

FROM NRC RIV ARL, TX, 10/11/91 12:38 P. 2  
10-11-91 02:33 PM 204

# SEQUOYAH FUELS CORPORATION

## PRESENTATION ON PLANS FOR OUTSIDE REVIEW OF HEALTH & SAFETY AND ENVIRONMENTAL PROGRAMS

NRC REGION IV  
OCTOBER 11, 1991

FROM NRC RIU ARL, TX, 10/11/91 12:39 P. 3  
FROM 9410470 10-11-91 02:33 PM  
FDJ

## SUMMARY OF PRESENTATION

- Current Sequoyah facility status
- Sequoyah management policies and expectations
- Plans for responding to the October 3 Order Modifying License and Demand for Information
  - Program for outside review of health and safety and environmental programs
- Process for NRC review/approval of outside contractors/  
Review Plan and Schedule
- Conclusions

FROM NRC RIV ARRL TX. 10/11/91 12:39 P. 4  
FROM 9410470  
10-11-91 02:33 PM  
P04

## CURRENT SEQUOYAH FACILITY STATUS

- Annual maintenance outage began September 23, 1991
- Maintenance tasks complete October 5, 1991
- Plant physically ready for restart
- Facility remains shutdown per October 3 Order
  - No production of UF<sub>6</sub> or DUF<sub>4</sub>

FROM NRC RIV ARL, TX, 10/11/91 12:40 P. 5  
FROM 9410470  
10-11-91 02:33 PM  
505

## SEQUOYAH MANAGEMENT POLICIES/EXPECTATIONS

- Operate as "nuclear" professionals
- Stress "FACTS"
  - Formality
  - Attention to detail
  - Communications
  - Teamwork
- Integrity, candor and honesty with the NRC
- Importance of clear, current and adequate procedures
- Adherence to procedures is our greatest challenge
  - Management policies
  - Training emphasis
  - Compliance verification



FROM NRC RIV ARL, TX, 10/11/91 12:40 P. 6  
10-11-91 12:40 PM  
006

## PLANS FOR RESPONSE TO OCTOBER 3 ORDER

- Selection of contractors
- Plan and schedule for procedure review, revision, implementation
- Training
- Compliance Verification
- Restart Process

FROM NRC RIV RRL TX. 10/11/91 12:41 P. 7  
FROM 9410470 10-11-91 02:33 PM  
404

## SELECTION OF CONTRACTORS

- October 3 Order requires NRC review/approval of outside reviewers
- Contractors selected:
  - Morton Associates
- Health and Safety Program
- ALARA
  - Roberts, Schornick & Associates, Inc.
- Groundwater monitoring, sampling, analysis

FROM NRC RIV ARL, TX, 10/11/91 12:41 P. 8  
FROM 9410470 10-11-91 02:23 PM P08

## PLAN AND SCHEDULE FOR PROCEDURE REVIEW, REVISION, IMPLEMENTATION

- Plan components include:
  - identification of prioritization criteria
  - application of criteria
  - schedule for review and revision of procedures
  - review, revision, implementation
  - training
  - compliance verification

PLAN AND SCHEDULE FOR PROCEDURE  
REVIEW, REVISION, IMPLEMENTATION

- Current Status:

- prioritization criteria identified
- presently identifying procedures for pre-restart review

FROM NRC RIV ARRL, TX, 10/11/91 12:42 P.10  
10-11-91 02:33 PM P.10

## PRIORITIZATION CRITERIA

- Those procedures which if incomplete, out of date, or technically inadequate, create greatest potential for significant adverse health or safety consequences to employees or significant adverse environmental impacts
- prevention of worker overexposure; maintenance of ALARA
- containment/confinement of licensed materials
- prevention of accidental releases to unrestricted areas
- radiation protection training
- HP staff training/authority to impose radiological controls

FROM NRC RIU ARL, TX, 10/11/91 12:43 P.11  
FROM 8410470 0170198 W082  
10-11-91 0 32 PM P.11

## TRAINING

- Training on new procedures
  - classroom training
  - development of practical/mockup training/examination on basic radiation protection skills
- Training on corporate policies/expectations
- Documentation of training
- Readiness Assessment Group evaluation of training

FROM NRC RIV BR, TX, 10/11/91 12:43 P.12  
FROM 8410470  
10-11-91 2:33 PM  
214

## COMPLIANCE VERIFICATION

- Manager - on - shift
- Additional experienced HP oversight



FROM NRC RIV RRL, TX, 10/11/91 12:44 P.13 TOTAL P.13  
10-11-91 12:44 PM  
C14

## PROCESS FOR ASSURING READINESS FOR RESTART

- Confirmation of outside reviewer acceptability
- Submittal of identification/prioritization of procedures
  - identification of pre-restart procedures
  - schedule for post-restart procedures
- Review, revision, implementation process
- Training implementation
- Compliance Verification
- RAG review/assessment/report to President
- Notification to NRC

## PHASED STARTUP PLAN

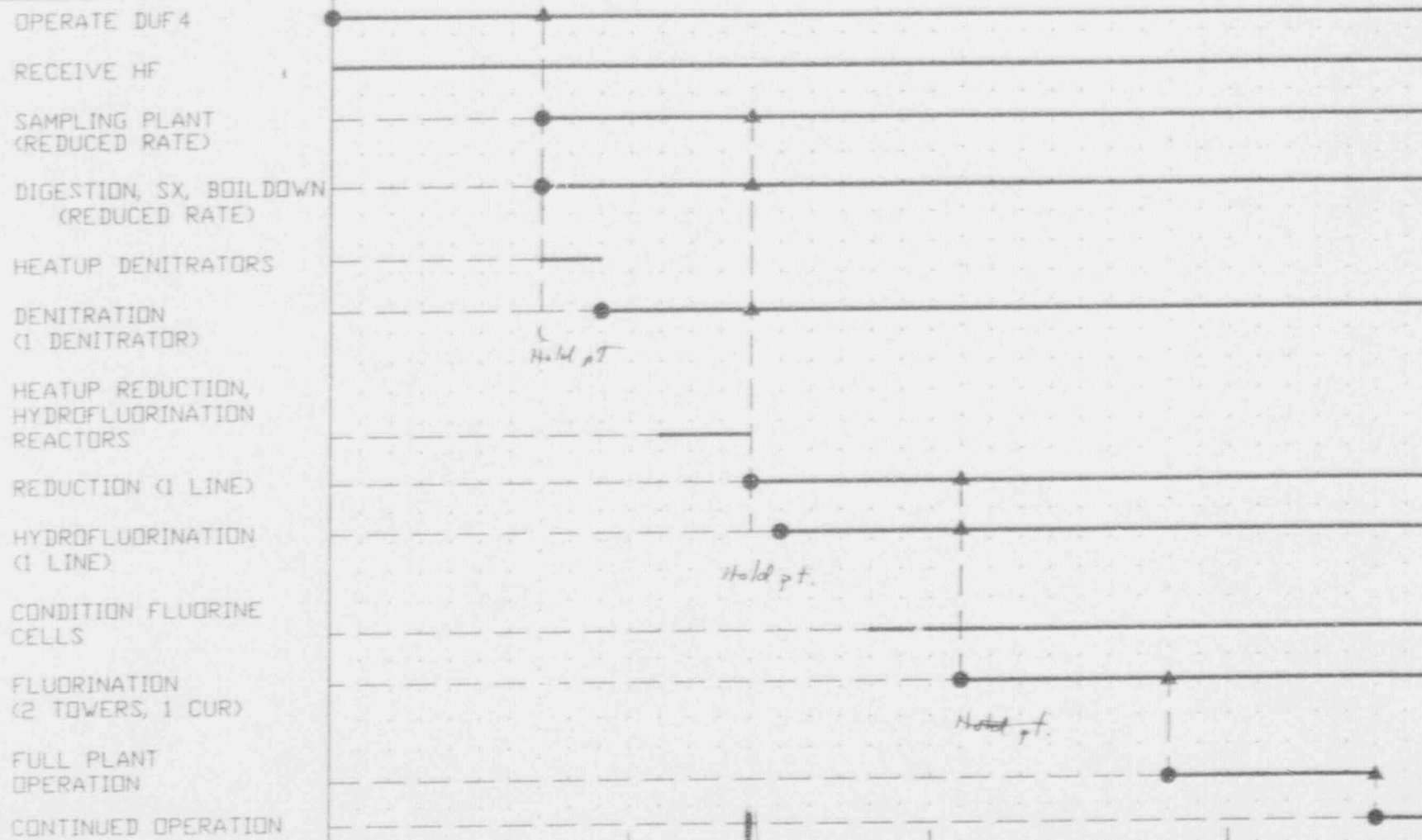
### PLANT READINESS REVIEW

- ° OBJECTIVE:
  - VERIFY PLANT, STAFF, EQUIPMENT READY FOR OPERATION
- ° ELEMENTS:
  - HEALTH AND SAFETY AND RADIOLOGICAL EVALUATIONS
  - REGULATORY EVALUATION
  - PROFESSIONAL PERFORMANCE EVALUATION
  - PLANT EVALUATION
- ° PROCESS
  - RECOMMENDATION BY MANAGER OF OPERATIONS
  - REVIEW BY PORC
    - PRE-OPERATIONAL
    - POST-OPERATIONAL
  - REVIEW BY PLANT EXECUTIVE COMMITTEE
  - APPROVED BY PRESIDENT
  - ADVANCE TO NEXT LEVEL OF OPERATIONS

5-4

# PHASED STARTUP

- ▲ EVALUATE
- START ACTIVITY  
PENDING EVALUATION



Key \*

Key \*

OR  
Key \*

HPE 1

## HEALTH, SAFETY AND RADIOLOGICAL EVALUATION

### ° OBJECTIVES

- DEMONSTRATE SENSITIVITY TO CONTAMINATION CONTROL AND ALARA
- DEMONSTRATE ABILITY TO OPERATE WITH MINIMAL ENVIRONMENTAL IMPACT

### ° PERFORMANCE INDICATORS

- INDIVIDUAL EMPLOYEE MAXIMUM RADIATION EXPOSURE FROM HIGH RADIATION AREA ACTIVITIES

*no individual  $\geq 100$  mR*

VALUE - <100 MR/MONTH *to ask receivers in HIF stage*

- NUMBER OF PERSONNEL CONTAMINATION INCIDENTS IN EXCESS OF ADMINISTRATIVE LIMITS

VALUE - 5/MONTH

NUMBER OF UNPLANNED RADIOLOGICAL RELEASES

VALUE - 0

- NUMBER OF LOST TIME ACCIDENTS PER 200,000 MANHOURS WORKED

VALUE - 1

- NUMBER OF BIOASSAYS IN EXCESS OF 10 MICROGRAMS URANIUM PER LITTER

VALUE - 5/MONTH

- NUMBER OF PERSONNEL WITH GREATER THAN 10 MPC HOURS PER MONTH

VALUE - 5

*tighter than  
last yrs exposure  
but achievable*

HEALTH, SAFETY AND RADIOLOGICAL EVALUATION (CON'T.)

