box 2536
Milan, NM 87021 Tel. #287-8845
RUSSELL F. RHOADES, Director

Bruce King
GOVERNOR

George S. Goldstein, Ph.
SECRETARY

MEMORANDUM

TO: Jerry Stewart, Radiation Protection Bureau

FROM: Theodore G. Brough, Environmental Scientist III, Milan

DATE: October 12, 1982

SUBJECT: RADON SAMPLING AT GULF'S MARIANO LAKE IX FACILITY

Radon samples were taken at two sites (on the SE and SW Corners of the facility) in order to try to determine background radon in the area. The results are as follows:

August 25-27, 1982 (48 hr. bag samples):

SW corner = 0.152 pci/l

SE corner = 0.190 pci/l

Simultaneous sample in Milan = 0.112 pci/l

Since annual average in Milan is: 0.358 pci/l
(average of 2 yrs.),

the most probable annual average for the two stations at Mariano Lake is 3.2 times the observed average, or:

Mariano SW = 0.49 pci/l

Mariano SE = 0.61 pci/l

for an average of:

Background = 0.55 ± .07 pci/l.

jq

xc: Sam Simpson, Santa Fe
Jere Millard, Santa Fe

ATTACHMENT 3

ENVIRONMENT department

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 827-5271

RUSSELL F. RHOADES, M.P.H., DIRECTOR

RADIATION PROTECTION BUREAU

Bruce King
GOVERNOR

George S. Goldstein, Ph.D.
SECRETARY

Larry J. Gordon, M.S., M.P.H.
DEPUTY SECRETARY

July 2, 1982

Mr. John Thompson
Gulf Mineral Resources Co.
Box 939
Thoreau, NM 87323

Dear Mr. Thompson:

Re: Gulf Reclamation Plan for the Mariano Lake Mine dated April 29, 1982 and Radioactive Material License Number NM-GUL-IX-00 dated January 12, 1979.

1. This letter acknowledges receipt of reference plan which specifies proposed reclamation activities for the IX plant, lagoons and associated roadway system. EID considers it's jurisdiction under the above captioned license, over cleanup activities at the Gulf Mariano Lake Site, concerns only the Radioactive Material Licensed Activities, i.e., IX unit and adjacent Barium Chloride treatment equipment and facility, lagoons (three ponds) and associated roadways and fenced land within the IX/lagoon complex.

2. State of New Mexico policy relating to radiation protection is that radiation exposure should be minimized to the extent feasible, as low as reasonably achievable (ALARA). This concept is stated in 4-100B of the New Mexico Radiation Protection Regulations (NMRPR). Our use of specified target levels and maximum levels are in consonance with this policy and the regulations. The use of these levels also takes into consideration the confidence levels in instrumentation, analysis techniques, and human capabilities. Striving to meet the target levels without exceeding the maximum levels will lower public risk, demonstrate compliance for license termination, and should be beneficial to your corporation. Since all situations cannot be rigidly covered by the regulations, provisions are contained in 4-150B to request alternative standards based on specific justification. Our Division will approve the proposed limits pursuant to 4-150B if the applicant (licensee) demonstrates to the satisfaction of EID that the proposed limits are not likely to cause any individual to receive a dose to the whole body in any period of one calendar year in excess of 0.5 rem

Attachment 4

(500 mrem - above background).

3. The cleanup standards for the Gulf Lake Mariano project under our jurisdiction are as follows:

   a. A target level for external gamma radiation is established at 25 microroentgens/hr (includes background) which is related to approximately 10 pCi/gram of Ra-226 in the soil, which we believe can be achieved in most cases with your suggested program of scraping, clean-up and cover. Gamma radiation in air, one meter above the ground shall not exceed 57 microroentgens per hour plus background. The 57 microroentgens/hr (above background) is required to meet the 500 mrem annual radiation limitation which is stipulated in Part 4-150, including footnote 9 of the NMRPR. The experience of EID and other agencies shows a definite relationship between radium in the soil, radon and gross gamma radiation levels from specific radioactive areas. By providing interrelated standards it will allow your company flexibility in measuring the results of your reclamation program.

   b. The measured Rn-222 (Radon) air concentration at the five foot level shall not exceed an average of 3 pCi/l, above background, reference Part 4 NMRPR.

   c. Average annual indoor radon decay product concentration, excluding background, shall not exceed 1/30 Working Level (WL) in any building that is left on site after reclamation. Our understanding is that the two buildings at the IX complex, are to be dismantled and moved to your Mt. Taylor project. To reemphasize, this criterion only pertains to the IX and adjacent Barium Chloride treatment building under our jurisdiction, and only if left on site, reference Part 4 NMRPR.

   d. To preclude proliferation of radioactive waste disposal sites, radioactive radium/uranium bearing sludge products removed from the lagoon bottoms must be fed into an approved uranium mill circuit or deposited at an approved uranium tailings impoundment facility. This policy is defined in Part 3-300N, NMRPR.

   e. The IX equipment, i.e., tanks, electrical pumps, piping network starting at the entry point into the fenced IX/lagoon complex and all other equipment and facilities used in this area, if sold to the public or left for land owners use, must be decontaminated to acceptable levels as reflected in Enclosure 1.

f. The application of alternative standards and the disposition of additional hot spots which may exceed the standards after extensive efforts to lower the levels will be determined on a case by case basis pursuant to 4-150B.

