



**COGEMA**

Mining, Inc.

March 5, 2001

**LICENSE SUA-1341  
DOCKET NO. 40-8502**

Mr. Phillip Ting, Chief  
Fuel Cycle Licensing Branch, FCSS  
c/o Document Control Desk  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

**RE: Annual SERP Summary for 2000**

Dear Mr. Ting:

Section 9.4(D) of COGEMA Mining, Inc.'s Source Material License SUA-134, requires COGEMA to furnish an annual report summarizing the safety and environmental evaluations made by the Safety and Environmental Review Panel (SERP). The annual report shall describe any changes, tests, or experiments approved by the SERP and include any changed pages to the Operations Plan and Reclamation Plan of the approved license application.

Accordingly, COGEMA furnishes the attached annual report to meet this requirement along with the applicable revised pages to be replaced in the 1996 License Renewal Application. Please contact me if you have any questions regarding this report.

Sincerely,

John Vaselein  
Radiation Safety Officer

cc: Division Director - NRC, Arlington, TX  
Donna Wichers - COGEMA

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*NMSS01 Public*  
*Rec'd from NMSS m 9/13/01*

**COGEMA Mining, Inc.**  
**Performance-Based License Section 9.4 (D), SUA-1341**  
**2000 Annual SERP Summary Report**

COGEMA's Safety And Environmental Review Panel (SERP) completed seven safety and environmental reviews during 2000, as per License Section 9.4 (C). The purpose of the reviews were to determine if certain proposed additions and/or changes met the requirements of License Sections 9.4 (A) and (B), and could be approved.

The SERPs concluded that all of the additions and/or changes reviewed do not conflict with any license section or NRC regulation, do not cause any degradation in the safety or environmental commitments in the license or reclamation plan, and are consistent with the conclusions and actions of the Environmental Assessment. Therefore, no license amendment applications were necessary as a result of the reviews.

A summary of each safety and environmental review is given below. As a result of the reviews, the following pages of the 1996 License Renewal Application have been revised and are attached. Please replace them in the document.

Revised Pages: 3-26 (Figure 3.9), 3-37 (Figure 3.11), 5-1, 5-2 (Figure 5.1), 5-3, 5-4, 5-5, 5-6 and 6-6B (Figure 6.1, page 2).

**Safety and Environmental Review No. 00-1**

The SERP reviewed concerns raised during an NRC inspection related to computer security of regulatory required data. The SERP identified the computer data which should have security controls and reviewed the existing security measures for that data. The SERP recommended additional security measures be taken to further limit access to certain data, particularly with environmental well sampling data. With recommendation from the SERP, a new Standard Operating Procedure (SOP S-27, Computer Security) was written to summarize the updated computer security system along with tables listing the privileges and accesses for the Novell File Server and the Oracle Database. The SERP concluded that SOP S-27; Computer Security (dated 3-16-00), along with its attached tables, provides increased and adequate computer security measures needed to protect access to the regulatory related data.

**Safety and Environmental Review No. 00-2**

The SERP reviewed layout changes to the Irigaray process facility conducted for restoration purposes. The changes consisted of the following.

1. Moved the reverse osmosis (RO) unit (# 1&2) from the well field building to the plant annex.
2. Added a sulfuric acid tank in the plant annex. Note that the sulfuric acid tank at the well field building is no longer used.

3. Eliminated four of the Irigaray Elution tanks.
4. Converted two existing tanks into holding tanks for RO feed and permeate injection water.

The SERP noted that general process arrangement discussed in section 3.4.1.1 through 3.4.1.4. 1 of the 1996 License Renewal Application, still existed only in a revised layout. This includes the ion exchange/lixiviant makeup circuit, the elution and precipitation circuit, and the yellowcake dewatering, drying and packaging circuit. The SERP reviewed the main layout changes listed in the introduction, which were conducted for restoration purposes. The SERP noted that the use of sulfuric acid and the RO units are presented in the groundwater restoration plan given in Section 6.1 of the 1996 License Renewal Application and shown in Figure 6.1.

The SERP recommended that Figure 3.9 (Irigaray Recovery Facility - General Arrangement Diagram) of the approved application, be revised to show the main changes in the layout of the process facility at the Irigaray Plant. It was also recommended that a second page be added to Figure 6.1 (Typical Restoration Process) of the approved license, to better show the layout for the reverse osmosis/permeate injection phase of restoration.

