U.S. NUCLEAR REGULATORY COMMISSION

DUDES

RESPONSE TO FREEDOM OF INFORMATION ACT (FOIA) REQUEST

NRC FOIA REQUEST NUMBER(S): **FOIA — 89-438**

RESPONSE TYPE: X FINAL | PARTIAL

DATE: NOV 2 1 1989

DOCKET NUMBER(S) (If applicable)

REQUESTER: Karen Eisner-Enriquez

PART I. – AGENCY RECORDS RELEASED OR NOT LOCATED (See checked boxes)

	No agency records subject to the request have been located.
	No additional agency records subject to the request have been located.
	Requested records are available through another public distribution program. See Comments Section.
X	Agency records subject to the request that are identified on Appendix(es) A are already available for public inspection and copying in the NRC Public Document Room, 2120 L Street, N.W., Washington, DC 20555.
X	Agency records subject to the request that are identified on Appendix(es) B are being made available for public inspection and copying in the NRC Public Document Room, 2120 L Street, N.W., Washington, DC, in a folder under this FOIA number and requester name.
	The nonproprietary version of the proposal(s) that you agreed to accept in a telephone conversation with a member of my staff is now being made available for public inspection and copying at the NRC Public Document Room 2120 L Street, N.W., Washington, DC, in a folder under this FOIA number and requester name.
	Agency records subject to the request that are identified on Appendix(es) _____ may be inspected and copied at the NRC Local Public Document Room identified in the Comments Section.
X	Enclosed is information on how you may obtain access to and the charges for copying records placed in the NRC Public Document Room, 2120 L Street, N.W., Washington, DC.
X	Agency records subject to the request are enclosed. *
	Records subject to the request have been referred to another Federal agency(ies) for review and direct response to you.
X	You will be billed by the NRC for fees totaling $ 401.30
	In view of NRC's response to this request, no further action is being taken on appeal letter dated _____ No. _____

PART II. A – INFORMATION WITHHELD FROM PUBLIC DISCLOSURE

X	Certain information in the requested records is being withheld from public disclosure pursuant to the exemptions described in and for the reasons stated in Part II, sections B, C, and D. Any released portions of the documents for which only part of the record is being withheld are being made available for public inspection and copying in the NRC Public Document Room, 2120 L Street, N.W., Washington, DC, in a folder under this FOIA number and requester name.

COMMENTS

*Agency records subject to your request that are identified at items 1 and 2 of Appendix A and items 1 and 2 of Appendix B are enclosed.

Copies of the complete NUREG reports identified on the enclosed Appendix A are available for purchase through the GPO and NTIS distribution programs. Addresses of those organizations are provided below.

U. S. Government Printing Office
P. O. Box 37082
Washington, DC 20013-7982
Telephone: (202) 275-2060

National Technical Information Service
5285 Port Royal Road
Springfield, Virginia 22161
Telephone: (703) 487-4650

Other agency records subject to your request have already been made available in the NRC Public Document Room (PDR). These documents have been filed in PDR folder FOIA-89-242 under the name of Bolotin. Enclosed are copies of our responses to this request.

The fees associated with the processing of your FOIA request are as follows:
Professional Search - 14 hours = $348.32 - Clerical Review - 1 hour = $11.78
Reproduction of Records - 206 pages = $41.20 - Total = $401.30

SIGNATORE, DIRECTOR, DIVISION OF FREEDOM OF INFORMATION AND PUBLICATIONS SERVICES

John Philip Jr

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PDR FOIA
EISNER89-438 PDR

NRC FORM 464 (Part I) (4-88)

FREEDOM OF INFORMATION ACT RESPONSE FOIA NUMBER(S): FOIA — 89-438 DATE NOV 2 1 1989

PART II.B – APPLICABLE EXEMPTIONS

Records subject to the request that are described on the enclosed Appendix(es) C are being withheld in their entirety or in part under the Exemptions and for the reasons set forth below pursuant to 5 U.S.C. 552(b) and 10 CFR 9.17(a) of NRC Regulations.

	1.	The withheld information is properly classified pursuant to Executive Order (EXEMPTION 1)
	2.	The withheld information relates solely to the internal personnel rules and procedures of NRC. (EXEMPTION 2)
	3.	The withheld information is specifically exempted from public disclosure by statute indicated. (EXEMPTION 3)
		Sections 141-145 of the Atomic Energy Act which prohibits the disclosure of Restricted Data or Formerly Restricted Data (42 U.S.C. 2161-2165).
		Section 147 of the Atomic Energy Act which prohibits the disclosure of Unclassified Safeguards Information (42 U.S.C. 2167).
	4.	The withheld information is a trade secret or commercial or financial information that is being withheld for the reason(s) indicated. (EXEMPTION 4)
		The information is considered to be confidential business (proprietary) information.
		The information is considered to be proprietary information pursuant to 10 CFR 2.790(d)(1).
		The information was submitted and received in confidence pursuant to 10 CFR 2.790(d)(2).
X	5.	The withheld information consists of interagency or intraagency records that are not available through discovery during litigation. (EXEMPTION 5). Applicable Privilege:
X		Deliberative Process: Disclosure of predecisional information would tend to inhibit the open and frank exchange of ideas essential to the deliberative process. Where records are withheld in their entirety, the facts are inextricably intertwined with the predecisional information. There also are no reasonably segregable factual portions because the release of the facts would permit an indirect inquiry into the predecisional process of the agency.
		Attorney work-product privilege. (Documents prepared by an attorney in contemplation of litigation.)
		Attorney – client privilege. (Confidential communications between an attorney and his/her client.)
	6.	The withheld information is exempted from public disclosure because its disclosure would result in a clearly unwarranted invasion of personal privacy. (EXEMPTION 6)
	7.	The withheld information consists of records compiled for law enforcement purposes and is being withheld for the reason(s) indicated. (EXEMPTION 7)
		Disclosure could reasonably be expected to interfere with an enforcement proceeding because it could reveal the scope, direction, and focus of enforcement efforts, and thus could possibly allow them to take action to shield potential wrongdoing or a violation of NRC requirements from investigators. EXEMPTION 7 (A))
		Disclosure would constitute an unwarranted invasion of personal privacy (EXEMPTION 7(C))
		The information consists of names of individuals and other information the disclosure of which could reasonably be expected to reveal identities of confidential sources (EXEMPTION 7 (D))
	OTHER	

