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May 5, 2003

VIA OVERNIGHT DELIVERY

Mr. Joel Berwick
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U. S. Department of Energy
Grand Junction Office
2597 B$^3/_4$ Road
Grand Junction, Colorado 81503

Re: Description of the Affected Environment - White Mesa Mill, Blanding, Utah

Dear Joel:

Attached for your information is a Description of the Affected Environment for the White Mesa Mill site in support of the U. S. Department of Energy's preparation of an Environmental Impact Statement for the Moab tailings.

This document will hopefully answer most of your recent questions with respect to specifics about the White Mesa site. After your review of this document please feel free to contact me with any questions you may have.

Very truly yours,

Harold R. Roberts
Vice President - Corporate Development

/hrr

cc: Toby Wright, SM Stoller, w/enclosures
Ron F. Hochstein, w/enclosures
Terry V. Wetz, w/enclosures

Description of the Affected Environment

White Mesa Mill
Blanding, Utah

For

Transport by Slurry Pipeline and Disposal of the Moab Tailings

Prepared by:

International Uranium (USA) Corporation
1050 17th Street, Suite 950
Denver, Colorado 80265

May 2003

TABLE OF CONTENTS

1. Introduction **1-1**
1.1.General 1-1
1.2 Applicable Regulatory Requirements, Permits and Required Consultations **1-4**
1.2.1 NRC 1-4
1.2.2 Clean Air Act 1-5
1.2.3 State of Utah 1-5

2. Description of the Affected Environment **2-1**
2.1 Introduction **2-1**
2.2 Site and/or Facility Description and Location **2-1**
2.3 Climate, Meteorology and Air Quality **2-1**
2.3.1 Climate and Meteorology 2-1
2.3.1.1 Regional 2-1
2.3.1.2 On Site 2-2
2.3.2 Baseline Air Quality 2-3
2.3.2.1 FES Evaluation 2-3
2.3.2.2 Effects on Air Quality Projected for Operations 2-3
2.3.2.3 Operational Environmental Air Monitoring Data 2-3
2.4 Geology **2-5**
2.4.1 Regional Geology 2-5
2.4.2 Local Geology 2-6
2.4.3 Seismicity 2-6
2.4.4 Mineral Resources 2-9
2.5 Soils **2-9**
2.6 Bedrock **2-13**
2.7 Water Resources **2-13**
2.7.1 Surface Water 2-13
2.7.1.1 Surface Water Characteristics (FES Section 2.6.1.1) 2-13
2.7.1.2 Surface Water Background Quality as at the Data of the FES (FES Section 2.6.1.2) 2-15
2.7.1.3 Surface Water Background Quality 2-15
2.7.2 Groundwater Characteristics 2-19
2.7.2.1 Geologic Setting 2-19
2.7.2.2 Hydrogeologic Setting 2-19
2.7.2.3 Perched Groundwater Zone Hydrogeology 2-20
2.7.2.4 Perched Groundwater Flow 2-21
2.7.2.5 Perched Zone Hydrogeology Beneath and Downgradient of the Tailings Cells 2-22
2.7.3 Groundwater Quality 2-23
2.7.3.1 Entrada/Navajo Aquifer 2-23
2.7.3.2 Perched Groundwater Zone 2-25
2.7.4 Springs and Seeps 2-31
2.8 Archaeology **2-32**

2.9 Demography and Socioeconomic Profile **2-34**
2.9.1 Demography of the Area 2-34
2.9.2 Socioeconomic Profiles 2-35
2.10 Land Use **2-35**
2.11 Transportation **2-35**
2.12 Ecological Resources and Biota (1978 ER Section 2.9) **2-39**
2.12.1 Terrestrial (1978 ER Section 2.9.1) 2-39
2.12.1.1 Flora (1978 ER Section 2.9.1.1) 2-39
2.12.1.2 Fauna (1978 ER Section 2.9.1.2) 2-40
2.12.2 Aquatic and Wetlands Biota (1978 ER Section 2.9.2) 2-41
2.13 Baseline Radiological Environment **2-42**
2.13.1 Background Radiation 2-42
2.13.1.1 The White Mesa Mill Site 2-42
2.13.2 Radiological Impacts of Currently Licensed Operations 2-43
2.13.2.1 Introduction 2-43
2.13.2.2 Exposure Pathways for People 2-44
2.13.2.3 Radiation Dose to Individual Members of the Public 2-44
2.13.2.4 Radiation Dose Commitments to Population 2-47
2.13.2.5 Evaluation of Radiological Impacts of Currently Licensed Operations 2-48
2.13.2.6 Operational Environmental Monitoring Data 2-49
2.13.2.6.1 Radon Flux 2-49
2.13.2.6.2Air Particulate Monitoring 2-50
2.13.2.6.3 External Gamma Radiation 2-55
2.13.2.6.4 Vegetation 2-55
2.13.2.6.5 Soils 2-56
2.13.2.7 Occupational Doses 2-63
2.13.2.7.1 Dose Limits 2-58
2.13.2.7.2 ALARA Program 2-59
2.13.2.7.3 Use of Respirators 2-59
2.13.2.7.4 Workplace Monitoring Locations 2-59
2.13.2.7.5 Airborne Dust 2-64
2.13.2.7.6 External Gamma 2-67
2.13.2.7.7 Radon 2-70
2.13.2.7.8 Worker Dose 2-72
2.13.2.7.9 Area Contamination Monitoring 2-72
2.13.2.8 Radiological Impact on Biota Other Than Man 2-72

LIST OF FIGURES

Figure 2.2-1	Mill Location Map
Figure 2.2-2	Mill Land Map
Figure 2.3-1	Wind Frequency Distribution
Figure 2.3-2	Locations of Air Monitoring Stations
Figure 2.4-1	Colorado Plateau Geologic Map
Figure 2.4-2	Generalized Stratographic Column for the Region
Figure 2.7-1	Drainages Map of the Vicinity of the Mill
Figure 2.7-2	Streamflow Summary, Blanding, Utah Vicinity
Figure 2.7-3	Locations of Surface and Groundwater Sample Sites
Figure 2.7-4	Approximate Elevation of Top of Brushy Basin
Figure 2.7-5	Perched Water Levels September 2002
Figure 2.7-6	Approximate Location of Ruin Spring
Figure 2.7-7	Depth to Perched Water September 2002
Figure 2.7-8	Groundwater (Well or Spring) Sampling Stations in the White Mesa Vicinity
Figure 2.8-1	Archeological Sites
Figure 2.9-1	Population in the Project Vicinity
Figure 2.12-1	Vegetation Community Types and Expanse within the Mill Site Boundary
Figure 2.13-1	Sources of Airborne Radioactive Effluents from the Mill and Exposure Pathways to Man
Figure 2.13-2	Not Used
Figure 2.13-3	Average Annual Unat Concentrations after Background Subtraction
Figure 2.13-4	Average Annual Th-230 Concentrations after Background Subtraction
Figure 2.13-5	Site Map of the White Mesa Mill Showing Location of Buildings and Tankage
Figure 2.13-6	Occupational Monitoring Locations (Particulate and Radon) at the White Mesa Mill for the Reference Period
Figure 2.13-7	Period Average Gamma Dose Rates in Workplace Locations
Figure 2.13-8	Period Average Radon WL in Workplace Locations

LIST OF TABLES

		Page No.
Table 2.3-1	Air Emission Inventory	2-4
Table 2.5-1	Results of Soil Sample Test Analyses for Mill	2-11
Table 2.7-1	Drainage Areas of Mill Vicinity	2-14
Table 2.7-2	Summary of FES and Subsequent Sampling Results for Cottonwood Creek and Westwater Creek	2-16
Table 2.7-3	Operational Monitoring Results for Cottonwood Creek and Westwater Creek	2-18
Table 2.7-4	Water Quality of Groundwater in the Mill Vicinity	2-23
Table 2.7-6	Sampling Results for Chloride in the POC Monitoring Wells	2-28
Table 2.7-5	Sampling Results for U-Nat in the POC Monitoring Wells	2-27
Table 2.7-7	Sampling Results for Potassium in the POC Monitoring Wells	2-29
Table 2.7-8	Sampling Results for Nickel in the POC Monitoring Wells	2-30
Table 2.7-9	Ruin Spring Water Quality	2-31
Table 2.8-1	Distribution of Recorded Sites According to Temporal Position	2-33
Table 2.9-1	Population Centers within 60 Kilometers of the Mill Site	2-34
Table 2.11-1	Production and Transportation Summary	2-37
Table 2.11-2	Truck Traffic on Route 191 North	2-38
Table 2.12-1	Endangered, Threatened and Candidate Species in the Mill Area	2-41
Table 2.12-2	Species Managed Under Conservation Agreements/Strategies at the Mill Area	2-41
Table 2.12-3	Birds Observed in the Vicinity of the Mill	2-43
Table 2.13-1	Average Dose from Natural Background Radiation (Excluding Dose from Radon)	2-43
Table 2.13-2	FES Estimated Annual Releases of Radioactive Materials Resulting from the Mill	2-44
Table 2.13-3	Comparison of Annual Dose Commitments to Nearest Actual Residence at Time of FES	2-45
Table 2.13-4	Comparison of Annual Dose Commitments to Nearest Potential Residence at Time of FES	2-46
Table 2.13-5	Annual Population Dose Commitments within 50 Miles	2-47
Table 2.13-6	Radon Flux for the Mill's Tailings Cells	2-49
Table 2.13-7	1999 External Gamma Dose (after background subtraction)	2-55
Table 2.13-8	Vegetation Sample Data North East of Mill	2-56
Table 2.13-9	Soil Sample Data	2-57
Table 2.13-10	Identification Codes for the Monitoring Locations	2-63
Table 2.13-11	Grouped Workplace Locations for Airborne Particulate and Radon Monitoring	2-64
Table 2.13-12	Solubility, Class, Chemical Form and Abundance of Feed	2-65

	Material at the Mill	
Table 2.13-13	Particulate Concentrations Gross Alpha) in Workplace Locations	2-66
Table 2.13-14	Average Radon Decay Progeny and Gamma	2-70
Table 2.13-15	TEDE Dose	2-72

1.0 INTRODUCTION

1.1 General

The Moab Uranium Mill Tailings Site (the "Moab Site"), located approximately three miles north of Moab, Utah (see Figure 1.1) is a former uranium mill site. On the site is a tailings pile which contains an estimated 13 million tons of mill tailings and other contaminated soils and cover material, which is the result of over 28 years of uranium milling activities. The location of the tailings pile, adjacent to the Colorado River, is an ongoing source of contamination of groundwater and the river.

The U.S. Department of Energy ("DOE"), the federal long-term custodian of the Moab Site, initiated an Environmental Impact Statement ("EIS") in December 2002. The scope of the EIS is to assess potential environmental impacts of actions in remediating tailings, ground water and contaminated soils at the Moab Site. The EIS will evaluate five remediation alternatives[1]:

- Do nothing
- Cap in place
- Relocation to Klondike Flats
- Relocation to Crescent Junction
- Relocation to White Mesa Mill

For the relocation alternatives, three transportation modes are to be considered: truck, rail and slurry pipeline.

International Uranium (USA) Corporation ("IUSA"), with assistance from Pipeline System, Inc. ("PSI"), has developed an innovative technical proposal to relocate the Moab tailings to IUSA's White Mesa Mill south of Blanding, Utah (see Figure 1.2) using a slurry pipeline to transport the tailings to the White Mesa Mill. The tailings slurry will be dewatered at the White Mesa Mill, the slurry water recycled to the Moab site, and the "dry" tailings permanently disposed of in an approved below grade cell at the Mill site.

Relocation of the Moab tailings to the White Mesa Mill has many economic, technical, and environmental advantages over in-place final closure or relocation to a new, uncharacterized disposal facility. Long term environmental, social, and aesthetic values as well as public health and safety will be enhanced by relocating the tailings via slurry pipeline to the White Mesa Mill. Utilization of proven pipeline technology, which has a long history of safe operations, will be the least disruptive to the local communities and will be environmentally superior to other final closure alternatives .

In an effort to aid the DOE in their evaluation of the White Mesa site as an alternative for the Moab Project, this report has been prepared, with guidance from 10 CFR Part 51, "Licensing and Regulatory Policy and Procedures for Environmental Protection," which implements NRC's environmental protection program under the National Environmental Policy Act of 1969 ("NEPA"). Additional environmental data and analysis are also available in the following Environmental studies and assessments which have also been performed for the White Mesa Mill:

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[1] The EIS originally included an off-site alternative relocating the Moab tailings to the East Carbon Development Corporation, near East Carbon, Utah. This alternative was dropped from consideration in April, 2003.

- a Final Environmental Statement (the "FES") was prepared by NRC for the original Mill License application in May 1979;

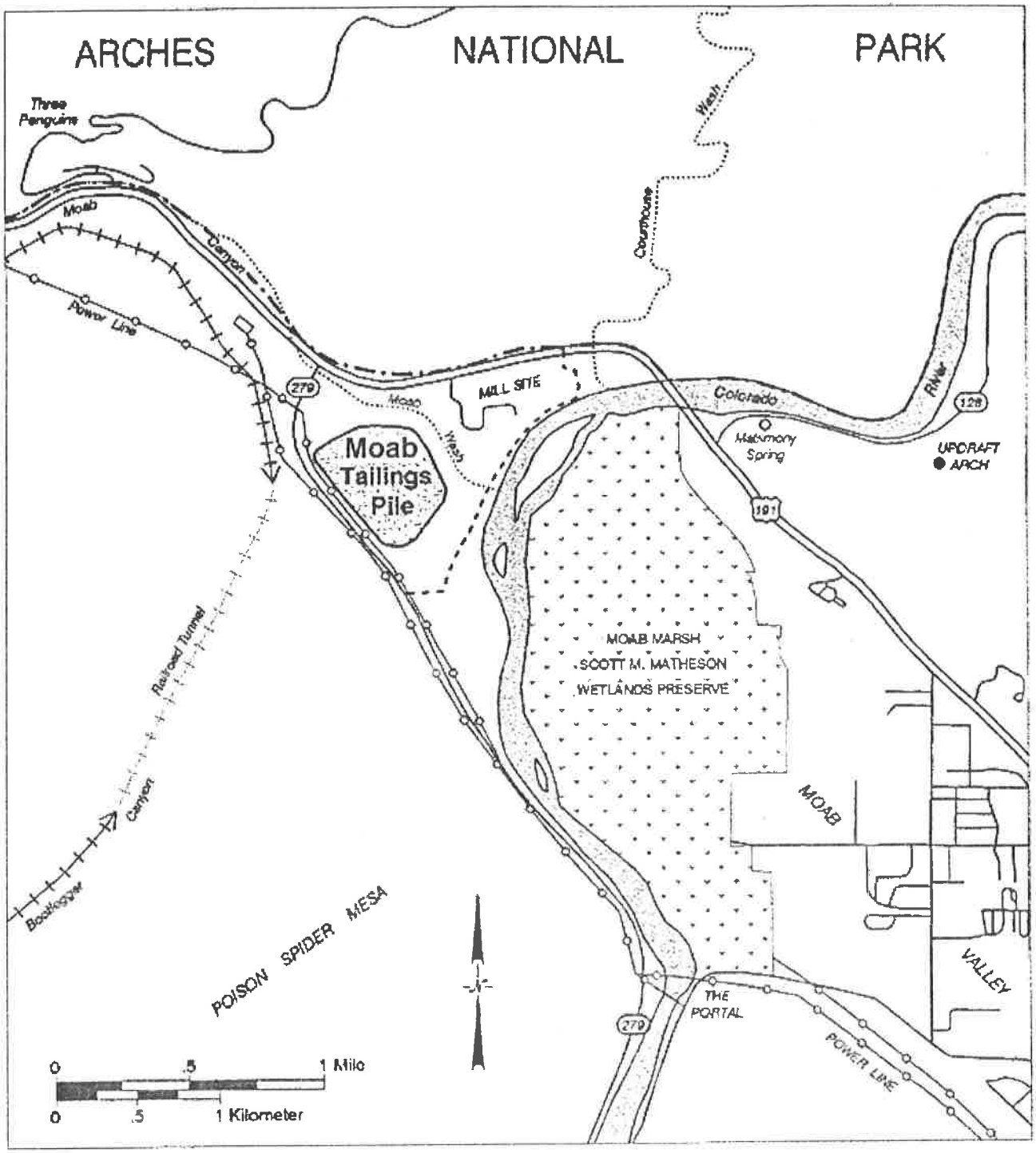
- an EA was prepared by NRC in September 1985 for the Mill License renewal (the "1985 EA");

- an EA was prepared by NRC in February 1997 for the Mill License renewal (the "1997 EA");

- an EA was prepared for IUSA's reclamation plan (the "Reclamation Plan") in February 2000 (the "2000 EA");

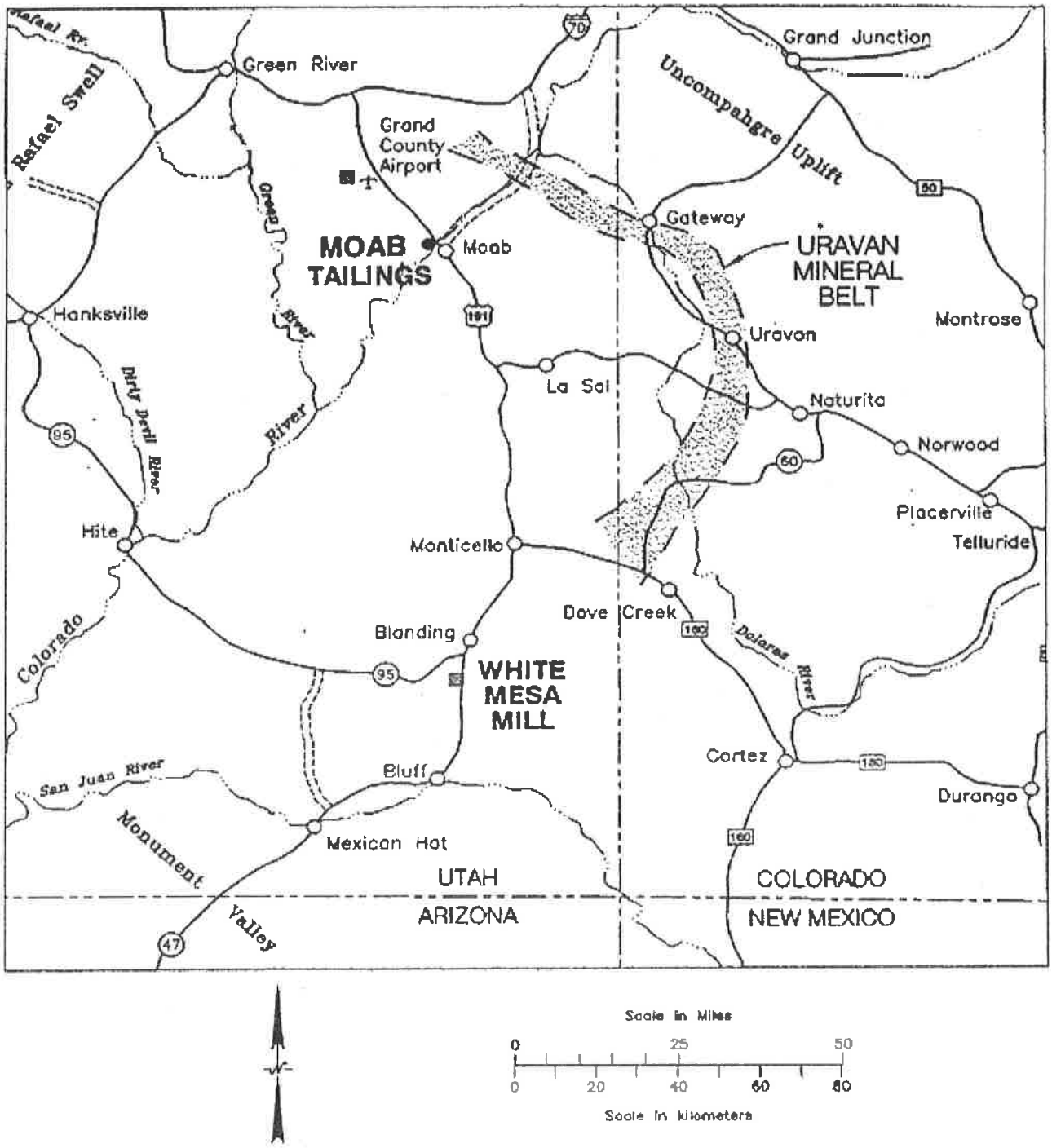
- an EA was prepared in December, 2001 (the "2001 EA") in connection with a license amendment issued by NRC authorizing the receipt and processing at the Mill of certain alternate feed materials from Molycorp Inc.'s Mountain Pass Facility; and

- an EA was prepared in August, 2002 (the "2002 EA") in connection with a license amendment issued by NRC authorizing receipt and processing at the Mill of certain alternate feed materials from the Maywood Formerly Utilized Sites Remedial Action Program ("FUSRAP") site in Maywood, New Jersey.



The Moab Uranium Mill Tailings Site

Figure 1.1



Regional Location Map

Figure 1.2

1.2 Applicable Regulatory Framework, Permits and Requirements

1.2.1 NRC

IUSA currently operates the Mill under a Nuclear Regulatory Commission ("NRC") Source Material License SUA-1358 (the "Mill License"), which also licenses the Mill to create and dispose of 11e.(2) byproduct material from Mill operations. The Mill License expires on March 31, 2007, unless renewed.

NRC source material licenses are issued under Part 40. As stated in 10 CFR 40.3, "A person subject to the regulations in this part may not receive title to, own, receive, possess, use, transfer, provide for long-term care, deliver or dispose of byproduct material or residual radioactive material as defined in this part or any source material after removal from its place of deposit in nature, unless authorized in a specific or general license issued by the Commission." Source material is defined under 10 CFR 40.4 as (1) uranium or thorium, or any combination thereof, in any physical or chemical form, or (2) ores which contain by weight 0.05 percent or more of uranium, thorium, or any combination thereof.

In addition, the Uranium Mill Tailings Radiation Control Act of 1978 ("UMTRCA"), as it amends the AEA, requires persons who conduct uranium source material operations to obtain a byproduct material license to own, use, or possess tailings and wastes generated by the operations (including above-ground wastes from in situ operations). Furthermore, the Mill is required to comply with the relevant requirements of 10 CFR Part 20 and 10 CFR Part 190.

Should the IUSA White Mesa site be selected for permanent disposal of the Moab tailings, IUSA will submit a License Amendment request to the NRC for acceptance and disposal of the Moab Tailings at the White Mesa Site. The Moab Tailings are currently considered source material under the Atomic Energy Act (the "AEA"), as amended, and are 11e.(2) byproduct material, as defined in the AEA.

1.2.2 Clean Air Act

The Mill must also comply with Clean Air Act ("CAA") national emission standards for hazardous air pollutants ("NESHAPs"). The requirements for operating (i.e., active) uranium mills are set forth in 40 CFR Part 61, Subpart W. According to EPA, Subpart W's radon emissions limit (i.e., 20 $pCi/m^2/s$) or work practice standards assure protection of public health and safety from airborne radon emissions with an "ample margin of safety."

1.2.3 State of Utah

The State of Utah Department of Environmental Quality ("UDEQ") administers and implements the State's rules and regulations.

IUSA holds Air Quality Approval Order No. DAQE-687-95 (the "Air Quality Permit"), issued by UDEQ, for the Mill. The Air Quality Permit describes the approved air pollution control

equipment required to be operated at the Mill, and sets limitations and test procedures for emissions to the atmosphere from the indicated emission points, as well as general procedures for controlling dust from roads and fugitive sources. Receipt and disposal of the Moab Tailings at the Mill will require dust control and management similar to the requirements for operation of the existing tailings disposal areas. Additional activities at the Mill may require UDEQ approval under the Air Quality Permit.

The State of Utah has initiated procedures to become an Agreement State for uranium mills, therefore, throughout this transition, IUSA will also ask UDEQ for its comments on the potential future License Amendment application and supporting documentation.

2. DESCRIPTION OF THE AFFECTED ENVIRONMENT

2.1 Introduction

This Description of the Affected Environment, hereafter referred to as the "Environmental Report" is in support of an EIS to be prepared by the DOE for the Moab Site Project. Specifically this report is for receipt and disposal of the Moab Tailings at the White Mesa site and is not meant to analyze any potential environmental impacts associated with the construction and operation of the Mill facilities as they currently exist or previously licensed activities at the Mill. These activities have been the subject of extensive review in the FES and in the five subsequent EAs that have been completed for the Mill and its activities. In other words, this Environmental Report describes the existing licensed operations at the Mill and surrounding environment as they exist at the date of this Environmental Report, to the extent relevant in determining whether or not there are any potential environmental impacts associated with the relocation of the Moab Tailings to the Mill, over and above previously licensed activities at the Mill.

2.2 Site and/or Facility Description and Location

The Mill is located in central San Juan County, Utah, approximately 6 miles south of the city of Blanding. The Mill can be reached by taking a private road for approximately 0.5 miles west of Utah State Highway 191. See Figure 2.2-1.

The Mill is located on a parcel of land and mill site claims, covering approximately 5,415 acres, encompassing all or part of Sections 21, 22, 27, 28, 29, 32, and 33 of T37S, R22E, and Sections 4, 5, 6, 8, 9, and 16 of T38S, R22E, Salt Lake Base and Meridian. See Figure 2.2-2.

All operations associated with the relocation of the Moab Tailings to the Mill will be conducted within the confines of the existing site boundary. The Mill site itself occupies approximately 50 acres and the tailings disposal cells another 450 acres. See Figure 2.2-2.

The nearest resident is currently approximately 1.2 miles to the north of the Mill site, near air sampling station BHV-1. See Figure 2.3-2.