4. A termination report shall be provided to EID documenting the reclamation action with results of radiological surveys and monitoring compared to the above standards. A land survey plot showing contours should be included along with photo's of the reclaimed site. The Division will evaluate the termination report, conduct a site inspection and take samples for verification and confirmation prior to releasing the site and terminating the license.

If you require additional information, please contact the Radiation Protection Bureau. Termination of Gulf's operation will necessitate coordination with the EID Water Pollution Control Bureau as relates to Groundwater Discharge Permit DP-44.

Sincerely,

Samuel N. Simpson
Project Manager
Uranium Licensing Section

SNS/mp

Enclosure

xc: Maxine Goad - EID Groundwater Section
Mr. Mooney - V.P. Gulf Mineral Resources Co.
Ray Madson/Ted Brough - EID Milan

TABLE 1

ACCEPTABLE SURFACE CONTAMINATION LEVELS

NUCLIDES [a]	AVERAGE [b c f]	MAXIMUM [b d f]	REMOVABLE [b e f]
U-nat, U-235, U-238, and associated decay products	5,000 dpm α/100 cm^2	15,000 dpm α/100 cm^2	1,000 dpm α/100 cm^2
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	100 dpm/100 cm^2	300 dpm/100 cm^2	20 dpm/100 cm^2
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1,000 dpm/100 cm^2	3,000 dpm/100 cm^2	200 dpm/100 cm^2
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above.	5,000 dpm βγ/100 cm^2	15,000 dpm βγ/100 cm^2	1,000 dpm βγ/100 cm^2

[a] Where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alph and beta-gamma-emitting nuclides should apply independently.

[b] As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as de- ermined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geo etric factors associated with the instrumentation.

Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surf rea, the average should be derived for each such object.

The maximum contamination level applies to an area of not more than 100 cm^2.

nclosure 1.

[e]The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surf area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

[f]The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr at 1 cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than 7 milligraus per square centimeter of total absorber.

ENVIRONMENT department

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DEPUTY SECRETARY

RUSSELL F. RHOADES, M.P.H., DIRECTOR

RADIATION PROTECTION BUREAU

November 23, 1982

Mr. John Thompson
Gulf Minerals Resources Company
P.O. Box 1150
Grants, NM 87020

Re: EID letter of July 2, 1982, Paragraph 3d; Minerals Management Service (MMS) Dale C. Jones letter of September 17, 1982, stipulation 5 and 7; MMS letter to BIA dated October 18, 1982 and BIA response dated November 3, 1982 to MMS.

Dear Mr. Thompson:

1. The EID has no objection to the U.S. Department of Interior, Mineral Management Service (MMS) approach, expressed in stipulation (5) of MMS September 17, 1982 letter. The concept of having all remaining lagoon sediments and liners buried in main mine yard and covered with two feet of non-hazardous material is acceptable to EID as pertains to clean-up standards outlined in Paragraph 3d of our above referenced letter pertaining to Gulf's Radioactive Material License NM-GUL-IX-00, Mariano Lake Project. This approval relies on assurances contained in the BIA November 3, 1982 letter, referenced above, which states in part, "we are also aware of the potential hazards of using the main mine yard site as anything other than for livestock grazing. Every effort will be made to inform the current and future landowners of the restricted use of the site".

2. (a) Ra-226 background soil levels are established at 0.5 ± 0.2 pCi/g (dry), averaged over the top 5 cm of soil. Radon-222 background levels have been determined by EID sampling to be an average of .55 ± .07 pCi/l. For your information, radiochemical analysis for Ra-226 in the soil composite sample taken from the west lagoon sediment was 1.5 ± 0.5 pCi/g (dry).

   (b) Numerous background gamma readings taken at or in close proximity of the site justify the establishment of 15μr/hr. (Microroentgens per hour) as a nominal or average background level readings for the Mariano Lake IX plant site area. Therefore, an acceptable maximum level for clean-up standards as relates to gamma is 72μr/hr. Target levels of 25μr/hr. we believe can be achieved in most cases. We have no objection to the 70μr/hr. specified in stipulation 7 of the above referenced MMS letter of September 17, 1982.

ATTACHMENT 4

3. Recommend that Gulf take prior gamma readings of all top soil that might be transported to the IX/lagoon facility for cover material. This action would preclude the acquisition and transportion of soils close to outcroppings that could already contain radioactivity with gamma levels of 100-150μr/hr.

4. Gulf's Radioactive Material License NM-GUL-IX-00 expires on January 31, 1983. If final reclamation activities cannot be completed at Mariano Lake by this date Gulf must submit at least 30 days prior to expiration date a request to EID for an extension of the above cited license.

5. If you require additional information, please contact the Radiation Protection Bureau. Termination of the Gulf's operation at Mariano Lake will necessitate coordination with the EID Water Pollution Control Bureau as relates to Groundwater Discharge Permit DP-44.