CRITERIA (CON'T)

- NUMBER OF WEEKLY SMEAR SAMPLES IN EXCESS OF 500 DPM/100 CM<sup>2</sup> ALPHA AND 1,000 DPM/100 CM<sup>2</sup> BETA IN UNRESTRICTED AREAS

VALUE - 0

- NUMBER OF POSITIVE INDICATIONS FROM VISUAL CONTAMINATION SURVEYS

VALUE - 100/MONTH

*1/20/71, HP team looks for it, a liter in drip pan into some type of containment vessel.*

- NUMBER OF FIXED AREA AIR SAMPLES IN EXCESS OF 1 MPC DURING A MONTH

VALUE - 20/MONTH

- PACKING LEAKS WHICH CAUSE CONCENTRATIONS IN EXCESS OF 0.5 MPC

VALUE - 5/MONTH

- LEVEL OF DISCHARGE FROM COMBINATION STREAM

VALUE - 10 MG URANIUM PER LITER

- NUMBER OF FENCELINE AIR MONITORING POINTS EXCEEDING ADMINISTRATIVE LEVEL OF 0.5 MPC

VALUE - 0

## REGULATORY EVALUATION

### ° OBJECTIVE

- DEMONSTRATE ABILITY TO OPERATE CONSISTENT WITH REGULATORY GUIDELINES AND LIMITS

### ° PERFORMANCE INDICATORS

- NUMBER OF SELF-IDENTIFIED VIOLATIONS OF NRC REQUIREMENTS RELATED TO PLANT OPERATIONS
- NUMBER OF NRC REPORTABLE EVENTS RELATED TO PLANT OPERATIONS

REVIEWED BY NUMBER AND SERIOUSNESS OF  
EVENTS AND VIOLATIONS)

## PROFESSIONAL PERFORMANCE VALUATION

### ° OBJECTIVES

- DEMONSTRATE ADHERENCE TO OPERATIONS AND HEALTH & SAFETY PROCEDURES
- VALIDATE NEW PROCEDURES

### ° PERFORMANCE INDICATOR

- PROCEDURAL VIOLATIONS PER OBSERVATION PERIOD,  
RELATED TO SAFETY OF PLANT OPERATIONS

VALUE - < 4/WEEK



## PLANT READINESS AND PERFORMANCE REVIEW

### ° OBJECTIVE

- VERIFY EQUIPMENT, STAFF AND PROCEDURE READINESS

### ° PERFORMANCE INDICATORS

#### - POST-OPERATION REVIEW

- CLEAR ALL SAFETY RELATED PRIORITY 1 AND EMERGENCY WORK ORDERS
- SUPERVISOR WALK DOWN OF AREA
  - HOUSEKEEPING
  - POTENTIAL SAFETY ISSUES
  - EQUIPMENT PERFORMANCE
  - RECOMMENDATIONS TO ALLOW CONTINUED OPERATION

#### - PRE-OPERATIONAL REVIEW

- NO EMERGENCY WORK ORDERS OUTSTANDING
- NO SAFETY RELATED PRIORITY 1 WORK ORDERS OUTSTANDING
- REVIEW STATUS OF OPERATING PROCEDURES
- OPERATORS CERTIFICATION STATUS
- PRE-START-UP CHECKLISTS COMPLETE
- SUPERVISOR WALK DOWN OF AREA
  - HOUSEKEEPING
  - POTENTIAL SAFETY ISSUES
  - EQUIPMENT READINESS STATUS
  - RECOMMENDATIONS TO ALLOW START-UP



**SEQUOYAH FUELS**  
CORPORATION

# SEQUOYAH FUELS CORPORATION ACTION PLAN

9201160002

J-2

**SEQUOYAH FUELS CORPORATION**

**ACTION PLAN**

**January 10, 1992**

## TABLE OF CONTENTS

|     |                                                                                      |    |
|-----|--------------------------------------------------------------------------------------|----|
| 1.0 | <u>INTRODUCTION</u> . . . . .                                                        | 1  |
| 1.1 | <u>Background and Objective</u> . . . . .                                            | 1  |
| 2.0 | <u>Geochemical Study Action Plan (GSAP)</u> . . . . .                                | 3  |
| 2.1 | <u>Introduction and Objectives</u> . . . . .                                         | 3  |
| 2.2 | <u>Investigations</u> . . . . .                                                      | 4  |
| 2.3 | <u>Action Plan Tasks</u> . . . . .                                                   | 5  |
| 3.0 | <u>GROUNDWATER ACTION PLAN (GWAP)</u> . . . . .                                      | 7  |
| 3.1 | <u>Introduction and Objectives</u> . . . . .                                         | 7  |
| 3.2 | <u>Investigations</u> . . . . .                                                      | 9  |
| 3.3 | <u>Action Plan Tasks</u> . . . . .                                                   | 12 |
| 4.0 | <u>UNDERGROUND UTILITY ACTION PLAN (UUAP)</u> . . . . .                              | 16 |
| 4.1 | <u>Introduction and Objectives</u> . . . . .                                         | 16 |
| 4.2 | <u>Investigations</u> . . . . .                                                      | 19 |
| 4.3 | <u>Action Plan Tasks</u> . . . . .                                                   | 20 |
| 5.0 | <u>SURFACE WATER ACTION PLAN (SWAP)</u> . . . . .                                    | 25 |
| 5.1 | <u>Introduction and Objectives</u> . . . . .                                         | 25 |
| 5.2 | <u>Investigations</u> . . . . .                                                      | 26 |
| 5.3 | <u>Action Plan Tasks</u> . . . . .                                                   | 27 |
| 6.0 | <u>SOILS ACTION PLAN (SAP)</u> . . . . .                                             | 30 |
| 6.1 | <u>Introduction and Objectives</u> . . . . .                                         | 30 |
| 6.2 | <u>Investigations</u> . . . . .                                                      | 31 |
| 6.3 | <u>Action Plan Tasks</u> . . . . .                                                   | 33 |
| 7.0 | <u>OPERATIONS ACTION PLANS (OAPs)</u> . . . . .                                      | 37 |
| 7.1 | <u>Introduction</u> . . . . .                                                        | 37 |
| 7.2 | <u>Floor Inspections and Repairs</u> . . . . .                                       | 37 |
| 7.3 | <u>Pond 2 Actions</u> . . . . .                                                      | 38 |
| 7.4 | <u>Facility Effluent/Wastewater Treatment and Uranium Recovery Project</u> . . . . . | 38 |
| 7.5 | <u>Laundry Room Relocation</u> . . . . .                                             | 40 |
| 7.6 | <u>Impoundment Evaluation Program</u> . . . . .                                      | 41 |

## LIST OF TABLES

### Table

- 1 AP Task Description and Status Summary
- 2 Implementation Schedule

## LIST OF FIGURES

### Figure

- 1 Location of SX Vault Subfloor Monitor and Recovery Wells

## LIST OF ACRONYMS

|       |                                                 |
|-------|-------------------------------------------------|
| ALARA | As Low As Reasonably Achievable                 |
| AP    | Action Plan                                     |
| CD    | Combination Stream Drain                        |
| EPA   | Environmental Protection Agency                 |
| FEI   | Facility Environmental Investigation            |
| GWAP  | Groundwater Action Plan                         |
| GWMP  | Groundwater Monitoring Plan                     |
| LS    | Leaching Study                                  |
| MPB   | Main Process Building                           |
| MPC   | Maximum Permissible Concentration               |
| MW    | Monitor Well                                    |
| NPDES | National Pollutant Discharge Elimination System |
| NRC   | Nuclear Regulatory Commission                   |
| OAP   | Operations Action                               |
| OML   | Order Modifying License                         |
| OWRB  | Oklahoma Water Resources Board                  |
| RAB   | Restricted Area Boundary                        |
| RW    | Recovery Well                                   |
| SAP   | Soil Action Plan                                |
| SFC   | Sequoyah Fuels Corporation                      |
| SWAP  | Surface Water Action Plan                       |
| SX    | Solvent Extraction                              |
| TM    | Trench Monitor                                  |
| UUAP  | Underground Utilities Action Plan               |
| UUMP  | Underground Utilities Monitoring Plan           |



SEQUOYAH FUELS CORPORATION  
ACTION PLAN  
January 10, 1992

1.0 INTRODUCTION

1.1 Background and Objective

The Sequoyah Fuels Corporation (SFC) has prepared this Action Plan (AP) in response to the findings of the Facility Environmental Investigation (FEI) and related investigations. The scope of the AP is to define response actions principally for licensed material released or potentially releasable at the Sequoyah Facility. Investigations relative to other constituents, such as nitrate, molybdenum and arsenic, are ongoing. Actions which may result from these investigations are not addressed by this AP.

The purpose of the AP is to describe the actions implemented, define the actions to be implemented at the Sequoyah Facility, and provide an implementation schedule. The specific objectives and rationale for actions associated with a geochemical evaluation and with limiting potential environmental migration pathways including groundwater, underground utilities, surface water, and soils are presented in Sections 2.0 through 6.0. Additionally, action plans for the Sequoyah Facility operations relevant to reducing environmental release potential are presented in Section 7.0. In general, the objectives of the AP include:

1. Limit migration of uranium beyond the restricted area boundary (RAB) in groundwater, in underground utility trench porewater, and from soils;
2. Recover uranium from the groundwater and utility trench soil porewater to reduce the uranium content and lessen migration potential;
3. Limit the uranium concentration in the surface water exiting the RAB;
4. Determine the mobility and/or leachability potential of uranium compounds in the soils/groundwater at SFC.
5. Limit the contribution of licensed material from operational activities in order to supplement, support, and enhance the effectiveness of the other actions; and
6. Monitor the effectiveness of the actions implemented.

The actions identified in the above referenced sections are summarized in Table 1. A brief status indication for each action as implemented, initiated, or to be implemented is provided in the cable, together with an AP section reference for more descriptive information.

Priority of scheduling was determined by assessing the potential for environmental impact, determining a logical progression and sequence of work projects based upon interdependence or relationship, and with consideration of

budgeting constraints. The implementation schedule is presented in Table 2.

## 2.0 Geochemical Study Action Plan (GSAP)

### 2.1 Introduction and Objectives

The Groundwater Geochemistry Study performed during the FEI found that there is a mobility potential for uranium as a result of speciation and solubility. Further geochemical study was recognized as an important avenue to additional information about the relative mobility and species of uranium. This study could also provide data concerning the geochemical properties of groundwater, underground utility trench porewater, and soils at the Sequoyah Facility.

Based upon the FEI findings, a Geochemical Study Action Plan (GSAP) has been developed. The objectives of the GSAP are to:

1. Determine species of uranium associated with the process;
2. Characterize the adsorption potential in subsurface media to help quantify uranium removal;
3. Define the mobility potential in media such as groundwater, underground utilities trench porewater, trench fill material, excavated soils, and in-situ soils; and
4. Evaluate the adequacy of the measures taken to limit further licensed material migration, based upon the As-Low-As-Reasonably-Achievable (ALARA) philosophy.

## 2.2 Investigations

A discussion of the Groundwater Geochemistry Study is presented in the FEI Findings Report. A summary of the Groundwater Geochemical Study from FEI findings is presented here. The purpose of the geochemistry investigation was to determine the relative mobility and species of uranium contained in groundwater, underground utility trench porewater, and soils at the Sequoyah Facility. Specific objectives of the study included:

1. Characterization of dissolved uranium concentrations in trench backfill porewater, shallow shale/terrace groundwater, and deep sandstone/shale groundwater;
2. Definition of the migration potential of uranium based on groundwater geochemistry; and
3. Evaluation of uranium geochemistry along the groundwater-flow path.