2.3 Climate, Meteorology and Air Quality

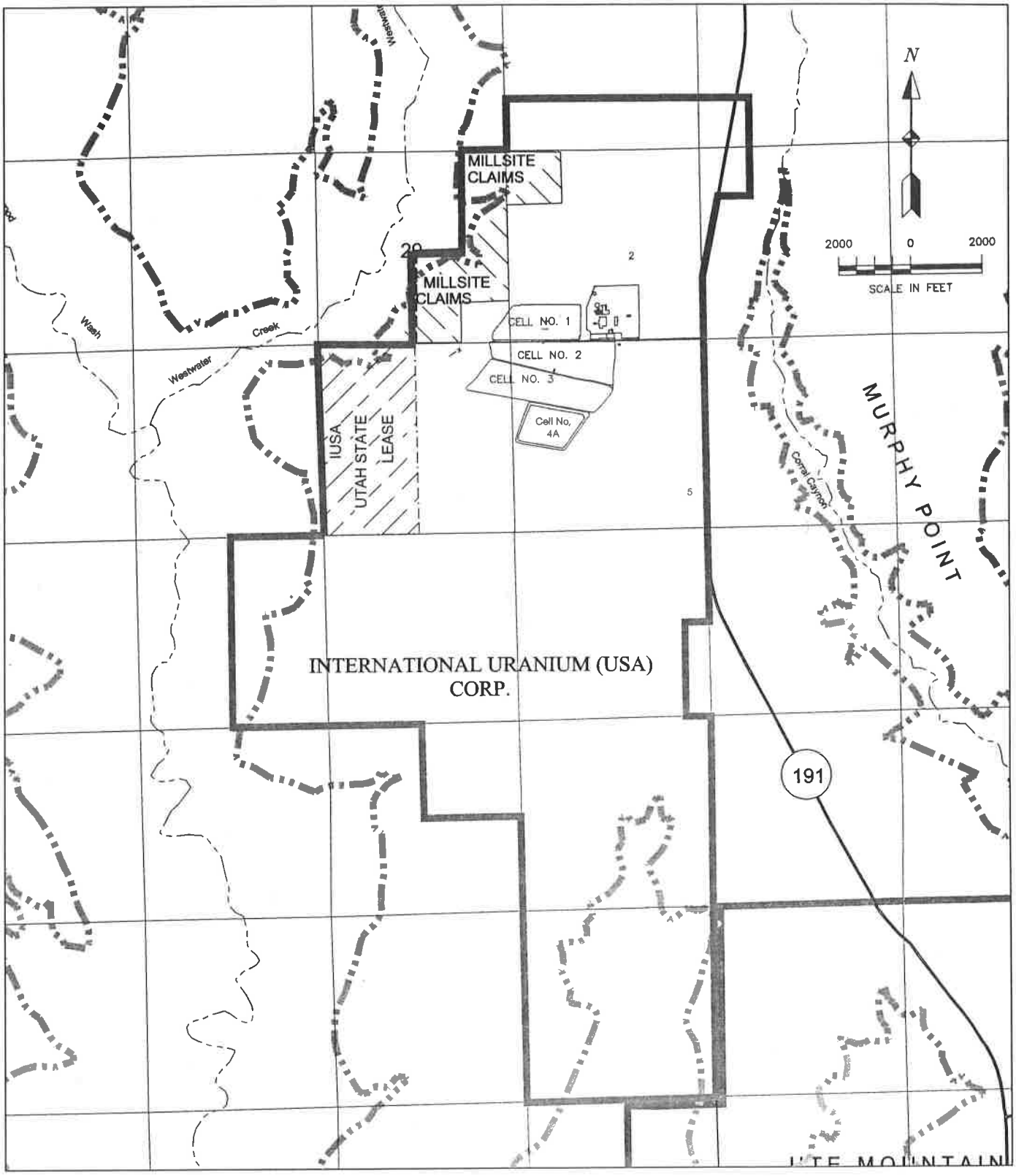
2.3.1 Climate and Meteorology

2.3.1.1 Regional

The climate of southeastern Utah is classified as dry to arid continental. The National Weather Service Station in Blanding, Utah is located about six miles north of the Mill. Data from the station is considered representative of the local weather conditions.

International Uranium (USA) Corporation

Project	WHITE MESA MILL
REVISIONS	County: / State: UT
Date / By	Location:
	Figure 2.2 - 1 White Mesa Mill Location Map
	Scale: 1:250,000 / Date: March 2003 / figure 2.2–1.dwg
	Author: HRR / Drafted By:



Property Boundary

Reservation Boundary

Canyon Rim

International Uranium (USA) Corporation

Project	WHITE MESA MILL
REVISIONS	County: / State: UT
Date / By	Location:
	Figure 2.2-2 White Mesa Mill Location Map
Scale AS SHOWN	Date: April 2003 / figure 2.2-2.dwg
Author: HRR	Drafted By: BM

Although varying somewhat with elevation and terrain, the climate in the vicinity of the Mill can be considered as semi-arid with normal annual precipitation of about 13.4 in. Most precipitation is in the form of rain with snowfall accounting for about 29% of the annual total precipitation. There are two separate rainfall seasons in the region, the first in late summer and early autumn, August to October, and the second during the winter months December to March. The mean annual relative humidity is about 44 percent and is normally highest in January and lowest in July.

The average annual Class A pan evaporation rate is 68 inches (National Oceanic and Atmospheric Administration and U.S. Department of Commerce, 1977), with the largest evaporation rate typically occurring in July. This evaporation rate is not appropriate for determining water balance requirements for the tailings management system and must be reduced by the Class A pan coefficient, which range from 60 to 81%. For the water balance calculations, an average coefficient of 70% was used to obtain the lake evaporation rate. As a result, the annual lake evaporation rate for the Mill area is estimated at 47.6 inches and the net evaporation rate on average is 34.2 inches per year.

The weather in the Blanding area is typified by warm summers and cold winters. The mean annual temperature in Blanding is about 50°F. January is usually the coldest month and July is usually the warmest month.

Winds are usually light to moderate in the area during all seasons although occasional stronger winds may occur in the late winter and spring. The pre-dominant winds are from the north through north-east (approximately 30 percent of the time) and from the south through south-west (about 25 percent of the time). Winds are generally less than 15 mph, with wind speeds faster than 25 mph occurring less than one percent of the time.

Further description of local and regional weather and climate data are given in the 1978 ER and in the FES.

2.3.1.2 <u>On Site</u>

On-site meteorological monitoring at the Mill was initiated in early 1977 and continues today. The original purpose of the meteorological monitoring program was to document the regional atmospheric baseline and to provide data to assist in assessing the potential air quality and radiological impacts arising from the operation of the Mill.

After the Mill construction was completed, the monitoring programs were modified to facilitate the assessment of Mill operations. The current meteorological monitoring program includes data collection for wind speed, wind direction, atmospheric stability according to the standard Pasquill scheme (via measurements of deviations in wind direction, referred to as sigma-theta) and precipitation as either rain or snow. The meteorological data are reported on a semi-annual basis. The details of these meteorological monitoring programs and the results are described in the semi-annual reports prepared for IUSA. The most recent Semi-Annual Meteorological

Monitoring Report is provided in Appendix A. Figure 2.3-1 shows the annual windrose for the Mill site for 2002.

2.3.2 Baseline Air Quality

2.3.2.1 FES Evaluation

At the time of the 1978 ER and FES, the Four Corners Air Quality Control Region which encompasses parts of Colorado, Arizona, New Mexico and Utah and within which the Mill site is located had a priority IA rating. This rating signified a violation of federal air standards, for particulate matter and sulfur dioxide due to emissions from fossil-fueled power plants located within the region (1978 ER, Sect. 2.7.4.2). This was an important consideration at the time since the original proposal was to use coal and oil as the source of process and building heat. Thus, much of the discussion of potential air quality effects of the Mill arose from discussions of the potential effects of wind-blown dust from coal storage stockpiles and from air emissions of sulfur dioxides, particulate matter, carbon monoxide, and nitrogen oxides arising from the combustion of coal at the Mill. In the present context however, it is important to note that the last time coal was used to fire boilers at the site was 1990. By the time the Mill commenced the 1994/1995 Mill run, propane was used to fire all process and heating boilers. The Mill is not required under its Mill License to perform sulfation rate monitoring.

The FES, based on data collected from four sampling locations on the project site for one year before construction of the Mill, reported various background air quality data and compared them to existing criteria. The FES reported dustfall to average 33 g/m^2 per month with the highest monthly average of 102 g/m^2 occurring in August. The FES also reported a geometric mean total suspended particulate level of 18 $\mu g/m^3$, based on monitoring from October 1977 through February 1978. This value is well below the Federal and State air quality standard for PM-10 of 50 $\mu g/m^3$. The maximum 24-hr concentration measured at that time of 79 $\mu g/m^3$ is approximately one-half of the Federal and State standard for PM-10 of 150 $\mu g/m^3$.

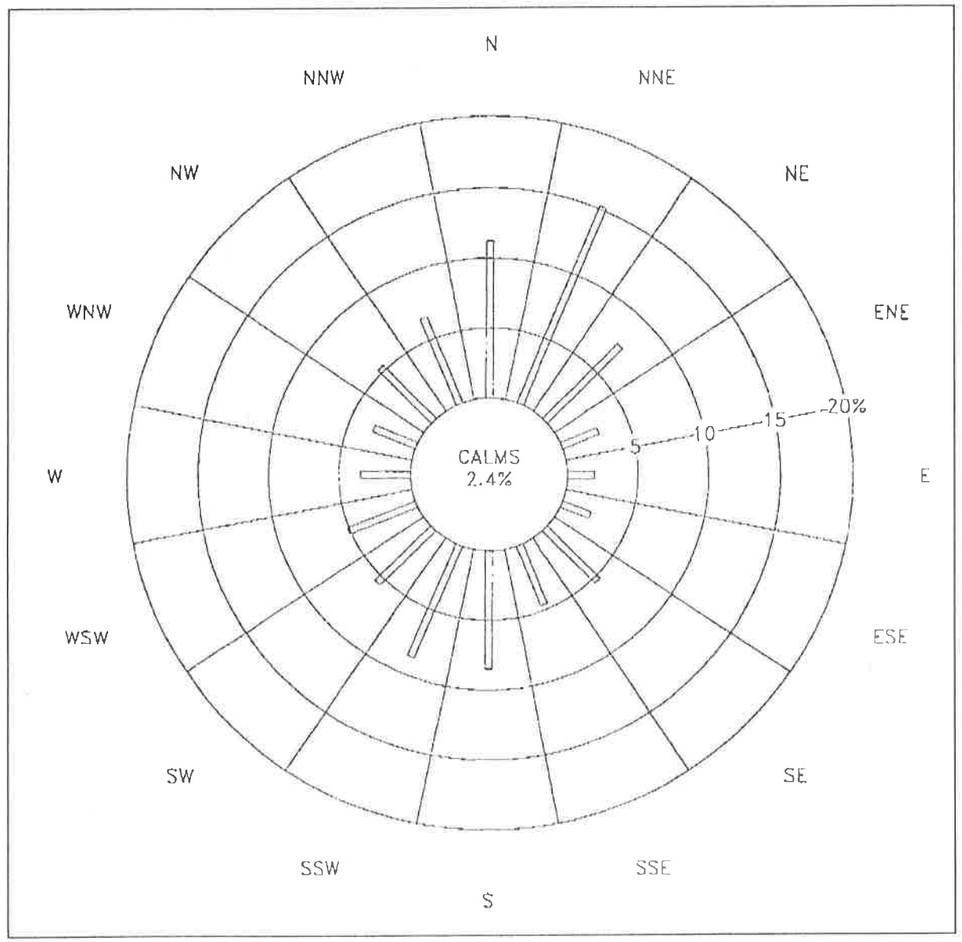
2.3.2.2 Effects on Air Quality Projected for Operations

The FES (Section 4.1.2) concluded that while air quality during operation of the Mill could be affected by atmospheric releases principally from the building and processing boiler, yellowcake and vanadium dryers, tailings disposal system, and ore stockpiles, the operation of the Mill facility should not have any significant impact on air quality. See Section 2.3.2.3.

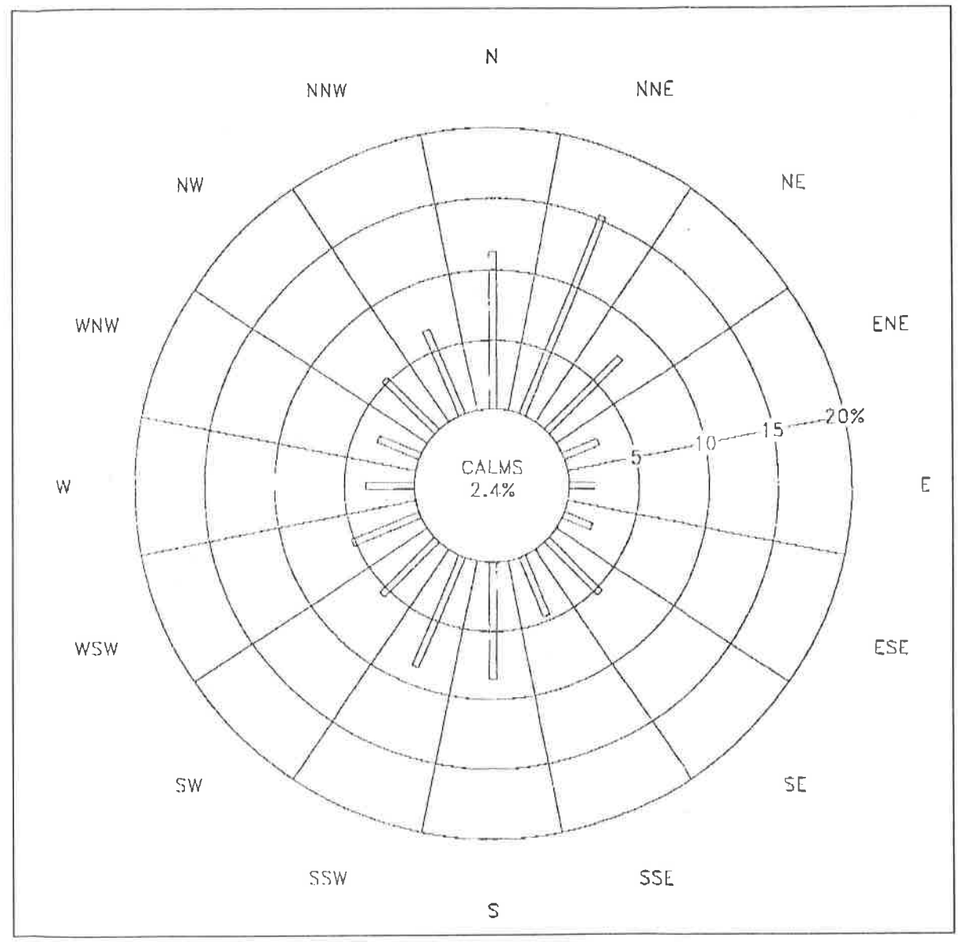
2.3.2.3 Operational Environmental Air Monitoring Data

This Section discusses the non-radiological air monitoring programs. The radiological air monitoring programs are discussed in Section 2.13.2.6.

The non-radiological air emissions from the Mill are regulated by the State of Utah in accordance with the Mill's Air Quality Permit (1997 Approval Order DAQE- 884-97.) Amongst other features of the Air Quality Permit, the Permit sets out annual emissions limits for the yellowcake dryers and the vanadium circuit scrubber. The Air Quality Permit also describes



January through June 2000



July through December 2000

International Uranium (USA) Corporation

Project: WHITE MESA MILL

County: | State: UT

Location:

REVISIONS

Date	By

Figure 2.3 - 1
Wind Frequency Distribution For All Hours

Scale: AS SHOWN | Date: April 2003 | figure 2.3-1.dwg

Author: HRR | Drafted By: BM

emissions controls for sources in the Mill and general procedures for controlling dust from roads and fugitive sources. In addition, the Permit specifies that the Mill must comply with various Federal requirements including those of 40 CFR 61 concerning emissions of radon from the mill tailings.

Specifically, the Permit requires that particulate (PM-10) emissions to the atmosphere shall not exceed 0.40 lbs per hour for each yellowcake dryer and 2.50 lbs per hour for the vanadium circuit scrubber. The Air Quality Permit requires that initial compliance testing of the scrubber and dryers must be performed within 180 days of the start up of a new emission point or the inclusion of an emission point in the Permit, and thereafter, if and when directed by the State of Utah Department of Environmental Quality ("UDEQ"). The yellowcake dryers were last tested under the Air Quality Permit when the second yellowcake dryer was installed in connection with the 1995/1996 Mill. It should be noted that monitoring for radionuclide emissions is conducted while the Mill is operating. See Section 2.13.2.6 a).

In order to ensure compliance with applicable air quality standards and the requirements of the Permit, the Permit recognizes the specifications of emission generating equipment and emission control equipment at the Mill and places restrictions on the use of such equipment. For example, the Permit provides that no more than 720,720 tons of ore may be processed in any 12 month period and that the total amount of propane gas consumption for the boiler facilities shall not exceed 2,960,880 gallons per 12 month period, in each case without the prior approval of UDEQ. In this way, the Permit ensures compliance with applicable standards by recognizing the nature of the Mill operations and the emissions that are generated, and by controlling the throughput rate and propane consumption and by placing other restrictions on air emission-generating activities at the Mill in a manner that is calculated in the Permit to result in air emissions that fall within applicable air quality standards.

The Mill is required to submit to UDEQ an Annual Emission Inventory. Table 2.3-1 sets out the Annual Emission Inventory for the key criteria emissions for the last five years. The key criteria emissions are:. PM-10 (particulate measuring 10 microns or less); sulfur oxides (SOX); nitrogen oxides (NOX); volatile organic compounds (VOC); and carbon monoxide (CO).

Table 2.3-1
Air Emission Inventory for Key Criteria Emissions (tons/yr)

Year	PM-10	SOX	NOX	VOC	CO
1997	0.775	0.255	3.859	2.120	7.257
1998*	-	-	-	-	-
1999	2.57	1.15	18.11	2.16	14.14
2000	1.9	1.47	14.61	2.76	11.78
2001*	-	-	-	-	-
2002	0.68	0.98	9.04	1.80	11.49

*Not required to file an Air Emission Inventory for the year because it was determined that the Mill did not realize a change of 5% or more in emissions for any criteria pollutant reported in the previous year.

In addition, as part of the Mill's NRC environmental air monitoring program for radionuclides (See Section 2.13.2.6), total particulate matter is recorded. The Mill's NRC air monitoring program is conducted at the Mill utilizing four high volume continuous air sampling stations (filters are changed approximately every seven days) located as indicated in Figure 2.3-2. The filters from these samplers are measured for total particulate, among other parameters. These data are also reported in the Semi-Annual Effluent Monitoring Reports, examples of which are included in Appendix B.

In general terms, over the Mill's operational life, sampling at these locations has indicated that the total suspended particulate matter concentrations have been quite low. For instance, during a recent Mill run of conventional uranium ore in 1999, from April through October, 1999 (the period of highest winds), the average total particulate suspended matter collected from all environmental sample locations was 20 μg/m3. The maximum value from any location for seven consecutive days was 40 μg/m3. By comparison, during a period of suspended operations in 2001, when the Mill was only receiving and stockpiling ore, from April through October, 2001, the average total suspended particulate matter collected from the same sample locations was 26 μg/m3 with a maximum seven day value of 44 μg/m3 from one location. It should be noted that this measurement was taken in a period of drought and therefore windblown dust from surrounding areas would be expected to be higher than usual.

2.4 Geology

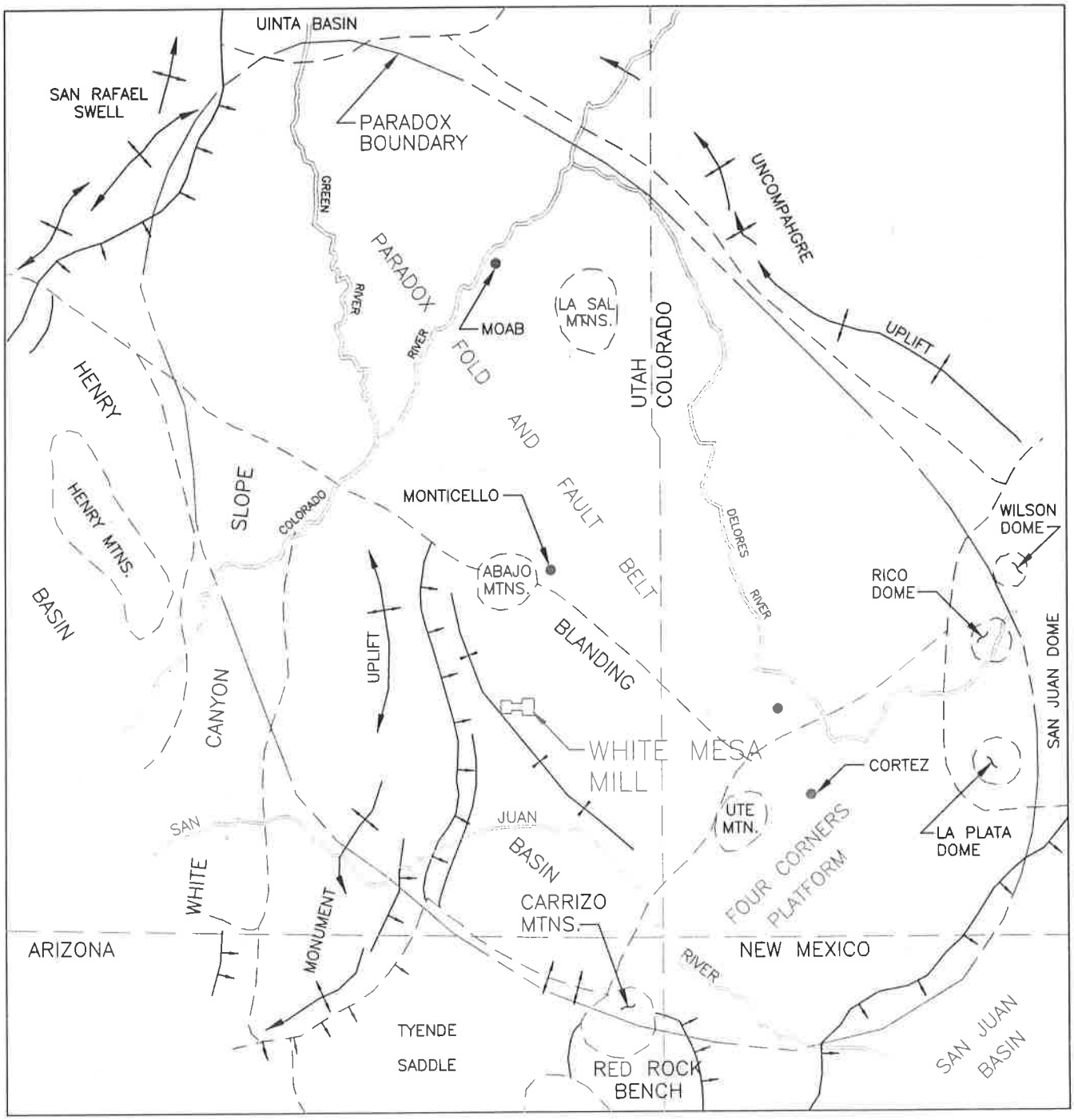
2.4.1 Regional Geology

The Mill site lies within a region designated as the Canyon Lands section of the Colorado Plateau physiographic province (Figure 2.4-1). Elevations in the region range from approximately 3,000 feet in the bottom of canyons to over 11,000 ft among the peaks of the Henry, Abajo and La Sal Mountains to the northeast. The average elevation for the area, excluding deeper canyons and isolated mountain peaks, is about 5,000 ft.

The sedimentary rocks exposed in southeastern Utah have a total thickness of approximately 6,000 to 7,000 ft. These sedimentary units range in age from Pennsylvanian to Late Cretaceous; older rock units that underlie those of Pennsylvanian age are not exposed in the Mill site area.

Structural features in the Mill site area have been divided into three main categories on the basis of origin or mechanism of the stress that created the structure. These categories are: (1) structures related to large-scale regional uplifting or downwarping directly related to movements in the basement complex (the Monument Uplift and the Blanding Basin); (2) structures due to diapiric deformation of thick sequences of evaporate deposits, salt plugs and salt anticlines (the Paradox Fold and Fault Belt); and, (3) structures formed due to magmatic intrusions (the Abajo Mountains).

A generalized stratigraphic column for the region is provided as Figure 2.4-2. The Summerville Formation, Entrada Sandstone, and Navajo Sandstone are the deepest units of concern encountered at the site.