#### **Safety and Environmental Review No. 00-3**

The SERP reviewed the partial decommissioning plan of four small evaporation ponds at the 517 Test Site, located 0.7 miles north of the Irigaray plant. Since the ponds are no longer useful, a partial decommissioning was proposed for them. The proposal would include removal of the pond water, sediments, liners, leak detection systems and any contaminated soil. A final soil cleanup was not to be conducted at this time.

The SERP noted that an updated Decommissioning Plan for Irigaray and Christensen Ranch Projects was submitted to the NRC on May 8, 2000, as required by License SUA-1341, Amendment 3. Until a plan is approved, the approved 1996 License Renewal Application remains applicable for licensing requirements. The SERP reviewed Section 6.2.2 (EVAPORATION POND DECOMMISSIONING) of the application and noted that general guidelines already exist for disposal of pond water, sediments, liners, leak detection systems and contaminated soil.

The SERP concluded that a partial decommissioning of the 517 ponds could be conducted in the manner generally described in Section 6.2.2 of the approved license application. The SERP made the following recommendations concerning the partial decommissioning of the 517 Site ponds.

1. Finalized soil surveys for release should not be conducted until the uranium benchmark dose-based soil cleanup criteria is determined and approved by the NRC, as discussed in Section 5.0 of the proposed DECOMMISSIONING PLAN (see attached).

2. Particular attention should be paid to Section 6.2.5.1 of the approved license application. This section pertains to specialized training and written procedures for decommissioning activities involving the handling of radioactive materials.
3. The fence surrounding the ponds and the radioactive material signs remain in place until final soil cleanup is achieved.

#### **Safety and Environmental Review No. 00-4**

The SERP evaluated the elimination of the Manager, Environmental and Regulatory Services position (effective May 1, 2000), due to a continuous reduction in operations. COGEMA employees Donna Wichers (General Manager) and John Vaselin (Radiation Safety Officer) would assume the position responsibilities in addition to continuing their current functions. The SERP noted that each has over 20 years of experience in the safety and environmental fields of uranium mining. The SERP also noted that both employees have the authority to suspend activities which are unsafe or in violation of license or regulation requirements. The SERP determined that the position elimination would only require that Section 5.1 of the License Renewal Application be revised to update the changes.

#### **Safety and Environmental Review No. 00-5**

The SERP was to determine if certain MIT-failed wells could be abandoned and plugged, without hurting the restoration efforts or violating license requirements. The SERP noted that COGEMA is not required to use all wellfield wells during groundwater restoration. The SERP also noted that groundwater restoration can, and has been achieved without MIT-failed wells. However, other nearby or adjoining wells, which have completed intervals which closely match the failed wells, should be available. The SERP determined that COGEMA has the option to use whichever wells they feel are needed to achieve the restoration goals.

#### **Safety and Environmental Review No. 00-6**

The SERP evaluated the elimination of caustic soda use for pH adjustment increase of permeate water to be surface discharged. pH increases are necessary to maintain it within the discharge permit range of 6.0 to 9.0. The SERP noted that the pH limit could be met by a proposed alternate method of adjustment. The method requires the use of a holding pond to allow dissolved carbon dioxide to emanate from the permeate prior to discharge, and thus raises the pH concentration to within the permit range. The SERP concluded that caustic soda was not required or needed for pH adjustment of permeate discharge water.