Results of the saturation index calculations indicate that groundwater generally is undersaturated with respect to uranyl minerals and that dissolution of these minerals is predicted to occur. Since these uranyl minerals have a high solubility, it is likely that elevated concentrations of uranium will remain in the solution.

Groundwater is predicted to be oversaturated with respect to  $\text{Fe}(\text{OH})_3$ , which is an important adsorbent for uranium. It is

possible that uranium may be partly removed from solution through adsorption processes at the Sequoyah Facility. Further laboratory leaching studies and mineralogical characterization are required to quantify uranium removal due to adsorption by the subsurface formations.

## 2.3 Action Plan Tasks

### 2.3.1 Tasks Implemented

Two (2) GSAP tasks were implemented during the FEI Groundwater Geochemistry Study. These tasks were geochemical modelling of uranium, and review of technical information for assessing the feasibility of uranium recovery from impacted soils. The implemented tasks are described in more detail in the following section.

#### 2.3.1.1 Geochemical Modelling

A geochemical modelling study was conducted as part of the FEI activities and indicated that uranium in groundwater exists mainly as anionic complexes which are soluble in Sequoyah Facility groundwater. However, there were several areas where uranium is predicted to be oversaturated with respect to  $U_3O_8$ ,  $U_4O_9$ ,  $B-UO_2(OH)_2$ , schoepite, rutherfordine, uraninite, and  $USiO_4$ . Uranium in these areas (MPB, SX Building, and Combination Stream Drain trench) is likely being removed from solution through a precipitation process. Significant removal of uranium from solution through adsorption with ferric

oxyhydroxide ( $\text{Fe}(\text{OH})_3$ ) and adsorption with the geologic formation clays and shales is also predicted to occur naturally at the Sequoyah Facility.

#### 2.3.1.2 Technical Information Review

Technical information review assessing the feasibility of in-situ uranium recovery was performed. The site characterization information completed during the FEI strongly suggests that in-situ uranium recovery will not be feasible due to the site's geological characteristics. Technical information will continue to be reviewed and further evaluation performed based upon the ALARA philosophy as information becomes known.

#### 2.3.2 Tasks to be Implemented

##### 2.3.2.1 Introduction and Scope

One (1) GSAP task detailed below will be implemented to accomplish a leaching study to determine the effect of the subsurface material properties on the mobility of licensed material.

##### 2.3.2.2 Leaching Study (LS)

The objective of the Leaching Study (LS) is to determine the effect of the subsurface material properties on the mobility of licensed material, and to complete the characterization of mobility of licensed material in the groundwater system and in



the soil systems. Additionally this information will be combined with the results of the FEI geochemistry findings to characterize the mobility of licensed material at the Sequoyah Facility. This information will then be used to assess the feasibility of uranium recovery from impacted soils.

### 3.0 GROUNDWATER ACTION PLAN (GWAP)

#### 3.1 Introduction and Objectives

The FEI characterized the groundwater system and presence of licensed material in the Sequoyah Facility groundwater system. The groundwater investigation indicated that limited areas of the groundwater system at the Sequoyah Facility are impacted, and the impacts are generally in the Main Process Building (MPB) and Solvent Extraction (SX) Building areas, which are well within the site boundaries.

Based upon the FEI findings, a groundwater action plan (GWAP) has been developed. The GWAP objectives are to:

1. Limit migration of uranium in the groundwater beyond the RAB;
2. Recover uranium from the groundwater system to reduce the uranium content in the groundwater; and
3. Monitor the effectiveness of the GWAP.

Substantive GWAP tasks have been implemented to date. The additional tasks to be implemented to accomplish the GWAP



objectives have been defined. The GWAP tasks implemented and to be implemented are presented in Section 3.3.

Based on the groundwater system characterization completed during the FEI, limiting migration is technically feasible. Based upon groundwater flowrates determined in the FEI, limiting uranium migration beyond the RAB is justifiable as a prudent and sufficient level of response at this time. No environmental receptors, including domestic water users, have been impacted or are threatened with impact from uranium migration via the groundwater pathway.

The FEI characterization information indicates that limiting migration of uranium in the groundwater system beyond the RAB can be accomplished by installing groundwater recovery wells. Removing groundwater should change the flow direction and/or flow potential. There are three (3) such recovery wells existing, and it is anticipated that two (2) additional recovery wells will be installed. Limiting migration in this manner removes uranium impacted groundwater and therefore reduction of uranium content in the groundwater system. The removal of uranium also lessens the potential for uranium migration by reducing the uranium source in the groundwater system. These actions will meet the first two (2) objectives set forth in the AP.

### 3.2 Investigations

The comprehensive characterization of the groundwater system, which includes the determination of extent of licensed material in the groundwater system, is presented in the FEI Findings Report. A summary of the FEI findings follows.

A detailed facility-wide groundwater and soils investigation was conducted to determine the quantity and extent of licensed material and other constituents in Sequoyah Facility groundwater and soils. The FEI activities included installation of seventy-nine (79) shallow shale/terrace groundwater monitoring wells, seventy-eight (78) deep sandstone/shale wells, one (1) groundwater recovery well, two (2) combination stream drain (CD) recovery wells, and three (3) CD trench monitoring wells. In addition, approximately ninety-nine (99) lithological characterization borings were drilled for the purpose of defining the extent and quantity of licensed material and associated constituents in groundwater and associated subsurface soils at the Sequoyah Facility.

Isopleth maps showing the levels of uranium in the groundwater system were prepared. The uranium isopleth maps indicated that limited areas of groundwater at the Sequoyah Facility were impacted, and the impacts were generally in the MPB and SX Building areas. The uranium was fully defined in the shallow shale/terrace and deep sandstone/shale groundwater

systems at the Sequoyah Facility, and no uranium has migrated through the groundwater beyond the Sequoyah Facility property boundary.

The sufficiency of the vertical extent of the investigation is evidenced by several factors. First, the deep lithological borings were completed to average depths of 30 feet, with several of the borings completed to depths of 40 feet. Analysis results for soils or bedrock in these borings indicate that a trend of decreasing uranium concentration with increasing depth exists at the Sequoyah Facility. Background uranium concentrations were reached in all borings by a maximum depth of 36 feet, except for two (2) borings (BH-12A and BH-97A) in the lower sandstone/shale unit which exhibited slightly detectable uranium concentrations of 29.0  $\mu\text{g/g}$  at 32 feet and 24  $\mu\text{g/g}$  at 41 feet, respectively. Therefore, based upon this analysis data, the probability is low that significant migration in the deeper units (i.e., deeper than the lower sandstone/shale unit) has occurred.

The second factor which indicates sufficient vertical investigation of the subsurface is that uranium present, if any, in the zones deeper than the lower sandstone/shale unit can be expected to behave similarly to the uranium already characterized in the lower sandstone/shale unit. This expectation is based on the following facts: 1) flow

direction in the two (2) units investigated, the upper terrace/shale unit and lower sandstone/shale unit, have been shown conclusively to be similar in that flow direction conforms to bedrock topography and, therefore, flow direction can be confidently assumed to be similar in the deeper zones; and 2) several hydraulic conductivity measurements of subsurface material similar to that present in the deeper zones indicate that groundwater flow rates in the lower sandstone/shale unit and deeper zones will be similar. Further, the documented trend of decreasing uranium concentration with increasing depth, together with the similar flow dynamics, indicate that the lateral extent of uranium in the deeper units will be much less extensive than that in the lower sandstone/shale unit.

The final factor confirming the sufficient vertical extent of the SFC groundwater investigation is that several monitoring wells installed in peripheral locations characterize the unit below (i.e., deeper than) the lower sandstone/shale unit. These peripheral monitoring wells have been installed in downgradient locations which have experienced long term geological erosion. Due to the geological erosional process occurring in these areas, a portion of the upper terrace/shale unit has eroded away; therefore, the monitoring wells installed in these locations have been completed in a deeper unit than those deep monitoring wells installed in the MPB and

SX Building areas. Data from these wells have established a peripheral boundary for the extent of uranium migration at the Sequoyah Facility.

Therefore, based upon the factors described above, the groundwater investigation completed at the Sequoyah Facility adequately characterizes the subsurface, and SFC is not proposing any additional investigation of uranium releases to the deeper subsurface units.

### 3.3 Action Plan Tasks

#### 3.3.1 Tasks Implemented

##### 3.3.1.1 Introduction and Scope

Two (2) GWAP tasks were implemented during the FEI and included installation and operation of an SX vault subfloor monitor, and the installation and operation of a groundwater recovery well southwest of the MPB. The implemented GWAP tasks are discussed in detail in the following subsections.

##### 3.3.1.2 SX Vault Subfloor Monitor

The SX vault was built around two 40,000 gallon, below-grade, storage tanks. A groundwater recovery monitor was installed through the floor of the SX vault which is 12 feet below the surface. The monitor was installed to recover uranium from the groundwater system and to subsequently reduce the groundwater uranium concentrations in the area near the SX

Building, as well as to prevent uranium migration from the vicinity of the SX Building by creating a cone of depression in the groundwater table. The SX monitor consists of a twenty-six (26) inch diameter pipe installed approximately six (6) feet below the vault floor at the base of the upper terrace/shale unit. From August 16, 1990, through September 18, 1991, it has been estimated that 132,000 gallons of liquid and approximately 366 kilograms of uranium were recovered from the monitor. The recovered water is managed by rerouting the water through the SX process.

#### 3.3.1.3 MPB Recovery Well

On January 16, 1991, recovery well MW-RW-2 was installed to the southwest of the MPB (Figure 1). The purpose for installation of Recovery well MW-RW-2 was to limit and prevent further migration of uranium beyond the RAB and to recover elevated levels of uranium from the ground water found in this area. The recovery well features a submersible pump with automatic cycle as well as manual on/off controls and an operating capacity of 10 gpm. The recovered water is transferred to the clarifier system for management. The operation of MW-RW-2 should create a cone of depression in the water table surface, thereby limiting migration away from the recovery well. MW-RW-2 was installed to a depth of 17.3 feet through 0.5 feet of clay silt, 15.0 feet of gravelly silt clay, and 1.8 feet of weathered shale. MW-RW-2 has been in

operation since July 18, 1991. From July 18, 1991 through September 25, 1991, 30,540 gallons of groundwater were removed, as well as approximately 2 kilograms of uranium.

### 3.3.2 Tasks to be Implemented

#### 3.3.2.1 Introduction and Scope

Three (3) GWAP tasks detailed below will be implemented to accomplish the GWAP objectives:

1. Evaluate locations and install a groundwater recovery well west of the RAB in the vicinity of the Emergency Basin (Figure 1);
2. Evaluate locations and install a groundwater recovery well in the vicinity of the North Fluoride Sludge Basin #2 (Figure 1); and
3. Develop a Groundwater Monitoring Plan (GWMP) for the newly installed groundwater monitor well system.

#### 3.3.2.2 Emergency Basin Area Recovery Well

A complete groundwater sampling event is planned for March, 1992. After evaluating the results with previous analyses, a final location for a recovery well will be selected west of the Emergency Basin, outside the RAB. Preliminary groundwater samples collected from the upper groundwater system in this area indicated uranium concentrations ranging from  $<5.0 \mu\text{g/L}$  to  $395.0 \mu\text{g/L}$ . The purpose of this recovery well is to limit migration of uranium through the groundwater in this area and



to reduce the uranium concentration in the groundwater. The recovery well will be installed in the upper terrace/shale groundwater system. The well will feature a submersible pump with automatic cycle as well as manual on/off controls. After start-up, the performance of the recovery well will be monitored to determine the yield. Also, any effect on monitoring wells in the vicinity will be examined to determine the radius of influence for the new recovery well. The recovered groundwater will be managed through the wastewater management system(s) at the facility.