PART II. C – DENYING OFFICIALS

Pursuant to 10 CFR 9.25(b) and/or 9.25 (c) of the U.S. Nuclear Regulatory Commission regulations, it has been determined that the information withheld is exempt from production or disclosure, and that its production or disclosure is contrary to the public interest. The persons responsible for the denial are those officials identified below as denying officials and the Director, Division of Freedom of Information and Publications Services, Office of Administration and Resources Management, for any denials that may be appealed to the Executive Director for Operations (EDO).

DENYING OFFICIAL	TITLE/OFFICE	RECORDS DENIED	APPELLATE OFFICIAL	
			SECRETARY	EDO
Mr. Robert M. Bernero	Director, Office of Nuclear Material Safety and Safeguards	Appendix C		X

PART II. D – APPEAL RIGHTS

The denial by each denying official identified in Part II.C may be appealed to the Appellate Official identified in that section. Any such appeal must be in writing and must be made within 30 days of receipt of this response. Appeals must be addressed as appropriate to the Executive Director for Operations or to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555, and should clearly state on the envelope and in the letter that it is an "Appeal from an Initial FOIA Decision."

APPENDIX A

RECORDS ALREADY IN THE PDR

1. 09/1980 Specific pages from NUREG-0706, Vol. III - Final Generic Environmental Impact Statement on Uranium Milling, Project M-25, Appendices G-V (3 pages)

2. 11/1985 Specific pages from NUREG/CR-4403, Summary of the Waste Management Programs at Uranium Recovery Facilities as they Relate to the 40 CFR Part 192 Standards (9 pages)

3. 06/1981 NUREG/CR-2286, Environment in the Vicinity of Uravan Mill: Characterization of Radioactive Effluents and Airborne Radionuclide Concentrations (68 pages)

4. 03/01/85 Colorado Department of Health comments on proposed rule 10CFR40 regarding U mill tailings regulations (420 pages) PDR Accession No. 8503120337

APPENDIX B

RECORDS BEING PLACED IN THE PDR

1.	Undated	State of Colorado, Union Carbide Corporation and UMETCO Minerals Corporation Uravan Superfund Agreement (14 pages)
2.	12/19/86	Final Licensing Statement for the Uravan Uranium Mill (180 pages)

APPENDIX C

1.	Undated	Staff notes on Uravan Mill listed substances (2 pages) Portions of record denied - Exemption 5. The remaining portion of the record is being withheld as outside scope of request.

NUREG-0706
Vol. III

Final Generic Environmental Impact Statement

on uranium milling

Project M-25

Appendices G-V

September 1980

Office of Nuclear Material
Safety and Safeguards
U.S. Nuclear Regulatory Commission

A11

T.2 PROFILES OF OPERATING URANIUM MILLS

T.2.1 Canon City Mill, Cotter Corp.

The new Canon City Mill at Canon City, Colorado, is operated by Cotter Corp. (a subsidiary of Commonwealth Edison) to recover uranium and vanadium through use of a two-stage acid leach process. Ore is supplied from underground mines owned by the company in southwestern Colorado and from the Schwartzwalder Mine near Golden, Colorado, 190 km (120 miles) away.

The new acid leach mill, which was completed in 1979, replaced Cotter Corp.'s alkaline leach mill, which had been in operation since August 1958. The original mill was a large pilot plant which could process about 68 MT per day. Over the 20-year period, the original mill was expanded to a capacity of 1088 MT per day. The original tailings dam was developed from a starter dike; further construction of the tailings impoundment was done with mechanical equipment using tailings sands. To improve tailings management, the company constructed their first lined pond in 1971. It covered an area of about 0.8 ha (2 acres). In 1973, a second lined pond was constructed, covering 5.3 ha (13 acres). The dam was about 7.6 m (25 ft) high and impounded about 2.5×10^5 m^3 (200 acre-ft). The pond was used for evaporation of mill liquids and contained a limited amount of solids.

Over the years, tailings liquid has seeped from the old tailings impoundment. Cotter Corp. placed the new mill at the old site, so that a single impoundment could satisfy the requirements for the new mill, plus provide a place for relocation of the old mill tailings.

The new tailings impoundment was put in use on August 3, 1979. The impoundment is divided into two compartments to accommodate tailings from three different process systems: the new acid leach mill, the old alkaline leach mill, and a nearby spent catalyst plant that generates alkaline waste from the extraction of five different metals from spent catalyst. The primary portion of the impoundment receives tailings from the new mill. Tailings from past alkaline-leach milling operations are being reprocessed in the old mill and placed in the secondary portion of the impoundment.