Sincerely,

Sam Simpson
Project Manager
Uranium Licensing Section

SS/mc

attachments: (1) EID letter of July 2, 1982
(2) Mineral Management Services letters of September 17 and October 18, 1982
(3) BIA, Acting Assistant Area Director, Navajo, letter November 3, 1982

cc: Maxine Goad - EID Groundwater Section
Mr. F.S. Mooney - V.P. Gulf Mineral Resources Co.
Ray Madson/Ted Brough - EID Milan
John Andrews - U.S. Mineral Management Services

~~tab 3~~
attch. 2

RESERVATIONS OF AUTHORITY

Provisions of UMTRCA that require NRC involvement in States uranium mill regulatory program and coordination with States are identified below.

1. The Commission shall require by rule, regulation, or order that prior to termination of any license issued after the effective dates of the Act, title to land, other than land owned by the U.S. or a State be transferred to the U.S. or State at the option of the State.

*2. The Commission has authority to determine that title does not have to be transferred to U.S. or State. However, such property shall be maintained under a license issued by the Commission.

3/6. If the land is to be transferred to a State, the Commission determines compliance with provisions of UMTRCA and then State accepts title and custody.

4. In cases where a license is in effect on the effective date of the Act, the Commission may require before termination of the license transfer of the land to the U.S. or State, at the option of the State. However, the Commission shall consider the status of ownership and the ability of the licensee to transfer title.

*5. The Commission may by license, rule, or order require the Federal Agency or State having custody to undertake monitoring, maintenance, and emergency measures necessary.

*6/3/8. Prior to termination of any license the Commission shall determine whether or not the licensee has complied with all standards and requirements under the license.

*7. If a State imposes upon a licensee any requirement for the payment of funds to the State for reclamation/or long-term maintenance and monitoring, and if transfer to the U.S. of such material is required, such agreement shall be amended by the Commission to provide that the total amount of funds collected by the State shall be transferred to the U.S. upon termination of the license. If such payments are required they must be sufficient to ensure compliance with Commission standards.

8/3/6. The Commission shall retain authority to make a determination that all standards and requirements have been met prior to termination of a license for byproduct materials.

PROVISIONS OF UMTRCA THAT REQUIRE NRC
INVOLVEMENT IN AGREEMENT STATES URANIUM MILL
REGULATORY PROGRAMS AND COORDINATION WITH STATES

STANDARD CASES A & B

A. Prior to termination of any license the Commission shall determine whether or not the licensee has complied with all standards and requirements for closure, bonding etc. under the license.

1. Have procedures been established between the NRC and the State to accomplish this?

2. Suggested method or protocol:

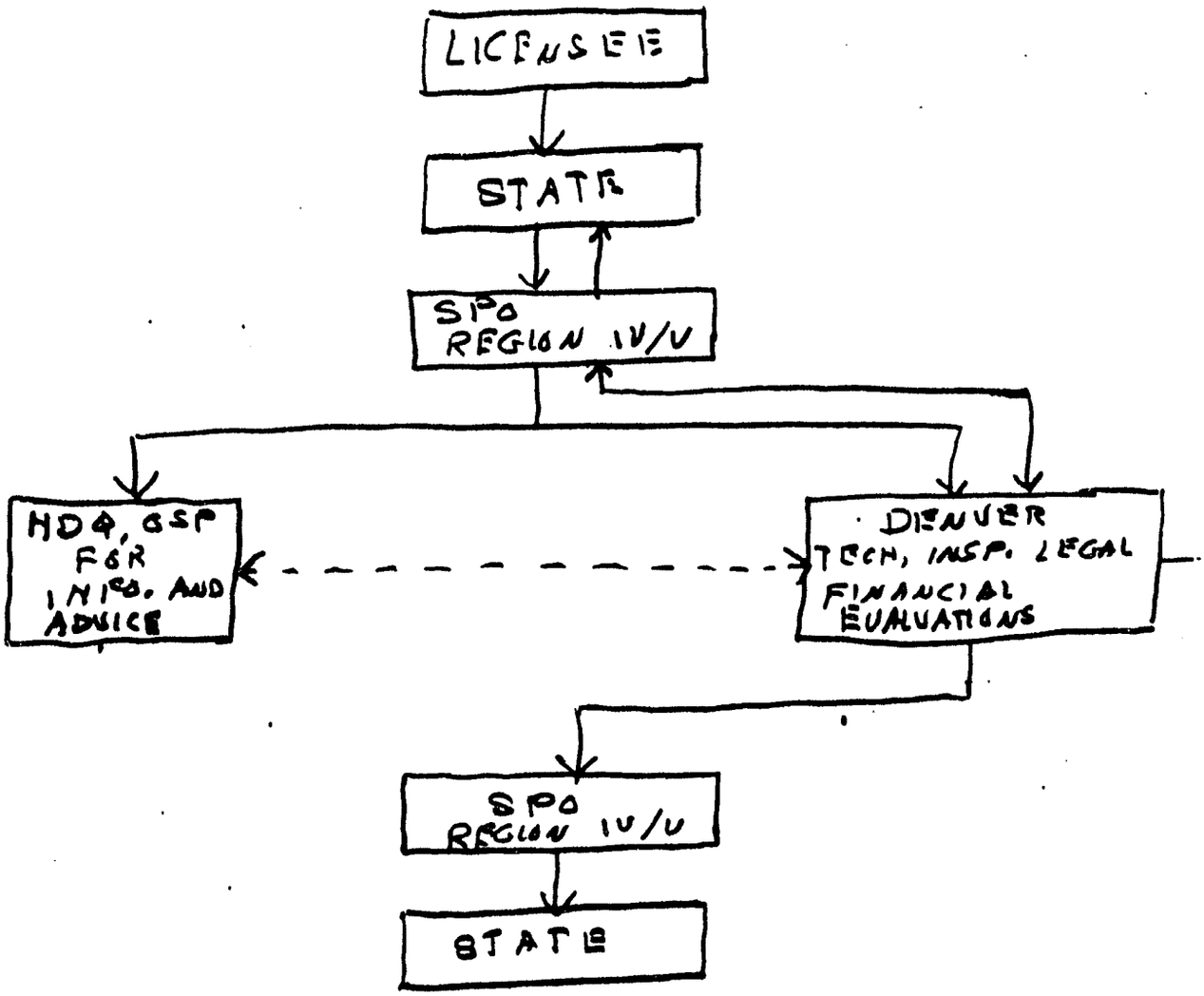
a. License sends notice of termination of license to State.