#### 3.3.2.3 Fluoride Sludge Basin #2 Area Recovery Well

A complete groundwater sampling event is planned for March 1992. After evaluating these results with previous analyses, a final location for a recovery well will be selected in the vicinity of the north Fluoride Sludge Basin #2. Preliminary groundwater samples collected from the lower groundwater system in this area indicated uranium concentrations ranging from  $<5.0 \mu\text{g/L}$  to  $587.0 \mu\text{g/L}$ . The purpose of this recovery well is to limit migration of uranium through the groundwater in this area and to reduce the uranium concentration in the groundwater. The recovery well will be installed into the deeper sandstone/shale groundwater system. The well will feature a submersible pump with automatic cycle as well as manual on/off controls. After start-up, the performance of the recovery well will be monitored to determine the yield.



Also, any effect on monitoring wells in the vicinity will be examined to determine the radius of influence for the new recovery well. The recovered groundwater will be managed through wastewater management system(s) at the facility.

#### 3.3.2.4 Groundwater Monitoring Plan

Data from the initial groundwater monitoring system continues to be evaluated and data from the new groundwater monitoring wells installed after September 1990 are being evaluated. Based on these evaluations, SFC will select the wells which will constitute a new system. To support the new system, a Groundwater Monitoring Plan is being developed and will be submitted to the NRC when it is completed.

### 4.0 UNDERGROUND UTILITY ACTION PLAN (UUAP)

#### 4.1 Introduction and Objectives

Sequoyah Facility underground utilities were located and assessed as part of the FEI activities. The backfill soils around these underground utilities have been determined to be a preferential migration pathway for licensed material. The FEI findings document that varying levels of licensed material are present in some underground utility backfill soils and porewaters. The underground utility investigation activities and the investigation findings are presented in detail in the FEI Findings Report.

Based upon the investigation findings, an Underground Utility Action Plan (UUAP) has been developed. The objectives of the UUAP are to:

1. Limit migration of uranium in underground utility trenches beyond the RAB; and
2. Recover uranium from underground utility trenches to reduce uranium content in soil porewater and to reduce uranium migration potential.

Several UUAP tasks have already been implemented. Other tasks yet to be implemented to accomplish the UUAP have been defined. UUAP tasks implemented and to be implemented are presented in Section 4.3.

Based on the underground utility investigation completed during the FEI, implementation of responses to limit migration of uranium beyond the RAB via underground utility trench porewater is justifiable as a prudent and sufficient level of response at this time. Impacted underground utility trench porewater, if allowed to migrate unchecked, could possibly discharge to groundwater or to surface water. As described in the GWAP, Section 3.0, uranium transport to groundwater and to a subsequent surface water discharge point potentially could result in contact with environmental receptors. Therefore, limiting uranium migration is sufficient and prudent to

protect hypothetical environmental receptors via the underground utilities pathway.

In addition, limiting uranium migration is technically feasible through the installation of hydraulic barriers and utility trench monitors. Hydraulic barriers have been installed in underground utility trenches at eighteen (18) locations. The barriers limit the migration of porewater in the porous underground utility backfill materials and collect migrating porewater upgradient of the barrier. Trench monitors, installed in 23 locations, provide porewater storage capacity and allow efficient removal of the porewater. A result of limiting migration in this manner is removal of uranium impacted porewater and, therefore, reduction of uranium content in the utility porewater. The removal of uranium also lessens the potential for uranium migration by reduction of the uranium source in the underground utility system. This accomplishes the second underground utilities objective, which is the recovery of uranium from utility trenches to reduce uranium content in the porewater.

#### 4.2 Investigations

A discussion of the underground utility investigation and findings is presented in the FEI Findings Report. A summary of the underground utility FEI findings is presented here.

The FEI underground utility investigation characterized the quantity and location of licensed material in the subsurface fill soils in the underground utility trenches. As a result, twenty-seven (27) utility trench excavations were performed to investigate migration potential.

As a result of these FEI investigation activities, eighteen (18) hydraulic barriers and twenty-three (23) trench monitors were installed to limit the migration of porewater as well as to recover porewater containing licensed material. These AP tasks are discussed further in Section 4.3.

A primary underground utility present at the Sequoyah Facility is the Combination Stream Drain (CD), and investigation of the CD constituted another major FEI effort. Two (2) extensive CD investigations, one (1) internal and one (1) external, were performed during the FEI.

The internal investigation identified all waste streams contributing to the CD and clarified the operational dynamics of the CD. Two (2) flow and sampling events were completed to

characterize the CD wastestream. The CD characterization investigation determined that the major uranium loading is from the cooling tower equalization basin. Along the CD, the potential sources of inflow with the greatest uranium concentration include the sanitary sump and cooling water hot side basin. The internal investigation also determined, through the use of pulling a video camera inside the drain, that no measurable infiltration into the CD or exfiltration out of the CD was occurring. The uranium limit applicable to the CD permitted outfall (001) was never exceeded or approached during the FEI investigation.

#### 4.3 Action Plan Tasks

##### 4.3.1 Tasks Implemented

##### 4.3.1.1 Introduction and Scope

Five (5) UUAP tasks were implemented during the Sequoyah Facility FEI. These tasks were installation of hydraulic barriers in underground utilities, installation of trench monitors in underground utilities, installation of trench recovery wells in the CD trench, installation of a hydraulic barrier and trench monitor in an abandoned underground utility associated with a past operation unit (Unit 3), and review of underground utility drawings. The implemented tasks are described in more detail in the following subsection.

#### 4.3.1.2 Installation of Hydraulic Barriers

Hydraulic barriers were installed in underground utility trenches at eighteen (18) locations. These hydraulic barriers are designed and constructed to limit the migration of water in the porous sand fill surrounding the utility lines and to allow collection of migrating water upgradient of the barrier. The design of the hydraulic barriers consists of formed and poured concrete across the utility trench and into the trench side walls and bottom. The utility hydraulic barriers have been effective in preventing migration of licensed material in the utility trenches. Locations can be found in Figure 18 of the FEI.

#### 4.3.1.3 Installation of Trench Monitors

Another underground utility task implemented was the installation of twenty-three (23) trench monitors. The trench monitor design includes a perimeter gravel backfill around the trench monitor to provide local storage capacity and allow efficient removal of the porewater. The frequency and volume of pumping from the trench monitors is dictated by the hydrogeological properties of the subsurface and by surface-related influences such as storm water infiltration. Trench monitors are normally sampled weekly for uranium removal calculations. Pumping from the trench monitors is typically performed on a weekly frequency to recover licensed material

and porewater in the trench backfill materials, thus limiting further migration.

From September 10, 1990, through September 19, 1991, the underground utility trench monitor recovery program resulted in the removal of 137,154 gallons of porewater containing 8.9 kilograms of uranium. The system of utility trench monitors allows the recovery of porewater which is effectively preventing further migration of licensed material in the trench backfill soils.

#### 4.3.1.4 Installation of Trench Recovery Wells

A third underground utility task implemented was the installation of trench recovery wells at two (2) locations along the CD. The trench recovery wells function to recover porewater from the CD trench and to limit migration of licensed material in the CD trench beyond the RAB. The locations of trench recovery well MW-RW-1T, installed in November 1990, and MW-RW-3T, installed in March 1991, are shown in Figure 1. Recovery well MW-RW-1T is located inside the RAB fence on the south side of the yellowcake storage pad. Recovery well MW-RW-3T is located northwest of the SX Building. From January 31, 1991 through September 25, 1991, 12,961 gallons of water was pumped from the CD trench for a total of approximately 2 kilograms of uranium removed. Some consideration has been given to installing a third recovery



well in the CD trench, but the installation and operation of a third recovery well could potentially cause migration of licensed material across the RAB. Therefore, SFC intends to thoroughly evaluate the effectiveness of the two (2) existing recovery wells before installing a third recovery well in the CD trench.

#### 4.3.1.5 Installation of Hydraulic Barriers and Trench Monitors for an Abandoned Unit 3 Utility

Another underground utility action plan task implemented was the installation of hydraulic barriers and trench monitors at two (2) locations along an old abandoned underground line leading to a past operation unit designated as Unit 3, the Initial Lime Neutralization Area. Operation of Unit 3 ceased in the early 1970's. During the FEI, Unit 3 was comprehensively investigated and, although inactive, the open underground line was recognized as a potential migration pathway. The investigation of this underground utility line did not indicate the migration of licensed material. The purpose of the installed hydraulic barriers and trench monitors is to allow future monitoring and assessment of environmental conditions relative to this area.

#### 4.3.1.6 Utility Drawings Review

Comprehensive underground utility drawings for the Sequoyah Facility were prepared in the course of the FEI. The



preparation of accurate and complete utility drawings identifying all active and inactive underground utilities enabled evaluation of utility lines for migration pathway potential. In order to develop the utility drawings, facility construction and as-built drawings were reviewed to locate underground utilities. Aerial and ground survey data collected during the FEI were also reviewed for use in preparation of the drawings.

#### 4.3.2 Tasks To Be Implemented

##### 4.3.2.1 Introduction and Scope

Two (2) UUAP tasks have been defined to accomplish the objectives of the action plan. These UUAP tasks include:

1. Plugging, abandonment, and replacement of an underground sanitary sewer pipeline;
2. Development of an Underground Utility Monitoring Plan.

##### 4.3.2.2 Sanitary Sewer Pipeline Plugging, Abandonment, and Replacement

An existing underground Sanitary Sewer pipeline leading to the sanitary lagoon has been identified as a potential licensed material migration pathway. The action task to be implemented is to plug the pipeline and abandon it in place. The pipeline will be replaced with above ground piping following the laundry relocation (7.5) and the installation of a sanitary drain lift station.

#### 4.3.2.3 Develop Underground Utility Monitoring Plan

A written Underground Utility Monitoring Plan (UUMP) for all underground utility trench monitors will be developed. The plan will establish written procedures which will allow SFC to monitor and evaluate the performance of all utility trench monitors installed at the Sequoyah Facility. As indicated previously, SFC is actively removing liquids from trench monitors on a scheduled basis.

### 5.0 SURFACE WATER ACTION PLAN (SWAP)

#### 5.1 Introduction and Objectives

The FEI defined the surface water runoff flow paths at the Sequoyah Facility. In addition, the flow rates and concentrations of constituents in the surface water were characterized during the FEI by conducting monitoring at 20 locations. The investigation findings and conclusions are presented in detail in the FEI Findings Report. The uranium concentrations at all 20 surface monitoring sites were well below the 10 CFR 20 maximum permissible concentration (MPC) of 45 mg/L for release of liquids to unrestricted areas.

In response to the FEI findings, a Surface Water Action Plan (SWAP) has been developed. This SWAP also incorporates the pre-FEI changes to the surface water management system. The objectives of the SWAP are to:

1. Reduce the concentrations of uranium in the surface water exiting the RAB based upon the ALARA philosophy; and
2. Fully implement the surface water management system modification program that was initiated prior to the FEI.

Several SWAP tasks have already been implemented. The tasks that are to be implemented in the future have also been defined. The SWAP tasks that have already been implemented, and the tasks to be implemented are defined in Section 5.3.