The main tailings dam is being constructed in stages by the downstream method. A section through the dam from upstream to downstream includes the liner cover, the Hypalon liner, the core, the sand chimney drain, and the shell. The impoundment contains subdrains for collection of any water that might come from underground sources. The secondary dam used to form the secondary portion of the impoundment has been constructed to its ultimate height during the first construction period. The primary dam will be raised to its ultimate height in two or three additional stages. The storage volume in the primary and secondary impoundments are 7.6×10^6 m^3 (6200 acre-ft) and 1.7×10^6 m^3 (1350 acre-ft), respectively.

T.2.2 Uravan Mill, Union Carbide Corp.

The Uravan Mill is in Western Colorado in an area of rugged canyons and mesas. It is 80 km (50 miles) south of Grand Junction, Colorado. The mill is adjacent to the San Miguel River, a tributary of the Colorado River. Uranium, vanadium, and radium recovery operations were begun at the site in 1915 by the Standard Chemical Company. The Union Carbide Corp. purchased the property in 1936, and since that time, except for a period between 1946 and 1950, has produced either vanadium, uranium, or both at the site.

The Uravan Mill at various times has processed ore from more than 200 mines; individual mines delivered from as little as 90 MT (100 ST) to more than 900,000 MT (1×10^6 ST) of ore. Presently, the mill receives ore from about 20 underground mines; five of which are company owned and supply about 85% of the Uravan mill feed.

Vanadium is almost invariably present with uranium in the ores of the Uravan mineral belt in ratios that vary from 3:1 to 10:1, vanadium to uranium. For this reason, vanadium product liquor (18% V_2O_5) is the major mill product, with lesser quantities of yellowcake (85% U_3O_8). The ore must be subjected to a hot, highly oxidizing two-stage acid leach to achieve economical recovery of uranium and vanadium.

The variety of mill effluent streams are segregated for separate treatment. The mill employs a pond system consisting of tailings ponds, solvent extraction raffinate ponds, and barium chloride ponds, all of which are unlined. The tailings pond receives waste slurry from the CCD circuit [14 L/s (220 gpm)]. After settling, a portion of the liquid is decanted and returned to the mill as a wash solution for CCD [11 L/s (175 gpm)]. The tailings ponds cover a combined area of about 32 ha (79 acres) on a hillside adjacent to the mill. Seepage collected in the toe dam is recycled to the mill process. Hillside runoff is treated with barium choride and is discharged to the San Miguel River at a rate of 9 L/s (150 gpm).

A solvent extraction raffinate area, located across the river from the mill, receives barren solution from the vanadium SX section of the mill. The effluent contains about 100 to 200 mg/L vanadium and high TDS in the form of AL and SO_4. This raffinate covers an area of 12 ha (30 acres).

The Uravan Mill is the only uranium mill in the United States directly discharging liquid effluent. A composite waste stream consisting of tailings pond seepage, yellowcake thickener overflow, cooling water, and occasionally the neutral solution from lime treatment of the vanadium SX raffinate is released to the San Miguel River. These effluents first are treated with barium chloride, settled in a series of ponds, monitored, and discharged under a National Pollutant Discharge Elimination System (NPDES) permit.

T.2.3 L-Bar Mill, Sohio Petroleum Co./Reserve Oil & Minerals

The L-Bar Uranium Mill is located in an area of flat terrain about 29 km (18 miles) north of Laguna, New Mexico. Ore for the mill is obtained from an underground mine that works the Jackpile Sandstone formation. The mine and mill are operated by Sohio on 1200 ha (3000 acres) of the 49,000-ha (120,000-acre) L-Bar Ranch.

The mill, which uses an acid-leach process, began operations in 1976 with a capacity of 1500 MT per day. Sufficient ore is proven to maintain this rate for 10 to 15 more years. A typical ore sample contains 0.225% U_3O_8, 0.08% V_2O_5, 1.01% iron, and 0.12% sulfur. Water for milling operations is obtained from wells and mines. In addition to the extensive use of in-process recycle, the company intermittently recycles water from the tailings pond to repulp tailings. A problem peculiar to the L-Bar mill has been zirconium buildup in the SX organic solvent. To remedy this, the organic phase is stripped of Zr and Mo in the final SX mixer-settler unit, and a bleed stream containing Mo and Zr is disposed of in the impoundment system.

The L-Bar mill uses a pond system consisting of a tailings pond with catchment basin and two solvent extraction raffinate ponds. The tailings impoundment is an above-ground impoundment built on natural materials with an engineered earthen starter dam to the west that keys into the natural topography on the north and south. In addition, there is a small saddle dam to the east. The dam has been lifted by the upstream method of spigotting of tailings. Of the total impoundment area of 73 ha (180 acres), about 50 to 60 acres are covered with tailings. The surface area of liquid in the impoundment is about 30 ha (75 acres). The pile consists of approximately 1.4×10^6 MT of tailing material and reaches a maximum height of 7 m (23 ft). The tailings pond is lined with treated clay. Raffinate ponds are unlined. Waste flow to the tailings pond is composed of tailings slurry containing 1500 MT (1660 ST) per day of solids and 18 L/s (280 gpm) of waste solution. About 11 L/s (170 gpm) of SX raffinate is sent to the raffinate ponds, the exact amount depending on the amount of tailings pond decant recycled.