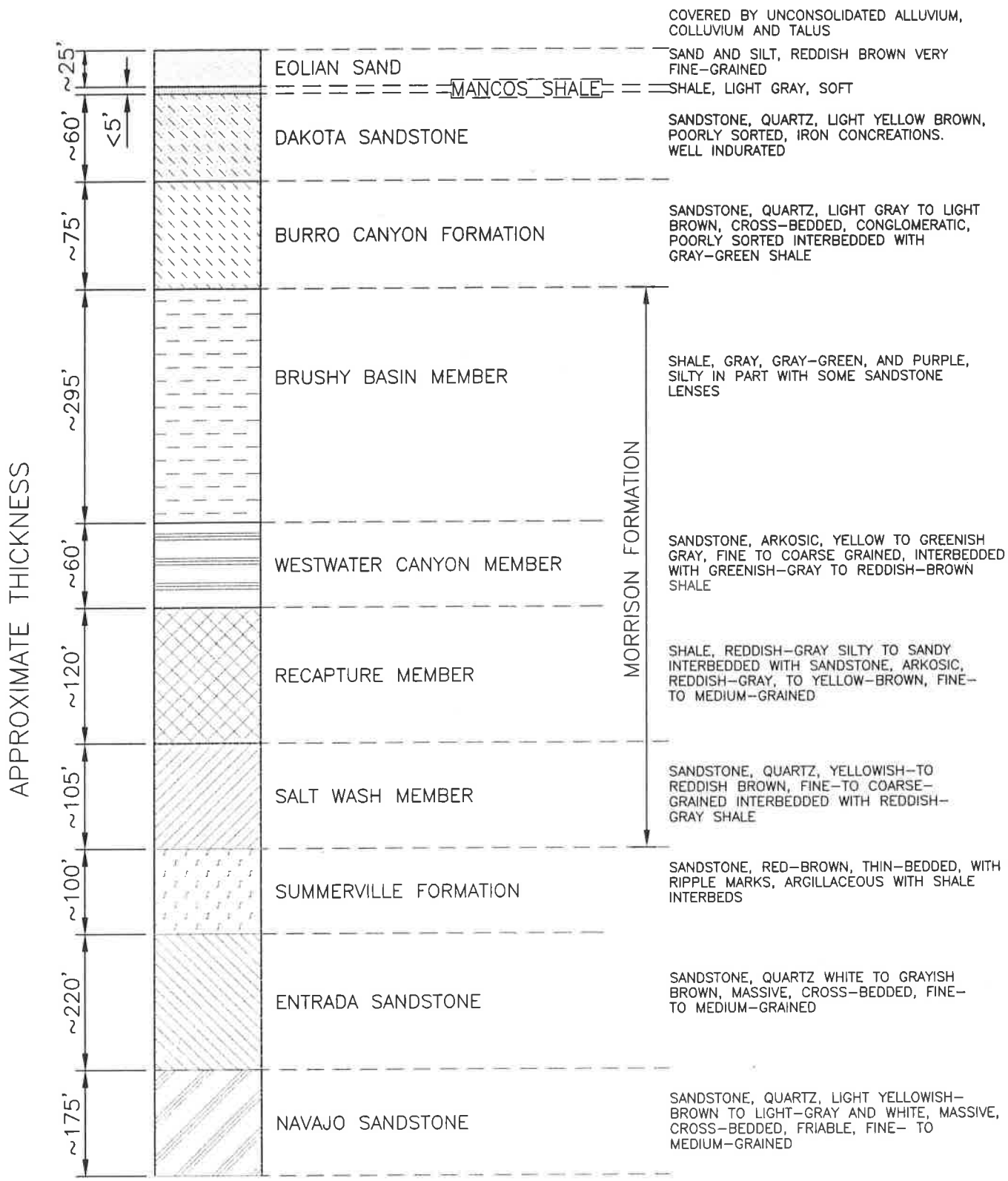


LEGEND

- BOUNDARY OF TECTONIC DIVISION
- MONOCLINE SHOWING TRACE OF AXIS AND DIRECTION OF DIP
- ANTICLINE SHOWING TRACE OF AXIS AND DIRECTION OF PLUNGE
- SYNCLINE SHOWING TRACE OF AXIS AND DIRECTION OF PLUNGE

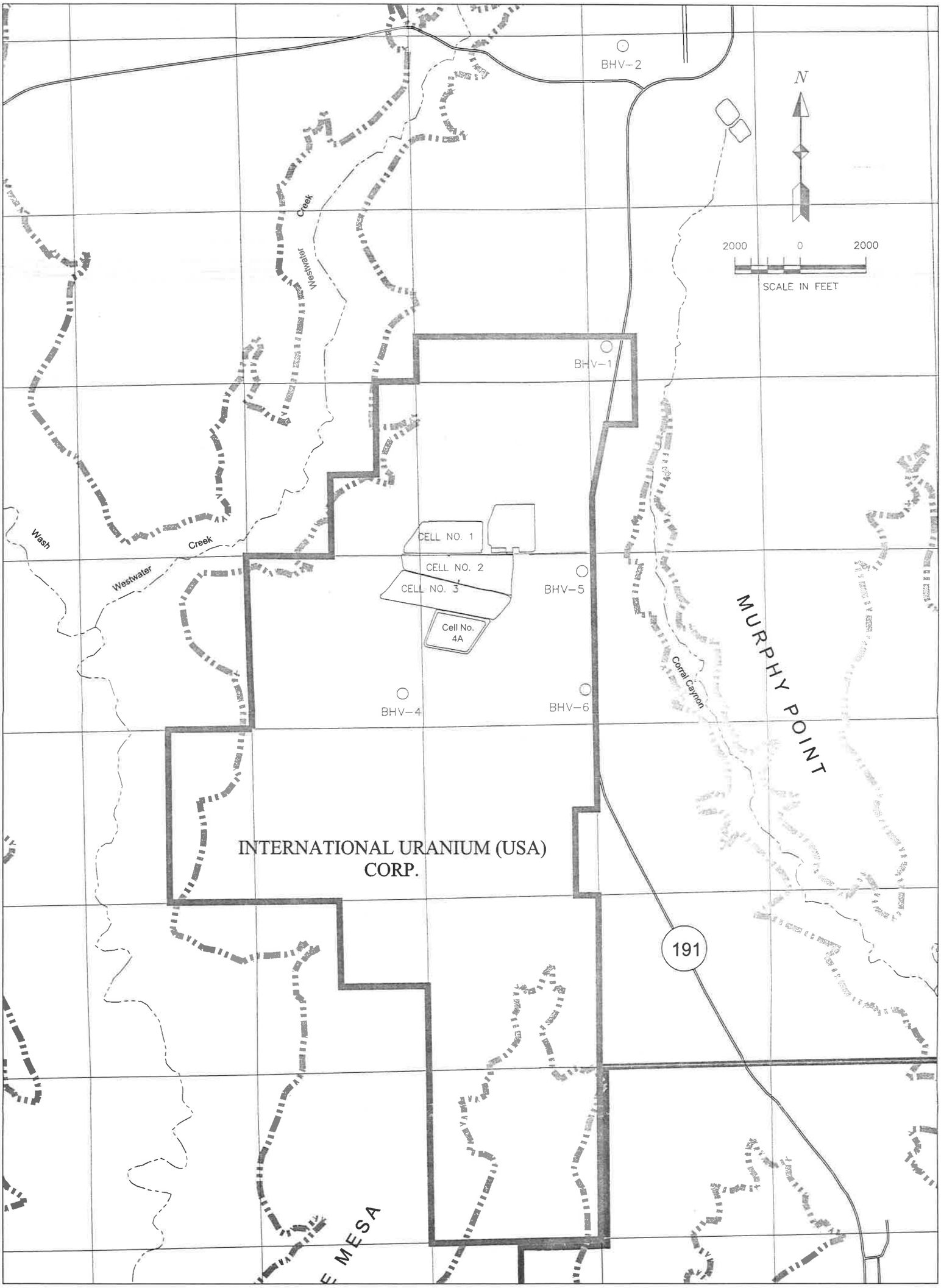
International Uranium (USA) Corporation

Project	WHITE MESA MILL
REVISIONS	County: / State: UT
Date / By	Location:
	Figure 2.4 - 1 Colorado Plateau Geologic Map
	Scale: N/A / Date: March 2003 / figure 2.4 –1.dwg
	Author: HRR / Drafted By: BM



International Uranium (USA) Corporation

Project	WHITE MESA MILL
REVISIONS	County: / State: UT
Date / By	Location:
	Figure 2.4 - 2 Generalized Stratigraphy of White Mesa Mill
	Scale: N/A / Date: March 2003 / figure 2.4 - 2.dwg
	Author: HRR / Drafted By:



Property Boundary

Reservation Boundary

Canyon Rim

BHV-1 Air Monitor Wells

International Uranium (USA) Corporation

Project	WHITE MESA MILL		
REVISIONS	County:	State: UT	
Date / By	Location:		
	Figure 2.3 - 2 NRC Air Monitoring Stations		
	Scale AS SHOWN	Date: March 2003	figure 2.3-2.dwg
	Author: HRR	Drafted By:	

2.4.2 Local Geology

The Mill site is located on the western edge of the Blanding Basin, sometimes referred to as the Great Sage Plain, lying east of the north/south-trending Monument Uplift, south of the Abajo Mountains and adjacent to the northwest-trending Paradox Fold and Fault Belt. The Abajo Mountains are the most prominent topographic feature in the region, rising over 4,000 ft above the surface of the plain. The lithology of the immediate area is composed of thousands of feet of multi-colored pre-Tertiary age marine and non-marine sedimentary rocks. Erosion on the regionally-uplifted sedimentary strata has produced an array of eroded canyons and mesas.

The Mill is located on White Mesa and rests on alluvial windblown silt and sand, which covers sandstones and shales of Jurassic and Cretaceous age. The surface of the mesa is nearly flat, with a surface relief of approximately 100 ft. The maximum relief between White Mesa and the adjacent Cottonwood Canyon is about 750 ft.

2.4.3 Seismicity

The geologic structure at the project site is comparatively simple. Strata of the underlying Mesozoic sedimentary rocks are nearly horizontal; only slight undulations along the caprock rims of the upland are perceptible and faulting is absent. In much of the area surrounding the project site the dips are less than one degree. The prevailing regional dip is about one degree to the south. The low dips and simple structure are in sharp contrast to the pronounced structural features of the Comb Ridge Monocline to the west and the Abajo Mountains to the north.

The project area is within a relatively tectonically stable portion of the Colorado Plateau noted for its scarcity of historical seismic events. More than 1,146 events have occurred in the area, of which at least 45 were damaging; that is, having an intensity of VI or greater on the Modified Mercalli Scale. Conversely, the border between the Colorado Plateau and the Basin and Range Province and Middle Rocky Mountain Province some 155 to 240 miles west and northwest, respectively, from the site is one of the most active seismic belts in the western United States.

Only 63 non-duplicative epicenters have been recorded within a 120 mile radius of the Mill site area. Of these, 50 had an intensity IV or less (or unrecorded) and two were recorded as intensity VI. The nearest event occurred in the Glen Canyon National Recreation Area approximately 38 miles west-northwest of the project area. The next closest event occurred approximately 53 miles to the northeast. Just east of Durango, Colorado, approximately 99 miles due east of the project area, an event having local intensity of V was recorded on August 29, 1941 (Hadsell, 1968). It is very doubtful that these events would have been felt in the vicinity of Blanding.

Three of the most damaging earthquakes associated with the seismic belt along the Colorado Plateau's western border have occurred in the Elsinore-Richfield are about 168 miles northwest of the project site. All were of intensity VIII. On November 13, 1901, a strong shock caused extensive damage from Richfield to Parowan. Many brick structures were damaged; rockslides were reported near Beaver. Earthquakes with the ejection of sand and water were reported, and some creeks increased their flow. Aftershocks continued for several weeks (von Hake, 1977).

Following several weeks of small foreshocks, a strong earthquake caused major damage in the Monroe-Elsinore-Richfield area on September 29, 1921. Scores of chimneys were thrown down, plaster fell from ceilings, and a section of a new two-story brick wall collapsed at Elsinore's schoolhouse. Two days later, on October 1, 1921, another strong tremor caused additional damage to the area's structures. Large rockfalls occurred along both sides of the Sevier Valley and hot springs were discolored by iron oxides (von Hake, 1977). It is probable that these shocks may have been perceptible at the project site but they certainly would not have caused any damage.

Seven events of intensity VII have been reported within 200 around Blanding, Utah. Of these, only two are considered to have any significance with respect to the project site. On August 18, 1912, an intensity VII shock damaged houses in northern Arizona and was felt in Gallup, New Mexico, and southern Utah. Rock slides occurred near the epicenter in the San Francisco Mountains and a 50 mile earth crack was reported north of the San Francisco Range (U. S. Geological Survey, 1970). Nearly every building in Dulce, New Mexico, was damaged to some degree when shook by a strong earthquake on January 22, 1966. Rockfalls and landslides occurred 10 to 15 miles west of Dulce along Highway 17 where cracks in the pavement were reported (Hermann et al., 1980). Both of these events may have been felt at the project site but, again, would certainly not have caused any damage.

The majority of recorded earthquakes in Utah have occurred along an active belt of seismicity that extends from the Gulf of California, through western Arizona, central Utah, and northward into western British Columbia. The seismic belt is possibly a branch of the active rift system associated with the landward extension of the East Pacific Rise (Cook and Smith, 1967). This belt is the Intermountain Seismic Belt shown in Figure 2.4-3 (Smith, 1978).

It is significant to note that the seismic belt forms the boundary zone between the Basin and Range - Great Basin Provinces and the Colorado Plateau - Middle Rocky Mountain Provinces. This block-faulted zone is about 47 to 62 miles wide and forms a tectonic transition zone between the relatively simple structures of the Colorado Plateau and the complex fault-controlled structures of the Basin and Range Province (Cook and Smith, 1967).

Another zone of seismic activity is in the vicinity of Dulce, New Mexico, near the Colorado border. This zone, which coincides with an extensive series of tertiary intrusives, may also be related to the northern end of the Rio Grande Rift. This rift is a series of fault-controlled structural depressions extending southward from southern Colorado through central New Mexico and into Mexico.

Most of the events south of the Utah border of intensity V and greater are located within 50 miles of post-Oligocene extrusives. This relationship is not surprising because it has been observed in many other parts of the world (Hadsell, 1968).

In Colorado, the Rio Grande Rift zone is one of three siesmotectonic provinces that may contribute energy to the Mill area. Prominent physiographic expression of the rift includes the San Luis Valley in southern Colorado. The valley is a half-graben structure with major faulting on the eastern flank. Extensional tectonics is dominant in the area and very large earthquakes

with recurrence intervals of several thousand years have been projected (Kirkham and Rodgers, 1981). Mountainous areas to the west of the Rio Grande rift province include the San Juan Mountains. These mountains are a complex domicil uplift with extensive Oligocene and Miocene volcanic cover. Many faults are associated with the collapse of the calderas and apparently have not moved since. Faults of Neogene age exist in the eastern San Juan Mountains that may be related to the extension of the Rio Grande rift. Numerous small earthquakes have been felt or recorded in the western mountainous province despite an absence of major Neogene tectonic faults (Kirkham and Rodgers, 1981).

The third seismotectonic province in Colorado, that of the Colorado Plateau, extends into the surrounding states to the west and south. In Colorado, the major tectonic element that has been recurrently active in the Quaternary is the Uncompahgre uplift. Both flanks are faulted and earthquakes have been felt in the area. The faults associated with the Salt Anticlines are collapsed features produced by evaporite solution and flowage (Cater, 1970). Their non-tectonic origin and the plastic deformation of the salt reduces their potential for generating even moderate-sized earthquakes (Kirkham and Rodgers, 1981).

Case and Joesting (1972) have called attention to the fact that regional seismicity of the Colorado Plateau includes a component added by basement faulting. They inferred a basement fault trending northeast along the axis of the Colorado River through Canyonlands. This basement faulting may be part of the much larger structure that Hite (1975) examined and Warner (1978) named the Colorado lineament. This 1,300 mile long lineament that extends from northern Arizona to Minnesota is suggested to be a Precambrian wrench-fault system formed some 2.0 to 1.7 billion years before present. While it has been suggested that the Colorado lineament is a source zone for larger earthquakes (ML = IV to VI) in the west-central United States, the observed spatial relationship between epicenters and the trace of the lineament does not prove a casual relation (Brill and Nuttli, 1983). In terms of contemporary seismicity, the lineament does not act as a uniform earthquake generator. Only specific portions of the proposed structure are presently considered seismic source zones and each segment exhibits seismicity of distinctive activity and character (Wong, 1981). This is a reflection of the different orientations and magnitudes of the stress fields along the lineament. The interior of the Colorado Plateau forms a tectonic stress province, as defined by Zoback and Zoback (1980), which is characterized by generally east-west tectonic compression. Only where extensional stresses from the Basin and Range province of the Rio Grande rift extend into the Colorado Plateau would the Colorado lineament in the local area be suspected of having the capability of generating a large magnitude earthquake (Wong, 1984). At the present time, the well defined surface expression of regional extension is far to the west and far to the east of the Mill area.

Recent work by Wong (1984) has helped define the seismicity of the whole Colorado Plateau. He called attention to the low level (less than M_L = IV) but high number (30) of earthquakes in the Capitol Reef Area from 1978 to 1980 that were associated with the Waterpocket fold and the Cainville monocline, two other major tectonic features of the Colorado Plateau. Only five earthquakes in the sequence were of M_L greater than III, and fault plane solutions suggest the swarm was produced by normal faulting along northwest-trending Precambrian basement structures (Wong, 1984). The significance of the Capitol Reef seismicity is its relatively isolated occurrence within the Colorado Plateau and its location at a geometric barrier in the regional

stress field (Aki, 1979). Stress concentration that produces earthquakes at bends or junctures of basement faults as indicated by this swarm may be expected to occur at other locations in the Colorado Plateau Province. No inference that earthquakes such as those at Capitol Reef are precursors for larger subsequent events is implied.

The Mill site is located in a region known for its scarcity of recorded seismic events. Although the seismic history for this region is barely 155 years old, the epicentral pattern, or fabric, is basically set and appreciable changes are not expected to occur. Most of the larger seismic events in the Colorado Plateau have occurred along its margins rather than in the interior central region. Based on the region's seismic history, the probability of a major damaging earthquake occurring at or near the project site is very remote. Studies by Algermissen and Perkins (1976) indicate that southeastern Utah, including the site, is in an area where there is a 90 percent probability that a horizontal acceleration of four percent gravity (0.04 g) would not be exceeded within 50 years.

Minor earthquakes, not associated with any seismic-tectonic trends, can presumably occur randomly at almost any location. Even if such an event with an intensity as high as VI should occur at or near the project site, horizontal ground accelerations would not exceed 0.10 g but would probably range between 0.05 and 0.09 g (Coulter et al., 1973; Trifunac and Brady, 1975). These magnitudes of ground motion would not pose significant hazards to the existing and proposed facilities at the Mill Site.

In the FES (Section 2.7.3) NRC staff concluded that, based on the region's seismic history, the probability of a major damaging earthquake occurring at or near the site is remote.

2.4.4 Mineral Resources

There are no known mineral resources of any significance at the Mill site. There is currently some exploration for oil and gas in the near vicinity.

2.5 Soils

The majority (99%) of the soil on the Mill site consists of the Blanding soil series (1978 ER, Sect. 2.10.1.1). The remaining 1% of the site is in the Mellenthin soil series. Because the Mellenthin soil occurs only on the eastern-central edge of the site (1978 ER, Plate 2.10-1), the FES (Section 2.8) concluded that it should not be affected by construction and operation of the Mill. The construction of the disposal cells for the Moab tailings would also not affect the Mellenthin soil area.

The Mill and associated tailings disposal cells are located on Blanding silt loam, a deep soil formed from wind-blown deposits of fine sands and silts. Although soil textures are predominantly silt loam, silty-clay-loam textures are found at some point in most profiles (Table 3.5-1). This soil generally has a 4 to 5 in reddish-brown, silt-loam A horizon and a reddish-brown, silt-loam to silty-clay-loam B horizon. The B horizon extends downward about 12 to 16

in where the soil then becomes calcareous silt-loam or silty-clay-loam, signifying the C horizon. The C horizon and the underlying parent material are also reddish-brown in color.

The A and B horizon both are non-calcareous with an average pH of about 8.0, whereas the C horizon is calcareous with an average pH of about 8.5. Subsoil sodium levels range up to 12% in some areas, which is close to the upper limit of acceptability for use in reclamation work (1978 ER, Sect. 2.10.1.1). Other elements, such as boron and selenium, are well below potentially hazardous levels. Potassium and phosphorus values are high in this soil (1978 ER, Table 2.10-2) and are generally adequate for plant growth. Nitrogen, however, is low (1978 ER, Sect. 2.10.1.1) and may have to be provided for successful revegetation during final reclamation.

With the well-drained soils, relatively flat topography, and low precipitation (see Section 2.3.1), the site generally has a low potential for water erosion. However, the flows resulting from thunderstorm activity are nearly instantaneous and, without the Mill's design controls, could result in substantial erosion. When these soils are barren, they are considered to have a high potential for wind erosion. Although the soil is suitable for crops, the low percentage of available moisture (6 to 9%) is a limiting factor for plant growth; therefore, light irrigation may be required to establish native vegetation during reclamation.

Table 2.5–1
RESULTS OF SOIL SAMPLE TEST ANALYSES FOR MILL

Symbol	Soil Series	Profile No.	Depth	Texture[1]	Available Moisture	Water at Saturation	1:1	1:5	Lime	Gypsum	ECe	ESP	Organic Carbon	Phos-phate	Potassium	CEC
					%	%			%	%	mm/cc	%	%	ppm	ppm	Meq/100g
BnD	Blanding	4	0-4	SiL	7.6	36.0	7.4	7.9	0.3	.15	1.2	1.1	.63	15	198	12.8
	Ustollic Haplargid		4-12	SiCL	8.7	49.0	7.6	8.0	0.3	0.14	0.8	0.2	0.53	3	170	16.6
	Fine-silty, mixed		18-40	SiCL	8.0	43.7	8.0	8.5	2.0	0.30	0.7	0.6	0.42	3	165	14.9
		9	0-5	SiL	8.9	38.7	7.6	8.1	0.3	0.17	0.9	1.8	0.53	10	182	13.1
			5-12	SiL	9.3	45.6	8.0	8.4	0.3	0.18	0.9	1.4	0.47	2	138	10.9
			18-40	SiL	8.0	38.7	8.5	9.0	3.8	0.18	1.2	11.5	0.37	2	123	11.9
			40-50	SiCL	9.0	38.9	8.8	9.2	1.6	0.18	1.0	12.5	0.26	1	161	15.9

1. SiCL = silty clay loam; SiL = silt loam.

Source: Adapted from 1978 ER Table 2.10-2.

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2.6 Bedrock

Subsurface conditions at the Mill Site area were investigated as part of the 1978 ER by drilling, sampling, and logging a total of 28 borings which ranged in depth from 6.5 to 132.4 ft. Of these borings, 23 were augered to bedrock to enable soil sampling and estimation of the thickness of the soil cover. The remaining five borings were drilled through bedrock to below the water table, with continuous in-situ permeability testing where possible and selective coring in bedrock. The soils encountered in the borings were classified and a complete log for each boring was maintained (see Appendix H of the 1978 ER).

Borings in the footprint of the existing tailings cells reported calcareous, red-brown, sands and silts from the surface to a depth of 15 ft, averaging over 7 feet. Borings in the general area of the Mill site and the tailings cells reported calcareous, red-brown, sands and silts from the surface to a depth of 14 ft, averaging over 9 ft. Downgradient of the tailings cells, calcareous sands and silts extend to a depth of 17 ft of the surface. The calcareous silts and sands of the near-surface soils grade to weathered claystones or weathered sandstones, inter-layered with weathered claystone and iron staining. At depth, the weathered claystone or weathered clayey sandstone grade into sandstone with inter-layered bands of claystone, gravel, and conglomerate. Some conglomerates are cemented with calcareous matrix.

2.7 Water Resources

2.7.1 Surface Water

2.7.1.1 Surface Water Characteristics

The Mill was designed and constructed to prevent runon or runoff of storm water by a) diverting runoff from precipitation on the Mill site to the tailings cells; and b) diverting runoff from surrounding areas away from the Mill site. No perennial surface water drainages exist on the site. The Mill site is located on White Mesa, a gently sloping (1% SSW) plateau that is physically defined by the adjacent drainages which have cut deeply into regional sandstone formations. There is a small drainage area of approximately 62 acres above the site that could yield surface runoff to the site. Runoff from the mesa is conducted by the general surface topography to either Westwater Creek, Corral Creek, or to the south into an unnamed branch of Cottonwood Wash. Local porous soil conditions, topography and low average annual rainfall of 13.4 in cause these streams to be intermittently active, responding to spring snowmelt and local rainstorms (particularly thunderstorms). Surface runoff from approximately 384 acres of the mesa drains westward and is collected by Westwater Creek, and runoff from another 384 acres drains east into Corral Creek. The remaining 713 acres of the southern and southwestern portions of the site drain indirectly into Cottonwood Wash (1978 ER, p. 2-143). The site and vicinity drainages carry water only on an intermittent basis. The major drainages in the project vicinity are depicted in Figure 2.7-1 and their drainages tabulated in Table 2.7-1. Total runoff from the mesa (total yield per watershed area) is estimated to be less than 0.5 in annually (1978 ER, p. 2-143).

- 1 USGS GAUGE NO. 09376900
- 2 USGS GAUGE NO. 09378630
- 3 USGS GAUGE NO. 09378700

International Uranium (USA) Corporation

Project	WHITE MESA MILL		
REVISIONS	County:	State: UT	
Date / By	Location:		
	Figure 2.7 - 1 Drainage Map of the Vicinity of the White Mesa Mill		
	Scale: 1:250,000	Date: March 2003	figure 2.7–1.dwg
	Author: HRR	Drafted By:	

TABLE 2.7-1
Drainage Areas of Mill Vicinity and Region

Basin description	Drainage Area	
	sq. miles	km^2
Corral Creek at confluence with Recapture Creek	5.8	15.0
Westwater Creek at confluence with Cottonwood Wash	26.6	68.8
Cottonwood Wash at USGS gage west of project site	<205	<531
Cottonwood Wash at confluence with San Juan River	<332	<860
Recapture Creek at USGS gauge	3.8	9.8
Recapture Creek at confluence with San Juan River	<200	<518
San Juan River at USGS gauge downstream at Bluff, Utah	<23,000	<60,000

Source: Adapted from 1978 ER, Table 2.6-3

There are no perennial surface waters on or in the vicinity of the Mill site. This is due to the gentle slope of the mesa on which the site is located, the low average annual rainfall of 13.4 in at Blanding, local soil characteristics and the porous nature of local stream channels. Prior to construction, three small ephemeral catch basins were present on the site to the northwest and northeast of the Mill site. Two of these catch basins remain and are filled by the Mill to serve as wildlife ponds.