## 5.2 Investigations

The surface water investigation findings are presented in the FEI Findings Report. A summary of these findings is presented in the following text.

Surface water exits the Sequoyah Facility at well-defined outfalls monitored by SFC. The surface water management system was identified as a specific operational unit (Unit 4) and investigated separately in the FEI.

For purposes of the FEI, a comprehensive network of 20 surface water monitoring stations was established to characterize the surface water exiting the Sequoyah Facility. These monitoring sites included all pertinent outfalls plus additional sites selected at key transitional drainage locations based on a detailed topographic survey and site map developed in the FEI.

Three (3) sampling events to characterize the surface water were performed during separate rainfall events. These events occurred on January 15, 1991 (Event No. 1), March 1, 1991 (Event No. 2) and, October 24, 1991 (Event No. 3).

Uranium concentrations for all monitoring sites during the three events were below the allowable 10 CFR 20 MPC. The Event No. 1 uranium concentrations at the four (4) Sequoyah Facility exit point monitoring sites ranged from < .005 mg/L to .175 mg/L. The Event No. 2 uranium concentrations for these monitoring sites ranged from .062 mg/L to .488 mg/L. The Event No. 3 uranium concentrations for these monitoring sites ranged from <.005 mg/l to .039 mg/l.

### 5.3 Action Plan Tasks

#### 5.3.1 Tasks Implemented

##### 5.3.1.1 Introduction and Scope

Two SWAP tasks were implemented during the investigation of the Sequoyah Facility. The SWAP tasks implemented were the modification of the SFC surface water management system and the diversion of surface water from Unit 10. These two tasks are described in the following text.

##### 5.3.1.2 Surface Water Management System Modification

SFC completed the modification of the surface water management system during the FEI. The modifications made to the system

included rerouting the surface water flows around the perimeter of the Sequoyah Facility to combine the flows and construction of a surface water impoundment to detain all surface water runoff. The new surface water impoundment has a normal capacity of 84.7 acre-ft (27.6 million gallons) and a maximum capacity of 209.9 acre-ft (68.4 million gallons).

#### 5.3.1.3 Unit 10 Surface Water Diversion

During the FEI, it was determined that contaminated soils in the area designated as Unit 10, Ash Receivers and Contaminated Equipment Area, were contributing uranium concentrations to surface water runoff. Therefore, a cut-off barrier was installed using clay with a high plasticity index and the runoff from Unit 10 was diverted to Unit 9, the North Ditch. Data from the third sampling event indicates a reduction of the uranium content as a result of diversions in surface water discharges from the RAB.

#### 5.3.2 Tasks To Be Implemented

##### 5.3.2.1 Introduction and Scope

Two (2) SWAP tasks were defined as tasks to be implemented in order to accomplish the SWAP objectives. These SWAP tasks are to:

1. Complete implementation of surface water management system modifications;

2. Reduce uranium concentrations in Unit 10 and Unit 11 surface water.

#### 5.3.2.2 Modifications to Surface Water Management System

The first task to be implemented is to complete the modifications to the surface water management system. This involves diverting the water from the current Outfall 008 into the new surface water impoundment and moving the monitoring equipment to the relocated outfall. This task will be implemented upon Environmental Protection Agency (EPA) and Oklahoma Water Resources Board (OWRB) approval.

#### 5.3.2.3 Reduction of Uranium Concentrations in Unit 10 and Unit 11 Surface Water

The second task to be implemented is to effectively reduce the uranium concentration in the surface water from Unit 10 and Unit 11. Unit 10 is a drainage area located northeast of the North Ditch, while Unit 11 is a drainage area west of the Emergency Basin. These are the principal areas that were identified in the FEI as contributing to uranium concentrations in surface water runoff. This reduction is proposed to be accomplished by in-place stabilization of the upper six (6) inches of impacted surface soil. Different methods of stabilization will be evaluated and, when this task has been implemented, a reduction of uranium concentrations in the surface water is projected.

## 6.0 SOILS ACTION PLAN (SAP)

### 6.1 Introduction and Objectives

The FEI characterized uranium concentrations in soils at many past and present operational units and other locations at the Sequoyah Facility. Most of the uranium detected at the Sequoyah Facility is located in the uppermost five (5) feet of soil in areas located adjacent to the MPB and SX Buildings within the RAB. These soils have the potential to contribute uranium to the groundwater, surface water, and/or utility trench migration pathways. For the most part, control of this potential will be achieved through the GWA<sup>3</sup>, the SWAP, and the UUAP. However, some soils are not adequately addressed by those plans; hence, a Soils Action Plan (SAP) has been developed. Investigation of soils in some areas is continuing in order to facilitate the implementation of the SAP. Investigation findings to date, as well as continuing investigations, are described in detail in the FEI Findings Report.

The objective of the SAP is to identify responses deemed justified for soils not addressed specifically by groundwater, surface water, and underground utilities action plans in order to (a) limit the migration of uranium from the soils beyond the RAB, or (b) ensure no migration potential exists.



Two (2) SAP tasks have been implemented to date. Additional tasks required to be implemented to accomplish the SAP objectives have also been defined. The SAP tasks implemented to date and those to be implemented are presented in Section 6.3.

## 6.2 Investigations

Investigations and findings related to soils are presented in the FEI Findings Report. A summary of the FEI findings relative to soil investigations is presented below.

During the FEI, several soil characterization activities were performed. These included characterization of soils and sediments at thirteen (13) FEI units, stream drainages, and some miscellaneous areas. From data collected during the FEI unit characterizations, soil uranium isopleths at the Sequoyah Facility were developed for depth intervals ranging from 0 to 30 feet. Analysis of the isopleths indicates most of the uranium in soils is located in the uppermost five (5) feet of soil in the MPB and SX Building areas.

Soil characterizations of stream drainages were also conducted during the FEI. Drainage paths associated with outfalls were sampled on June 10, 1991, and soil uranium concentrations were found ranging from 3.6  $\mu\text{g/g}$  to 220.0  $\mu\text{g/g}$  along the Outfall 005 surface water drainage path. These soil samples were

compared to soil samples collected from the same drainage areas in 1986, and the comparison indicates that uranium levels have decreased substantially from the levels reported in 1986. A comprehensive soil sampling event along the surface water drainage paths which were sampled previously as an FEI activity was performed in September, 1991. Evaluation of this data is not complete. When completed this information will be used to determine further mitigative action if required. Also, water samples from the receiving water body indicate that no effects are measurable. Therefore, no action tasks are planned for these drainages based on results to date.

Another task conducted during the FEI was the characterization of sediment collected from various impoundments at the Sequoyah Facility. Sediment collected from the Decorative Pond indicates uranium levels ranging from 10.0  $\mu\text{g/g}$  to 25.2  $\mu\text{g/g}$ . Sediments collected from the Ammonium Nitrate Lined Pond 3E, Sanitary Lagoon, Emergency Basin, and the North Ditch, had uranium levels ranging from 900  $\mu\text{g/g}$  to 24,200  $\mu\text{g/g}$ . AP tasks specifically associated with these operations impoundments are presented in Section 7.6.

Subsequent to the FEI, soils from a sub-area of Unit 10 and from Unit 20 have also been sampled. The resulting information will assist in the determination of the required

scope of soil stabilization in these areas. Evaluation of this information is not complete at this time.

### 6.3 Action Plan Tasks

#### 6.3.1 Tasks Implemented

##### 6.3.1.1 Introduction and Scope

Three (3) SAP tasks were not previously presented in the AP. Two of these were implemented during the FEI at the Sequoyah Facility between October 1990 and February 1991. They were storage of backfill soils excavated during utility trench investigation activities and development of an action plan for Unit 3 soils. The third, construction of an on-site soil storage cell, was recently completed. All three are described in the following paragraphs.

##### 6.3.1.2 SX Building and MPB Soil Excavation

As part of the investigation activities, utility trenches in the SX Building and MPB areas were excavated. The excavations were performed to install barriers that would limit the migration of licensed material to surface water and groundwater pathways. During the investigation, approximately 3.2 million pounds of soil and backfill soil containing approximately 3,100 pounds of uranium was removed by utility trench and underground tank excavations. Soils collected during the trench excavations were transported to interim storage on the Yellowcake Storage Pad located west of the MPB.

These soils will be relocated to the Soil Storage Cell described in Section 6.3.1.4.

#### 6.3.1.3 Unit 3 Soils Action Plan

During the FEI, an investigation of Unit 3 was completed, and a subsequent SAP was developed. Upon implementation, the SAP will limit the migration of licensed material from Unit 3 soils to surface water and groundwater pathways beyond the RAB. Results from the Unit 3 investigation indicate that approximately 2,500 cubic yards of impacted soils covering an area of 22,000 square feet are located in the Unit 3 area. The action plan developed for Unit 3 is a task to be implemented and includes the excavation of impacted soils and the relocation of the soils to the Soil Storage Cell described in Section 6.3.1.4.

#### 6.3.1.4 Soil Storage Cell

A Soil Storage Cell has been constructed and is located within the RAB, east of Unit 20, Contaminated Equipment Storage. The Soil Storage Cell will provide an environmentally secure means of managing impacted soils until long-term action is implemented. Relocating impacted soils to the Soil Storage Cell will preclude the migration of licensed material from impacted units to surface water and groundwater pathways beyond the RAB. The Soil Storage Cell utilizes concrete barriers as external support walls. The base of the

containment area consists of the following layers: a concrete base, a geotextile, a flexible membrane liner, a geotextile, and the soil to be contained. After placing the soil in the containment area, a non-porous membrane will be used to cap or cover the containment area. A stormwater runoff/runoff system will also be installed. The storage containment area is designed to contain 123,000 cubic feet of soil. Transfer of soils to the facility is being planned.

#### 6.3.2 Tasks To Be Implemented

##### 6.3.2.1 Introduction and Scope

Three (3) SAP tasks not presented previously in the AP have been defined to accomplish the SAP objectives. These SAP tasks are:

1. Relocation of Unit 23 soils;
2. Relocation of existing excavated SX Building and MPB soils; and
3. Relocation of Unit 3 soils.

The tasks to be implemented are presented in the following paragraphs.

##### 6.3.2.2 Relocation of Unit 23 Soils

Unit 23, Contaminated Soil from the 1986 Release, consists of approximately 11988 cubic feet of uranium-impacted soil. Development and implementation of a SAP to relocate soil from Unit 23, where it is now stored in a hypalon-lined cell, to



the Soil Storage Cell has been identified as an action task. Removal of the soil to the Soil Storage Cell will prevent the possible migration of uranium to surface water and groundwater pathways beyond the RAB. A transportation plan will be developed for the removal of the soils from the Unit 23 area to the Soil Storage Cell in accordance with health and safety procedures.

#### 6.3.2.3 Relocation of Existing Excavated SX Building and MPB Soils

Impacted soils excavated during underground utility trench investigations in the SX and MPB areas are currently located on the Yellowcake Storage Pad. Another SAP task will be the development and implementation of a plan to relocate the soil to the Soil Storage Cell previously described. The objectives of the plan are to prevent the migration of uranium to surface water pathways beyond the RAB and to transfer the soil in accordance with health and safety procedures.