T.2.4 Church Rock Mill, United Nuclear Corp.

Site topography at United Nuclear's Church Rock Mill [32 km (20 miles) northeast of Gallup, New Mexico] is characterized by rolling hills. The mill, which opened in 1977, was designed to use acid leach extraction to process 3600 MT (4000 ST) of ore per day from company-owned underground mines. The ore contains 0.15 to 0.20% U_3O_8. Fresh water for mill operations is obtained from underground mines. Yellowcake is the only mill product.

The tailings pond is formed by a dam built from native clays and compacted coarse tailings. The pond has three compartments separated by earthen embankments. The total surface area of tailings including dam and storm water interceptor ditch is 83 ha (204 acres). The area in use as of April 23, 1980, is 80 ha (197 acres). The surface area of liquid on tailings is about 11 ha (28 acres). The maximum depth of tailings is approximately 15 m (50 ft). The storage capacity of the pond is now about 10×10^6 m^3 (365×10^6 ft^3). The available evaporative area will be 65 ha (160 acres).

In July 1979, a break in the tailings dam spilled about 350×10^6 L (93×10^6 gallons) of effluent and 1000 MT (1100 ST) of tailings on or into nearby soil and streams. The streams carried the spilled tailings to Rio Puerco, through Navajo grazing lands, and finally into Arizona. The mill was temporarily closed and corrective measures were taken. The mill reopened in the fall of 1979. Cleanup efforts are still in progress.

T.2.5 Bluewater Mill, Anaconda Co.

Anaconda's Bluewater Uranium Mill is located in the heart of the Grants Mineral Belt, about 15 km (10 mi) northwest of Grants, New Mexico, in a small alluvium and volcanic-filled valley known as the San Jose River Valley. The Zuni Mountains, a northwest-trending range, lie about 25 km (15 mi) southwest of the mill. Mesas surround the San Jose River Valley to the north, east, and south.

From 1953 to 1956, the mill extracted uranium using a carbonate leaching process. Parallel mill circuits were provided in 1955 to permit both alkaline and acid leaching of limestone and sandstone ores. By 1959, it was more economical to treat the available ore in the acid-process mill and consequently, the carbonate mill was shut down. Between 1955 and 1978, the Bluewater Mill extracted uranium from a throughput of 3500 MTPD of ore containing about 0.25% U_3O_8. Since completion of a recent expansion, the mill has processed an average of 5400 MT per day of ore with

NUREG/CR-4403
ORNL/TM-9797

Energy Division

SUMMARY OF THE WASTE MANAGEMENT PROGRAMS AT URANIUM RECOVERY FACILITIES AS THEY RELATE TO THE 40 CFR PART 192 STANDARDS

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U.S. Nuclear Regulatory Commission
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for the
U.S. DEPARTMENT OF ENERGY
under
Contract No. DE-AC05-840R21400

A/2

Radionuclides monitored on a semi-annual basis will include:

Pb-210 Po-210

Following cessation of mill operations and after evaporation is complete, the residues, lining, and underlying contaminated rock at the evaporation ponds will be removed and deposited in a trench in the tailings disposal area and then covered in the same manner as the tailings.

Reclamation of the deposited tailings is to occur continuously throughout the life of the project. The final tailings cover over the below-grade trenches is to be graded to slopes of approximately 8H:1V, with the top surface contoured gently from full cover thickness (20 feet) in the center of the impoundment to a minimum cover thickness required for radon attenuation (12.4 feet) at the tailings trench perimeter. Up to 12 inches of rock riprap will be placed over the side slopes to provide reliable long-term erosion control.

2.2.3.3 Site C3, Uravan Mill Site (Union Carbide Corporation)

The Uravan Mill is located 50 miles south of Grand Junction, Colorado in a canyon of the San Miguel River. The mill has been in operation since 1915, recovering uranium, vanadium, and radium until 1936 when it was purchased by Union Carbide Corporation (UCC). Radium recovery ceased at that time.

The mill has a number of tailings ponds, raffinate ponds, and barium chloride treatment ponds, all of which are unlined. Two tailings ponds covering about 97 acres and the Club Mesa Spray Evaporation System covering 25 acres lies on a hillside adjacent to the mill and about 400 feet above the river. Six raffinate ponds and a salt disposal pond lie within a 63-acre area designated as the Club Ranch Pond area on the flood plain across the river from the mill. Effluents from the tailings and raffinate ponds and various other mill circuits are treated in a series of barium chloride treatment ponds before their discharge to the San Miguel River. The discharge is regulated under terms of a National Pollutant Discharge Elimination System (NPDES) permit. Two more ponds covering about 7 acres lie one mile upstream from the raffinate ponds. Figure C3-1 shows the locations of existing impoundments and boundaries of restricted areas. Figure C3-2 is a topographic map of the same areas. Tailings Pond No. 1 is now merged with tailings Pond No. 2 to form a single impoundment.

Union Carbide has proposed a plan to construct six additional tailings-raffinate cells on Spring Creek Mesa about 2.5 miles northeast and across the river from the mill (Figure C3-3). Collectively, these cells would cover 250 acres. All the new cells would be lined but various alternatives (synthetics, clay, or in-situ materials) are still under consideration. This plan is under review by the State of Colorado as part of the license renewal.