b. State sends copy of termination request to NRC.

c. NRC & State jointly perform an, "on site" inspection.

d. Based upon findings from onsite inspection and NRC review of termination request, NRC determines compliance with license conditions and requirements of UMTRCA and notifies State of its findings.

PROTOCOL A


LICENSEE
STATE
SPO REGION IV/V
HDQ, GSP FOR INFO. AND ADVICE
DENVER TECH, INSP. LEGAL FINANCIAL EVALUATIONS
SPO REGION IV/V
STATE

B. The Commission has authority to determine that title does not have to be transferred to U.S. or State. However, such property shall be maintained under a license issued by the Commission.

1. How does the NRC do this? letter, rule, regulation, other.

2. When is this completed? up front as in Rhode Ranch Project?

3. What are the procedures between the State and the NRC?

4. Suggested method or protocol:

   a. Licensee sends request for exemption to State.

   b. State sends request to NRC.

   c. NRC evaluates request and makes determination and, if required, provides additional license conditions for closure to State to incorporate in State license.

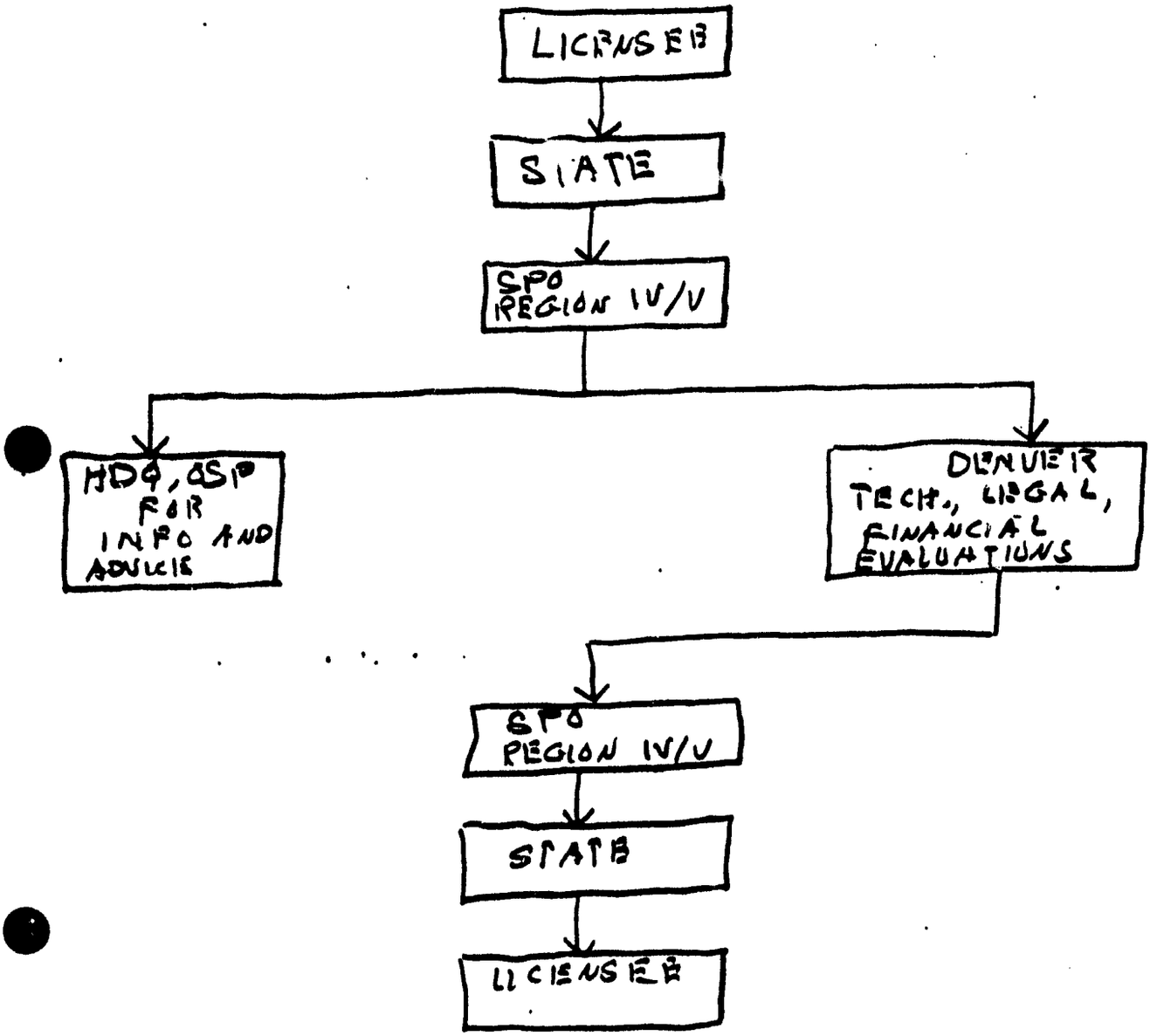
   d. At a later date a request for license termination is sent by licensee to State.