#### 6.3.2.4 Relocation of Unit 3 Soils

Impacted soils defined by Unit 3 investigations also will be excavated and transported to the Soil Storage Cell. To accomplish this goal, the Unit 3 SAP will be implemented. The objective of the Unit 3 SAP is to prevent the migration of uranium from impacted soils to surface water and groundwater pathways beyond the RAB. A transportation plan will be

developed for the removal of the soils from the Unit 3 area to the Soil Storage Cell in accordance with SFC's health and safety procedures.

## 7.0 OPERATIONS ACTION PLANS (OAPs)

### 7.1 Introduction

In addition to the action plans presented in previous sections for the various environmental migration pathways, action plans for various SFC operations have been developed and defined as part of the comprehensive Sequoyah Facility Action Plan. These operations actions will supplement, support, and enhance the effectiveness of those actions described in previous sections of this document.

The objective of the Operations Action Plan (OAP) is to limit uranium releases to the restricted and unrestricted areas consistent with the ALARA philosophy. Several OAP tasks necessary to accomplish the operations actions have been implemented. Other operations action tasks yet to be implemented to accomplish the OAP have been defined. The operations action tasks implemented and to be implemented are presented in the subsequent sections.

### 7.2 Floor Inspections and Repairs

SFC conducted a comprehensive inspection and repair program of the MPB and SX Building floors. The program included



inspection of floors in 26 process areas and repair to ten (10) of those floors. SFC will continue to inspect and repair process floors as necessary to ensure the integrity of the MPB and SX Building floors.

### 7.3 Pond 2 Actions

Pond 2 was constructed in 1971, and operated for the storage of raffinate and sludge by-products. The pond was taken out of service in the early 1980's, and SFC developed and has completed implementation of a plan to achieve closure of Pond 2. The sludge, exceeding 2000 pCi/g uranium, was removed from Pond 2 and transferred either offsite or to a lined impoundment. Even though Pond 2 will not be placed back into service, installation of a 40-mil high-density polyethylene cover was completed on Oct. 23, 1991 to prevent surface water from contacting the bottom soils of the inactive Pond 2. This remediation, while not final, will limit further impact to the environment. A final plan for Pond 2 will be developed and submitted to NRC upon completion as part of the license renewal process.

### 7.4 Facility Effluent/Wastewater Treatment and Uranium Recovery Project

#### 7.4.1 Introduction and Objectives

The development and implementation of a design for a wastewater treatment and uranium recovery system using ion

exchange as the primary treatment is currently progressing. Candidate wastewaters have been identified, wastewater characterization has been completed, and preliminary process flow diagrams have been developed.

The objective for the wastewater treatment and uranium recovery system is to optimize treatment and recovery of uranium from the candidate effluents. This action is based upon the ALARA philosophy.

#### 7.4.2 Investigations

During the course of the FEI, review and assessments of the feasibility of reducing the uranium concentrations in various effluents was evaluated. The characterization information obtained during the FEI provided the basis for selecting candidate wastewaters for uranium recovery. Wastewaters identified for potential uranium recovery and treatment include the laundry room effluent, the overflow from the cooling water tower equalization basin, the emergency basin/north ditch and recovered waters from groundwater recovery wells and utility trench monitors.

#### 7.4.3 Tasks Implemented

After selection of candidate wastewaters, a review of applicable uranium treatment and recovery technologies was performed. Based upon current information, ion exchange

appears to be the primary treatment operation for uranium removal from wastewater.

The treated discharge will be preferentially reused in other parts of the Sequoyah Facility process, if feasible, or discharged to the Combination Stream Drain.

#### 7.4.4 Tasks To Be Implemented

Several options for implementation relative to the wastewater treatment equipment are being considered. These options include:

1. Use of existing equipment available from General Atomic facilities;
2. Engineering design and construction of a system; or
3. Development of performance specifications to be used for selection of a turn-key vendor to perform a pilot demonstration, design, and complete system implementation.

#### 7.5 Laundry Room Relocation

The current laundry facility, located in the MPB, is used to wash and dry process clothing such as coveralls, smocks, and shoe covers worn by personnel working in the restricted area. It has been determined that the laundry facility should be relocated and upgraded. The relocation and upgrade of the laundry facility will improve working conditions, improve cleaning efficiency, and allow room for expansion of cleaning

capacity. In addition, relocation of the laundry will allow a sanitary sewer lift station to be located in the present laundry area. This will allow the plugging and abandoning of the existing sanitary sewer pipeline discussed in Section 4.3.2.2. The relocated laundry facility effluent will be treated and managed through the clarifier process.

## 7.6 Impoundment Evaluation Program

### 7.6.1 Introduction and Objectives

The results of the FEI do not indicate significant migration of uranium is occurring from the unlined impoundments. Nevertheless, an operations action is planned involving an effort to improve the overall process in such a way that unlined impoundments can be eliminated. If wastes or byproducts which now are routed to lined ponds can be eliminated, other streams can possibly be placed into the lined ponds, and some unlined ponds may be eliminated. Also, where this rerouting is not possible, the program will assess the possibility of retrofitting liners into presently unlined ponds. This action is consistent with SFC's philosophy of waste minimization and maintaining uranium releases as low as reasonably achievable.

#### 7.6.2 Tasks To Be Implemented

The evaluation program described above will be implemented over an approximate five (5) year period.

## TABLES



TABLE 1: AP TASK DESCRIPTION AND STATUS SUMMARY  
SEQUOYAH FUELS CORPORATION ACTION PLAN

| ACTION PLAN AREA      | TASK DESCRIPTION                                                                                                                            | STATUS                                        | AP SECTION REFERENCE |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|----------------------|
| Geochemical Study     | Geochemical Modelling                                                                                                                       | To Be Implemented                             | Section 2.3.1.1      |
|                       | Leaching Study                                                                                                                              | To Be Implemented                             | Section 2.3.2.2      |
| Groundwater           | Installation and Operation of SX Building Vault Monitor                                                                                     | Implemented                                   | Section 3.3.1.2      |
|                       | Installation and Operation of Recovery Well Southwest of MPB                                                                                | Implemented                                   | Section 3.3.1.3      |
|                       | Installation of Recovery Well, West of Emergency Basin                                                                                      | To Be Implemented                             | Section 3.3.2.2      |
|                       | Installation of Recovery Well, North of Fluoride Sludge Basin #2                                                                            | To Be Implemented                             | Section 3.3.2.3      |
|                       | Groundwater Monitor Plan                                                                                                                    | Initiated                                     | Section 3.3.2.4      |
|                       |                                                                                                                                             |                                               |                      |
| Underground Utilities | Installation of Hydraulic Barriers (18)                                                                                                     | Implemented                                   | Section 4.3.1.2      |
|                       | Installation of Trench Monitors (23)                                                                                                        | Implemented                                   | Section 4.3.1.3      |
|                       | Installation of Trench Recovery Wells (2) in CD Backfill Soils                                                                              | Implemented                                   | Section 4.3.1.4      |
|                       | Installation of Hydraulic Barrier and Trench Monitor in Abandoned Unit 3 Utility                                                            | Implemented                                   | Section 4.3.1.5      |
|                       | Preparation of Utility Drawings                                                                                                             | Implemented                                   | Section 4.3.1.6      |
|                       | Plug, Abandon, and Relace Sanitary Sewer Pipeline                                                                                           | To Be Implemented                             | Section 4.3.2.2      |
|                       | Develop Underground Utility Monitoring Plan                                                                                                 | To Be Implemented                             | Section 4.3.2.3      |
|                       |                                                                                                                                             |                                               |                      |
| Surface Water         | Modification of Surface Water Management System                                                                                             | Implemented                                   | Section 5.3.1.2      |
|                       | Diversions of Surface Water from Unit 10                                                                                                    | Implemented                                   | Section 5.3.1.3      |
|                       | Modifications to Surface Water Management System                                                                                            | To Be Implemented                             | Section 5.3.2.2      |
|                       | Reduction of Uranium Concentrations in Unit 10 & Unit 11 Surface Water                                                                      | To Be Implemented                             | Section 5.3.2.3      |
| Soils                 | Excavation of Soils from SX Building and MPB Utility Trenches                                                                               | Implemented                                   | Section 6.3.1.2      |
|                       | Unit 3 Soils Action Plan                                                                                                                    | Implemented                                   | Section 6.3.1.3      |
|                       | Soil Storage Cell (SSC)                                                                                                                     | Initiated                                     | Section 6.3.1.4      |
|                       | Relocate Unit 23 Soils                                                                                                                      | To Be Implemented                             | Section 6.3.2.2      |
|                       | Relocate Excavated SX Building & MPB Soils                                                                                                  | To Be Implemented                             | Section 6.3.2.3      |
|                       | Relocate Unit 3 Soils                                                                                                                       | To Be Implemented                             | Section 6.3.2.4      |
| Operations            | Floor Inspection and Repairs at SX Building and MPB                                                                                         | Implemented                                   | Section 7.2          |
|                       | Pond 2 Actions:<br>Sediment Removal<br>Liner Installation                                                                                   | Implemented<br>Implemented                    | Section 7.3          |
|                       | Facility Effluents/Wastewater Treatment and Uranium Recovery Project:<br>Conceptual System Design<br>Final Option Selection<br>Installation | Implemented<br>Initiated<br>To Be Implemented | Section 7.4          |
|                       | Laundry Room Relocation:<br>Relocation Design<br>Construction Modifications                                                                 | Implemented<br>Initiated                      | Section 7.5          |
|                       | Impoundment Evaluation Program                                                                                                              | To Be Implemented                             | Section 7.6          |



TABLE 2: IMPLEMENTATION SCHEDULE  
SEQUOYAH FUELS CORPORATION PLAN

| Task Name                     | Notes                                         | Start Date | End Date  | 1991 | 1992 | 1993 |
|-------------------------------|-----------------------------------------------|------------|-----------|------|------|------|
| GROUNDWATER ACTION PLAN       |                                               | 01-Oct-91  | 31-Mar-93 |      |      |      |
| -GWAP 1                       | RECOVERY WELL WEST OF RAB*                    | 02-Mar-92  | 31-Dec-92 |      |      |      |
| -GWAP 2                       | RECOVERY WELL NORTH OF UNIT 12*               | 02-Mar-92  | 31-Dec-92 |      |      |      |
| -GWAP 3                       | FINALIZE GW MONITORING PLAN                   | 01-Oct-91  | 31-Mar-93 |      |      |      |
| GEOCHEMICAL LEACHING/MOBILITY |                                               | 01-Jul-92  | 31-Jul-93 |      |      |      |
| -GSAP 1                       | LEACHING STUDY                                | 01-Jul-92  | 31-Jul-93 |      |      |      |
| U.G. UTILITIES ACTION PLAN    |                                               | 03-Feb-92  | 31-Mar-93 |      |      |      |
| -UUAP 1                       | PLUG, ABANDON, & REPLACE LAUNDRY EFFLUENT     | 01-Sep-92  | 31-Mar-93 |      |      |      |
| -UUAP 2                       | DEVELOP UNDERGROUND UTILITIES MONITORING PLAN | 01-Sep-92  | 31-Mar-93 |      |      |      |
| SURFACE WATER ACTION PLAN     |                                               | 01-Oct-91  | 02-Jun-93 |      |      |      |
| -SWAP 1                       | COMPLETE IMPOUNDMENT SYSTEM                   | 01-Oct-91  | 30-Oct-92 |      |      |      |
| -SWAP 2                       | REDUCE URANIUM UNITS 10 & 11 SURFACE WATER    | 01-Oct-91  | 30-Jun-93 |      |      |      |
| SOILS ACTION PLAN             |                                               | 01-Aug-91  | 31-Dec-92 |      |      |      |
| -SAP 1                        | RELOCATE UNIT 23 SOILS TO SSC                 | 02-Feb-92  | 30-Apr-92 |      |      |      |
| -SAP 2                        | RELOCATE SX & MPB SOILS TO SSC                | 01-Apr-92  | 30-Jul-92 |      |      |      |
| -SAP 3                        | RELOCATE UNIT 3 SOILS TO SSC                  | 01-Jul-92  | 31-Dec-92 |      |      |      |
| OPERATIONS ACTION PLANS       |                                               | 03-Sep-91  | 31-Dec-93 |      |      |      |
| -OAP 1                        | COMPLETE WASTEWATER TREATMENT PROJECT         | 02-Jan-92  | 31-Dec-93 |      |      |      |
| -OAP 2                        | LAUNDRY ROOM RELOCATION                       | 01-Oct-91  | 29-Feb-92 |      |      |      |
| -OAP 3                        | IMPOUNDMENT EVALUATION PROJECT                | 02-Jan-92  | 31-Dec-93 |      |      |      |