Existing tailings ponds lie on the Salt Wash Member of the Morrison Formation. The new ponds will most likely lie on the same strata. In the site area, the Salt Wash is about 100-feet thick, consisting of

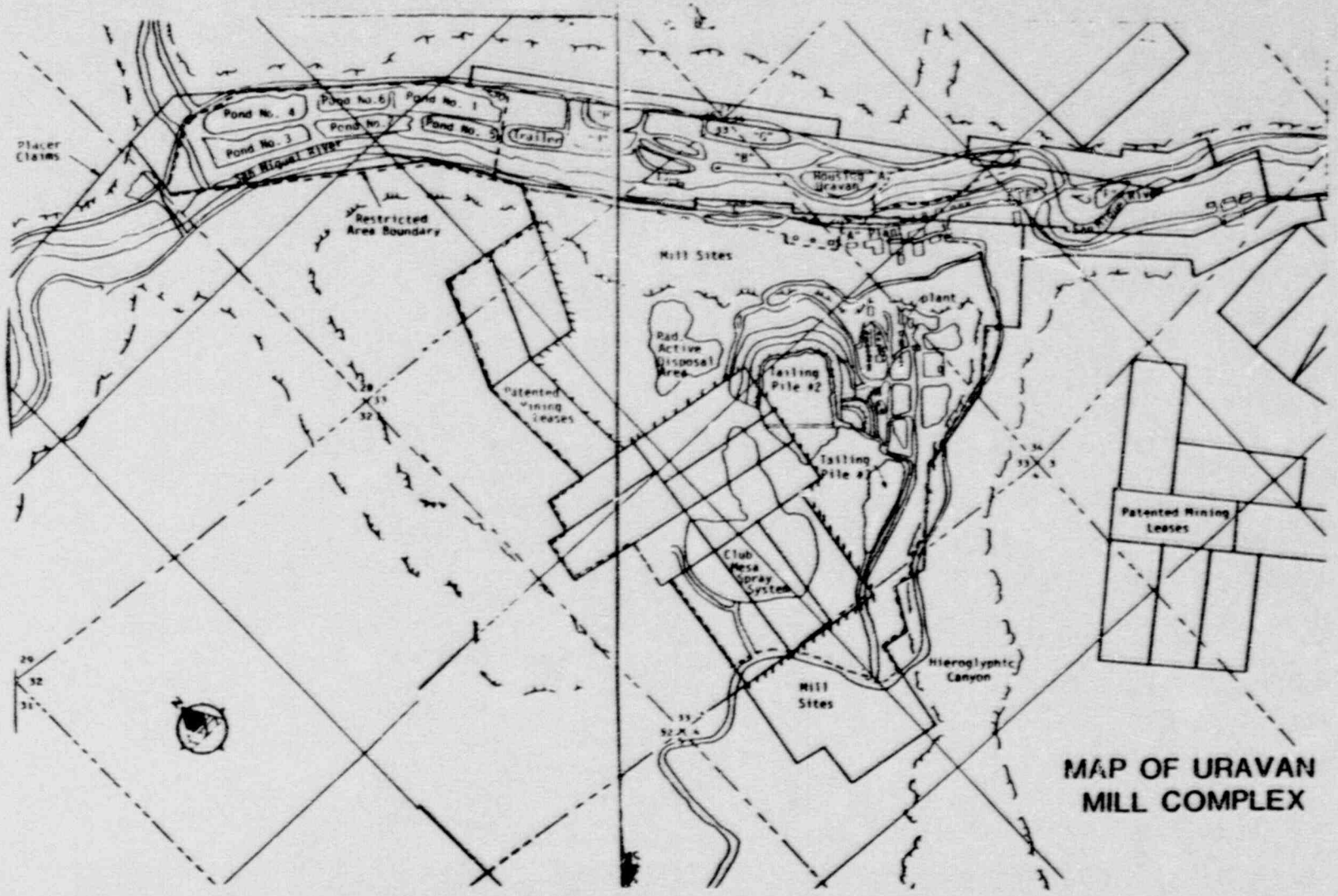

Figure C3-1. Location map of tailings, raffinate various other ponds and the restricted area boundary.

Figure C3-2. Topographic map of the facilities shown in Figure C-3.1.