Corral Creek is an intermittent tributary to Recapture Creek. The drainage area of that portion of Corral Creek above and including drainage from the eastern portion of the site is about 5 square miles. Westwater Creek is also an intermittent tributary of Cottonwood Wash. The Westwater Creek drainage basin covers nearly 27 square miles at its confluence with Cottonwood Wash 1.5 miles west of the Mill site. Both Recapture Creek and Cottonwood Wash are similarly intermittently active, although they carry water more often and for longer periods of time due to their larger watershed areas. They both drain to the south and are tributaries of the San Juan River. The confluences of Recapture Creek and Cottonwood Wash with the San Juan River are approximately 18 miles south of the Mill site. The San Juan River, a major tributary for the upper Colorado River, has a drainage of 23,000 square miles measured at the USGS gauge to the west of Bluff, Utah (1978 ER, p. 2-130).

Storm runoff in these streams is characterized by a rapid rise in the flow rates, followed by rapid recession primarily due to the small storage capacity of the surface soils in the area. For

example, on August 1, 1968, a flow of 20,500 cubic feed per second (cfs) was recorded in Cottonwood Wash near Blanding. The average flow for that day, however, was only 4,340 cfs. By August 4, the flow had returned to 16 cfs (1978 ER, p. 2-135). Monthly stream flow summaries as stated in the FES (Figure 2.4 of the FES) are presented in Figure 2.7-2 for Cottonwood Wash, Recapture Creek and Spring Creek. Flow data are not available for the two smaller water courses closest to the Mill site, Corral Creek and Westwater Creek, because these streams carry water infrequently and only in response to local heavy rainfall and snowmelt, which occurs primarily in the months of April, August, and October. Flow typically ceases in Corral and Westwater Creeks within 6 to 48 hours after precipitation or snowmelt ends.

2.7.1.2 Surface Water Background Quality as of the Date of the FES

Sampling of surface water quality in the Mill vicinity began in July 1977 and continued through March 1978. Baseline data describe and evaluate existing conditions at the Mill site and vicinity at that time. Sampling of the temporary on-site surface waters (two catch basins) was attempted at that time but without success because of the lack of naturally occurring water in these basins. Sampling of ephemeral surface waters in the vicinity was possible only during major precipitation events, as these streams are normally dry at other times. See FES Section 2.6.1.2

The locations of the surface water sample sites used prior to Mill operations are presented in Figure 2.7-3.

Surface water quality in the vicinity of the Mill is generally poor, as shown by the data set out in Table 2.22 of the FES and Table 2.7-2. Waters in Westwater Creek (S1R and S9) were characterized at the time of the FES by high total dissolved solids (TDS) (mean of 674 mg/liter) and sulfate levels (mean of 117 mg of SO_4 per liter). The waters were typically hard (total hardness measured as $CaCO_3$; mean 223 mg/liter) and had an average pH of 8.25. Estimated water velocities for Westwater Creek averaged 0.3 fps at the time of sampling. Samples from Cottonwood Creek (S8R) at the time of the FES were similar in quality to Westwater Creek water samples, although the TDS and sulfate levels were lower (TDS averaged 264 mg/liter; SO_4 averaged 40 mg/liter) during heavy spring flow conditions (80 fps water velocity). During heavy runoff, the concentration of total suspended solids in these streams increased sharply to values in excess of 1,500 mg/liter (Table 2.7-2). High concentrations of certain trace elements were measured in some sampling areas. Levels of mercury (total) were reported as high as 0.002 mg/liter (S3R, 7/25/77; S8R, 7/25/77). Total iron measured in the pond (S5R, 11/10/77) was 9.4 mg/liter. The FES concluded (Section 2.6.1.2 of the FES) that these values appear to reflect groundwater quality in the vicinity and are probably due to evaporative concentration and not due to human perturbation of the environment. Corral Creek was also sampled at the time of the FES, but it has not been included in subsequent operational monitoring at the Mill. See Table 2.22 of the FES for sampling results for Corral Creek.

2.7.1.3 Surface Water Background Quality

Surface water samples are collected for Cottonwood Creek and Westwater Creek as part of the Mill's operational monitoring program. As stated above, samples were also taken prior to Mill construction and summarized in the FES as well as at various times and for various parameters

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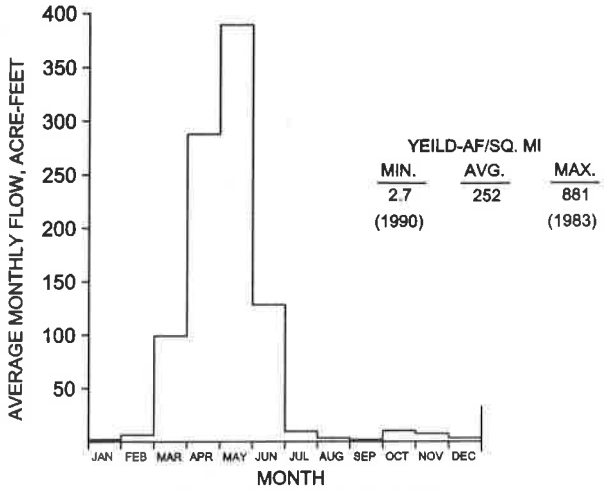
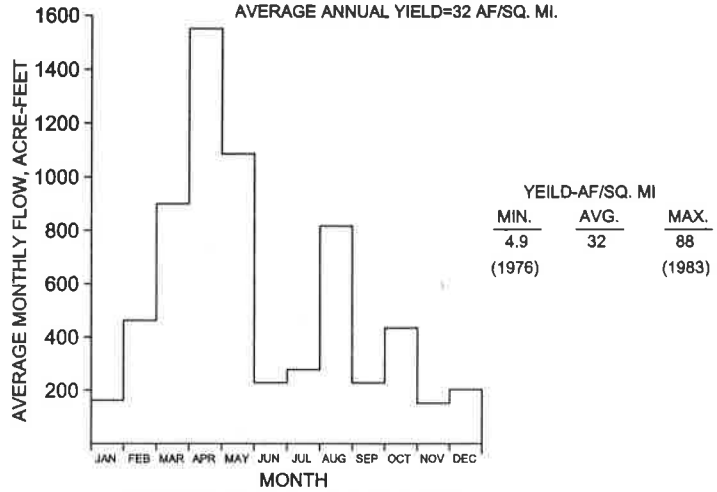
DRAINAGE AREA=3.77 SQ. MI.
AVERAGE ANNUAL YIELD=252.1 AF/SQ. MI.



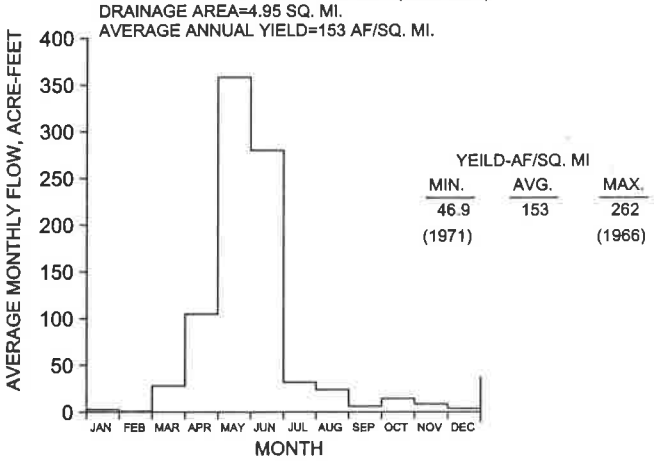
RECAPTURE CREEK NEAR BLANDING
USGS GAUGE 09378630

AVERAGE ANNUAL FLOW=6547 AF - (1965-1986)
DRAINAGE AREA=205 SQ. MI.
AVERAGE ANNUAL YIELD=32 AF/SQ. MI.



COTTONWOOD WASH NEAR BLANDING
USGS GAUGE 09378700

AVERAGE ANNUAL FLOW=7757 AF - (1966-1971)
DRAINAGE AREA=4.95 SQ. MI.
AVERAGE ANNUAL YIELD=153 AF/SQ. MI.



SPRING CREEK ABOVE DIVERSIONS,
USGS GAUGE 09376900

NOTES

1. FOR THE LOCATION OF WATER COURSES SUMMARIZED, SEE FIGURE 3.7-1
2. SOURCE OF DATA. WATER RESOURCES DATA RECORDS. COMPILED AND PUBLISHED BY USGS.

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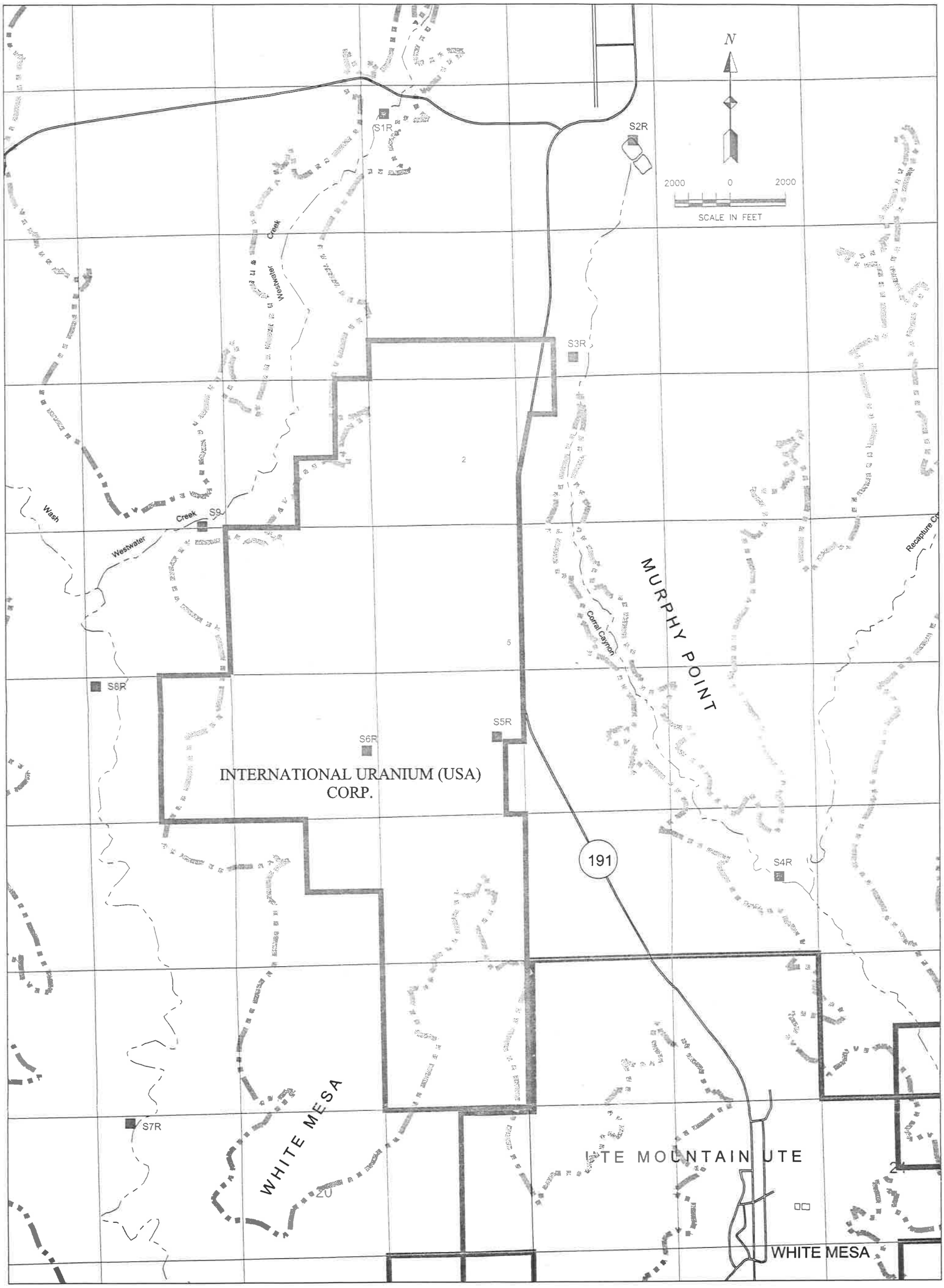
Project	WHITE MESA MILL		
REVISIONS	County:	State: UT	
Date / By	Location:		
	Figure 2.7-2 STREAMFLOW SUMMARY BLANDING, UTAH VICINITY		
	Scale: N/A	Date: April 2003	figure 2.7 – 2.dwg
	Author: HRR	Drafted By: BM	



S■ SURFACE WATER SAMPLING LOCATION

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Project	WHITE MESA MILL
REVISIONS	County: / State: UT
Date / By	Location:
	Figure 2.7 - 3 Surface Water Quality Sampling Stations in the White Mesa Vicinity
Scale AS SHOWN	Date: April 2004 / figure 2.7-3.dwg
Author: HRR	Drafted By: BM

since then. A comparison of the FES results and subsequent sampling results is set out in Table 2.7-2. Results of monitoring over the last five years for Cottonwood Creek and Westwater Creek are set out in Table 2.7-3. Sample results for 2002, as well as historic results, are presented in Table VI of the Semi-Annual Effluent Reports, attached to this Report as Appendix B.

As indicated on Tables 2.7-2 and 2.7-3, all results from operational monitoring are consistent with the background data reported in the FES.

Table 2.7-2
Summary of FES and Subsequent Sampling Results For Cottonwood Creek and Westwater Creek

Parameter	FES Cottonwood Creek 7/25/77-3/28/78	Cottonwood Creek 9/16/81-4/24/02	FES Westwater Creek 7/25/77-3/28/78	Westwater Creek 2/22/82-1996
Field Specific Conductivity (umhos/cm)	240 - 550		320	
Field pH	6.6 - 8.1		8.0	
Dissolved Oxygen				
Temperature (°C)	6.0 - 35		9	
Estimated Flow m/hr (fps)	0.4 - 80		0.28	
Determination, mg/liter				
PH	7.5 - 8.21		8.20	
TDS (@180°C)	253 - 944	10-803	969	93-909
Redox Potential	210 - 260		190	
Alkalinity (as $CaCOS_3$)	134 - 195	76-257	147	230
Hardness, total (as $CaCO_3$)	148 - 195		117	
Carbonate (as CO_3)	0.0		0.0	
Aluminum, dissolved	0.16 - 3.0		4.0	
Ammonia (as N)	<0.1 - 0.16		0.75	
Arsenic, total	0.02 - 0.041		0.037	
Barium, total	0.2 - 1.2		0.81	
Boron, total	<0.1 - 0.2		0.1	
Cadmium, total	<0.002 - 0.01		0.006	
Calcium, dissolved	54 - 178		172	
Calcium		50 - 71		94.5
Chlorine			18	
Chloride	6 - 24	5 - 33.3		76
Sodium		18 - 104		160.5
Sodium, dissolved	21 - 66		125	
Silver, dissolved	0.002-<0.005		0.006	
Sulfate, dissolved (as SO_4)	39.7 - 564	57 - 245	85	408
Vanadium, dissolved	<0.005 - <0.01		0.008	
Manganese, dissolved	0.02 - 0.84		0.60	
Chromium, total	<0.01 - 0.14		0.60	
Copper, total	0.005 - 0.09		0.05	
Fluoride, dissolved	0.2 - 0.36		0.2	
Iron, total	5.9 - 150		44	
Iron, dissolved	0.11 - 1.9		2.5	
Lead, total	0.05-0.14		0.10	
Magnesium		10.5 - 38.1		23.5
Magnesium, dissolved	17 - 28		13	
Mercury, total	6E-05 – 2E-3		1.2E-04	
Molybdenum, dissolved	2E-03 – 1E-01		0.006	

Parameter	FES Cottonwood Creek 7/25/77-3/28/78	Cottonwood Creek 9/16/81-4/24/02	FES Westwater Creek 7/25/77-3/28/78	Westwater Creek 2/22/82-1996
Nitrate (as N)	0.12 - 1.77		0.05	
Phosphorus, total (as P)	0.05 - 3.2		0.88	
Potassium		1.77 - 4		4.05
Potassium, dissolved	1.2 - 6.9		3.2	
Selenium, dissolved	<0.005 - 0.08		<0.005	
Silica, dissolved (as SiO_2)	8 - 18		11	
Strontium, total (as U)	0.34 - 0.64		0.65	
Uranium, total (as U)	0.004 - 0.27		0.004	
Suspended Uranium		7.0E-06 – 7.65E-09	0.002	1.30E-09 – 2.23E-09
Uranium, dissolved (as U)	0.004 - 0.015	1.10E-08 – 9.00E-10		1.00E-09 – 6.77E-10
Zinc, dissolved	0.008 - 0.06		0.12	
Total Organic Carbon	7 - 12		16	
Chemical Oxygen Demand	61 - 163		66	
Oil and Grease	2		1	
Total Suspended Solids	146 - 2,025	0 - 16,400	1,940	<4 – 1,190
Dissolved TH-230		0.00E+0 - 9.00E-07		0.00E+00
Suspended TH-230		0.00E+0 – 9.00E-07		1.00E-10 – 3.00E-10
Dissolved RA-226		0.00E+0 – 6.00E-10		0.00E+00 – 6.00E-10
Suspended RA-226		1.00E-07 – 9.00E-07		1.10E-09 – 2.00E-10
Determination, pCi/liter				
Gross Alpha ± precision	2.9±1.5-23±3	1.0 – 1,100		5.0 - 11.0
Gross Beta ± precision	0±10-110±6	2.2 – 1,100		5.9-8.0
Ra – 226 ± precision	0.6±1.3-13.9±1.7			
Th – 230 ± precision	0.0±0.3-0.9±0.6			
Pb – 210 ± precision	0±1-2.5±4.3			
Po – 210 ± precision	0.0±0.3-0.6±0.7			

Source: FES Table 2.22 and Mill Sample Data.

Table 2.7-3
Operational Monitoring Results for Cottonwood Creek and Westwater Creek

Sample Date	Status	Dissolved Uranium (uCi/l)	Suspended Uranium (uCi/l)	Dissolved TH-230 (uCi/l)	Suspended TH-230 (iCi/l)	Dissolved RA-226 (uCi/l)	Suspended RA-226 (uCi/l)	Gross Alpha (pCi/l)	Gross Beta (pCi/l)	TDS (mg/l)	TSS (mg/l)
Cottonwood Creek											
3/17/98		6.11-09	<0.2	<2.00E-01	<2.00E-02	<0.2	<0.2				
11/02/98		3.25E-09	1.22E-09	<2.00E-01	<2.00E-02	5.01E-10					
7/17/99		6.67E-09	2.43E-08	<2.00E-01	3.25E-09	<2.00E-01	9.62E-08				
08/03/99		6.67E-09	2.43E-08	<2.00E-01	7.31E-09	.<2.00E-01	9.62E-09				
06/30/00		6.84E-08	<2.00E-04	<1.35E-07	<1.35E-07	8.00E-10	<2.00E-10				
12/31/00		7.04E-09	4.06E-10	<1.35E-07	<1.35E-07	2.30E-09	<2.00E-10	4.10E+00			
04/06/01		4.40E-07	<2.03E-07	<1.35E-07	<1.35E-07	<2.00E-10	<2.00E-10				
12/06/01		5.76E-05	3.93E-06	<2.00E-07	<2.00E-07	1.20E-06	1.00E-07	3.00E+00		646	6
04/24/02		6.84E-06	<2.03E-7	4.41E-06	<2.00E-07	<2.00E-07	<2.00E-07	<1.00		360	57
Westwater Creek											
11/2/1998		2.98E-06	3.18E-06	<2.00E-7	<2.00E-7	<2.00E-7	<2.00E-7	<1.0		637	26
8/3/1999		2.78E-06	1.40E-06	<2.00E-7	6.80E-06	<2.00E-7	3.80E-06	12.3		152	8,230
2000	DRY										
4/6/2001		2.37E-06	2.03E-07	<2.00E-7	<2.00E-7	<2.00E-7	<2.00E-7	2.0		608	3.3
2002	DRY										

Source: Mill Operational Monitoring Data.

2.7.2 Groundwater Characteristics

This Section is excerpted from the Report entitled: *Site Hydrogeology and Estimation of Groundwater Travel Times In The Perched Zone White Mesa Uranium Mill Site Near Blanding, Utah*, January 30, 2003, prepared by Hydro Geo Chem, Inc. ("HGC"), a copy of which is attached to this report as Appendix C. Two additional reports, which provide additional details on the site groundwater characteristics, *Review of 1994 Drilling Program Results,* June 21, 2001, Hydro Geo Chem, Inc., and *Assessment of the Effectiveness of Using Existing Monitoring Wells for GWDP Detection Monitoring at the White Mesa Uranium Mill,* September 25, 2001, Hydro Geo Chem, Inc., are also attached as Appendix D and E, respectively.

2.7.2.1 Geologic Setting

The Mill is located within the Blanding Basin of the Colorado Plateau physiographic province. Typical of large portions of the Colorado Plateau province, the rocks underlying the site are relatively undeformed. The average elevation of the site is approximately 5,600 ft above mean sea level (amsl).

The site is underlain by unconsolidated alluvium and indurated sedimentary rocks consisting primarily of sandstone and shale. The indurated rocks are relatively flat lying with dips generally less than 3°. The alluvial materials consist mostly of aeolian silts and fine-grained aeolian sands with a thickness varying from a few feet to as much as 25 to 30 ft across the site. The alluvium is underlain by the Dakota Sandstone and Burro Canyon Formation, which are sandstones having a total thickness ranging from approximately 100 to 140 ft. Beneath the Burro Canyon Formation lies the Morrison Formation, consisting, in descending order, of the Brushy Basin Member, the Westwater Canyon Member, the Recapture Member, and the Salt Wash Member. The Brushy Basin and Recapture Members of the Morrison Formation, classified as shales, are very fine-grained and have a very low permeability. The Brushy Basin Member is primarily composed of bentonitic mudstones, siltstones, and claystones. The Westwater Canyon and Salt Wash Members also have a low average vertical permeability due to the presence of interbedded shales. See Figure 2.4-2 for a generalized stratigraphic column for the region.

Beneath the Morrison Formation lie the Summerville Formation, an argillaceous sandstone with interbedded shales, and the Entrada Sandstone. Beneath the Entrada lies the Navajo Sandstone. The Navajo and Entrada Sandstones constitute the primary aquifer in the area of the site. The Entrada and Navajo Sandstones are separated from the Burro Canyon Formation by approximately 1,000 to 1,100 ft of materials having a low average vertical permeability. Groundwater within this system is under artesian pressure in the vicinity of the site, and is used only as a secondary source of water at the site.

2.7.2.2 Hydrogeologic Setting

The site is located within a region that has a dry to arid continental climate, with average annual precipitation of approximately 13.4 in (Section 2.3.1). Recharge to aquifers occurs primarily along the mountain fronts (for example, the Henry, Abajo, and La Sal Mountains), and along the flanks of folds such as Comb Ridge Monocline.

Although the water quality and productivity of the Navajo/Entrada aquifer are generally good, the depth of the aquifer (approximately 1,200 ft below land surface (bls)) makes access difficult. The Navajo/Entrada aquifer is capable of yielding significant quantities of water to wells (hundreds of gallons per minute (gpm)). Water in wells completed across these units at the site rises approximately 800 ft above the base of the overlying Summerville Formation.

2.7.2.3 Perched Groundwater Zone Hydrogeology

Perched groundwater beneath the site occurs primarily within the Burro Canyon Formation. Perched groundwater at the site has a generally low quality due to high total dissolved solids (TDS) in the range of 1,200 to 5,000 milligrams per liter (mg/L), and is used primarily for stock watering and irrigation in areas upgradient (north) of the Mill site. The saturated thickness of the perched water zone generally increases to the north of the site, increasing the yield of the perched zone to wells installed north of the site. Perched groundwater is supported within the Burro Canyon Formation by the underlying, fine-grained Brushy Basin Member. Figure 2.7-4 is a contour map showing the approximate elevation of the contact of the Burro Canyon Formation with the Brushy Basin Member, which essentially forms the base of the perched groundwater zone at the site. Contact elevations are based on monitoring well drilling and geophysical logs and surveyed land surface elevations. As indicated, the contact generally dips to the south/southwest beneath the site.

The permeability of the Dakota Sandstone and Burro Canyon Formation at the site is generally low. No significant joints or fractures within the Dakota Sandstone or Burro Canyon Formation have been documented in any wells or borings installed across the site (Knight Piésold, 1998). Any fractures observed in cores collected from site borings are typically cemented, showing no open space.

Based on samples collected during installation of wells MW-16 and MW-17 (the locations of the various monitoring wells are indicated on Figures 2.7-4, 2.7-5 and 2.7-7), located immediately downgradient of the tailings cells at the site, porosities of the Dakota Sandstone range from 13.4% to 26%, averaging 20%, and water saturations range from 3.7% to 27.2%, averaging 13.5%. The average volumetric water content is approximately 3%. The permeability of the Dakota Sandstone based on packer tests in borings installed at the site ranges from 2.71E-06 centimeters per second (cm/s) to 9.12E-04 cm/s, with a geometric average of 3.89E-05 cm/s.

The average porosity of the Burro Canyon Formation is similar to that of the Dakota Sandstone. Based on samples collected from the Burro Canyon Formation at MW-16, located immediately downgradient of the tailings cells at the site, porosity ranges from 2% to 29.1%, averaging 18.3%, and water saturations of unsaturated materials range from 0.6% to 77.2%, averaging 23.4%. Titan, 1994, reported that the hydraulic conductivity of the Burro Canyon Formation ranges from 1.9E-07 to 1.6E-03 cm/s, with a geometric mean of 1.1E-05 cm/s, based on the results of 12 pumping/recovery tests performed in monitoring wells and 30 packer tests performed in borings prior to that time.

Recent hydraulic testing of wells MW-1, MW-3, MW-5, MW-17, MW-18, MW-19, MW-20, and MW-22 during the week of July 8, 2002, yielded average perched zone permeabilities ranging from approximately 4.0E-07 cm/s to 5.0E-04 cm/s, similar to the range reported by previous investigators at the site (HGC, 2002). Downgradient (south to southwest) of the tailings cells, average perched groundwater zone permeabilities based on tests at MW-3, MW-5, MW-17, MW-20, and MW-22 ranged from approximately 4.0E-07 to 4.0E-05 cm/s. Permeability estimates from these tests were based on pumping/recovery and slug tests analyzed using several different methodologies.