NOTES:

- 1) "U.G." REFERS TO UNDERGROUND  
2) \* - IF WEATHER PERMITS

## FIGURES

HARMON, CURRAN, GALLAGHER & SPIELBERG

2001 S STREET, N.W.

SUITE 430

WASHINGTON, D.C. 20009-1125

GAIL MCGREEVY HARMON  
DIANE CURRAN  
ANNE SPIELBERG  
JANNE G. GALLAGHER  
ERIC R. GLITZENSTEIN  
KATHERINE A. MEYER  
JESSICA A. LADD

TELEPHONE  
(202) 328-3500  
FAX  
(202) 328-6918

April 23, 1992

BY HAND

Donnie H. Grimsley, Director  
Division of Freedom of Information  
and Publication Services  
Office of Administration  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

FREEDOM OF INFORMATION  
ACT REQUEST

FOIA-92-204  
Rec'd 4-24-92

SUBJECT: Freedom of Information Act Request

Dear Mr. Grimsley:

On behalf of Native Americans for a Clean Environment, and pursuant to the Freedom of Information Act, 5 U.S.C. § 552(b), et seq., I hereby request that you make available copies of any and all documents in the Nuclear Regulatory Commission's possession that discuss any issues relating to the construction, operation, licensing, or re-licensing of the Sequoyah Fuels Corporation ("SFC") uranium processing plant in Gore, Oklahoma; and/or any documents that discuss inspection and/or enforcement issues relating to that plant.

This request updates FOIA-91-81, which was submitted on February 27, 1991. It therefore covers documents issued on that date or later.

NACE is familiar with and has access to documents that are already in the NRC's Public Document Room in Washington, D.C., and does not seek a search for those documents. Rather, the purpose of this request is to obtain access to any other documents that may be in the possession of the NRC Staff but have not been sent to the Public Document Room.

Pursuant to NRC regulations at 10 C.F.R. § 9.85, we request that any searching and copying fees incurred as a result of this search be waived. Native Americans for a Clean Environment is a non-profit, tax-exempt organization that was formed for the purpose of educating the public about environmental issues, with emphasis on the nuclear industry. NACE has intervened in the license renewal proceeding for the SFC plant, and has brought enforcement action against SFC, which was shut down for seven

921123-183

HARMON, CURRAN, GALLAGHER & SPIELBERG

Donnie H. Grimsley, Director  
April 23, 1992  
Page 2

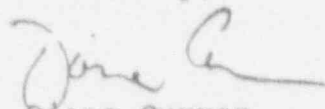
months due to its unprecedented and egregious contamination and mismanagement of the site. Waiver of fees for this request is in the public interest, because it will assist NACE in investigating SFC's environmental and safety record and contributing to public debate regarding whether and under what conditions SFC should be allowed to operate its facility. NACE also merits a waiver of fees because it is a non-profit charitable organization with limited resources, and is unable to pay the large searching and copying fees that may be incurred as a result of this request.

In the alternative, we request that the NRC continue to grant NACE status as a "representative of the news media." See 10 C.F.R. § 9.39(a), National Securities Archives v. Department of Defense, 880 F.2d 1381 (D.C. Cir. 1989). As discussed in previous Freedom of Information Act request, NACE publishes a monthly newsletter "NACE News," that reports to about 1,000 readers on environmental issues affecting Native Americans. For many years, NACE News has reported on the risks to public health and the environment posed by the Sequoyah Fuels Corporation's Gore, Oklahoma facility. A copy of NACE's most recent newsletter is attached.

If for any reason you decide to deny this fee waiver request, please contact me before incurring any charges on behalf of NACE.

I look forward to receiving your response within ten working days of receipt of this request, as required by the Freedom of Information Act.

Sincerely,



Diane Curran  
Counsel to Native Americans  
for a Clean Environment

cc: Lance Hughes  
Director, NACE



Greetings,

February gets most people to thinking about Spring being just a month or two away, so its time for us, to remind all our readers to recycle all those plastic six pack carriers. The six pack hammock is not only fun for kids & adults, it helps reduce trash in our overburdened landfills and saves the lives of marine life. For free instructions on making a six pack hammock, drop us a note & we'll send you the ever so easy instructions.

\* Happy 10th Anniversary to the cancellation of the Black Fox Nuclear Power Plant. Our eternal thanx to Carrie Dickerson, CASE and all the people who said NO! Stopping a nuke plant in mid-construction was no easy task and it seems like only days ago that we were all working so hard on that one. With the old Kerr-McGee plants shut down & the food irradiator cancelled, that only leaves 1 nuke plant in OK- Guess Who!

\* The country's first food irradiation plant has now opened in Florida. Validator, Inc. started selling irradiated strawberries last month and sez they'll be shipping them to Washington state soon. To get an idea on how one could ever get built, local resident Frank Cueno said "I don't think the US government would permit something to come out like this if there was some kind of health risk involved". Another resident said "I'm tired of eating rotten strawberries". Get a grip people, there's a season for

# NACE NEWS

NATIVE AMERICANS for a CLEAN ENVIRONMENT  
(918)458-4322



FEBRUARY, 1992

Volume VII No. 2



\* As of press time, the Senate has voted 52-43 in favor of the "National Energy Strategy" bill (S.2166). Although drilling in the Artic National Wildlife Refuge has for the time, been removed from the bill, it still contains language for one-step licensing of new nuke plants. People really shouldn't let this gift to the nuclear industry slide by. Contact your congressional reps & let them know you want the "one-step" licensing rule out of S.2166. Our thanks (if you can believe it) to Senator Boren, who voted against one-step licensing.



Look for this symbol -- the Radura.  
It means the food was irradiated.



# Sequoyah Fuels

## Old Dog, Old Tricks

We are happy to report that the old nuke conversion plant is still "shut down". We use the term lightly because the NRC still can't explain why there were high uranium emissions from the plant one month after it was "shut down". SFC is approaching 5 months of being out of service - so locals can breathe a little easier.

A few weeks ago, NACE received a call from NUKEM (yes, that's right folks). NUKEM is one of the worlds largest and sleaziest uranium import and export companies. Seems we have put a kink in the international uranium market & they felt a need to whine about it. Oh, please, some of these guys still own slaves! A week following the NUKEM call, we got a call from Edlow, International (another uranium transporter). Edlow sez their customers are too nervous to send uranium to Sequoyah Fuels because they may never re-open (so?).

The most stupid event this past month was the public exit interview following a 1 week inspection for restart. SFC received a violation because contaminated materials were found in the training center (where the public meeting was). The problem being that the NRC identified the same contaminated materials 2 months ago & nothing had been done. During public comments, Joe Sheppard, the new prez., lost his temper & got to show his true colors (he's sooooo arrogant - you'd think the queen of england had given him title to our communities). And where did all those neck ties come from? A little out of fashion in Carlisle community - those consultants are sure easy to pick out.

The NRC has finished releasing the backlog of inspection reports from last year and our apologies to our friends out west. Seems SFC lost (740 lbs.) of their radioactive sludge load on the way to Quivir (Grants, NM) in September.

In other inspection news, SFC's insurance company sent out an inspector to look the place over. He had to leave his pants because they had become contaminated during his visit. Just add him to the list of congressmen, NRC inspectors, journalists, workers & residents.

The new tentative date for relicensing hearing is now set for June '92 (3rd change) and we are told that the NRC Commissioners won't be voting on a restart decision until around April or May. This should give the company some time to pile up more violations.

Oh, yea. Alexander Haig, the "I'm in charge now" guy was recently named a full member of GA's board of directors. Now don't we feel safe!



**Leave Uranium  
in the Ground**



## NUCLEAR NOTES

A federal judge has stopped the Energy Dept. from working on the Waste Isolation Pilot Project (WIPP) located in New Mexico. The judge sez the DOE has to get a transfer of title from the Congress &

must also get a RCRA permit from the state of New Mexico.

\* Heart of America Northwest, citing inaction by the state of Washington and the EPA, has announced they will sue the Dept. of Energy & Westinghouse Hanford. The citizens groups wants Hanford to stop dumping untreated radioactive waste into the ground near the Columbia River. Illegal discharges continue under a secret deal between the Washington State Dept. of Ecology and Hanford.

\* The NRC deliberately lied to Congress in March 1990 about the readiness of the Seabrook reactor to start operation. According to an Inspector Generals report, the NRC lied about inspection of welds & whistleblower lawsuits. It's the ole' "fox guarding the henhouse", what should congress expect??

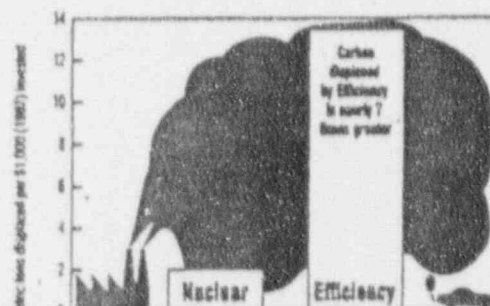


\* Politics may come and go, but uranium can kill for eternity. With the break up of the Soviet Union, fears of a black market on uranium are coming true. Arrests and seizures for selling uranium have now happened in Italy, Switzerland, and Romania.



## Efficiency Cuts CO<sub>2</sub> Emissions

In the U.S., improved electrical efficiency can be up to seven times more cost-effective than new nuclear power in reducing carbon dioxide emissions from coal-fired power. Every \$1,000 invested in nuclear power displaces two metric tons of CO<sub>2</sub> emissions. Every \$1,000 invested in efficiency displaces nearly 14 tons of CO<sub>2</sub>.



Carbon Dioxide Displacement Potential

Source: Bill Keppin and Gregory Kats, "Comparative Analysis of Nuclear and Efficiency Abatement Strategies," Energy Policy, Dec. 1988  
© Safe Energy Communication Council

\* Some of us may remember back in 1989 a Soviet submarine sank off the coast of Norway. You may also remember it was a nuclear powered sub. Well, recent tests of the sediment and analyzed in Norway show that radioactivity is leaking from the sub and contaminating the seabed. The sunken sub is next to some of Europe's richest fishing grounds.

\* Ontario Hydro has been cutting its uranium purchases in Ontario & all uranium mining in Ontario should be stopped by 1996. Ontario is home to the infamous Elliot Lake uranium mine. The bad news is all mining efforts are being directed to Saskatchewan where the uranium is of a much higher quality. A word of advice to our brothers & sisters up north: Keep an eye on the George Hill family out of Saskatchewan, very deep ties to General Atomics & the Blue Brothers.