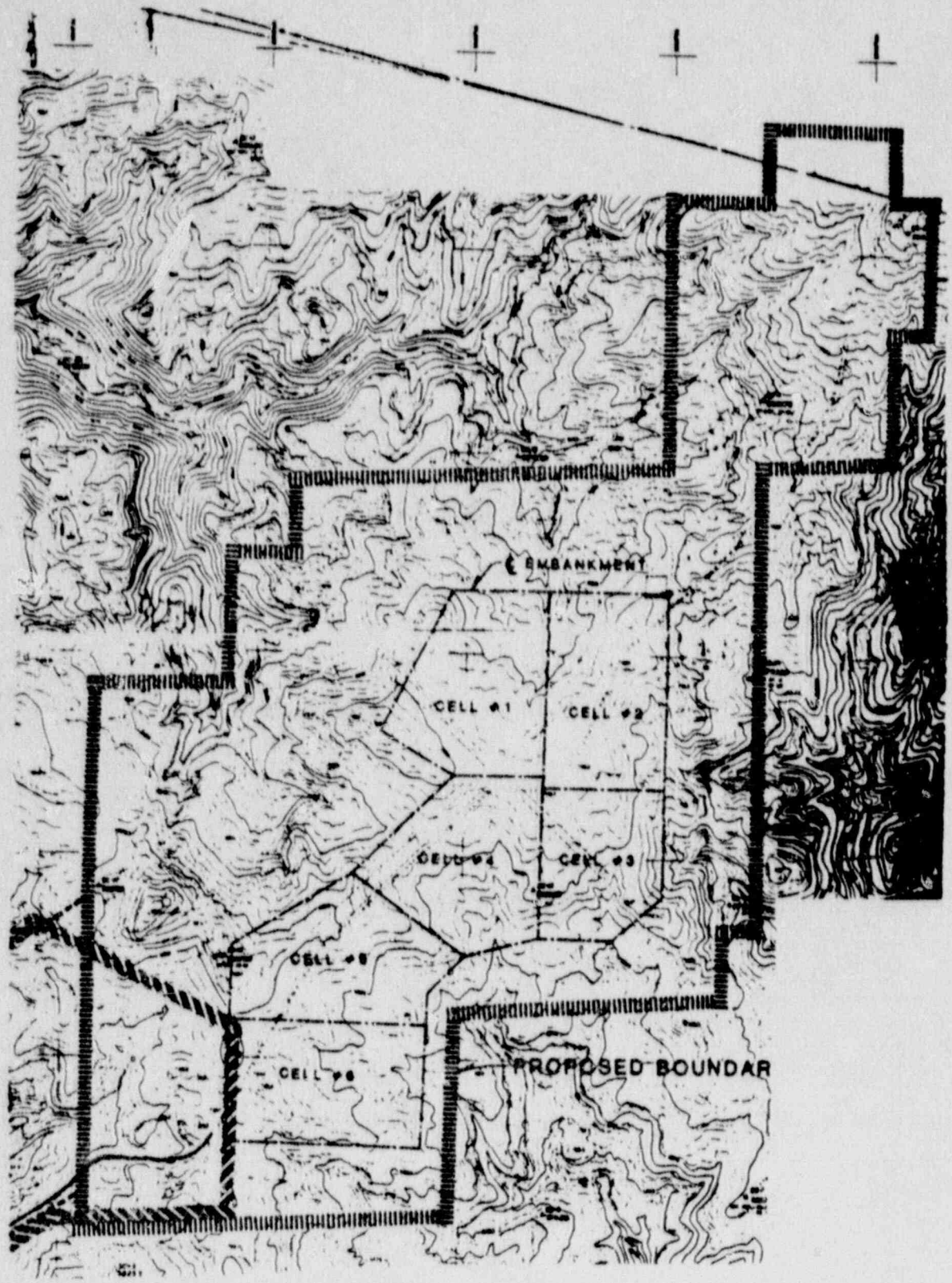

Figure C3-3. Topographic map of proposed new tailings ponds and their site boundary.

sandstone with lenses of claystone and siltstone. Below the Salt Wash Member, and exposed in the walls of the canyon of the San Miguel River, are, in descending order, the Summerville Formation, the Entrada Sandstone, the Carmel Formation, and the Navajo Sandstone. The top of the Kayenta Formation is exposed in the canyon floor. Very thin stream deposits lie on the canyon floor. Raffinate and various other ponds on the San Miguel River flood plain rest on these stream deposits and on the Kayenta Formation.

There are two important regional aquifers in the area. They are the Kayenta Formation (about 200-feet thick) in the floor of the San Miguel River canyon and the Wingate Formation, immediately beneath the Kayenta. Wells in the area are generally completed so that ground water can be produced from both formations. The aquifer is sometimes referred to as the Kayenta-Wingate. Strata which outcrop in the canyon walls form only locally perched aquifers.

Ground-water quality in the area is not well known because there has been little development. Figure C3-4 shows the locations of ground-water production wells in the San Miguel River valley and monitor wells around the Uravan facilities. Annual ground-water quality sample analyses are available from 1974 to 1978 for two ground-water production wells (the "G-block" well, located 0.5 miles downgradient from the tailings ponds, and the Tabequache well, located approximately 1.5 miles upstream from the Uravan mill site). These wells were monitored for TDS, SO_4, Cl, Ra-226, U-nat., and Th-230. The licensee has indicated that the water quality in the upstream well shows no evidence of contamination from seepage (TDS about 350 mg/L and SO_4 about 50 mg/L), so that it might be considered as a background well. The "G-block" well has had four times the TDS concentration and an order of magnitude more sulfate than the upstream well.

One set of monitor wells (1-H, 6-H, 7-H, and 8-H) is located at distances of from 100 to 300 feet downgradient from the tailings ponds toward Hieroglyphic Canyon and the San Miguel River Canyon. Another set (9-H, 10-H, and 11-H) is located on the floodplain of the San Miguel in the vicinity of the Club Ranch (raffinate) ponds. Monitor well 11-H is adjacent to a salt disposal area and about 800 feet downgradient from the raffinate pond farthest from the mill.