   e. State sends request for termination to NRC for review and approval under procedures described in A.

   f. License is terminated and NRC issues a license (Specific or General).

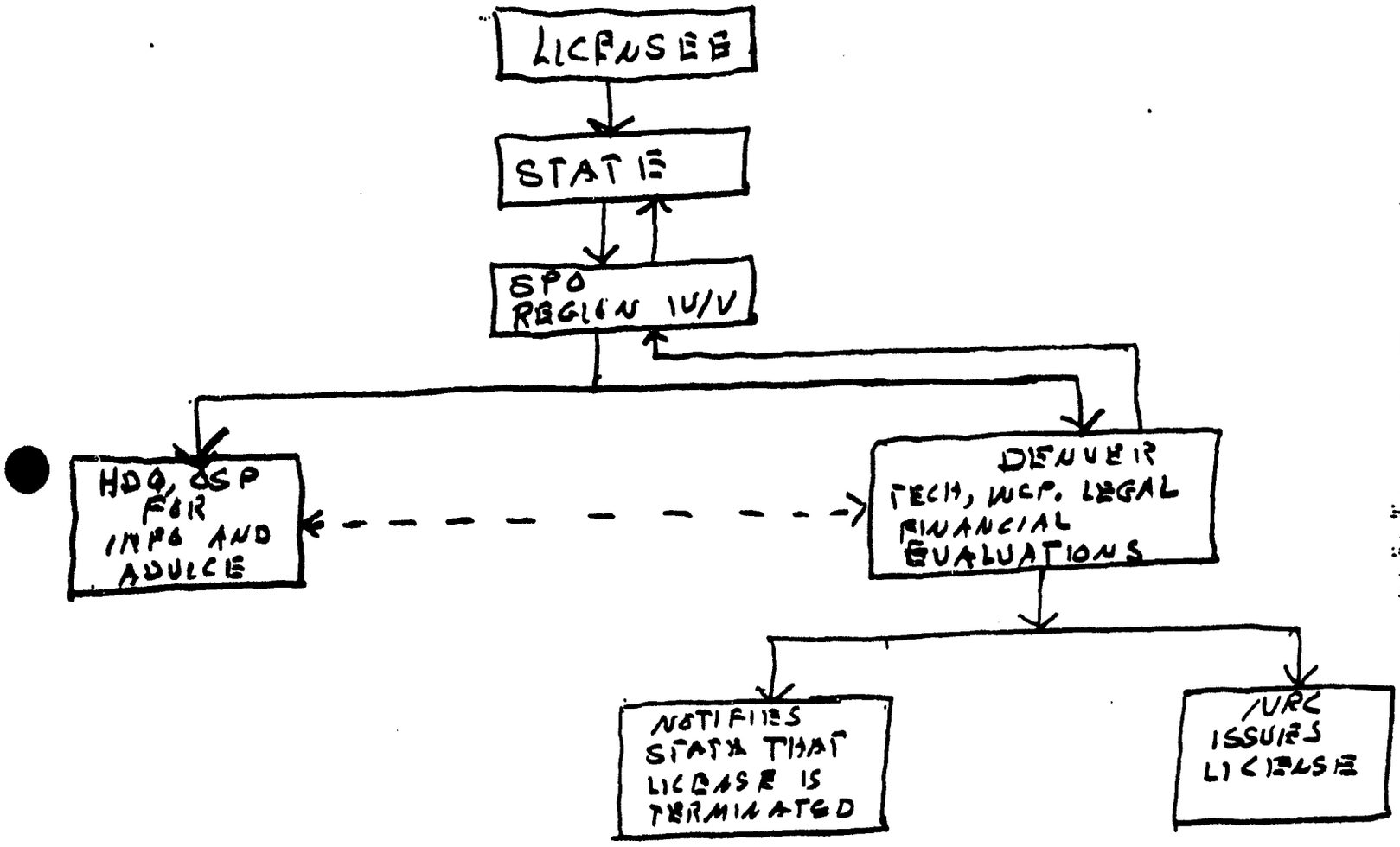
PROTOCOL B

PROCEDURES FOR STEPS a THROUGH c.