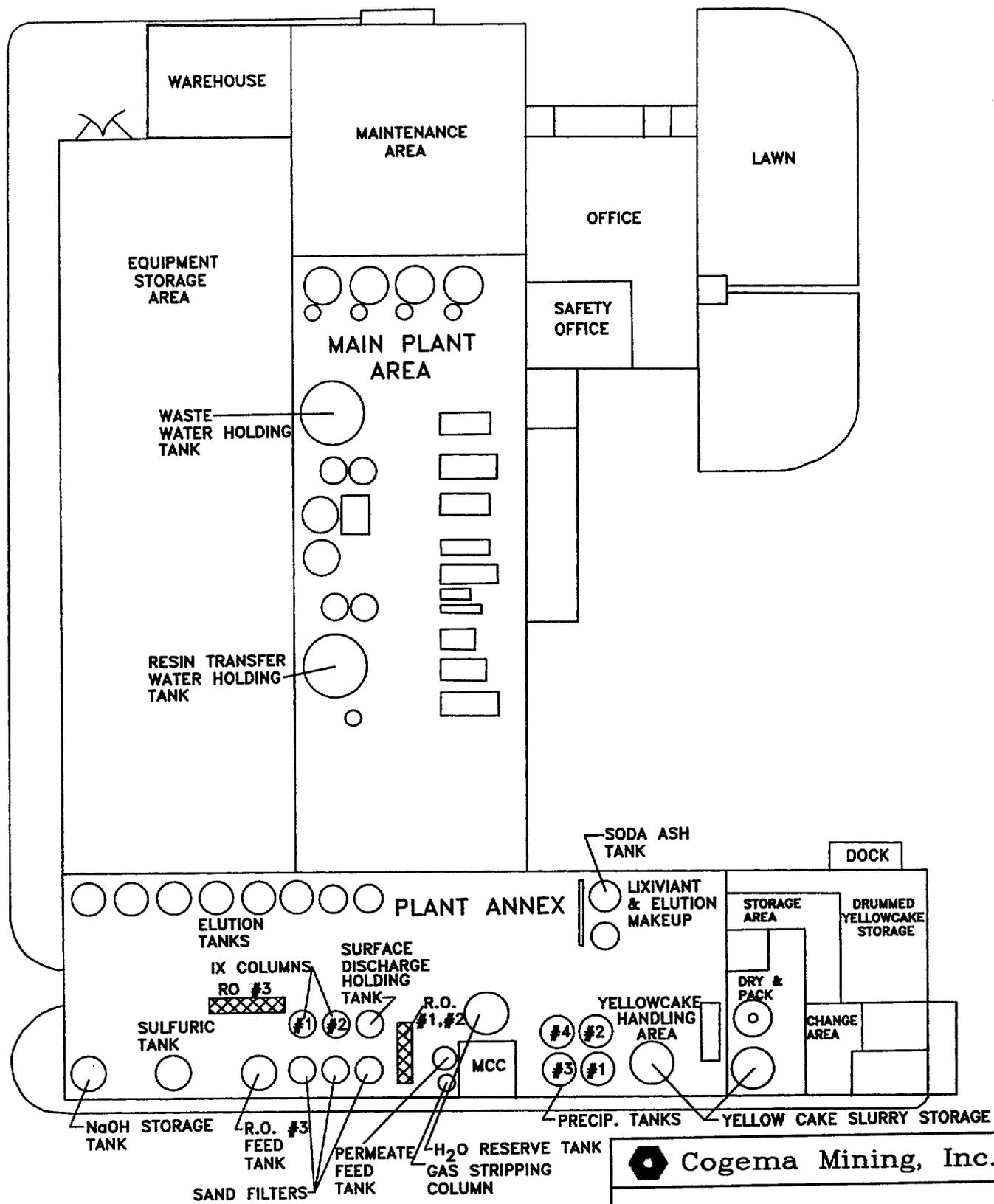
#### **Safety and Environmental Review No. 00-7**

The SERP reviewed a process change for the restoration facilities in the Irigaray and Christensen plants, which was planned to better facilitate groundwater restoration operations at these sites. The restoration process change added a gas stripping column at each site. The columns will remove the carbon dioxide (CO<sub>2</sub>) gas from the RO permeate (clean) water, prior to injection into the aquifer. By removing CO<sub>2</sub>, less sodium hydroxide (NaOH) is needed to raise the pH of the permeate. Therefore, by removing CO<sub>2</sub> and adding less NaOH, the process is much more efficient in lowering the groundwater TDS.

The SERP determined that gas stripping columns were not addressed in the licensing applications, permits or the environmental assessment. However, Section 6.1.2.2 of the 1996 License Renewal Application states that one of the 3 goals of the RO/permeate injection phase is to reduce the TDS within the wellfield to baseline conditions. The SERP agreed that this is the main purpose of the gas strip columns.