The above wells were sampled in 1978 for conductivity, TDS, Ca, K, Mg, Na, Cl, HCO_3 and CO_3 (combined), SO_4, pH, Ra-226, Th-230, U-nat., and the following trace constituents: Al, As, Ba, Cd, Cr, Cu, F, Fe, Pb, Mn, Hg, NO_3, Se, Ag, V, and Zn. The raffinate monitor wells and tailings pond well 1-H had extremely high concentrations of many constituents. Other wells had over 5000 mg/L TDS and 3000 mg/L SO_4. All samples were bailed from a shallow depth, sampling ground water from perched aquifers above the San Miguel River (tailings pond wells), and from San Miguel River alluvium or the Kayenta Formation (wells near the raffinate ponds). None of the above wells monitored ground water from the Wingate Formation and no tailings pond wells monitored ground water from the Kayenta Formation.

Another set of monitor wells was drilled in late 1980. Locations of these wells are shown in Figure C3-5. This set of wells was drilled to various depths and cased with narrow PVC tubing. Many of these holes are now collapsed and, in any event, were not drilled deep enough to reach a regional ground-water aquifer.

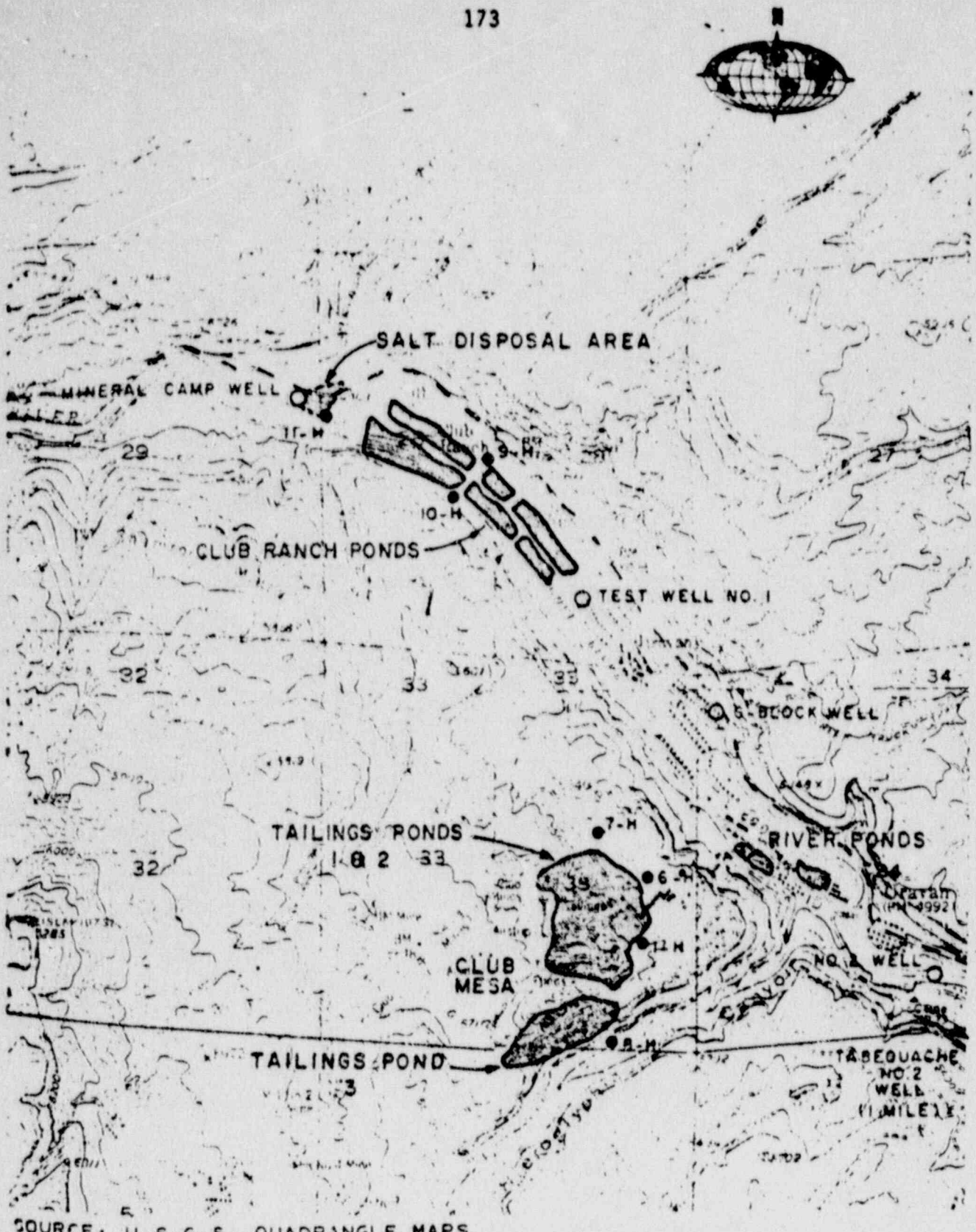

Figure C3-4. Locations of original monitor wells and local water wells.