PROTOCOL B CONTINUED

PROCEDURES FOR d THROUGH f.



SPECIAL CASES C, D, AND E

C. If the land is to be transfered to a State, the Commission determines compliance with provisions of UMTRCA and then State accepts title and custody.

1. Have procedures been established between the NRC and the State to accomplish this?

2. Suggested method or protocol:

   a. Licensee sends application to terminate and title transfer to State.

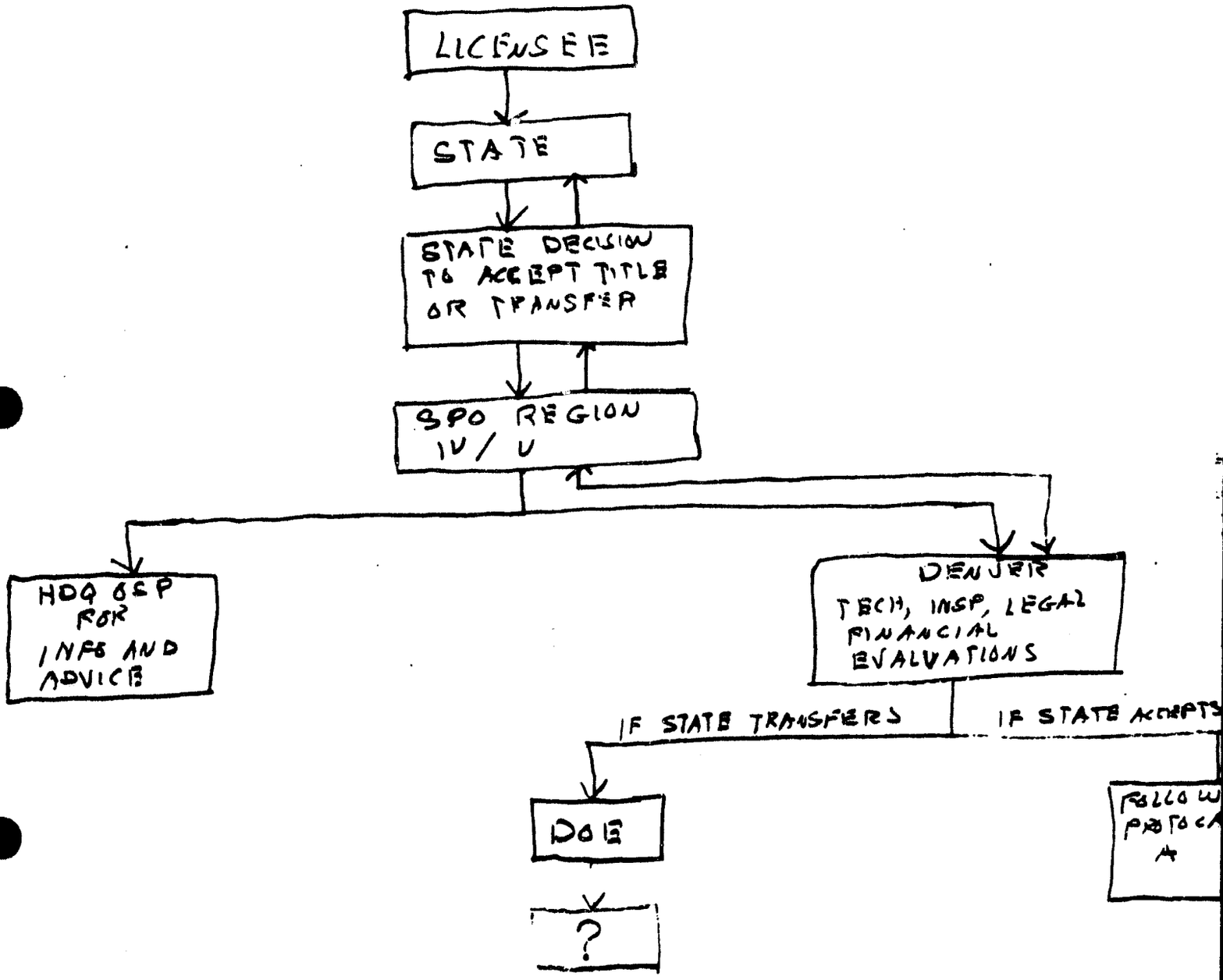
   b. STATE DECIDES WHETHER TO ACCEPT TITLE OR TRANSFER TO FEDERAL GOVT.

   c. State sends application to terminate to NRC to determine compliance with provision of UMTRCA, see item A protocol.

   d. NRC notifies State of determination regarding closure, see item A protocol.

   e. When all applicable provisions of UMTRCA are satisfied, State accepts title and custody.

PROTOCOL C


LICENSEE
STATE
STATE DECISION TO ACCEPT TITLE OR TRANSFER
SPO REGION IV / V
HDQ GSP FOR INFO AND ADVICE
DENVER TECH, INSP, LEGAL FINANCIAL EVALUATIONS
IF STATE TRANSFERS
IF STATE ACCEPTS
DOE
?