The SERP anticipated no increase in radon exposure to employees by this system, however, routine radon daughter sampling in the work areas will continue as per SOP HP-7. The SERP then reviewed Attachment 7.3(A) in the 1996 License Renewal Application, to determine if there was a potential for radon increase to the environment. This attachment provides information used for radiological MILDOS-AREA modeling with both production and restoration combined. The table uses a maximum flow of 500 gpm for restoration at Christensen and Irigaray but conservatively estimates that all radon source term will be released, with 75% released at the process plant. This is conservative because the restoration water was to be circulated through the plant in a sealed system, with limited venting. Using the above mentioned data from Attachment 7.3 (A), the modeling calculated a restoration radon release of 293 Ci/year at the Irigaray plant and 227 Ci/year at the Christensen plant. Combining these releases along with other emission sources from regular operations (including the dryer), the dose (TEDE) to the nearest residences was calculated to be no more than only 0.4 mrem/year at Irigaray and 0.59 mrem/year at Christensen. These doses are far below the regulatory limits of 25 mrem/year and 10 mrem/year, as per 40 CFR 190 and 40 CFR 61, respectively. The SERP noted that with production ceased and the dryer operating on a very limited basis, overall emissions from both projects would have decreased significantly along with the resulting doses and impact to the environment. Therefore, the radon release from the gas strip columns, would be offset and likely be even less than determined by dose modeling in the 1996 License Renewal Application.

The SERP recommended that Figures 3.9 and 3.11 of the License Renewal Application, be revised to show the updated layout of the restoration plants including the air strip columns. The SERP also recommended that the operation of the air strip columns be addressed in existing or new SOPs.