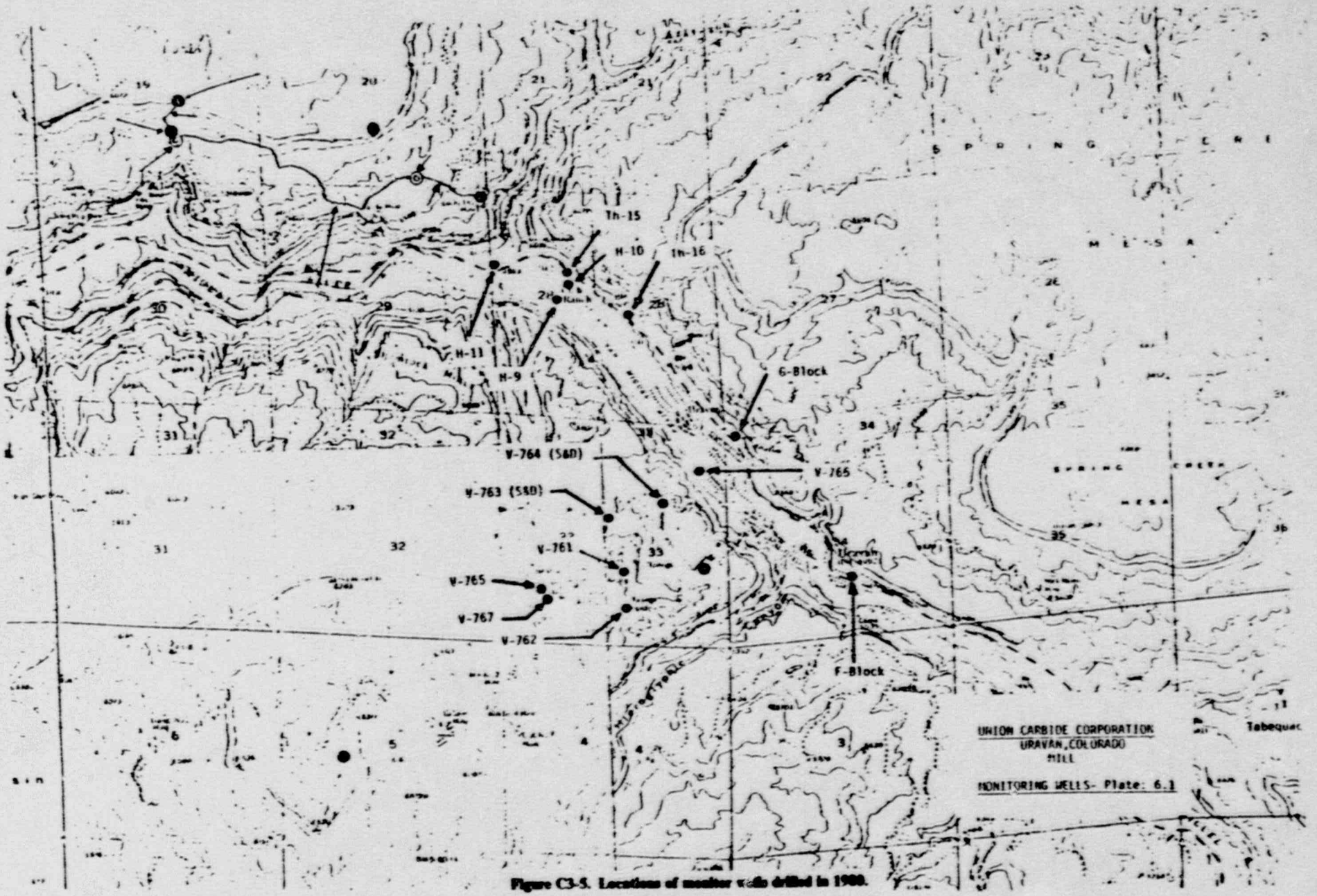

Figure C3-5. Locations of monitor wells drilled in 1980.

Subsequent to the above studies, the licensee continued to monitor various wells quarterly for pH, temperature, conductivity, TDS, Cl, SO_4, Na, Zn, Ba, V, Ra-226, Pb-210, and Po-210.

A subcontractor to UCC recently (June, 1983) proposed a completely new monitoring system as shown in Table C3-1. The status of the State of Colorado review of the proposal is unknown.

There is no existing or planned remedial action for recovering or treating ground water that has been contaminated by seepage from the Uravan facilities.

Table C3-1. Recommended drilling/redrilling program, Club Mesa area

Replacement well identification	Approximate collar elevation	Approximate bottom elevation	Total depth ft	Perforated zone
V753-S	5450	5300	150	Salt wash
V763-D	5450	4800	650	Kayenta-Wingate
V764-S	5338	5215	123	Salt wash-Summer
V764-D	5338	4900	438	Kayenta-Wingate
V765	5660	4800	860	Kayenta-Wingate
V767	5660	5460	200	Salt wash
V766	4975	4875	100	Kayenta
New deep (Hieroglyphic canyon well)	5425	4800	625	Kayenta-Wingate
New shallow	5425	5300	125	Salt wash

A licensed plan for reclamation of the existing tailings ponds has been approved by the State of Colorado. The embankment slopes for these ponds will be reduced to 5H:1V, and the excess material will be moved to a new clay-lined (one-foot thick) fill area adjacent to tailings pond 2. Ten feet of cover will be placed over the remainder of tailings ponds 2 and 3 as well as the new fill area. Contaminated materials from the raffinate and other ponds along San Miguel River will be excavated and removed to the new fill area. The excavated areas will be graded, back-filled with one foot of fill, and revegetated. Contaminated effluents and soils from the Club Mesa area (including neutralized sludge, ponds, spray and fringe areas) will also be removed to the new fill area.

The 10 feet of cover will consist of 3.5 feet of clay, 4.5 feet of random fill, and 2 feet of rock cover which will be removed from existing stabilizing berms as the embankment slopes are reduced. The top of the tailings piles will be contoured to a minimum grade of 3% to allow for surface drainage. No flood and erosion analyses have been provided.