A number of temporary monitoring wells have been installed at the site to investigate elevated concentrations of chloroform initially discovered at well MW-4 in 1999. Some of the conglomeratic zones encountered within the perched groundwater zone during installation of these wells are believed to be partly continuous or at least associated with a relatively continuous zone of higher permeability (IUSA and HGC, 2001). The higher permeability zone defined by these wells is generally located east to northeast of the tailings cells at the site, and is hydraulically cross-gradient to upgradient of the tailings cells with respect to perched groundwater flow. Relatively high permeabilities measured at MW-11, located on the southeastern margin of the downgradient edge of tailings Cell 3, and at MW-14, located on the downgradient edge of tailings Cell 4, of 1.4E-03 cm/s and 7.5E-04 cm/s, respectively (UMETCO, 1993), may indicate that this zone extends beneath the southeastern margin of the cells. This zone of higher permeability within the perched groundwater zone does not appear to exist downgradient (south-southwest) of the tailings cells, however. At depths beneath the perched groundwater table, the zone is not evident in lithologic logs of the southernmost temporary wells TW4-4 and TW4-6 (located east [cross-gradient] of Cell 3), nor is it evident in wells MW-3, MW-5, MW-12, MW-15, MW-16, MW-17, MW-20, MW-21, or MW-22, located south to southwest (downgradient) of the tailings cells, based on the lithologic logs or hydraulic testing of the wells.

Because of the generally low permeability of the perched groundwater zone beneath the site, well yields are typically low (less than 0.5 gpm), although yields of about 2 gpm may be possible in wells intercepting the higher permeability zones on the east side of the site. Sufficient productivity can, in general, only be obtained in areas where the saturated thickness is greater, which is the primary reason that the perched groundwater zone has been used on a limited basis as a water supply to the north (upgradient) of the site.

2.7.2.4 Perched Groundwater Flow

Perched groundwater flow at the site is generally to the south/southwest. Figure 2.7-5 is a perched groundwater elevation contour map. As indicated, the perched groundwater gradient changes from generally southwesterly in the western portion of the site to generally southerly in the eastern portion of the site.

Perched groundwater discharges in springs and seeps along Westwater Creek Canyon and Cottonwood Canyon to the west-southwest of the site, and along Corral Canyon to the east of the site, where the Burro Canyon Formation outcrops. Perched groundwater flowing beneath the tailings cells eventually discharges in springs and seeps located in Westwater Canyon, to the

south-southwest of the cells. The primary discharge point for perched water flowing beneath the tailings cells is believed to be Ruin Spring, located approximately 10,000 ft south-southwest of the cells. This feature is depicted on the USGS 7.5-minute quad sheet for Black Mesa (Figure 2.7-6).

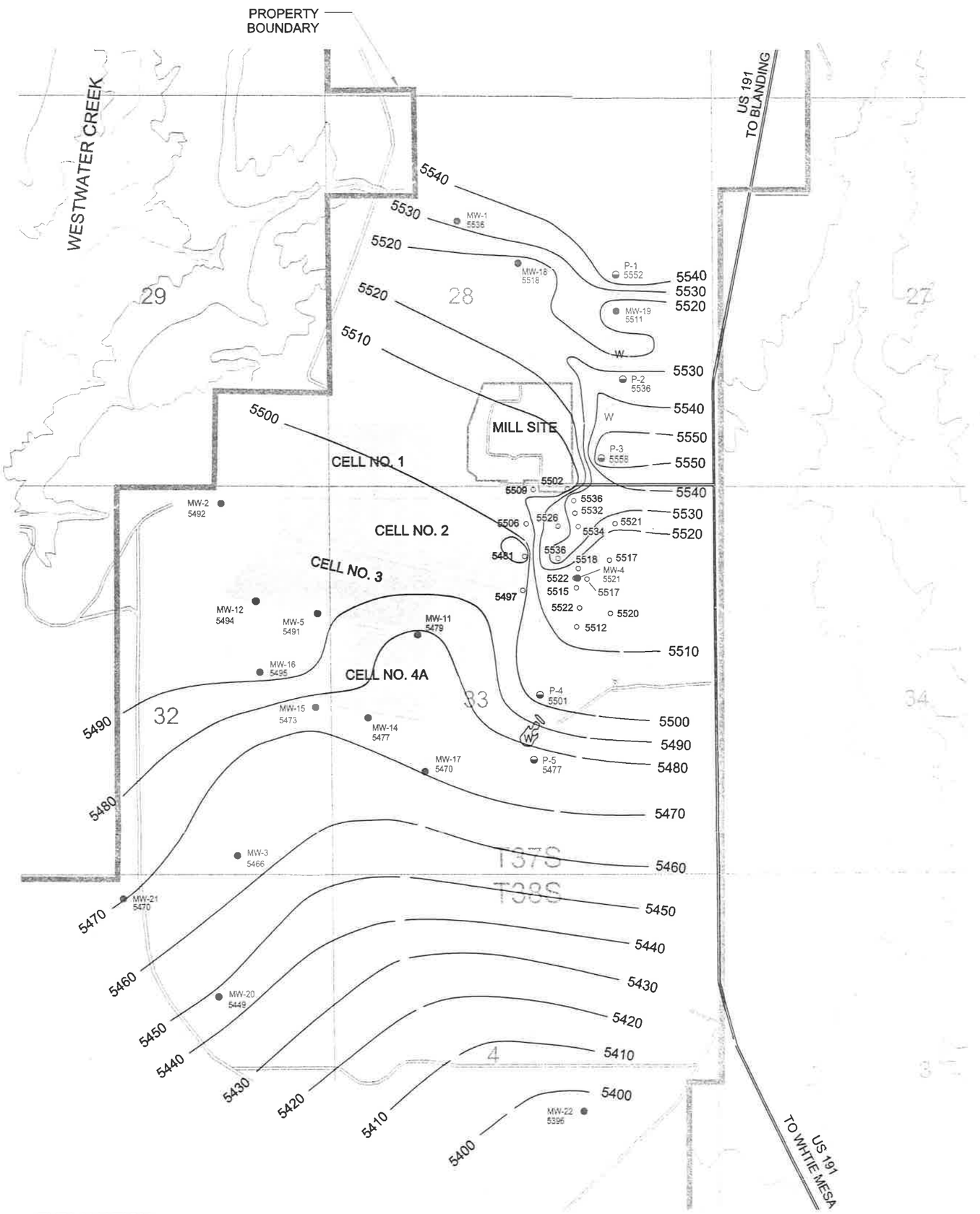
2.7.2.5 Perched Zone Hydrogeology Beneath And Downgradient Of The Tailings Cells

Perched groundwater as of September 2002, was encountered at depths of approximately 50 to 110 ft bls in the vicinity of the tailings cells at the site (Figure 2.7-7). Beneath tailings Cell 3, depths to water ranged from approximately 83 ft below top of casing (btoc) east of the cell (at TW4-17), to approximately 109 ft btoc at the southwest margin of the cell (at MW-12). Assuming an average depth of the base of tailings Cell 3 of 25 ft below grade, this corresponds to perched groundwater depths of approximately 58 to 84 ft below the base of the cell, or an average depth of approximately 70 feet beneath the base of the cell.

The saturated thickness of the perched groundwater zone as of September 2002 ranges from approximately 82 ft in the northeast portion of the site to less than 5 ft southwest portion of the site. Beneath tailings Cell 3, the saturated thickness varies from approximately 45 ft in the easternmost corner of the cell to approximately 7 ft in the westernmost corner of the cell. South-southwest of the tailings cells, the saturated thickness ranges from less than 1 ft at MW-21 to approximately 21 ft at MW-17. The average saturated thickness south-southwest of the tailings cells, based on measurements at MW-3, MW-5, MW-12, MW-14, MW-15, MW17, and MW-20, is approximately 13 ft. The average saturated thickness based on measurements at MW-5, MW-15, MW-3, and MW-20, which lay close to a line between the center of tailings Cell 3 and Ruin Spring, is approximately 12 ft. By projecting conditions at these wells, the average saturated thickness is estimated to be approximately 10 to 15 ft between MW-20 and Ruin Spring.

Perched groundwater zone hydraulic gradients currently range from a maximum of approximately 0.04 feet per foot (ft/ft) immediately northeast of tailings Cell 3 to less than 0.01 ft/ft downgradient of Cell 3, between Cell 3 and MW-20. The average hydraulic gradient between the downgradient edge of tailings Cell 3 and Ruin Spring was approximated by HGC to be approximately 0.012 ft/ft. HGC also estimated a hypothetical worst case average perched groundwater zone hydraulic gradient, assuming the perched groundwater elevation to be coincident with the base of tailings Cell 3, to be approximately 0.019 ft/ft. See Section 3.2 of Appendix C.

HGC also estimated the average permeability of the perched groundwater zone downgradient of tailings Cell 3, based on the pumping/recovery test and slug test data obtained from perched groundwater zone wells located along the downgradient edge of and south of Cell 3, to be between 1.9E-05 cm/s and 4.1E-05 cm/s. See Section 3.3 of Appendix C.



EXPLANATION

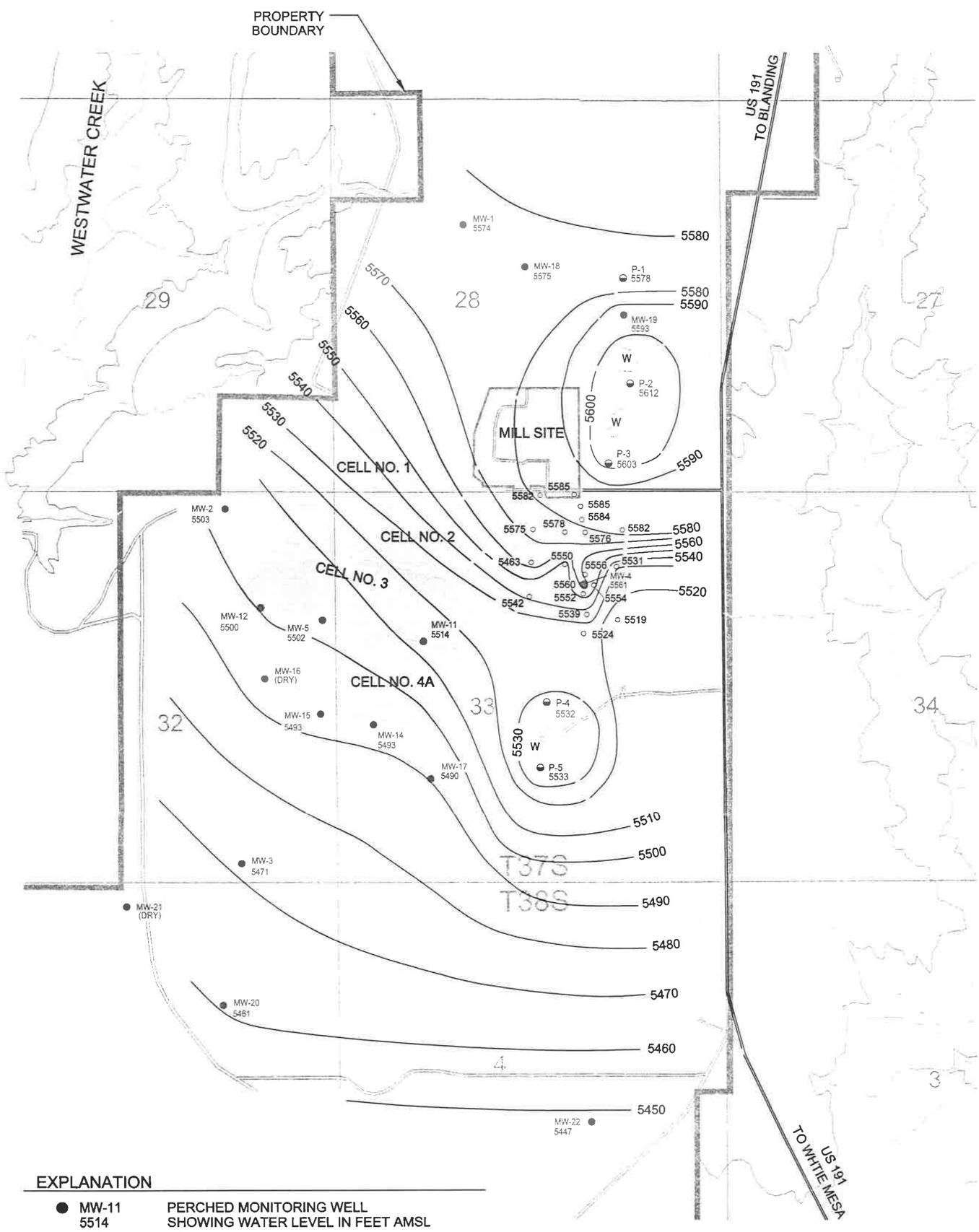
● MW-11 5479	PERCHED MONITORING WELL SHOWING APPROXIMATE ELEVATION OF BRUSHY BASIN CONTACT IN FEET AMSL
○ 5536	TEMPORARY PERCHED MONITORING WELL SHOWING APPROXIMATE ELEVATION OF BRUSHY BASIN CONTACT IN FEET AMSL
◒ P-5 5552	PIEZOMETER SHOWING APPROXIMATE ELEVATION OF BRUSHY BASIN CONTACT IN FEET AMSL
W	WILDLIFE POND
5410	CONTOUR LINE IN FEET AMSL, DASHED WHERE UNCERTAIN

N

0 3000
SCALE IN FEET

International Uranium (USA) Corporation

Project	WHITE MESA MILL
REVISIONS	County: / State: UT
Date / By	Location:
	Figure 2.7 - 4 APPROXIMATE ELEVATION OF TOP OF BRUSHY BASIN
	Scale AS SHOWN / Date: April 2003 / figure 2.7-4.dwg
	Author: HRR / Drafted By: BM



EXPLANATION

● MW-11 5514	PERCHED MONITORING WELL SHOWING WATER LEVEL IN FEET AMSL
○ 5524	TEMPORARY PERCHED MONITORING WELL SHOWING WATER LEVEL IN FEET AMSL
◒ P-5 5533	PIEZOMETER SHOWING WATER LEVEL IN FEET AMSL
5580 ——— ———	WATER LEVEL CONTOUR LINE, DASHED WHERE UNCERTAIN
W	WILDLIFE POND

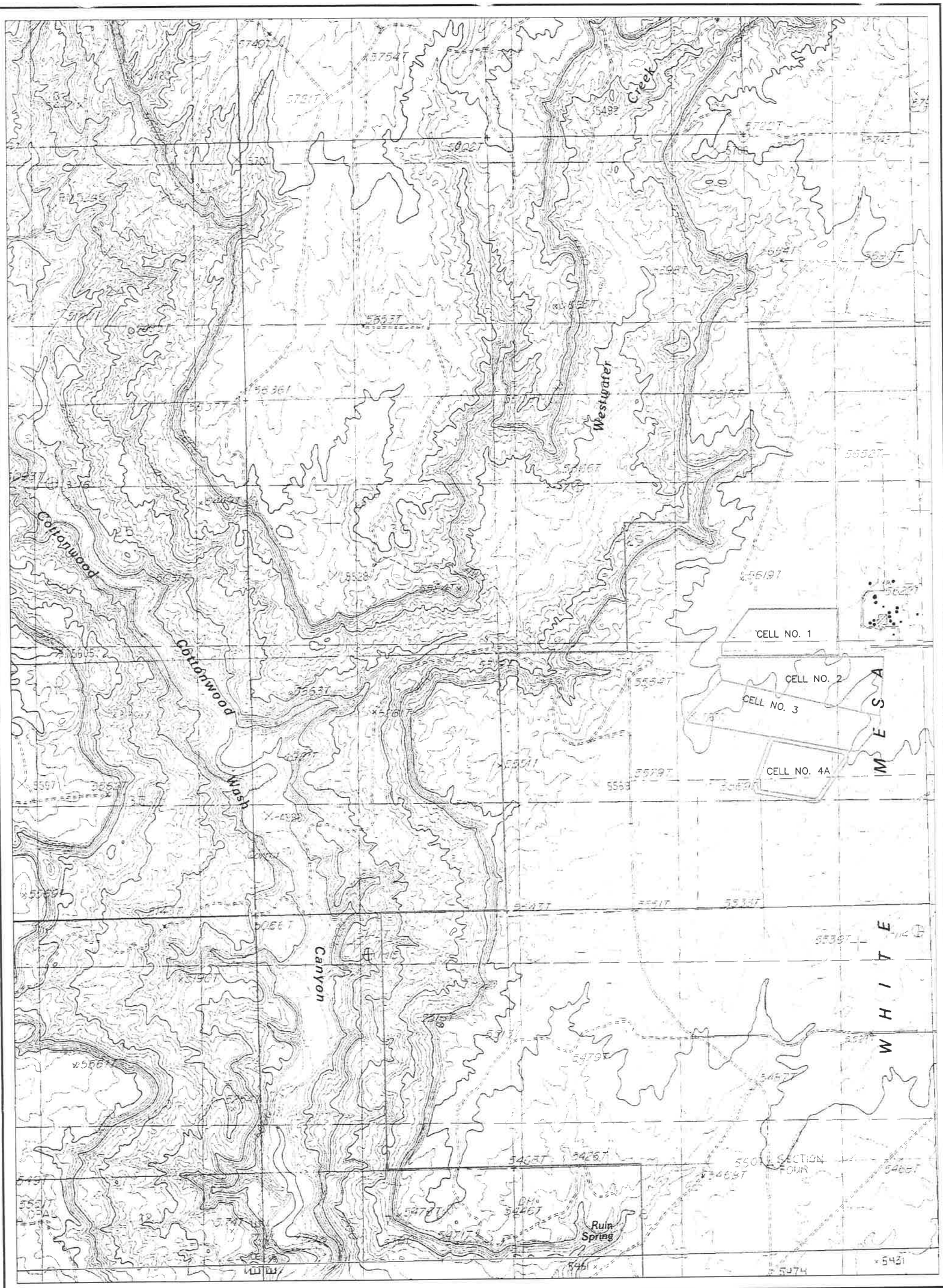
NOTE: WATER LEVELS FOR PIEZOMETERS ARE FROM AUGUST, 2002

N

0 3000
SCALE IN FEET

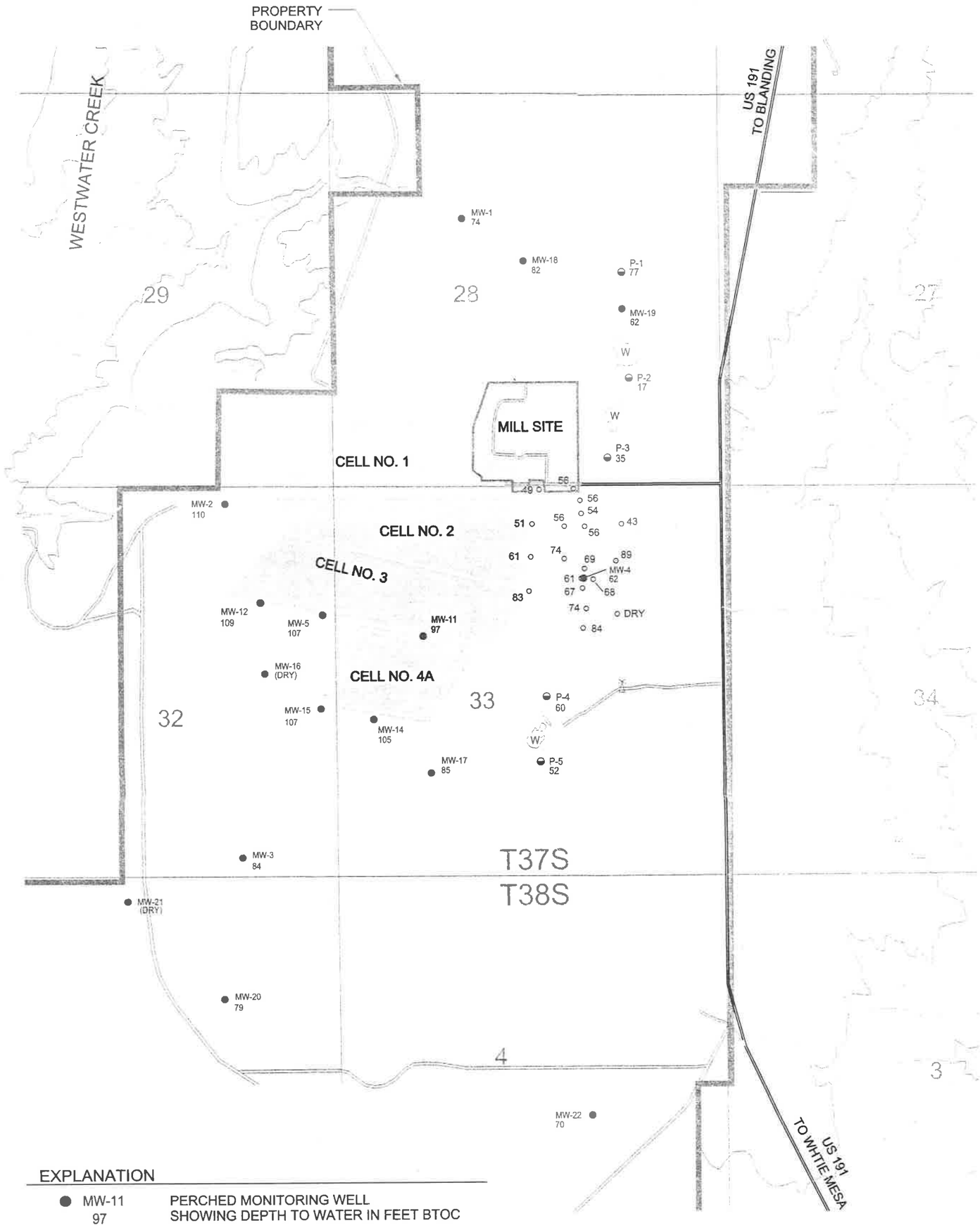
International Uranium (USA) Corporation

Project	WHITE MESA MILL
REVISIONS Date By	County: State: UT
	Location:
	Figure 2.7 - 5 PERCHED WATER LEVELS SEPTEMBER 2002
	Scale AS SHOWN Date: April 2003 figure 2.7–5.dwg
	Author: HRR Drafted By: BM



International Uranium (USA) Corporation

Project	WHITE MESA MILL
REVISIONS	County: State: UT
Date By	Location:
	Figure 2.7 - 6
	APPROXIMATE LOCATIN OF RUIN SPRING
	Scale AS SHOWN Date: April 2003 figure 2.7-6.dwg
	Author: HRR Drafted By: BM



EXPLANATION

● MW-11 97	PERCHED MONITORING WELL SHOWING DEPTH TO WATER IN FEET BTOC
○ 84	TEMPORARY PERCHED MONITORING WELL SHOWING DEPTH TO WATER IN FEET BTOC
◒ P-5 52	PIEZOMETER SHOWING DEPTH TO WATER IN FEET BTOC
W	WILDLIFE POND

NOTE: DATA FOR PIEZOMETERS ARE FROM AUGUST, 2002

N

0 3000
SCALE IN FEET

International Uranium (USA) Corporation

Project	WHITE MESA MILL
REVISIONS Date By	County: State: UT
	Location:
	Figure 2.7-7 DEPTH TO PERCHED WATER SEPTEMBER 2002
	Scale: as shown Date: APRIL 2003 figure 2.7-7.dwg
	Author: HRR Drafted By: BM

2.7.3 Groundwater Quality

2.7.3.1 Entrada/Navajo Aquifer

The Entrada and Navajo Sandstones are prolific aquifers beneath and in the vicinity of the site. Water wells at the site are screened in both of these units, and therefore, for the purposes of this discussion, they will be treated as a single aquifer. Water in the Entrada/Navajo Aquifer is under artesian pressure, rising 800 to 900 ft above the top of the Entrada's contact with the overlying Summervillle Formation; static water levels are 390 to 500 ft below ground surface.

Within the region, this aquifer is capable of yielding domestic quality water at rates of 150 to 225 gpm, and for that reason, it serves as a secondary source of water for the Mill, which is currently used for potable water only. Additionally, two domestic water supply wells drawing from the Entrada/Navajo Aquifer are located 4.5 miles southeast of the Mill site on the Ute Mountain Ute Reservation. Although the water quality and productivity of the Navajo/Entrada aquifer are generally good, the depth of the aquifer (aproximately1,200 ft bls) makes access difficult.

Table 2.7-4 is a tabulation of groundwater quality of the Navajo Sandstone aquifer as reported in the FES and subsequent sampling. The total dissolved solids (TDS) range from 244 to 1,110 mg/liter in three samples taken over a period from January 27, 1977, to May 4, 1977. High iron (0.057 mg/liter) concentrations are found in the Navajo Sandstone. Because the Navajo Sandstone aquifer is isolated from the perched groundwater zone by approximately 1,000 to 1,100 ft of materials having a low average vertical permeability, sampling of the Navajo Sandstone is not required under the Mill's Point of Compliance monitoring program. However, samples were taken of water in the deep aquifer at two other wells on site, wells #2 and #5 (See Figure 2.7-3 for the locations of these wells), on June 1, 1999 and June 8, 1999, respectively, and the results are included in Table 2.7-4.