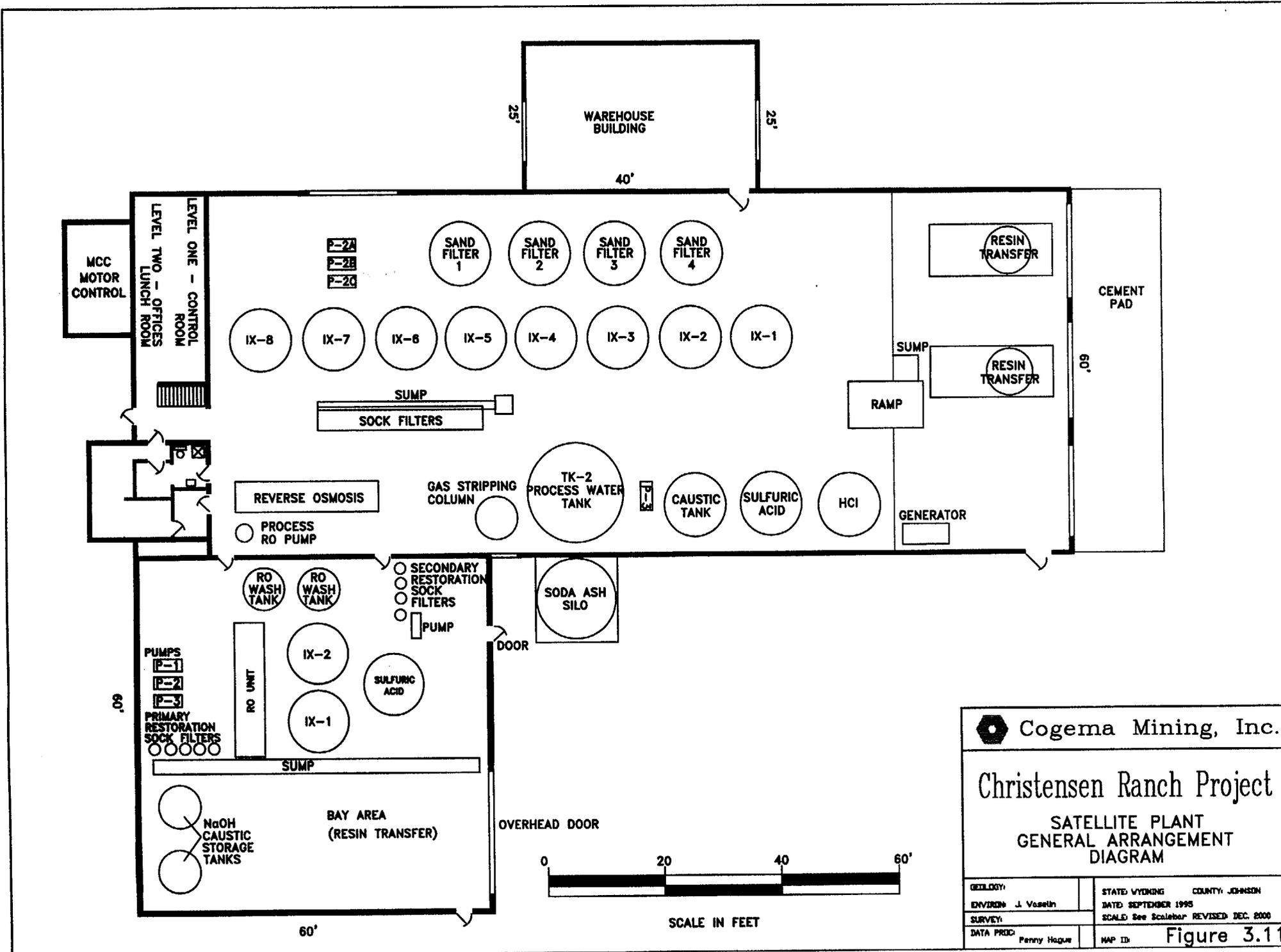
**Cogema Mining, Inc.**

## Irigaray Project

IRIGARAY RECOVERY FACILITY  
GENERAL ARRANGEMENT DIAGRAM

GEOLOGY	STATE WYOMING	COUNTY JOHNSON
DIVISION 3. Vickers	DATED	REVISED DEC. 2000
SURVEY	SCALE none	
DATA PREP P. Hague	MAP ID	<b>FIGURE 3.9</b>

3-37



SCALE IN FEET

Cogema Mining, Inc.

**Christensen Ranch Project**  
**SATELLITE PLANT**  
**GENERAL ARRANGEMENT**  
**DIAGRAM**

GEOLOGY: DIVISION: J. Vaseth	STATE: WYOMING COUNTY: JOHNSON DATE: SEPTEMBER 1995
SURVEY: DATA PROD: Penny Hague	SCALE: See Scalebar REVISED: DEC. 2000
MAP ID: <b>Figure 3.11</b>	

## 5.0 OPERATIONS

COGEMA Mining, Inc. (COGEMA) is a subsidiary of COGEMA Resources, Inc., a wholly owned subsidiary of COGEMA, Inc. COGEMA, Inc. is a United States subsidiary of COGEMA, S.A.E. located in France. COGEMA maintains a United States headquarters in Mills, Wyoming where site licensing actions originate. All COGEMA operations, including the Irigaray Mine and Christensen Ranch satellite operations, are conducted in conformance with applicable laws, regulations and requirements of the various regulatory agencies. The responsibilities described below have been designed to both ensure compliance and further implement COGEMA's policy for providing a safe working environment with cost effective incorporation of the philosophy of maintaining radiation exposures as low as is reasonably achievable (ALARA).

### 5.1 CORPORATE ORGANIZATION AND ADMINISTRATIVE PROCEDURES

The COGEMA organizational chart, as it pertains to the responsibility for radiation safety and environmental protection at the Christensen Ranch satellite and Irigaray recovery facility is given as Figure 5.1. The personnel identified are responsible for the development, review, approval, implementation, and adherence to operating procedures, radiation safety programs, environmental and groundwater monitoring programs, as well as routine and non-routine maintenance activities. Specific responsibilities of the organization are provided below.

#### 5.1.1 GENERAL MANAGER, ISL OPERATIONS

The General Manager, ISL Operations has the overall responsibility for each level of management and the radiation, safety and environmental programs for all of COGEMA's in-situ leach uranium operations, including the Texas operations and the Irigaray and Christensen Ranch projects. The General Manager has responsibility for the mine development, engineering and operational procedures. These responsibilities include the development, review and implementation of all production related operating procedures and the implementation of safety programs, associated quality assurance programs and routine and non-routine maintenance activities. The General Manager has the authority to terminate immediately any or all portion(s) of the project that have been determined to be a threat to health or property as indicated in reports from the Radiation Safety Officer or his designee.