# Indian News



\* Its starting out to be a very sad year for Indian newspapers. The Navajo Nation Today has suspended publication. Today was the only independent newspaper published on the Navajo Nation. One of the oldest Native newspapers in Canada, Kainai News, closed its doors in September after struggling for a year without gov't. subsidies. The fate of Tundra Times, which has been published weekly out of Alaska for 30 years, will be decided in March at a shareholders meeting. Tundra Times last issue was December 23.

\* Conoco Oil has filed a lawsuit against the Ponca Tribe, protesting the 8% severance tax imposed by the tribe. The Ponca tribe and others have been forced to drink bottled water for decades thanks to Conoco's widespread contamination of water supplies.

\* The South and Meso Ameri Indian Information Center (SAI) now has its "500 Years of Ind Resistance: Resources for Acti kit available. The kits are US or international \$14 from SAI P.O. Box 28703, Oakland, CA 94604

\* A deal struck with the Chamc gov't. of Nicaragua gives Taiwanese timber reserves belong to the Sumo & Miskito Indians. timber reserves cover an area size of Delaware.

\* A worldwide conference indigenous peoples will take pl May 18-30 in Rio de Janerio, Bra immediately before the UN Confere on the Environment & Developme For more info: Internatio Indigenous Commission, Center of Common Future, Palais Wilson, Rue de Paquis, CH-1201, Gene Switzerland.

\* At the Rosebud rez., it seems the dump company RSW is back again. Although the Chairman & Council say the mega-dump is a dead issue, there is a new proposal pending with the tribe and "executive sessions" are being held between the company rep & tribal officials. Research efforts by the Good Road Coalition have discovered that Rhett Albers, who represents RSW, also had an ash landfill project near Edgemont, SD. Seems Albers hauled in the ash, never disposed of it & then claimed bankruptcy when the state tried to get the company to comply. Do these guys go to some school for crooks & criminals? Same ole', same ole.

\* In efforts to revitalize the Penobscot culture, tribal member Barry Dana has been offering courses in traditional arts, language and healing. For more info: Native Studies, P.O. Box 17, Old Town, ME 04468.

\* Senate Bill 1687 "Indian Tribal Government Waste Act of 1991" is again rearing its ugly head in this session of Congress. It seems to be a commercial waste import bill to us, but regardless, it would only seem fair to have field hearings on the bill before it is introduced. To ask for field hearings, write: Senate Select Committee on Indian Affairs, Washington, D.C. 20510.



\* A group in W. Virginia has put together a packet on how they successfully stopped a proposed MRS project. Could have some useful tips for all of us opposing an MRS in Indian country. Copies of the packets are \$15 from: Mountaineer Policy Institute, 264 Hugh Street, Morgantown, WV, 26505 or call 304-296-8611.

## MARK BOLTON



## ENVIRONMENTAL

\* In the continuing education of using disposable diapers, the pieces to the puzzle come one by one. Here's a large piece to clarify the picture of destruction that we're looking at.

The Sami from north of Scandinavia, some of Europe's last indigenous people, are under attack from some of Sweden's leading suppliers of forestry products & the U.S. based Procter & Gamble.

The forestry product companies; Stora, MoDo and Korsnas, claim they have a legal right of access to Scandinavian forests. The Sami have been herding reindeer & living sustainably for centuries in the northern forests.

Procter & Gamble enters into the picture by way of Pampers. Stora uses large areas of Swedish forests to supply pulp for Pampers. In 1990 Pampers sales totaled \$12 billion.

Sami activist Olof Johansson said "If we don't have the reindeer we will join all the other displaced aboriginal peoples of the world without an income. Our old culture has been preserved by the reindeer and the income they bring. Without them, our knowledge, languages and beliefs could be lost forever."

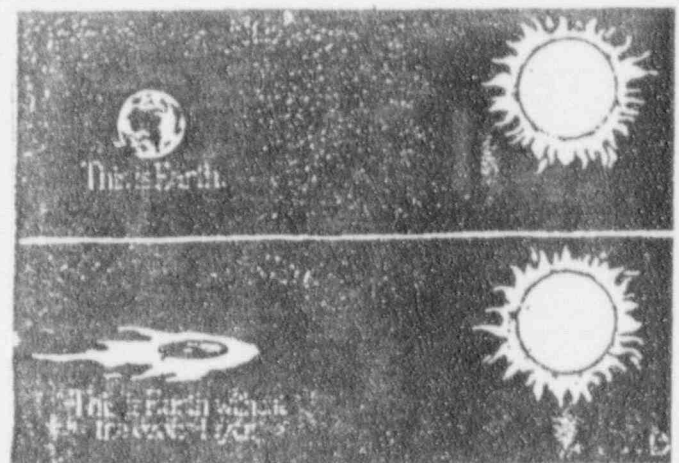
A Stora representative says "if the Sami want to use the land, then they should pay rent to the landowners." What a jerk! The reps. name is Karl Henriksson & we suggest you send all your dirty Pampers to him & then go out and buy cloth diapers. Wa-do.

\* On Feb. 12, Ottawa County in N.E. Oklahoma voted to reject any commercial medical waste incinerators. Hooray, Ottawa!!



\* Residents in Osage county Okla. are demanding that the state act on their complaints over cro dusting. Aerial spraying of a host of herbicides including 2,4-D have riled residents who have had their homes sprayed.

\* In news about the Ozone layer: According to NASA, the amount of protective ozone in the atmosphere over Antarctica fell to its lowest level in 13 years of recorded data. The American Lung Association has said it will sue the US gov't. demanding it strengthen its ozone pollution standards. An international scientific panel concluded in October that the ozone layer is thinning over parts of the US and the rest of the world in spring and summer.





\* As environmental news seeps out little by little from the Gulf War, an analysis by the British Atomic Energy commission sez that inhalation of uranium dust from the spent rounds of armor-piercing bullets could be a serious health hazard. The Commission estimates that up to 40 tons of uranium was left lying about Kuwaiti deserts.

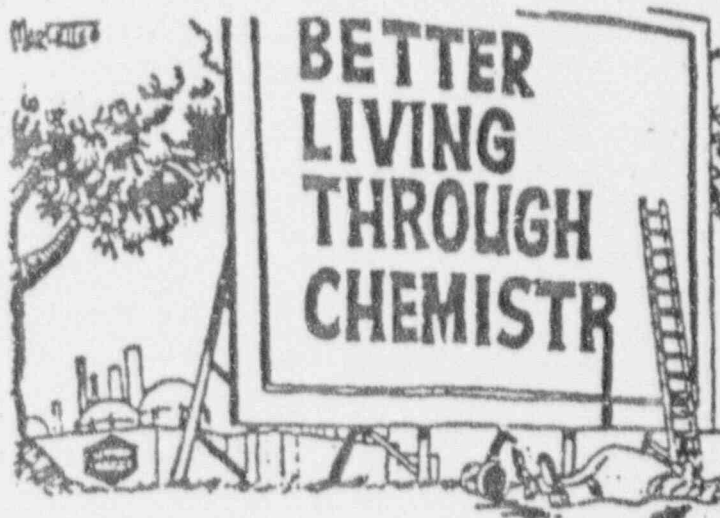
Although the oil fires are out, 400 miles of Saudi coast line looks like a "long seaside highway"; 70 million barrels of crude still covers the landscape; crop production has dropped 40%; and farm animals are dying from eating contaminated grass. Say hello to the "new world order".

\* A new report released by Public Citizen's Congress Watch documents that kids in Philadelphia public schools are routinely exposed to neuro-toxic pesticides year after year. "The lack of knowledge was so bad that one official actually said that the pesticide applicator would just zip in and zip out of the classrooms while the kids were there" sez Nancy Watzman of the schools-pesticide project.

### THE FOREST SERVICE COMETH

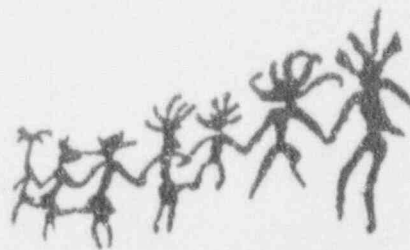


\* The Citizens' Mining Information Network has started a new bi-monthly newsletter to provide citizens with information on the environmental impacts of mineral development. If you're working on mining problems in your community, this is a new and promising resource. To get on the mail list write: Mine Monitor Southwest Research & Information Center, P.O. Box 4524, Albuquerque, NM, 87106 or call 505-262-1862.



\* Citizens in Western Australia are fighting their government to stop exporting hazardous wastes out of the country. Cleanaway (give us a break)/Brambles Australia is attempting to gain gov't. approval to export waste before two panels responsible for a national strategy can release their reports.

In other Aussie news, citizens are also trying to protect the Yakabindie station from nickel mining. Yakabindie is an aboriginal custodial area and central to the Dreamtime story.



# MEMBERSHIP FORM

NEW ☐ RENEWAL ☐

SUBSCRIBE NOW!

## Native Americans for a Clean Environment

MAKE CHECK or MONEY ORDER TO:  
Please Do Not Send Cash.

P.O. Box 1671  
Tahlequah, OK 74465

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP CODE: \_\_\_\_\_

## NACE MEMBERSHIP DUES

Student----- \$10.00  
Individual/Family-- \$15.00  
Sr. Citizen----- \$10.00

\_\_\_\_ I want to help, I am able to

- ☐ Telephone Tree ☐ Publicity  
☐ Researching ☐ Mailouts  
Documents ☐ Fund Raising  
☐ Community Organizing  
☐ I would like more information

## Items Available from NACE

NACE Caps ----- \$10.00  
NACE Beaded Caps(special orders only)---- \$25.00  
NACE Bumper Stickers ----- \$ 1.00  
NACE Duffel Bags ----- \$25.00  
NACE Plannel-lined Jackets ----- \$25.00  
NACE Posters ----- \$10 (unsigned) or  
\$25 (signed)  
NACE T-shirts ----- \$10.00 for Adults/Child

..(Specify colors, not guaranteed)..  
(sizes: Child - Toddler, S, M, L)  
(sizes: Adults - S, M, L, X, XXL)

\*General membership is open to  
persons, regardless of race,  
religion or politics.

## NATIVE AMERICANS FOR A CLEAN ENVIRONMENT

P.O. Box 1671  
Tahlequah, OK 74465

ADDRESS CORRECTION REQUESTED



NON-PROFIT ORG.  
U.S. POSTAGE  
PAID  
PERMIT NO. 213  
TAHLEQUAH, OK



Printed on recycled paper



March 12, 1992

Certified Mail  
Return Receipt Requested

Mr. Robert D. Martin  
Regional Administrator  
U.S. NUCLEAR REGULATORY COMMISSION  
Region IV  
611 Ryan Plaza Drive, Suite 1000  
Arlington, Texas 76011

Dear Mr. Martin:

The purpose of this letter is to confirm our previous conversation regarding the status of the employees involved in the allegations which we investigated, and the Office of Investigations (OI) is currently investigating. As I indicated to you, the three employees that we have identified to OI have been restricted from NRC-regulated activities until the OI investigation has been completed.

If you have any questions, please call me at 918/489-3222.

Sincerely,

James J. Sheppard  
President

JJS:nv

*920325020*

*53*

92-0377