TABLE 2.7-4
Water quality of groundwater in the Mill vicinity

Parameter	**FES, Test Well (G2R) 1/27/97 - 3/23/78**	**Well #2 6/01/99**	**Well #5 6/08/99**
Field Specific Conductivity (umhos/cm)	310 – 400		
Field pH	6.9 - 7.6		
Temperature (°C)	11 – 22		
Estimated Flow gpm	20		
Determination, mg/liter			
TDS (@180°C)	216 – 1,110		
Redox Potential	211 – 220		
Alkalinity (as $CaCOS_3$)	180 – 224		
Hardness, total (as $CaCO_3$)	177 – 208		
Bicarbonate		226	214
Carbonate (as CO_3)	0.0	<1.0	<1.0
Aluminum		0.003	0.058

Aluminum, dissolved	<0.1		
Ammonia (as N)	0.0 - 0.16	<0.05	<0.05
Antimony		<0.001	<0.001
Arsenic, total	.007 - .014	0.018	<0.001
Barium, total	0.0 - .15	0.119	0.005
Beryllium		<0.001	<0.001
Boron, total	<0.1 - .11		
Cadmium, total	<0.005 - 0.0	<0.001	0.018
Calcium		50.6	39.8
Calcium, dissolved	51 – 112		
Chloride	0.0 – 50	<1.0	2.3
Sodium		7.3	9.8
Sodium, dissolved	5.3 – 23		
Silver		<0.001	<0.001
Silver, dissolved	<0.002 - 0.0		
Sulfate		28.8	23.6
Sulfate, dissolved (as SO_4)	17 – 83		
Vanadium		0.003	0.003
Vanadium, dissolved	<.002 – 0.16		
Manganese		0.011	0.032
Manganese, dissolved	.03 - .020		
Chromium, total	.02 - 0.0	0.005	0.005
Copper, total	.005 - 0.0	0.002	0.086
Fluoride		0.18	0.18
Fluoride, dissolved	0.1 - 0.22		
Iron, total	.35 - 2.1	0.43	0.20
Iron, dissolved	.30 - 2.3		
Lead, total	.02 - 0.0	<0.001	0.018
Magnesium		20.4	21.3
Magnesium, dissolved	15 – 21		
Mercury, total	<.00002 – 0.0	<0.001	<0.001
Molybdenum		0.001	<0.001
Molybdenum, dissolved	.004 - .010		
Nickel		<0.001	0.004
Nitrate + Nitrate as N		<0.10	<0.10
Nitrate (as N)	<.05 - .12		
Phosphorus, total (as P)	<0.01 - .03		
Potassium		3.1	3.3
Potassium, dissolved	2.4 - 3.2		
Selenium		<0.001	<0.001
Selenium, dissolved	<.005 - 0.0		
Silica, dissolved (as SiO_2)	5.8 - 12		
Strontium, total (as U)	0.5 - .67		
Thallium		<0.001	<0.001
Uranium, total (as U)	<0.002 - .16	0.0007	0.0042
Uranium, dissolved (as U)	<0.002 – 0.031		
Zinc		0.010	0.126
Zinc, dissolved	0.007 - 0.39		
Total Organic Carbon	1.1 – 16		
Chemical Oxygen Demand	<1 – 66		
Oil and Grease	1		
Total Suspended Solids	6 – 1,940	<1.0	10.4
Turbidity		5.56	19.1
Determination (pCi/liter)			
Gross Alpha			<1.0
Gross Alpha ± precision	1.6±1.3 - 10.2±2.6		
Gross Alpha Error Estimate ±			

Gross Beta			<2.0
Gross Beta Error Estimate±			
Gross Beta ± precision	8±8 - 73±19		
Radium 226			0.3
Radium Error Estimates ±			0.2
Radium 228			<1.0
Ra – 226 ± precision	0.1±.3 - 0.6±0.4		
Th – 230 ± precision	0.1±0.4 - 0.7±2.7		
Pb – 210 ± precision	0.0±4.0 – 1.0±2.0		
Po – 210 ± precision	0.0±0.3 – 0.0±0.8		
Anion		4.36	4.29
Cation		4.65	4.30
WYDEQ A/C Balance		3.22	0.10

Zero values (0.0) are below detection limits
Source: Adapted from FES Table 2.25 with additional Mill sampling data.

2.7.3.2 Perched Groundwater Zone

Perched groundwater in the Dakota/Burro Canyon Formation is used on a limited basis to the north (upgradient) of the site because it is more easily accessible. The quality of the Burro Canyon perched groundwater beneath and downgradient from the site is poor and extremely variable. The concentrations of total dissolved solids (TDS) measured in water sampled from upgradient and downgradient wells range between approximately 1,200 and 5,000 milligrams per liter (mg/l). Sulfate concentrations measured in three upgradient wells varied between 670 and 1,740 mg/l. The perched groundwater therefore is used primarily for stock watering and irrigation. The saturated thickness of the perched water zone generally increases to the north of the site.

Groundwater monitoring of the perched groundwater zone has been conducted at the Mill since 1979. The Mill switched to Point of Compliance ("POC") monitoring in 1997, after reviewing 14 years of quarterly data on up to 20 chemical and radiological constituents in up to 13 wells which indicated that:

- The Mill and tailings system have produced no impacts to the perched zone or deep aquifer; and
- The most dependable indicators of water quality and potential cell failure would be chloride, nickel, potassium and natural uranium.

Under the Mill's POC monitoring program, the Mill monitors for chloride, nickel, potassium and uranium in six monitoring wells: MW-5, MW-11, MW-12, MW-14, MW-15 and MW-17, each of which is completed in the perched groundwater zone of the Burro Canyon formation. The locations of these monitoring wells are indicated on Figure 2.7-7, along with the locations of historic monitoring wells. These historic monitoring wells are not used in the Mill's POC program, although they have been sampled periodically for a longer list of parameters in conjunction with a split sampling program undertaken with the UDEQ.

Because of the variable groundwater chemistry indicated in the Burro Canyon formation baseline data, comparison of individual well groundwater chemistries to a single background groundwater well is not an appropriate method of monitoring potential disposal cell leakage or groundwater impacts. The spatial variability of the ground water quality precludes definition of background ground water quality over the large areal extent of the Mill site. As a result, the Point of Compliance program for the Mill involves determination of background concentrations and comparisons to that background concentration using an intra-well approach for each of the four parameters in each of the six Point of Compliance monitoring wells.

The intra-well comparison technique used is a control chart based method, the Shewhart-CUSUM control chart method. This method was determined to best provide a meaningful representation of changes in groundwater chemistry and is recommended by EPA and approved by NRC. Control chart methods are widely used as a statistical tool in industry because they provide a visual tool for detecting trends and abrupt changes in concentration levels. The Shewhart-CUSUM control chart method consists of plotting standardized constituent concentration data versus time. Compliance is then evaluated by comparing the standardized concentrations against predefined upper bounds which are based on standard deviations. Once the concentration data is standardized, the data is plotted versus time. Two upper bounds, "h" and SCL, are also plotted with the data. The upper bound "h" is a statistical upper bound for the cumulative sum data, while SCL is an upper bound for the standardized mean data. Compliance is evaluated by comparing the cumulative sum data to "h", the upper bound, and the standardized mean data to the SCL upper bound. If the cumulative sum data exceeds the upper bound or the standardized mean data exceeds the SCL upper bound, this would indicate a statistically significant increase in constituent concentration. For the Mill, this would indicate potential cell leakage.

The groundwater POC monitoring program control charts for each of the four POC monitoring parameters the 2002 quarterly sampling results as well as for historic data are presented in Table V of the Semi-Annual Effluent Reports attached as Appendix B hereto. These results demonstrate that there have been no impacts to groundwater from the tailings cells.

Actual sampling results for each of the POC parameters over the last five years are set out in Tables 2.7-5 to 2.7-8.

Table 2.7-5
Sampling Results for U-Nat in the POC Monitoring Wells (µCi/ml)

Date	MW#5	MW#11	MW#12	MW#14	MW#15	MW#17
08-Jan-98	4.69E-10	<2.0E-10	1.08E-08	4.0E-08	2.98E-08	1.69E-08
16-Mar-98	4.02E-10	<2.0E-10	1.07E-08	3.8E-08	3.08E-08	1.81E-08
12-May-98	8.12E-10	7.37E-10	1.16E-08	4.0E-08	3.07E-08	1.93E-08
24-Sep-98	1.29E-09	2.03E-09	1.08E-08	3.8E-08	2.94E-08	1.81E-08
03-Nov-98	4.69E-10	<2.0E-10	1.29E-08	4.3E-08	2.22E-08	3.14E-08
18-Feb-99	1.27E-08	2.68E-10	1.01E-08	3.8E-08	2.79E-08	1.57E-08
12-May-99	1.21E-08	4.42E-08	2.21E-08	6.0E-10	<2.0E-10	2.68E-10
30-Sep-99	5.36E-10	3.35E-10	1.19E-08	5.2E-08	3.72E-08	2.29E-08
09-Dec-99	6.70E-10	2.68E-10	3.35E-10	5.5E-08	3.83E-08	2.37E-08
17-Mar-00	5.36E-10	2.01E-10	1.07E-08	4.6E-08	3.62E-08	2.45E-08
06-Jun-00	2.71E-10	2.03E-10	1.18E-08	4.91E-08	3.74E-08	2.27E-08
03-Sep-00	4.74E-10	4.06E-10	1.07E-08	4.45E-08	3.03E-08	2.65E-08
30-Nov-00	1.49E-09	1.56E-09	1.34E-08	4.08E-08	3.21E-08	2.71E-08
24-Mar-01	3.39E-10	1.96E-09	1.15E-08	5.01E-08	3.30E-08	2.86E-08
12-Jun-01	4.74E-10	1.69E-09	1.25E-08	5.19E-08	3.48E-08	3.11E-08
07-Sep-01	6.63E-10	8.80E-10	1.35E-08	6.63E-08	3.45E-08	2.64E-08
05-Nov-01	3.39E-10	1.01E-09	1.23E-08	4.51E-08	2.91E-08	2.52E-08
15-Mar-02	2.31E-09	3.45E-09	1.29E-08	4.45E-08	3.14E-08	2.38E-08
20-May-02	4.74E-10	6.77E-10	1.34E-08	5.17E-08	3.56E-08	2.76E-08
12-Sep-02						
21-Nov-02	2.71E-10	6.77E-10	1.35E-08	4.34E-08	3.01E-08	2.50E-08
Average	2.02E-09	3.29E-09	1.17E-08	4.34E-08	3.03E-08	2.23E-08
Min	2.71E-10	0.00E+00	3.35E-10	6.03E-10	0.00E+00	2.68E-10
Max	1.27E-08	4.42E-08	2.21E-08	6.63E-08	3.83E-08	3.14E-08

Figure 2.7-6
Sampling Results for Chloride in the POC Monitoring Wells (mg/l)

Date	MW#5	MW#11	MW#12	MW#14	MW#15	MW#17
08-Jan-98	50.60	32.40	58.70	20.10	39.70	28.90
16-Mar-98	46.00	30.00	51.00	18.60	37.00	27.00
12-May-98	55.20	33.70	65.90	24.10	44.30	32.70
24-Sep-98	51.40	32.40	53.40	19.90	41.20	28.70
03-Nov-98	50.10	31.40	52.80	21.80	27.50	45.10
18-Feb-99	50.80	31.80	28.10	22.90	38.30	27.50
12-May-99	69.70	33.10	40.90	8.90	33.10	39.20
30-Sep-99	49.00	35.00	61.00	23.00	47.00	35.00
09-Dec-99	45.70	29.10	48.40	19.70	38.00	27.90
17-Mar-00	45.40	28.40	43.30	17.90	35.60	24.60
06-Jun-00	58.90	35.40	57.20	24.40	45.00	29.90
03-Sep-00	61.90	37.50	58.70	24.10	49.10	36.90
30-Nov-00	56.50	44.30	64.40	24.80	49.70	32.20
24-Mar-01	46.90	31.10	56.90	18.60	38.30	27.00
12-Jun-01	48.90	36.50	59.90	20.10	41.90	29.00
07-Sep-01	51.00	32.00	73.00	27.00	53.00	34.00
05-Nov-01	53.00	34.00	58.00	24.00	54.00	34.00
15-Mar-02	48.10	30.70	56.30	15.70	40.40	25.30
20-May-02	58.60	35.90	68.70	26.10	42.40	29.20
12-Sep-02						
21-Nov-02	37.50	37.70	37.60	12.70	24.10	14.10
Average	52.17	33.27	54.88	20.87	41.84	31.38
Min	45.40	28.40	28.10	8.90	27.50	24.60
Max	69.70	44.30	73.00	27.00	54.00	45.10

Figure 2.7-7
Sampling Results for Potassium in the POC Monitoring Wells (mg/l)

Date	WM#5	WM#11	WM#12	WM#14	WM#15	WM#17
08-Jan-98	7.20	5.50	12.40	11.60	9.70	13.00
16-Mar-98	7.00	5.30	11.70	11.00	9.20	13.00
12-May-98	7.70	5.80	12.70	11.30	10.10	13.10
24-Sep-98	7.10	5.40	12.00	11.20	9.70	12.30
03-Nov-98	6.80	5.00	11.10		11.60	11.60
18-Feb-99	8.30	5.80	5.80		9.90	9.90
12-May-99	11.90	11.00	12.80		23.00	23.00
30-Sep-99	8.00	7.00	13.10	13.00	12.00	12.00
09-Dec-99	6.70	5.70	11.30	11.30	9.80	12.70
17-Mar-00	7.10	5.60	10.80	10.20	9.30	12.20
06-Jun-00	8.60	6.60	12.30	11.90	10.40	12.50
03-Sep-00	7.80	6.10	11.60	11.40	9.90	12.90
30-Nov-00	7.80	8.50	11.90	11.80	10.60	13.40
24-Mar-01	7.20	7.90	12.10	11.00	10.00	12.80
12-Jun-01	7.00	7.40	11.60	11.00	9.40	12.30
07-Sep-01	7.70	6.90	13.00	12.00	10.00	14.00
05-Nov-01	7.00	7.00	12.00	12.00	10.00	13.00
15-Mar-02	7.10	6.70	11.90	11.50	9.90	12.60
20-May-02	7.60	6.90	12.30	11.80	10.20	13.70
12-Sep-02						
21-Nov-02	7.30	6.70	10.00	10.10	9.30	12.40
Average	7.667	6.622	11.672	11.480	10.806	13.128
Min	6.700	5.000	5.800	10.200	9.200	9.900
Max	11.900	11.000	13.100	13.000	23.000	23.000

Figure 2.7-8
Sampling Results for Nickel in the POC Monitoring Wells (mg/l)*

Date	WM#5	WM#11	WM#12	WM#14	WM#15	WM#17
16-Mar-98	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
12-May-98	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
24-Sep-98	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
03-Nov-98	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
18-Feb-99	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
12-May-99	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
30-Sep-99	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
09-Dec-99	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
17-Mar-00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
06-Jun-00	<0.050	<0.050	<0.050	<0050	<0.050	<0.050
03-Sep-00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
30-Nov-00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
24-Mar-01	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
12-Jun-01	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
07-Sep-01	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
05-Nov-01	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
15-Mar-02	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
20-May-02	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
12-Sep-02	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
21-Nov-02	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Average	0.000	0.000	0.000	0.000	0.000	0.000
Min	0.000	0.000	0.000	0.000	0.000	0.000
Max	0.000	0.000	0.000	0.000	0.000	0.000

* The minimum detection limit for nickel is 0.050 mg/l.

As stated above, the control charts for these parameters set out in Appendix B indicate that these sampling values are consistent with background at each well and that there have been no impacts to groundwater from the tailings cells.

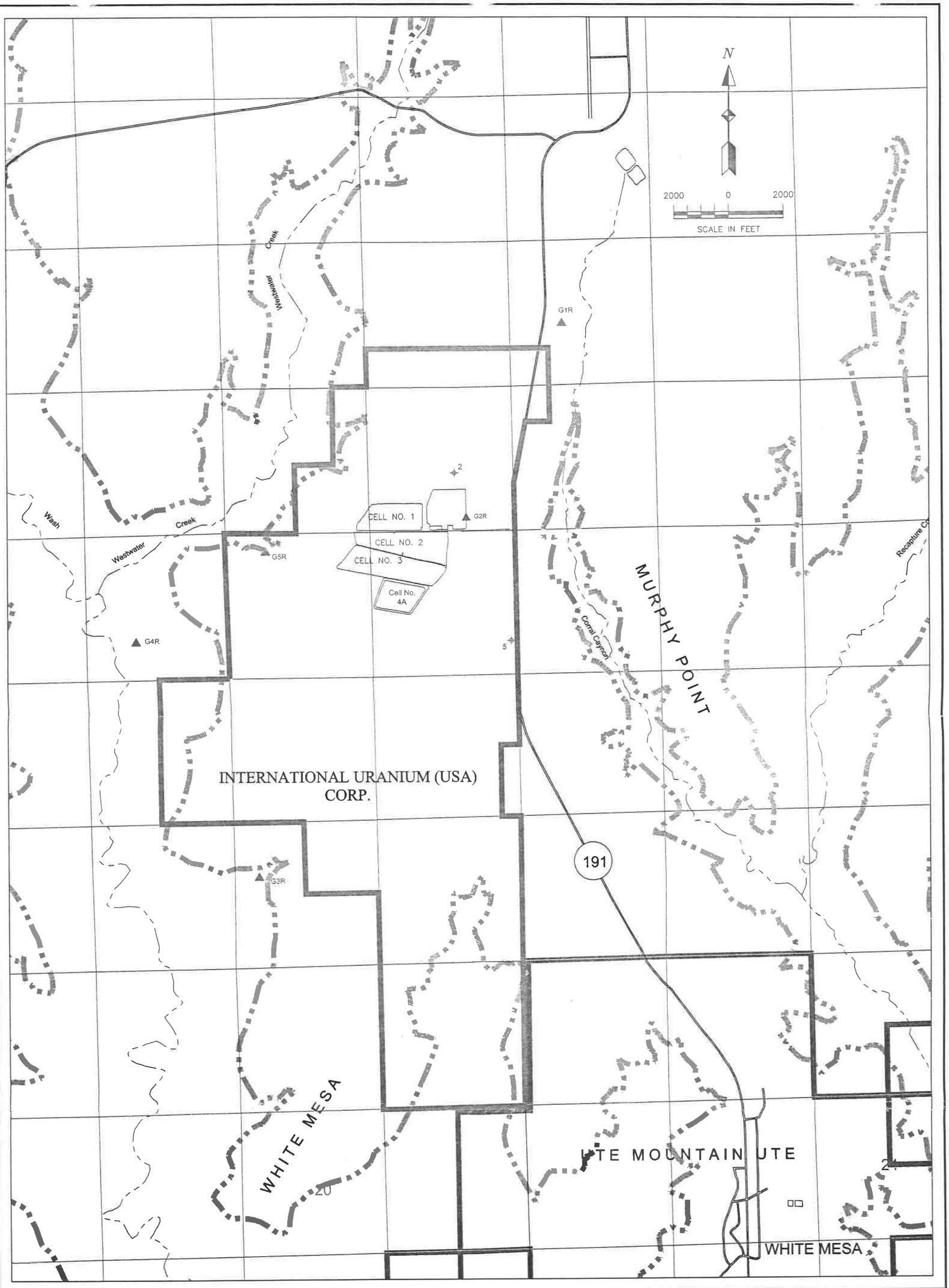
In addition, commencing in 1998, the Mill has voluntarily agreed with UDEQ to split sampling annually for a longer list of parameters in all wells at the Mill site. These wells include the POC wells, but also other wells that have been installed on site over the years and are no longer included in the POC monitoring program. The results of these split sampling events are set out in Appendix F. These results set the baseline for this longer list of parameters at the Mill site.

2.7.4 Springs and Seeps

As discussed in Section 2.7.2.4, perched groundwater at the Mill site discharges in springs and seeps along Westwater Creek Canyon and Cottonwood Canyon to the west-southwest of the site, and along Corral Canyon to the east of the site, where the Burro Canyon Formation outcrops. Water samples have been collected and analyzed from springs and seeps in the Mill vicinity as part of the baseline field investigations reported in the FES, and in a recent sampling event. The locations of these sampling sites are shown on Figure 2.7-8. Results of analyses from Ruin Spring, which is the only spring that flows on a consistent basis (for example, during the most recent sampling event in March 2003, Ruin Spring is the only spring or seep in the Mill vicinity from which it was possible to obtain a water sample), are listed in Table 2.7-9.

Table 2.7-9
Ruin Spring Water Quality

PARAMETER	FES 11/10/77	3/28/03
Field Specific Conductivity (umhos/cm)	950	
Field pH	7.4	
Dissolved Oxygen	--	
Temperature (°C)	13.5	
Estimated Flow m/hr	.5	
TDS (@180°C)	975	
Redox Potential	260	
Alkalinity (as $CaCOS_3$)	187	
Hardness, total (as $CaCO_3$)	477	
Carbonate (as CO_3)	0	
Total Organic Carbon	1	
Chemical Oxygen Demand	28	
Total Suspended Solids	11	
Major Ions		
Boron, total	0.2	
Calcium	375	153
Chloride	25	28.1
Chromium, total	0.1	
Magnesium	265	34.8
Nitrogen, Ammonia as N		ND
Nitrogen, Nitrate+ as N		1.6
Phosphorus	0.06	0.10
Potassium	2.8	2.6
Sodium	200	110
Sulfate	472	503
Dissolved Metals		
Aluminum	<0.1	ND
Antimony		0.001
Arsenic	--	ND
Barium	<0.2	ND
Beryllium		ND
Cadmium	0.004	ND
Copper	<0.005	ND
Fluoride, dissolved	0.6	
Iron	0.05	ND
Lead	<0.05	ND
Manganese	<0.005	ND
Mercury	<0.005	ND



▲ G4R GROUNDWATER (WELL OR SPRING) SAMPLING LOCATION

5 ✦ WATER SUPPLY WELL

PROPERTY BOUNDARY

RESERVATION BOUNDARY

CANYON RIM

International Uranium (USA) Corporation

Project	WHITE MESA MILL
REVISIONS	County: / State: UT
Date / By	Location:
	Figure 2.7 - 8 Groundwater (Well or Spring) Sampling Stations in the White Mesa Vicinity
Scale: AS SHOWN	Date: April 2004 / figure 2.7–8.dwg
Author: HRR	Drafted By: BM

PARAMETER	FES 11/10/77	3/28/03
Molybdenum	--	ND
Nickel		ND
Selenium	--	0.013
Silver	--	ND
Silica, dissolved (as SiO_2)	9	
Strontium, total (as U)	1.3	
Thallium		ND
Uranium	0.010	0.009
Vanadium	<0.01	ND
Zinc	0.015	0.014
Radionuclides Dissolved (pCi/1)		
Lead 210		42
Lead 210 precision (+)		4.9
Radium 226		0.3
Radium 226 precision (+)		0.2
Thorium 230		0.3
Thorium precision (+)		0.3
Volatile Organic Compounds		All non-detect
Synthetic Organic Compounds		All non-detect

Source: Table 2.6-6 of the 1978 ER and subsequent sampling results obtained by IUSA.

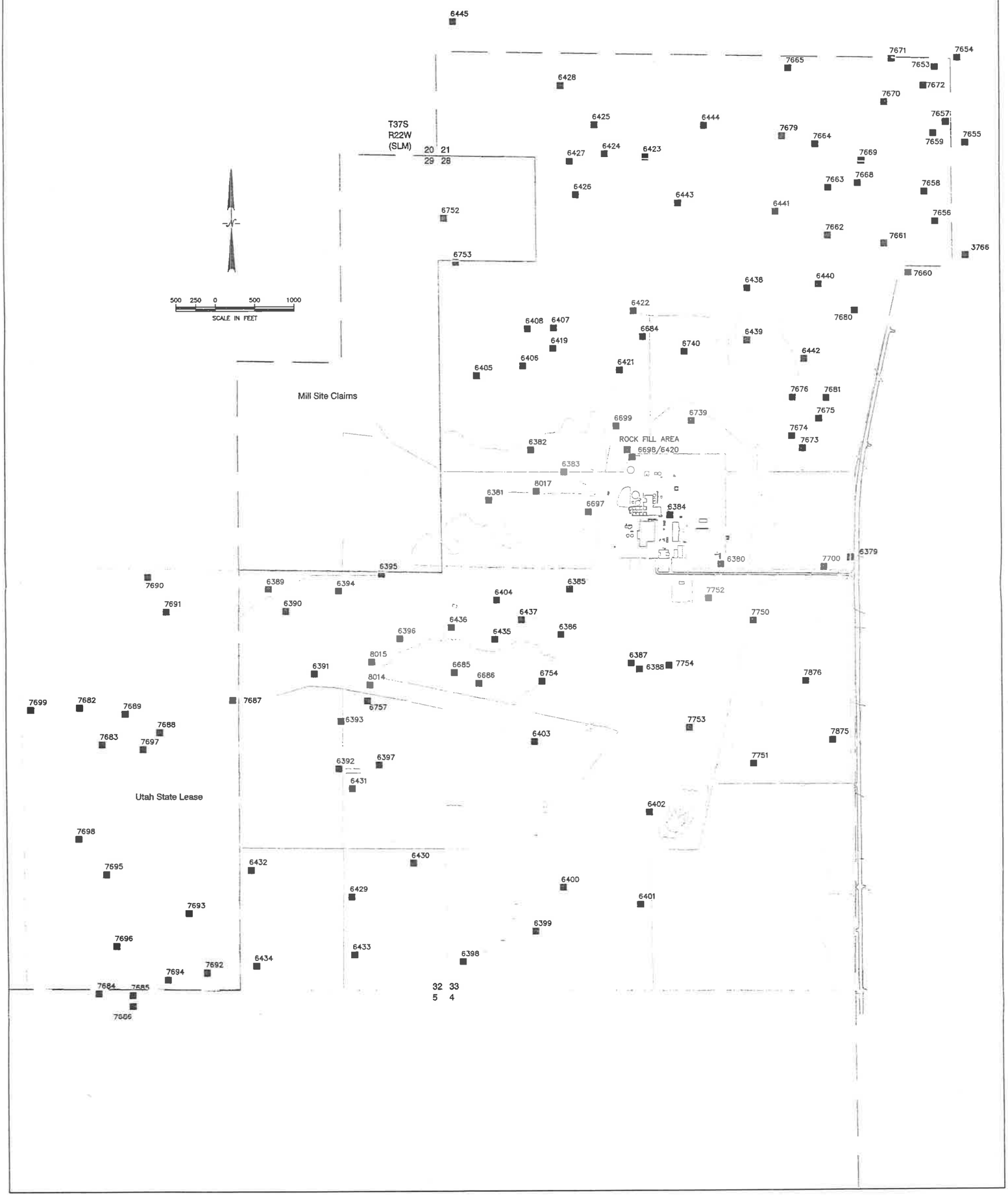
In 1977 samples were also taken from a seep in Cottonwood Creek Canyon at location G4R, cross-gradient from the Mill's tailings cells. The results of this sampling event are found in Table 2.6-6 of the 1978 ER. It was not possible to obtain a sample from this seep in March 2003, due to insufficient water.