The General Manager works closely with the Radiation Safety Officer, and the Operations Manager to assure that all activities at each site are conducted in a safe, prudent and responsible manner in compliance with all applicable regulations. The General Manager reports to the President of COGEMA Mining, Inc. in COGEMA's Velizy, France office.

◀R1

◀R2

◀R2

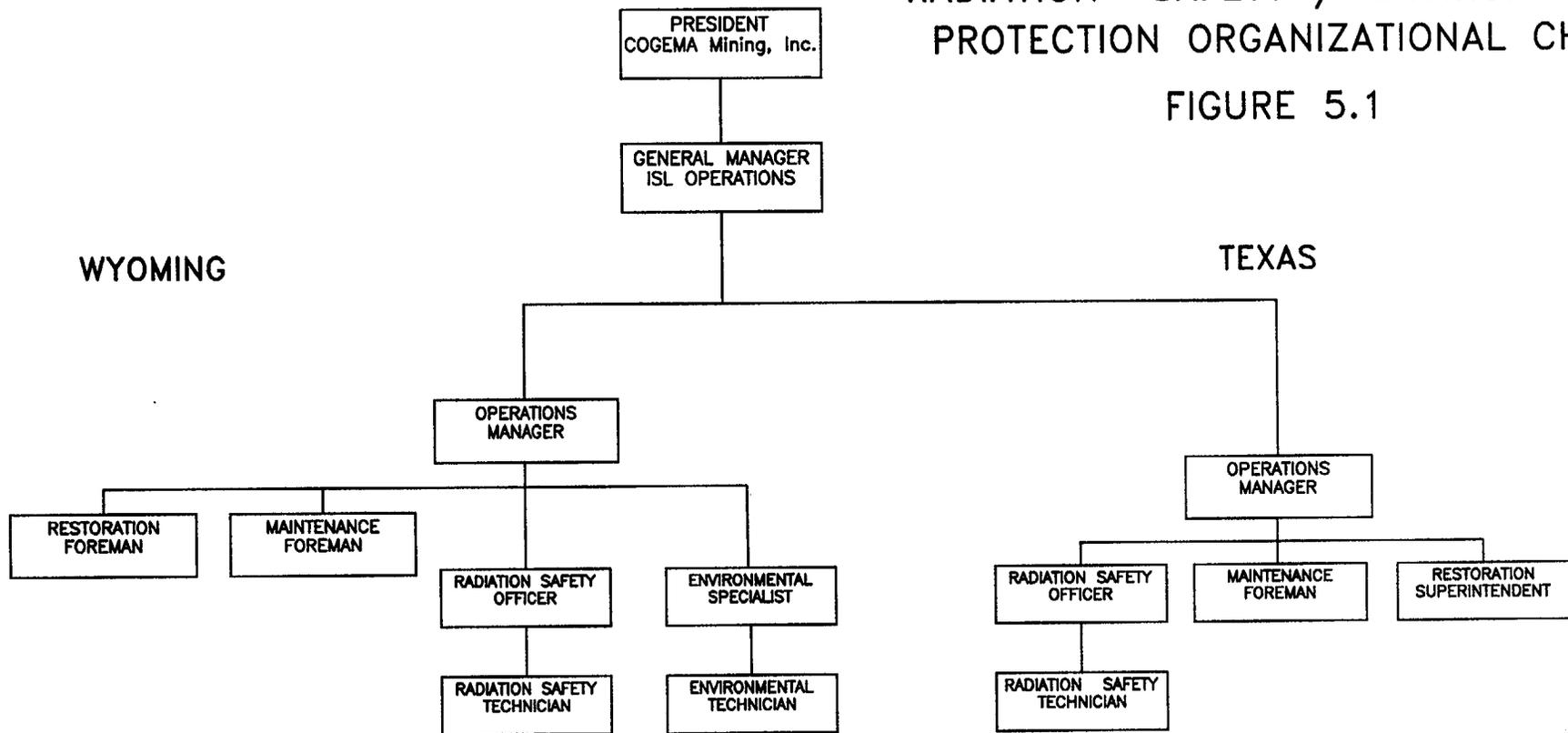
(R1 Revision, 09-03-97)  
(R2 Revision, 06-13-00)



COGEMA Mining, Inc.