D. The Commission may by license (General or Specific) rule or order require the Federal or State having custody to undertake monitoring, maintenance and emergency measures necessary.

1. Have procedures been established which will determine that these undertakings should start? Are the technical requirements of Appendix A, Part 40 applicable for this purpose.

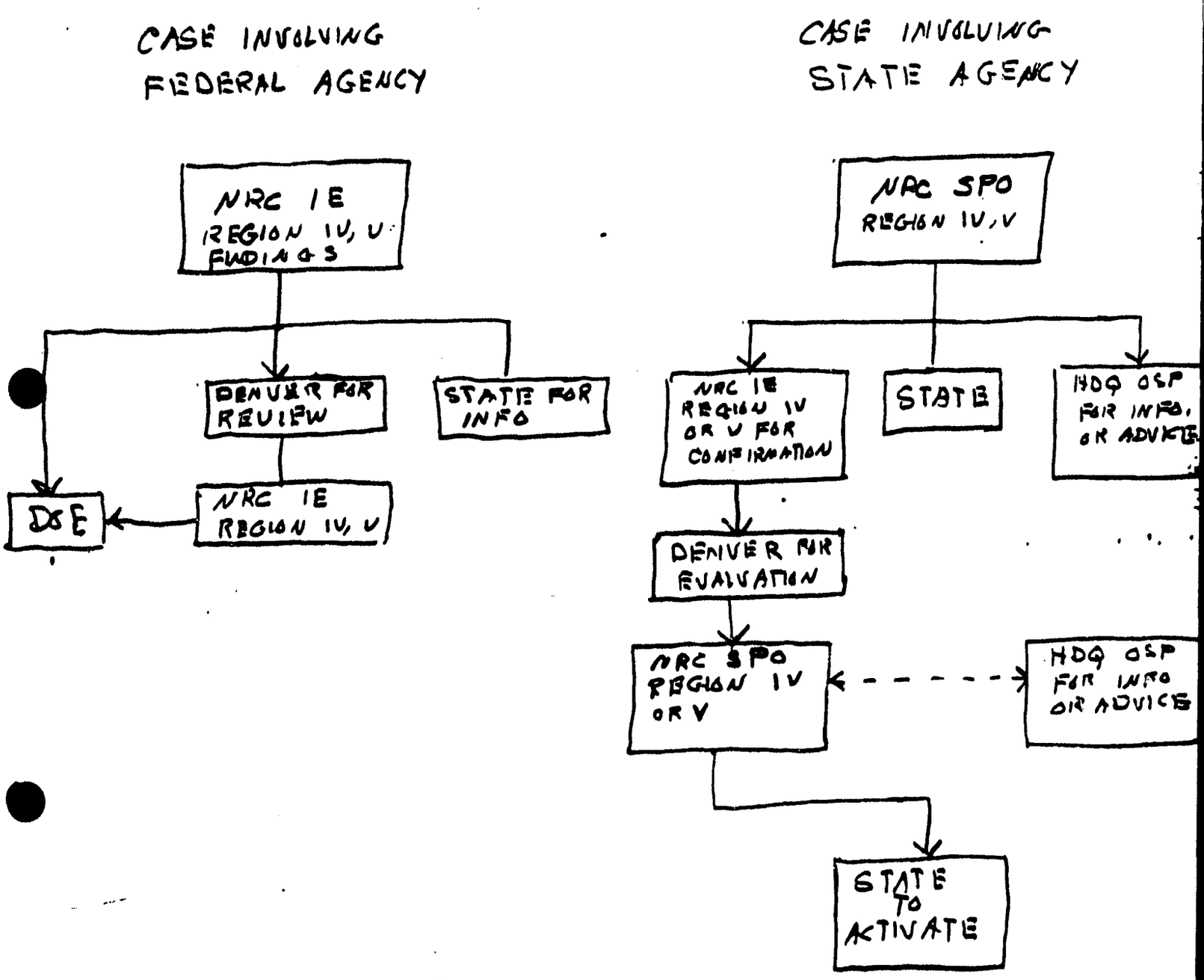
2. Suggested method or protocol:

   a. Regional SPO notifies NRC IE Region IV or V.

   b. NRC makes determination.

   c. State notified of determination.

PROTOCOL D


CASE INVOLVING FEDERAL AGENCY
NRC IE REGION IV, V FINDINGS
DENVER FOR REVIEW
STATE FOR INFO
DOE
NRC IE REGION IV, V
CASE INVOLVING STATE AGENCY
NRC SPO REGION IV, V
NRC IE REGION IV OR V FOR CONFIRMATION
STATE
HDQ OSP FOR INFO, OR ADVICE
DENVER FOR EVALUATION
NRC SPO REGION IV OR V
HDQ OSP FOR INFO OR ADVICE
STATE TO ACTIVATE

E. If a State imposes upon a licensee any requirement for the payment of funds to the State for reclamation/or long-term maintenance and monitoring, and if transfer to the U.S. of such material is required, such agreement shall be amended by the Commission to provide that the total amount of funds collected by the State shall be transferred to the U.S. upon termination of the license. If such payments are required they must be sufficient to insure compliance with Commission standards.