2.8 Archaeology

An intensive archaeological survey of the project site was conducted in the fall of 1977 under the direction of Mr. Richard A. Thompson of Southern Utah State College (Appendix G, attached). The survey was conducted on White Mesa, including Sections 21, 28, 32 and 33 of T37S, R22E. The total area encompasses 1,260 acres, of which 180 acres were administered by the U.S. Bureau of Land Management. The remaining acreage is privately owned.

During the survey, 57 sites were recorded and all were determined to have an affiliation with the San Juan Anasazi. Figure 2.8-1 illustrates the location of the sites and indicates that all but four were found within the project boundaries. Additional sites were recorded in subsequent surveys, and are also shown on Figure 2.8-1. Up to nine recorded sites may potentially be affect by the Moab project. Seven of these sites were projected to potentially be impacted by the construction of the full tailings system as assessed in the FES. Two of these sites can possible be missed by modification to the layout of the disposal cells. Of the nine sites, one has been determined to be non-eligible, or insignificant, and three site have undetermined significance.

During construction of the Mill, design changes were made where possible to avoid archaeological sites. When sites were impacted by construction, mitigation activities were conducted by State of Utah archaeologists, or contractors approved by the State. Artifacts recovered during the mitigation program were retained by the State of Utah with several items currently stored or on display at the Edge of the Cedars Museum in Blanding.



From: Archeological Sites
White Mesa Uranium Project
D'Appolonia Consulting Engineers
March 31, 1980

International Uranium (USA) Corporation			
Project	WHITE MESA MILL		
REVISIONS	County:	State: UT	
Date / By	Location: T37S R22W SLM		
	Figure 2.8 - 1 ARCHEOLOGICAL SITES		
	ScaleAS SHOWN	Date: March 2003	arch_sites.dwg
	Author: HRR	Drafted By: BM	

Table 2.8-1 summarizes the recorded sites from the Thompson survey according to their probable temporal positions. The dates of occupation are the best estimates available, based on professional experience and expertise in the interpretation of archaeological evidence. However, it should be noted that the archaeological investigation was hindered by a lack of reliable evidence concerning the length of time the sites were occupied.

Table 2.8-1
Distribution of Recorded Sites According to Temporal Position

Temporal Position	Approximate Dates[a] (A.D.)	Number of Sites	Identification Number of Each Site
Basket Maker III/ Pueblo I	575 - 850	6	6384, 6386, 6400, 6403, 6440, 6442
Pueblo I	750 - 850	11	6382, 6383, 6394, 6401, 6404, 6420, 6421, 6424, 6426, 6435, 6443
Pueblo I/Pueblo II	850 - 950	6	6385, 6388, 6405, 6406, 6438, 6444
Pueblo II	950 - 1100	12	6387, 6393, 6399, 6419, 6422, 6428, 6429, 6431, 6432, 6436, 6439, 6441
Pueblo II/Pueblo III	1100 - 1150	4	6380, 6381, 6427, 6439
Pueblo III	1150 - 1250	5	6402, 6407, 6433, 6434, 6437
Pueblo II +[b]		5	6390, 6391, 6392, 6397, 6445
Multicomponent[c]		3	6395, 6396, 6408
Unidentified[d]		5	6379, 6389, 6398, 6423, 6425

[a] Includes transitional periods
[b] Although collections at these locations were lacking in diagnostic material, available evidence indicates that the site would have been used or occupied no earlier than 900 A.D., and possibly some time after.
[c] Ceramic collections from each of these sites indicate an occupation extending from Pueblo I through Pueblo II and into Pueblo III.
[d] Four of these sites produced shards which could not be identified. The fifth site lacked ceramic evidence but contained an ovoid outline of vertical slabs. This evidence was not strong enough to justify any identification.

Available evidence suggests that settlement on White Mesa reached a peak in perhaps 800 A.D., and occupation remained at approximately that level until some time near the end of Pueblo II or in the Pueblo II/Pueblo III transition period. After this the population density declined sharply and it may be assumed that White Mesa was, for the most part, abandoned by about 1250 A.D.

The survey crew recorded evidence of structures at 31 of the 57 sites. At twelve sites, depressions were reported with diameters ranging from 16 to 49 ft. Twenty-seven sites contain evidence of other presumably surface, structural forms and at eight sites depressions are combined with surface structures. The depressions are apparently pit houses or kivas and thus indicate permanent use or residence.

The dimensions of most of the apparent surface structures built of stone suggest that they were used primarily for storage. The only exception to this, in terms of direct observation, is at site 6441 where a Pueblo II room block measuring 39 by 10 ft is recorded. With the possible exception of two sites, the existence of structures cannot be precluded in the 26 locations where

surface indications are lacking because the cultural data, contained within the site, are not often manifest on the surface. Also, there is a low degree of correlation between the extent of cultural debris on the surface of an archaeological site and the presence or absence of structures below the surface.

It would appear likely that many of the smaller sites, both with and without surface indications of structures, might well be what Haury (Willey, 1956) has called the "farm house." That author believes that the isolated one or two room structure is a concomitant aspect of nucleation. It is also suggested that these structures are not likely to be found dating from any point earlier than 1000 A.D., and that most come somewhat later in time, primarily in Pueblo III and, in some areas, in Pueblo IV. It may well be, therefore, that White Mesa sites reflect Pueblo III nucleation trends.

2.9 Demography and Socioeconomic Profile

2.9.1 Demography of the Area

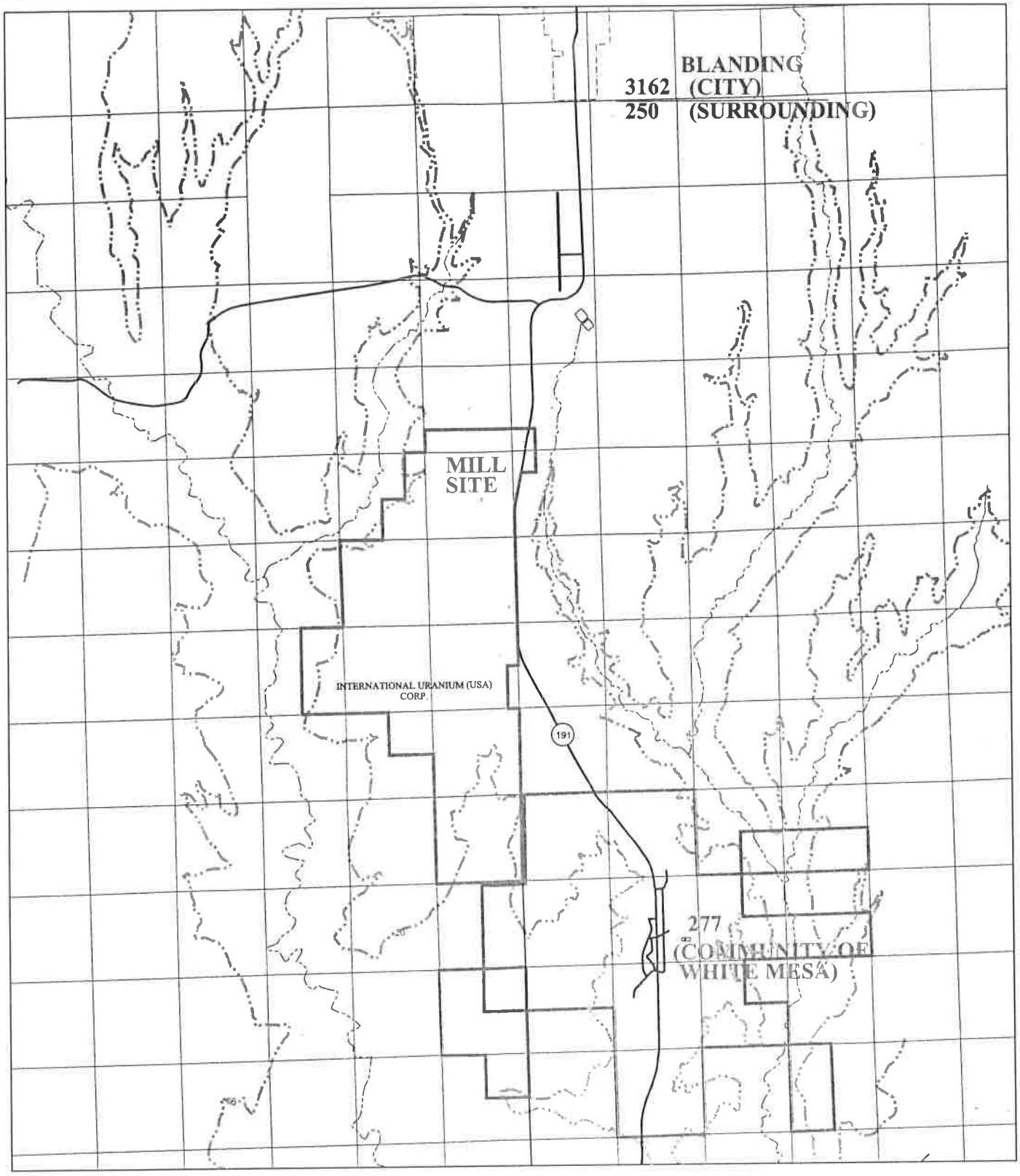
According to the 2000 census, the population density of San Juan County, in which the Mill is located, is 1.8 individuals per square mile. By comparison, the statewide density is greater than 27.2 persons per square mile. The town of Blanding, Utah, approximately 6 miles north of the Mill, is the largest population center near the Mill site, with 3,162 persons. Approximately 3.5 miles southeast of the Mill site is the White Mesa community of approximately 277 Ute Mountain Ute tribal members. Only an estimated 60 to 75 individuals live within 5 miles of the site (Figure 2.9-1). The nearest resident to the Mill is located approximately 1.2 miles to the north of the Mill, near air monitoring station BHV-1 (Figure 2.3-2).

The Navajo Reservation is located approximately 19 miles southeast of the Mill. The nearest community on the Navajo Reservation is Montezuma Creek, a community of approximately 507 individuals in Utah. Table 2.9-1 provides population centers located within 50 miles of the Mill site.

Table 2.9–1
Population Centers within 50 Miles of the Mill Site[1]

Population Center	2000 Population	Distance From Site* (miles)
Blanding, UT	3,162	6
White Mesa, UT	277	4
Bluff, UT	320	15
Montezuma Creek, UT	507	20
Aneth, UT	598	27
Mexican Hat, UT	88	30
Monticello, UT	1,958	27
Eastland/Ucolo, UT	249[2]	32
Dove Creek, CO	698	37
Towaoc, CO	1,097	50

Source: http://factfinder.census.gov



SCALE

0 1 2

MILES

International Uranium (USA) Corporation

Project	WHITE MESA MILL
REVISIONS	County: / State: UT
Date / By	Location:
	Figure 2.9 - 1 Population in The Project Vicinity - 2000 Census
	Scale: 1:250,000 / Date: March 2003 / figure 2.9-1.dwg
	Author: HRR / Drafted By:

* Appropriate distance from Mill site by air
[1] 2000 Estimate
[2] 1978 Estimate

2.9.2 Socioeconomic Profiles

San Juan County, Utah, is the largest and poorest county in Utah. As of October 2002, the unemployment rate in San Juan County was 7.8%, compared to 5.2% for Utah as a whole, and 5.6% for the nation as a whole. When operating, the Mill is the largest private employer in San Juan County, employing up to 70 to 100 full time employees. Typically, the Mill employs a high percentage of minority workers. During the Mill run that commenced in June, 2002, the Mill employment ranged from 45-75% Native Americans.

Since its inception in 1980, the Mill has run on a campaign basis, in each case remaining on standby pending accumulation of sufficient ore stockpiles to justify a milling campaign. Currently, Mill employees are predominantly residents of San Juan County, or residents of neighboring counties who commute to the Mill on a daily basis. Historically, the Mill has drawn upon such residents of San Juan County and neighboring counties for each milling campaign, rather than relying upon an influx of workers to the area. As a result, Mill campaigns have not given rise to any unusual demands on public services or resulted in any cultural or socioeconomic issues for the surrounding areas.

Disposal of the Moab Tailings at the Mill will be no different than any other Mill campaign, except for the fact that it would be expected to last for several years, and to provide steady employment during that time, which will be a significant benefit to the regional economy.

2.10 Land Use

Approximately 65.8% of San Juan County is federally owned land administered by the U.S. Bureau of Land Management, the National Park Service, and the U.S. Forest Service. Primary land uses includes livestock grazing, wildlife range, recreation, and exploration for minerals, oil, and gas. Approximately 22% of the County is Native American land owned by either the Ute Mountain Ute Tribe or the Navajo Nation. The area within 5 miles of the Mill site is predominantly range land owned by residents of Blanding.

A more detailed discussion of land use at the Mill site, in surrounding areas, and in southeastern Utah, is presented in the FES.

2.11 Transportation

The FES (Section 4.8.5) contemplated that during full-scale operations, about 85 hourly Mill employees plus 20 salaried staff would travel to the Mill daily along U.S. Highway 191[1]. The

[1] At the time of the FES, Highway 191 was Highway 163.

FES (Section 4.8.5) also noted that heavy truck traffic would also increase substantially in the Mill area. Specifically, Section 4.8.5 of the FES noted that during the operations period, when area mining was at expected peak levels, approximately 68 trips on local highways would be made by 30-ton ore trucks to the Mill per day (1978 ER, p. 5-34).

These calculations are consistent with a licensed Mill capacity of 2,000 tons of ore per day, which, based on typical Mill availabilities, would be expected to result in the processing of approximately 680,000 tons of ore per year. On the basis of 25 tons of ore in each truck (which is the current regulatory limit for transportation on highways), 27,200 trips per year, or approximately 78 trips per day, based on a 7-day work week (109 per day, based on a five-day week) would be transported along local highways to the Mill. For purposes of comparison to the FES, 78 trips per day based on 25 tons of ore per truck is equivalent to 65 trips per day based on 30 tons of ore per truck.

The FES also contemplated that if the Mill is operating at full licensed capacity of 680,000 tons of conventional ore per year, approximately 17 shipments of anhydrous ammonia would be made annually to the Mill in 20 ton loads and sulfuric acid shipments to the Mill would amount to about eight truck loads per day (FES Section 5.3.3).

Finally, the FES (Section 5.3.1) noted that refined yellowcake product is generally packaged in 55-gal, 18-gage drums holding an average of 800 lb and classified as Transport group III Type A packaging (49 CFR Parts 170-189 and 10 CFR Part 71). It is shipped by truck an average of 1.300 miles to a conversion plant, which transforms the yellowcake to uranium hexafluoride for the enrichment step of the light-water-reactor fuel cycle. An average truck shipment contains approximately 45 drums, or 17.5 tons, of yellowcake. Based on a licensed yellowcake capacity of 4,380 tons per year (Mill License condition 10.1) a maximum of 8,760,000 pounds of yellowcake would require shipment from the Mill to conversion facilities. This would require approximately 275 truck shipments from the Mill per year (based on current regulatory weight limits of about 40 drums per truck), or 0.75 per day based on a seven-day week (1.05 per day, based on a five-day week).

The following Table 2.11-1 illustrates the various materials shipped to and from the Mill for various periods of operation over the Mill's history (Note: shipments are indicated on Table 2.11-1 on the assumption that the ore shipments were made during the year that the ore was processed. However, for some years actual shipments of ore took place during previous years of Mill standby, such as 1984 and 2000/2001, while the Mill was stockpiling ore in preparation for a future Mill run).

Table 2.11-1
Production and Transportation Summary

Year(s)	Uranium Ore (tons)	lbs. U3O8	lbs. V2O5	Trucks: Ore	U3O8 Concentrate	V2O5 Concentrate	H2SO4	NaClO3	Gas/Diesel/Oil/ Propane	Kerosene/ Amine	Supplies & Misc. Reagents
1978-1983	1,511,544	6,005,721	13,008,155	60,462	150	325	12,092	907	1,512	76	2,267
1984	Standby								24		260
1985-1990	2,037,209	18,759,338	18,943,167	81,488	469	474	16,298	1,222	2,037	102	3,056
1991-1994	Standby								96		1040
1995	163,046	1,472,614		6,522	37		2,283	98	272	8	408
1996	43,553	661,722		1,742	17		610	26	73	2	109
1997	1,995	619,193		100	15		16		3	2	60
1998	63,296	3,000		3,165			127		127		190
1999	90,308	652,100	1,512,801	3,612	16	38	676	59	90		271
2000-2001	Standby								48		520
2002	135,724	*		6,786			20		271		407
2003	36,469	*		1,823			7		73		109
Total Total	4,083,144	28,173,688	33,464,122	165,701	704	837	32,128	2,312	4,626	190	8,697
									Total Trucks		215,194

Date: May 2003

From this table it is evident that a total of over 28 million pounds of uranium and over 33 million pounds of vanadium have been recovered at the Mill since its inception from over 4 million tons of conventional ores and alternate feed materials, ranging from no production in some years, to production at full capacity in other years. Average production per year in the peak years of production of 1980-1983 and 1985-1989, has been approximately 1.5 million and 3.75 million pounds of uranium, respectively. The peak years of production for the Mill were 1986,1987, and 1988 during which the Mill produced and shipped approximately 4.98, 4.8 and 4.97 million pounds of yellowcake, respectively. It can also be observed from this table that when the Mill is in full operation, as for example during the years 1985-1989, an average of approximately 80 ore, reagent and other supply trucks arrived at the Mill each week day, and approximately one truckload of yellowcake and one truckload of vanadium was shipped from the Mill every three week days.

In recent years, as commodity prices have been in decline, the Mill has received license amendments to receive and process a number of alternate feed materials at the Mill. Each of these license amendments contemplated transportation of the feed materials to the Mill, in most cases along Highway 191 from its intersection with Interstate 70, to the Mill.

Utah Department of Transportation ("UDOT") has provided IUSA with the information set out in Table 2.11-2 relating to vehicular traffic at various locations along the route to the Mill. Listed below are points on the north and south boundaries of each of the cities of Moab, Monticello and Blanding in order to allow for an estimation of the average truck traffic through those cities, as well as north and south of the Mill, and points representing the northern most point on Highway 191 (Crescent Junction) and the midpoint on the route (La Sal Junction). The Mill represents the southern most point on Highway 191 that will be used for transportation of materials to the Mill.

Table 2.11-2
Estimated 2002 Truck Traffic on Route 191 in Vicinity of the Mill

	Northbound			Southbound		
Location	**Number of Cars**	**Number of Trucks**	**% Trucks of Total Traffic**	**Number of Cars**	**Number of Trucks**	**% Trucks of Total Traffic**
Jct SR 262 to Aneth (South of the Mill)	1,292	259	17%	1,242	278	18%
Jct SR 95 South of Blanding (South of Blanding and North of the Mill)	1,731	365	17%	1,661	410	20%
Verdure (North of Blanding)	936	301	24%	902	342	28%
South of Monticello	1,609	609	27%	1,557	686	31%
North of Monticello	862	716	45%	862	716	45%
Jct SR 46 La Sal Jct	1,217	382	24%	1,262	481	28%
San Juan Grand County Line (South of Moab)	3,213	1,023	24%	3,380	1,149	25%
Jct SR 128 Colorado River (North of Moab)	2,152	705	25%	2,329	611	21%
Jct SR313-Jct I70 Crescent Jct	1,115	366	25%	1,207	317	21%

Source: Estimate provided by UDOT to IUSA on April 9, 2003.

Based on this information, the average number of trucks traveling through the city of Moab per day can be estimated to be approximately 872 trucks one way, on average.[2]

The Moab project will require truck shipment of approximately 170,000 tons of debris that cannot be transported by slurry pipeline. This will require a total of 6,800 truck shipments over a four to five year period. Assuming truck shipments are only allowed for 250 days of the year, approximately 27 trips, each way, will be added to the existing traffic on Route 191. This represents less than 10% of the total truck traffic.

2.12 Ecological Resources and Biota

2.12.1 Terrestrial

2.12.1.1 Flora

The natural vegetation presently occurring within a 25 mile radius of the Mill site is very similar to that of the potential, being characterized by pinyon-juniper woodland intergrading with big sagebrush (Artemisia tridentata) communities. The pinyon-juniper community is dominated by Utah juniper (Juniperus osteosperma) with occurrences of pinyon pine (Pinus edulis) as a codominant or subdominant tree species. The understory of this community, which is usually quite open, is composed of grasses, forbs, and shrubs that are also found in the big sagebrush communities. Common associates include galleta grass (Hilaria jamesii), green ephedra (Ephedra viridis), and broom snakewood (Gutierrezia sarothrae). The big sagebrush communities occur in deep, well-drained soils on flat terrain, whereas the pinyon-juniper woodland is usually found on shallow rocky soil of exposed canyon ridges and slopes. See Section 2.9 of the 1978 ER.

Based on the work completed by Dames & Moore in the 1978 ER, no designated or proposed endangered plant species occur on or near the project site (1978 ER, Section 2.8.2.1). Of the 65 proposed endangered species in Utah at that time, six have documented distributions on San Juan County. A careful review of the habitat requirements and known distributions of these species by Dames & Moore in the 1978 ER indicated that, because of the disturbed environment, these species would probably not occur on the project site. The Navajo Sedge has been added to the list as a threatened species since the Dames & Moore study. Figure 2.12-1 shows the vegetation community types on the Mill site.

In completing the 2000 EA and the 2002 EA, NRC staff contacted wildlife biologists from the BLM and the Utah Wildlife Service to gather local information on the occurrences of additional species surrounding the Mill. In both the 2000 EA and the 2002 EA, NRC staff concluded that the Navajo Sedge has not been observed in the area surrounding Blanding, and is typically found in areas of moisture (2000 EA at 6, 2002 EA at 4).

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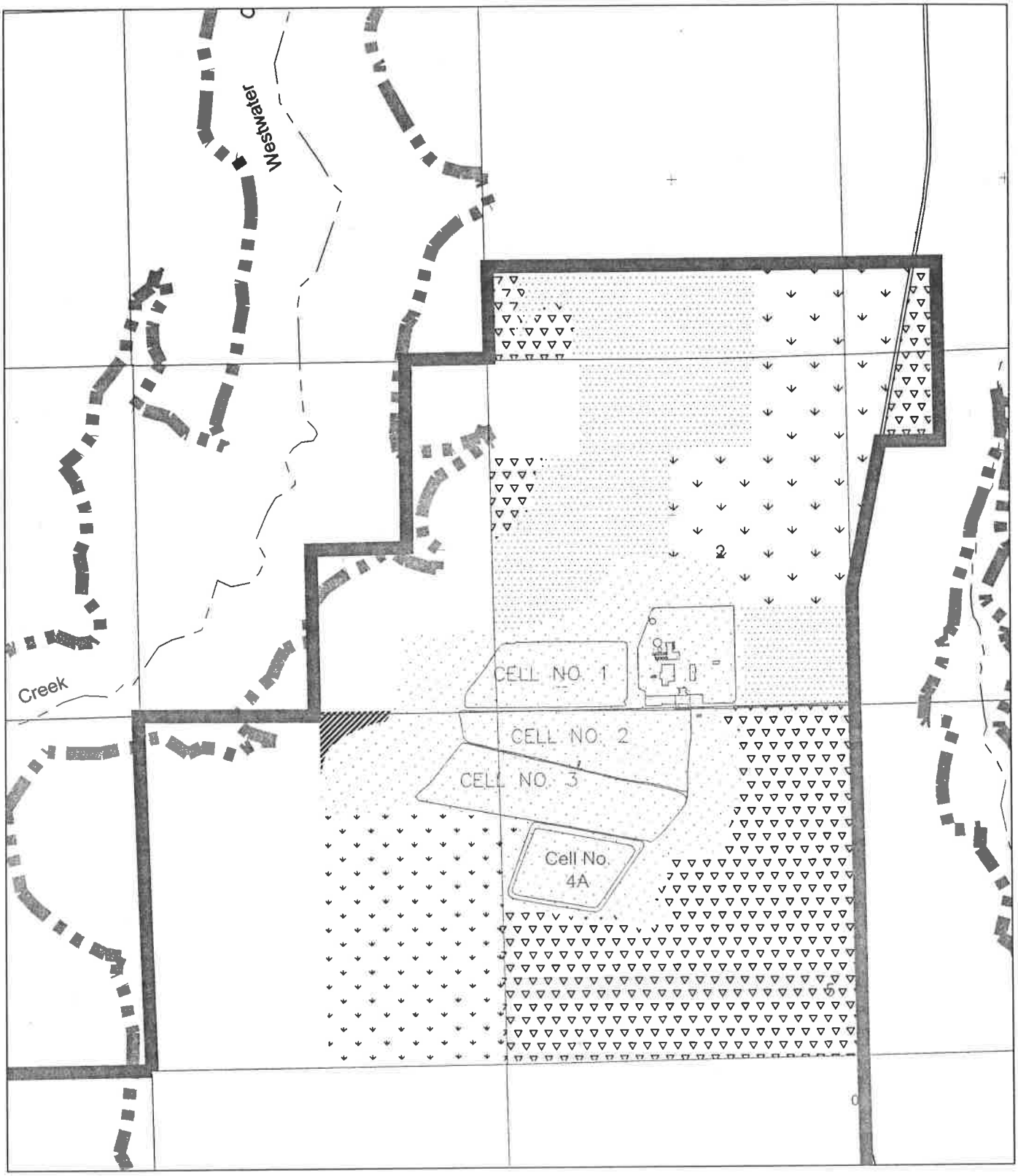
[2]IUSA has calculated this number by taking the average of the north and southbound truck traffic at the point north of Moab, adding it to the average of the north and southbound truck traffic at the point south of Moab and dividing the sum of these two averages by two to obtain an estimate of the average of the truck traffic one way through Moab. A similar analysis can be performed for other points along the route to the Mill.