# RADIATION SAFETY / ENVIRONMENTAL PROTECTION ORGANIZATIONAL CHART

FIGURE 5.1



5-2

Revised 6/20/2000

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### 5.1.2 OPERATIONS MANAGER

The Operations Manager is responsible for all operational aspects of the Irigaray and Christensen Ranch Sites. These aspects include the development, review and implementation of all operating procedures and implementation of safety programs, associated quality assurance programs and routine and non-routine maintenance activities. The Operations Manager is also responsible for adherence to all regulatory license conditions, stipulations and regulations. The Operations Manager has the authority to terminate immediately any or all portion(s) of the project that have been determined to be a threat to health or environment as indicated from the Radiation Safety Officer, Radiation Safety Technician, or Environmental specialist. The three positions, in addition to the Restoration Foremen and Maintenance Foreman, report directly to the Operations Manager. The Operations Manager reports to the General Manager.

•R2  
▼  
▼  
▲  
▲  
•R2

### 5.1.3 RADIATION SAFETY OFFICER

The Radiation Safety Officer (RSO) has direct responsibility for the development, review, approval, implementation and adherence to radiation safety programs, industrial safety programs, environmental monitoring programs and associated quality assurance programs for the Irigaray and Christensen Ranch Sites. The RSO is responsible for the maintenance of all operational licenses and permits for continued mine operations including modifications, amendments and renewals.

•R2  
•R2  
•R2  
▲  
•R2

The RSO is also responsible for the collection and interpretation of employee exposure related monitoring data, and the proper recording and reporting of such. The RSO conducts routine training programs for the supervisors and employees with regard to the proper application of radiation protection and industrial safety procedures. This individual is also responsible for the implementation of and adherence to all regulatory license requirements and fulfillment of reporting requirements. The RSO, with assistance from the RST or Environmental Specialist, or other qualified designee, personally inspects facilities to verify compliance with all applicable health physics and radiation safety requirements. The RSO has both the responsibility and authority to suspend, postpone or modify any work activity that is unsafe or potentially a violation of USNRC's regulations or license conditions, including the ALARA program. The RSO reports directly to the Operations Manager.

•R2

### 5.1.4 RADIATION SAFETY TECHNICIAN (RST)

The Radiation Safety Technician (RST) assists the RSO with his routine radiation safety surveys, employee exposure records keeping, facility inspections, training, and industrial safety responsibilities. The RST reports directly to the RSO.

(R1 Revision, 09-03-97)

(R2 Revision, 06-13-00)

### 5.1.5 ENVIRONMENTAL SPECIALIST

The Environmental Specialist is responsible for the implementation of all environmental monitoring programs at both the Irigaray and Christensen Ranch sites. Specific duties include groundwater and surface water sampling, air monitoring and evaporation pond inspections. In addition, the Environmental Specialist has been trained to act as an RST and may assist the RSO with the implementation of the radiological and industrial safety programs. The Environmental Specialist is responsible for the orderly collection and interpretation of all monitoring data. The Environmental Specialist reports directly to the Operations Manager.

◀R2

### 5.1.6 RADIATION SAFETY AUDITOR

COGEMA Mining, Inc. utilizes either the General Manager or an outside radiation protection auditing service to provide assurance that all radiation health protection procedures and license condition requirements are being conducted properly at the Irigaray and Christensen Ranch Sites. Any outside service used for this purpose is qualified in radiation safety procedures as well as environmental aspects of solution mining operations.

◀R2

## 5.2 MANAGEMENT CONTROL PROGRAM

### 5.2.1 OPERATING PROCEDURES

Written standard operating procedures (SOPs) have been developed for all process activities, including those activities involving radioactive materials, for both the Irigaray and Christensen Ranch facilities. Where radioactive materials handling is involved, pertinent radiation safety practices are incorporated into the SOP. Additionally, written SOPs have been developed for non-process activities including environmental monitoring, health physics procedures, emergency procedures, and general safety. Written SOPs have been developed, reviewed and approved by the appropriate supervisors and the RSO. All written SOPs are reviewed for radiological protection aspects and approved by the RSO prior to operations. Additionally, the RSO reviews all SOPs on an annual basis. Applicable current SOPs are referenced throughout this document. SOPs are revised as necessary to meet changing operational and regulatory requirements. Any revisions made to the SOPs are reviewed and approved by the RSO and appropriate supervisor prior to implementation. Written SOPs are kept in the areas of the plant facility where they are used by employees.