1. Key word "amended" and last sentence imply a NRC review process.

2. Have the States been provided guidance on how to proceed and does the NRC have procedures for implementing this requirement?

3. When would such a procedure be initiated?

4. Suggested method or protocol:

   a. Licensee notifies State of intent to terminate and transfer title to land.

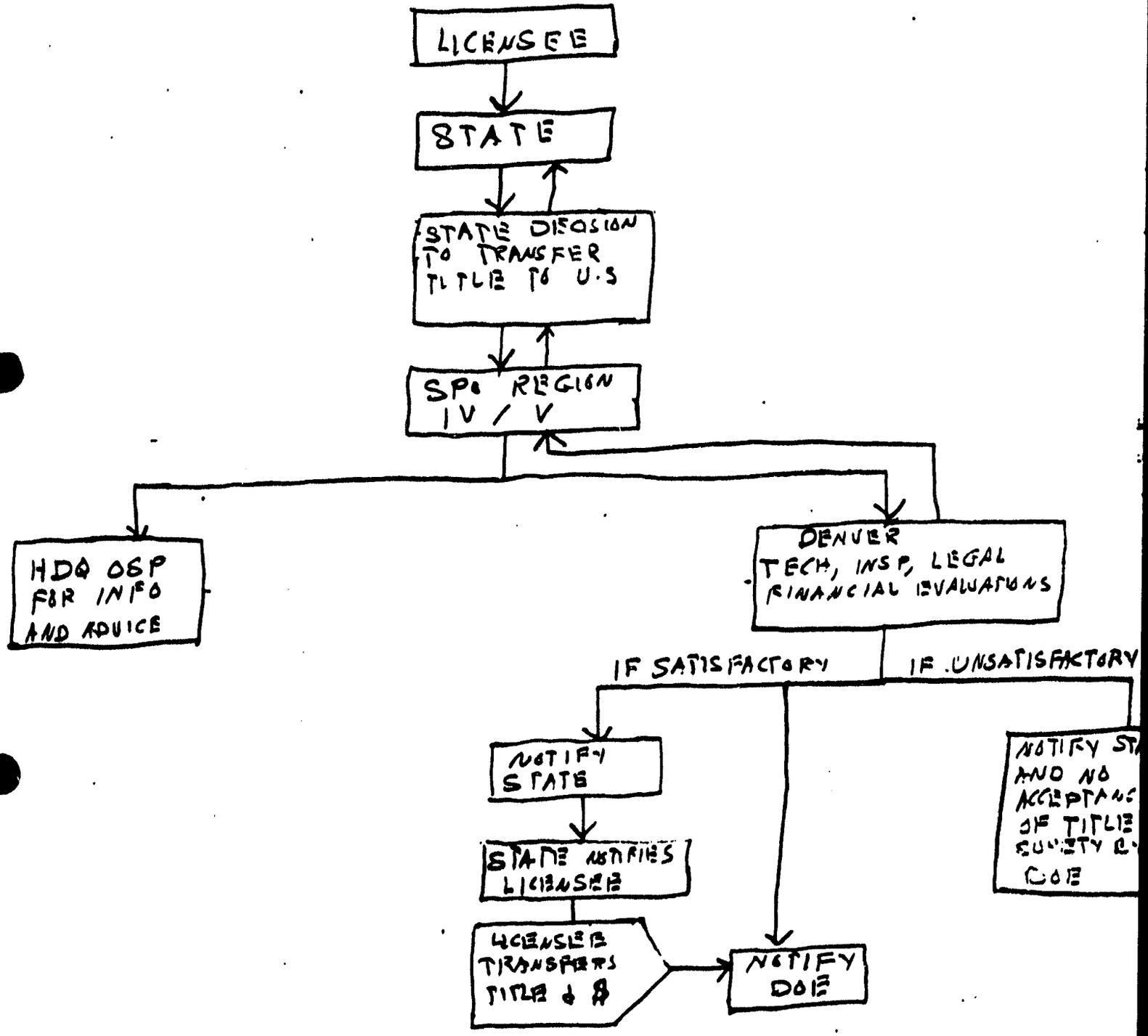
   b. State informs NRC of intent to transfer title to U.S. and sends copy of termination request to NRC.

   c. NRC determines if sureties are sufficient.

   d. If funds are sufficient State is notified and transfer of funds to DOE completed.

   e. If funds not sufficient, title and funds not accepted by DOE.

PROTOCOL E


LICENSEE
STATE
STATE DECISION TO TRANSFER TITLE TO U.S
SPO REGION IV / V
HDQ OSP FOR INFO AND ADVICE
DENVER TECH, INSP, LEGAL FINANCIAL EVALUATIONS
IF SATISFACTORY
IF UNSATISFACTORY
NOTIFY STATE
STATE NOTIFIES LICENSEE
LICENSEE TRANSFERS TITLE & $
NOTIFY DOE
NOTIFY ST
AND NO
ACCEPTANC
OF TITLE
COE