◀R2

For the performance of non-routine work or maintenance activities where the potential for radiation exposure exists and for which written operating procedures have not been prepared, a radiation work permit (RWP) is required. The RWP specifies the necessary

(R1 Revision, 09-03-97)

(R2 Revision, 06-13-00)

radiological safety precautions, equipment or specialized clothing, and radiological surveys required for performing the job. RWPs are issued by the RSO or his designee by way of specialized training.

### 5.2.2 SAFETY AND ENVIRONMENTAL REVIEW PANEL (SERP)

COGEMA is applying for a Performance Based License (PBL) with this renewal application. If a PBL is issued as a result of this renewal application, COGEMA will form a Safety and Environmental Review Panel (SERP) comprised of a minimum of three individuals. The SERP will be responsible for reviewing changes, tests or experiments to determine whether an amendment to the license is required.

One member of the SERP shall have expertise in management and shall be responsible for managerial and financial approval changes; one member shall have expertise in operations and shall have responsibility for implementing any operational changes; and, one member shall be either the General Manager, or the Radiation Safety Officer, for the responsibility of assuring changes conform to radiation safety and environmental requirements. Additional members may be included in the SERP as appropriate, to address technical aspects such as health physics, hydrology, engineering or other technical disciplines.

◀R2

Once the PBL is issued, COGEMA will prepare an SOP to outline the SERP's responsibilities in conducting safety and environmental evaluations of changes to the application, tests or experiments to determine whether an amendment to the license is required.

### 5.3 MANAGEMENT AUDIT AND INSPECTION PROGRAM

The following internal inspections, audits and reports are performed for the Irigaray recovery facility and Christensen Ranch satellite operations:

#### Weekly

The RSO or a qualified designee conduct a weekly inspection of the process area to observe general radiation safety control practices and make or review required changes in procedures and equipment. Any items of non-compliance or other problems are reviewed with the Operations Manager or General Manager.

◀R1

#### Monthly

The RSO provides a written summary of the month's radiological activities at the Christensen Ranch and Irigaray facilities. The report includes a review of all monitoring

(R1 Revision, 09-03-97)  
(R2 Revision, 06-13-00)

and exposure data for the month, a summary of worker protection activities, a summary of all pertinent radiation survey records, a discussion of any trends in the ALARA program, and a review of adequacy of the implementation of the USNRC license conditions. Recommendations are made for any corrective actions or improvements in the process or safety programs.

### Annually

On an annual basis, an audit of the radiation protection and ALARA program is conducted and a written report of the results submitted to corporate management. The audit team consists of either the General Manager and/or the outside radiation safety auditor identified in Section 5.1.6, the RSO and the Operations Manager. The RSO may accompany the audit team, but may not participate in the conclusions. ◀R2  
◀R1

The annual ALARA audit report summarizes the following data:

1. Employee exposure records
2. Bioassay results
3. Inspection log entries and summary reports of mine and process inspections
4. Documented training program activities
5. Applicable safety meeting reports
6. Radiological survey and sampling data
7. Reports on any overexposure of workers
8. Operating procedures that were reviewed during this time period

The ALARA audit report specifically discusses the following:

1. Trends in personnel exposures
2. Proper use, maintenance and inspection of equipment used for exposure control
3. Recommendations on ways to further reduce personnel exposures from uranium and its daughters

The ALARA audit report is reviewed by the General Manager with the ALARA audit team. Implementations of the recommendations to further reduce employee exposures, or improvements to the ALARA program, are discussed at that time.

An audit of the Quality Assurance/Quality Control (QA/QC) program is also conducted on an annual basis. The audit is performed by an individual qualified in analytical and monitoring techniques who does not have direct responsibilities in the areas being audited. The results of the QA/QC audit are documented and reported to the RSO and the General Manager. The RSO has the primary responsibility for the implementation of the QA/QC programs at the Irigaray and Christensen Ranch facilities.

(R1 Revision, 09-03-97)  
(R2 Revision, 06-13-00)