- Pynyon-Juniper
- Reseeded Grassland I
- Reseeded Grassland II
- Big Sagebrush
- Controlled Big Sagebrush
- Disturbed

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Project	WHITE MESA MILL
REVISIONS Date / By	County: / State: UT
	Location:
	Figure 2.12 - 1 Vegetation Community Types on the White Mesa Mill Site
	Scale: AS SHOWN / Date: March 2003 / figure 2.12 – 1.dwg
	Author: HRR / Drafted By:

2.12.1.2 Fauna

Wildlife data were collected by Dames & Moore through four seasons at several locations on the Mill site, prior to construction of the Mill. The presence of a species was based on direct observations, trappings and signs such as the occurrence of scat, tracks, or burrows. A total of 174 vertebrate species potentially occur within the vicinity of the Mill (1978 ER, Appendix D), 78 of which were confirmed (1978 ER, Section 2.8.2.2).

Although seven species of amphibians are thought to occur in the area, the scarcity of surface water limits the use of the site by amphibians. Eleven species of lizards and five snakes potentially occur in the area. (1978 ER, Section 2.8.2.2).

Fifty-six species of birds were observed in the vicinity of the Mill site. (1978 ER, Section 2.8.2.2).

Raptors are prominent in the western United States. Five species were observed in the vicinity of the site. Although no nests of these species were located at the time of the FES, all (except the golden eagle, Aquila chrysaetos) have suitable nesting habitat in the vicinity of the site. The nest of a prairie falcon (Falco mexicanus) was found about 3/4 mile east of the site. Although no sightings were made of this species, members tend to return to the same nests for several years if undisturbed (1978 ER, Section 2.8.2.2).

Of several mammals that occupy the site, mule deer (Odocoileus hemionus) is the largest species. The deer inhabit the project vicinity and adjacent canyons during winter to feed on the sagebrush and have been observed migrating through the site to Murphy Point (1978 ER, Section 2.8.2.2). Winter deer use of the project vicinity, as measured by browse utilization, is among the heaviest in southeastern Utah 25 days of use per acre in the pinyon-juniper-sagebrush habitats in the vicinity of the project site. In addition, this area is heavily used as a migration route by deer traveling to Murphy Point to winter. Daily movement during winter periods by deer inhabiting the area has also been observed between Westwater Creek and Murphy Point. The present size of the local deer herd is not known.

Other mammals present at the site include the coyote (Canis latrans), red fox (Vulpes vulpes), gray fox (Urocyon cineroargenteus), striped skunk (Mephitis mephitis), badger (taxidea taxus), longtail weasel (Mustela frenata), and bobcat (Lynx rufus). Nine species of rodents were trapped or observed on the site, the deer mouse (Peromyscus maniculatus) having the greatest distribution and abundance. Although desert cottontails (Sylvilagus auduboni) were uncommon in 1977, black-tailed jackrabbits (Lepus californicus) were seen during all seasons.

In the 2002 EA, NRC staff noted that, in the vicinity of the site, the U.S. Fish and Wildlife Service provided the list set out in Table 2.12-1, of the endangered, threatened, and candidate species that may occur in the area around the site:

Table 2.12-1
Endangered, Threatened And Candidate Species In The Mill Area

Common Name	Scientific Name	Status
Navajo Sedge	Carex specuicola	Threatened
Bonytail Chub	Gila elegans	Endangered
Colorado Pikeminnow	Ptychocheilus lucius	Endangered
Humpback Chub	Gila cypha	Endangered
Razorback Sucker	Xyrauchen texanus	Endangered
Bald Eagle	Haliaeetus leucocephalus	Threatened
California Condor	Gymnogyps californianus	Endangered
Gunnison Sage Grouse	Centrocercus minimus	Candidate
Mexican Spotted Owl	Strix occidentalis lucida	Threatened
Southwestern Willow Flycatcher	Empidonax traillii extimus	Endangered
WesternYellow-billed Cuckoo	Coccyzus americanus occidentalis	Candidate
Black-footed Ferret	Mustela nigripes	Endangered

The 2002 EA also noted that, in addition, the species listed on Table 2.12-2 might occur within the Mill area that is managed under Conservation Agreements/Strategies.

Table 2.12-2
Species Managed Under Conservation Agreements/Strategies At The Mill Area

Common Name	Scientific Name
Colorado River Cutthroat Trout	Oncorhynchus clarki pleuriticus
Gunnison Sage Grouse	Centrocercus minimus

In the 2002 EA, NRC staff made the following conclusions: "While the ranges of the bald eagle, peregrine falcon, and willow flycatcher encompass the project area, their likelihood of utilizing the site is extremely low. The black-footed ferret has not been seen in Utah since 1952, and is not expected to occur any longer in the area. NRC staff contacted wildlife biologists from the BLM and the Utah Wildlife Service to gather local information on the occurrences of these additional species surrounding the Mill. The California Condor has only rarely been spotted in the area of Moab, Utah, (70 miles north) and around Lake Powell (approximately 50 miles south). The Mexican Spotted Owl is only found in the mountains in Utah, and is not expected to be on the Mesa. The Southwestern Willow Flycatcher, Western Yellow-billed Cuckoo, and Gunnison Sage Grouse are also not expected to be found in the immediate area around the Mill site."

2.12.2 Aquatic and Wetlands Biota

Aquatic habitat at the Mill site ranges temporally from extremely limited to nonexistent due to the aridity, topography and soil characteristics of the region and consequent dearth of perennial surface water. Two small stockwatering ponds, are located on the Mill site, a few hundred yards from the ore pad area. One additional small "wildlife pond" was completed in 1994 to serve as a diversionary feature for migrating waterfowl. Although more properly considered features of the

terrestrial environment, these ponds essentially represent the total aquatic habitat on the Mill site. These ponds probably harbor algae, insects, other invertebrate forms, and amphibians. They also provide a water source for small mammals and birds. Similar ephemeral catch and seepage basins are typical and numerous to the northeast of the Mill site and south of Blanding.

Aquatic habitat in the Mill vicinity is similarly limited. The three adjacent streams (Corral Creek, Westwater Creek, and an unnamed arm of Cottonwood Wash) are only intermittently active, carrying water primarily in the spring during increased rainfall and snowmelt runoff, in the autumn, and briefly during localized but intense electrical storms. Intermittent water flow most typically occurs in April, August, and October in those streams. Again, due to the temporary nature of these steams, their contribution to the aquatic habitat of the region is probably limited to providing a water source for wildlife and a temporary habitat for insect and amphibian species.

In the 2002 EA, NRC staff concluded that no populations of fish are present on the project site, nor are any known to exist in the immediate area of the site. Four species of fish designated as endangered or threatened (the Bonytail Chub, Colorado Pikeminnow, Humpback Chub and Razorback Sucker) occur in the San Juan River 18 miles south of the site, which Dames & Moore noted in the 1978 ER (Section 2.8.2) is the closest habitat suitable for these species. NRC staff further concluded that there are no discharges of mill effluents to surface waters, and therefore, no impacts are expected for the San Juan River due to operations of the Mill.

2.13 Baseline Radiological Environment

2.13.1 Background Radiation

All living things have always been exposed to ionizing radiation from a variety of sources including cosmic and cosmogenic radiation from space; external radiation from terrestrial radionuclides such as uranium, thorium and potassium-40 that occur in the earth's crust, in building materials, in the air we breath, the food we eat, the water we drink and in our bodies.

Some exposures, such as that from potassium-40 are controlled by our body's metabolism and are relatively constant throughout the world, but exposures from sources such as uranium and thorium in soils and especially from radon in homes can vary greatly, by more than a factor of ten, depending on location.

In order to provide a context for exposures potentially attributable to radioactive emissions from the Mill, this section provides some general background information on exposures to natural background radiation in the area of the Mill.

2.13.1.1 The Mill Site

At the Mill site, the average dose equivalent from background radiation was measured in 1977 to be about 142 mrem/yr. Of this 142 mrem/yr, 68 mrem/yr came from cosmic radiation, while about 74 mrem/yr came from terrestrial radiation (1978 ER).

Ingested radionuclides would contribute (about) a further 18 mrem/yr (U.S. Nuclear Regulatory Commission, 1979). This brings the total background dose from external radiation and ingested radioactivity, but exclusive of the dose from radon-222, to about 161 mrem/yr (Table 2.13-1).

Table 2.13-1
Average Dose from Natural Background Radiation
(Excluding Dose From Radon)

Location	Cosmic and Cosmogenic (mrem/yr)	External Terrestrial (mrem/yr)	Ingested (mrem/yr)	Average Total Dose (mrem/yr)
Blanding, Utah/White Mesa	69	74	18	**161**
United States	28	28	40	**96**
Worldwide	39	48	29	**116**

Source: IUSA Monitoring Data

Based on pre-operational measurements of ambient outdoor radon levels (ER 1978) in the vicinity of the Mill, the dose from radon-222 was estimated using generally accepted procedures (Appendix H) to contribute a further 250 mrem/yr. When the contribution from radon was added to other sources of natural background radiation dose, the total annual dose from natural background radiation and radioactivity to a person living in the vicinity of the Mill was estimated to be about 400 mrem/yr, considerably higher than the national average.

2.13.2 Radiological Impacts of Currently Licensed Operations

2.13.2.1 Introduction

The FES, in part relying on information in the 1978 ER and Supplement to the 1978 ER, provides a detailed assessment of the potential radiological impacts from the then proposed Mill. As noted in the FES, there was no plan to release radioactive effluents to the surface water environment. In addition, the FES notes that the possibility of seepage from the tailings impoundment to groundwater is remote and therefore, no potentially significant contribution to dose from water pathways was anticipated. As described elsewhere in this Report (Section 2.7.3.2), the groundwater monitoring program is designed to ensure early detection of any un-anticipated seepage and implementation of any necessary mitigative measures. The potential environmental pathways of potential concern considered in the FES are therefore for airborne effluents.

This Section briefly discusses the radiological impacts considered in the FES potentially attributable to airborne radioactive emissions from the Mill to both nearby individuals and the entire population within 50 miles of the Mill. Consideration has also been given to the occupational exposure received by Mill employees and radiation exposure of biota other than man.

Finally, the foregoing analysis is then followed in each category by a brief discussion of actual operating results based on operational monitoring data.

2.13.2.2 Exposure Pathways for People

Potential environmental exposure pathways by which people could be exposed to airborne radioactive emissions from the Mill are presented schematically in Figure 2.13-1. As noted in the previous Section, there are no realistic surface water or groundwater pathways of exposure. The FES estimated doses to man based on the proposed Mill design, the actual characteristics of the site environs, and the models and assumptions described in Appendix D of the FES.

Environmental exposure pathways of potential concern for airborne effluents from the Mill are inhalation of radioactive materials in the air, external exposure to radioactive materials in the air or deposited on ground surfaces, and ingestion of contaminated food products (vegetables and meat).

The FES assessment was based on the projected air emissions shown in Table 2.13-2.

Table 2.13–2
FES Estimated Annual Releases of Radioactive Materials Resulting from the Mill
(Annual releases (Ci)[a])

Source	U - 238	Th - 230	Ra - 226	Rn - 222
Blanding ore crusher[b]	2.6E-04	2.6E-04	2.6E-04	2.6E+00
Ore storage piles	1.7E-04	1.7E-04	1.7E-04	2.4E+02
Secondary crusher[c]	6.5E-04	6.5E-04	6.5E-04	5.2E+00
Yellowcake scrubber	2.9E-02	1.6E-03	6.2E-05	0.0
Tailings system	1.3E-02	2.0E-01	2.1E-01	8.1E+03

Source: FES Table 3.3

[a] Releases of other isotopes on the U–238 decay chain are included in the radiological impact analysis. These releases are assumed to be identical to those presented here for parent isotopes. For instance, the release rate of U–234 is taken to be equal to that for U–238.

[b] The Blanding Ore Crusher was utilized in connection with the ore buying station which was located on what became the Mill's ore pad. This ore crusher ceased operations in 1982, and is no longer in operation.

[c] The Secondary Crusher is the Mill's semi-autogenous grinding (SAG) mill, which is used for crushing conventional ores.

2.13.2.3 Radiation Doses to Individual Members of the Public

At the time of the FES, the nearest resident lived approximately 2.8 miles north-northeast of the Mill building, near the location of air monitoring station BHV-2 (Figure 2.3-2). A mobile home about 2.0 miles north of the Mill was occupied until just prior to the time of the FES. Currently, the nearest resident is approximately 1.2 miles north of the Mill, near the location of air monitoring station BHV-1 (Figure 2.3-2). This is the location of the "nearest potential residence" identified by NRC staff at the time of the FES and was included in the FES radiological assessment. This location remains the nearest residence. (Note that the people who live at the nearest residence are sometimes referred to as the nearest receptor(s).)

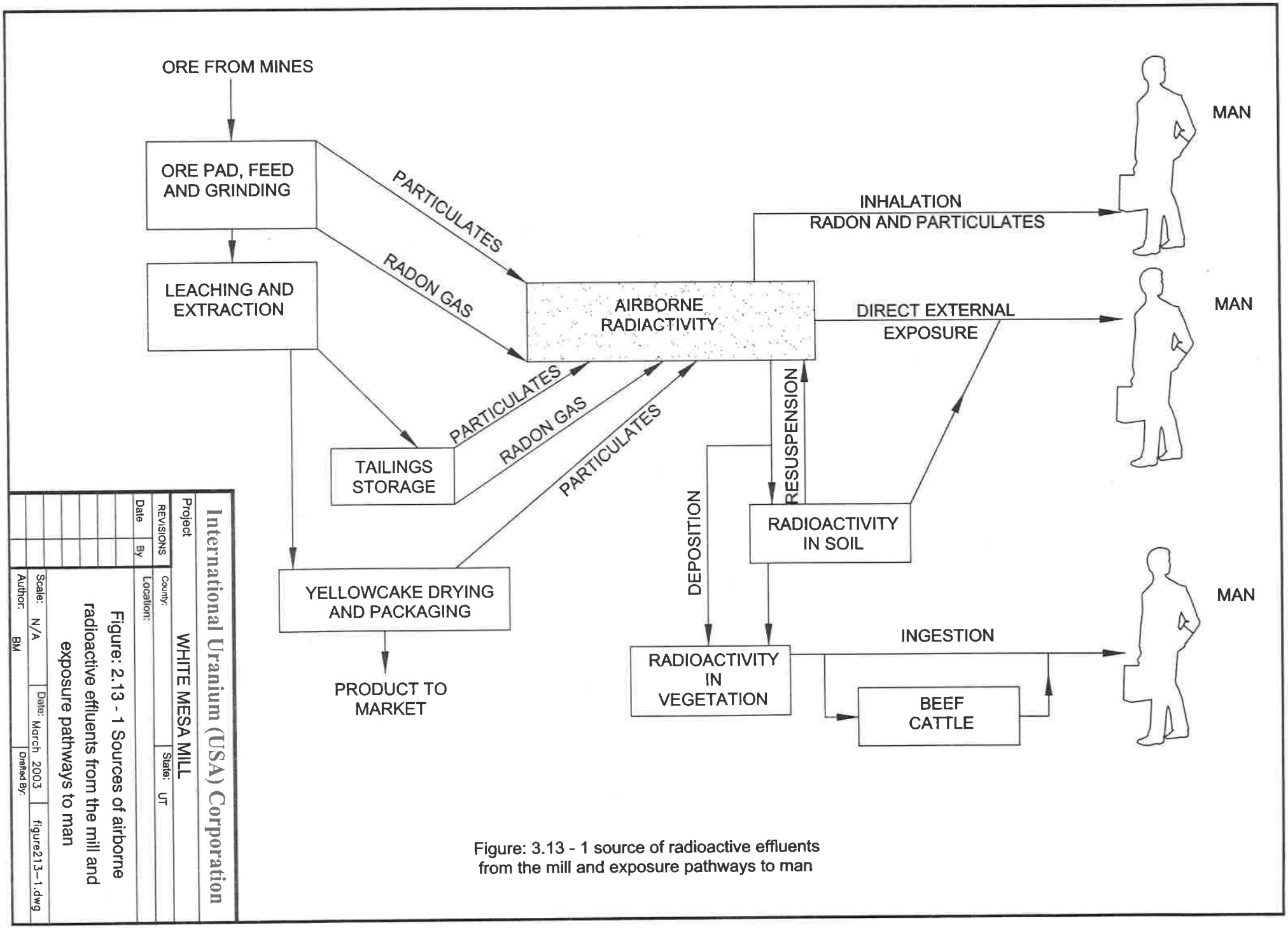


Figure: 3.13 - 1 source of radioactive effluents from the mill and exposure pathways to man

The NRC staff also calculated the potential radiation dose to the nearest residence in the prevailing downwind direction. This receptor was about 4.0 miles south of the Mill. As a consequence of being further away from the Mill, the doses estimated to this receptor were about two thirds of that estimated for the nearest receptor at the time and less than one third of that estimated for the nearest potential receptor (now the actual nearest receptor.) Therefore, this downwind receptor location is not discussed further in this Environmental Report.

The nearest potential residence evaluated in the FES, and the actual current nearest residence, is along the northern border of the site, about 1.2 miles from the Mill building. All other lands abutting the Mill site to the east, south, and west are the property of the licensee, or the U.S. Bureau of Land Management. The area immediately to the north of the Mill site, the current location of the nearest residence, is used for the grazing of meat animals (beef.) It is assumed that meat animals could be grazed along the northern site boundary and eaten by the nearest actual residents. The calculated ingestion doses for consumption of beef grazed at this location are comparable to those calculated for other locations around the site at which grazing could be expected to occur.

Tables 2.13-3 and 2.13-4 present a summary of the individual dose commitments reported in the FES for the nearest actual residence at the time of the FES and the nearest potential (actual current) residence, respectively. These calculations were performed by NRC staff at the time of the FES assuming the Mill was operating at full capacity of 2,000 tons of conventionally mined ore per day.

Table 2.13-3
Comparison of Annual Dose Commitments to Nearest Actual Residence at Time of FES (2.8 Miles North-Northeast) as Modeled in the FES with Applicable Radiation Protection Standards

NRC regulation at Time of FES (10CFR Part 20) Organ	Estimated Dose (mrem/yr)	Applicable Limit (mrem/yr)	Fraction of Limit
Total body	2.4	500	0.005
Bone	16	3000	0.005
Lung	3.2	1500	0.002
Bronchial epithelium	0.00015 WL[a]	0.033 WL	0.005

EPA standard (40 CFR Part 190)[b] Organ	Estimated Dose (mrem/yr)	Applicable Limit (mrem/yr)	Fraction of Limit
Total body	1.4	25	0.06
Bone	15	25	0.60
Lung	2.2	25	0.09
Bronchial epithelium	19	c	-

[a] Radiation standards for exposure to Rn–222 and its short-lived daughters are expressed in terms of working level (WL) concentrations. One WL is the amount of any combination of short-lived radioactive daughters of Rn–222 in 1 liter of air that will release 1.3E+05 MeV of alpha energy during their decay to Pb-210.
[b] Doses computed for evaluation of compliance with 40 CFR Part 190 are less than total doses because dose contribution from Rn–222 released from the site, and any radioactive daughters that grow in from released Rn-222 have been eliminated. Limits in 40 CFR Part 190 do not apply to Rn–222 or its radioactive daughters.
[c] Not limited.
Source: FES Table 4.8

Table 2.13–4
Comparison of Annual Dose Commitments to Nearest Potential Residence (1.2 Miles North) at Time of FES as Modeled in the FES with Applicable Radiation Protection Standards

NRC regulation at Time of FES (10CFR Part 20) Organ	Estimated Dose (mrem/yr)	Applicable Limit (mrem/yr)	Fraction of Limit
Total body	5.8	500	0.01
Bone	32	3,000	0.01
Lung	9.8	1,500	0.007
Bronchial epithelium	0.00036 WL	0.0033WL	0.01

EPA standard (40 CFR Part 190)[b] Organ	Estimated Dose (mrem/yr)	Applicable Limit (mrem/yr)	Fraction of Limit
Total body	2.5	25	0.1
Bone	29	25	1.2
Lung	6.5	25	0.30
Bronchial epithelium	78	c	-

[a] Radiation standards for exposure to Rn – 222 and its short-lived daughters are expressed in terms of working level (WL) concentrations. One WL is the amount of any combination of short-lived radioactive daughters of Rn – 222 in 1 liter of air that will release 1.3E+05 MeV of alpha energy during their decay to Pb-210.
[b] Doses computed for evaluation of compliance with 40 CFR Part 190 are less than total doses because dose contribution from Rn – 222 released from the site, and any radioactive daughters that grow in from released Rn- 222 have been eliminated. Limits in 40 CFR Part 190 do not apply to Rn – 222 or its radioactive daughters.
[c] Not limited.
Source: FES Table 4.8

The doses to individuals, predicted by NRC staff, as set out in Table 2.13-3 were calculated for inhalation, external exposure to air and ground concentrations, and the ingestion of vegetables and meat. The dose conversion factors, used to convert intake of radioactivity taken into the body by inhalation or ingestion, to dose, actually represent the entire dose received by that individual over the fifty years following the actual intake. This dose is referred to as committed dose, or fifty-year dose commitment. The external dose conversion factors used by the NRC staff assumed that the residents spent 100% of their time at the residence and were indoors 14 hours per day exposed to an external dose rate of 70% of the outdoor dose rate. This factor is intended to correct for the shielding provided by the residence.

It should be noted that the radiation dose limits for members of the public have changed since the time the FES was proposed. Since that time, the NRC, in 10 CFR Part 20, has adopted an annual dose limit of 100 mrem (total effective dose equivalent, or TEDE which takes into account the radiation dose from both internal and external sources) for members of the public for doses attributable to licensed operations. Doses from natural background or medical radiation are excluded.

The NRC concluded that all of the radiation doses estimated to the public from future operations at the Mill would be a small fraction of the then existing NRC limits. It is of interest to note, that had the NRC compared the predicted (TEDE) doses to either the then existing nearest receptor or the potential nearest residence (now the actual nearest receptor), that the predicted dose would still have been a small fraction of the NRC's current annual dose limit of 100 mrem per year.

In addition, NRC staff also compared their predicted doses to then proposed revised EPA's 40 CFR Part 190 limits, which became effective in December 1980 (and now required under 10 CFR 20.1301 (d)) and which included an annual (TEDE) dose limit of 25 mrem (exclusive of radon). This 25 mrem standard applies today. NRC staff concluded that the predicted (TEDE) dose to a receptor at either the then existing nearest residence or the potential nearest residence would still have been a small fraction of the EPA's then proposed 25 mrem/yr dose limit. The FES indicates that the predicted dose commitment to the bone could exceed EPA's, then proposed standard of 25 mrem/yr, and recommended monitoring and if necessary, dust control programs for the Mill operator to ensure that this standard was satisfied in practice.

As required by 10 CFR 20.1101, the Mill uses, to the extent practicable, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public as low as reasonably achievable ("ALARA"). 10 CFR 20.1101(d) provides that to implement these ALARA requirements, a constraint on air emissions of radioactive material to the environment, excluding Radon-222 and its daughters, shall be established by licensees such that the individual member of the public likely to receive the highest dose will not be expected to receive a TEDE in excess of 10 mrem/yr from these emissions. That provision goes on to provide that if a licensee exceeds this dose constraint, the licensee shall report the exceedance and promptly take appropriate corrective action to ensure against recurrence.

2.13.2.4 Radiation Dose Commitments to Populations

In estimating the potential dose to the population living within a 50 mile radius of the Mill, the NRC staff considered the nearby population groups including the community of White Mesa and the city of Blanding.

The annual doses to the population estimated in the FES to exist within 50 miles of the site, assuming a projected total population within that area of 46,500 in 2000, are presented in Table 2.13-5 along with estimated annual doses to the same population from natural background radiation sources, as estimated in the FES.

Table 2.13–5
Annual Population Dose Commitments within 50 Miles

	Population doses, man-rems/year[a]	
Organ	**Mill Operations**	**Natural Background[b]**
Total body	3.4	7,500
Bone	6.4	7,500
Lung	7.1	7,500
Bronchial epithelium	132	23,000

[a] Based on a projected year-2000 population of 46,500.
[b] The natural background dose rate to the whole body was estimated in the FES to be 161 mrem/yr. The bronchial epithelium dose from naturally occurring Rn-222 was assumed in the FES to be 500 mrem/yr. See FES Section 2.10.

Source: FES Table 4.7

In reality, this population dose is likely to be over-estimated, as the population within the 50 mile radius has not in fact achieved the levels forecasted in the FES. For example, the FES reports the 1977 population of San Juan County to be about 13,000 people and projects a 2000 population of about 33,000 people (Section 2.4.1), while the actual population of San Juan County in 2000 is about 14,400 people (Source: www.factfinder.census.gov). In any event, the NRC staff indicated in the FES that the population dose resulting from the operation of the Mill represents less than 1% of the doses from natural background sources.

2.13.2.5 Evaluation of Radiological Impacts of Currently Licensed Operations

As noted in Section 2.13.2.3, all radiation doses calculated for nearby residents from uranium milling operations at the Mill site are small fractions of those arising from naturally occurring background radiation. They are also small when compared to the average medical and dental x-ray exposures currently being received by the public for diagnostic purposes. Calculated annual individual dose commitments are only small fractions of present NRC limits for radiation exposure in unrestricted areas, as specified in 10 CFR Part 20, "Standards for Protection Against Radiation". Dose commitments to actual receptors are also well below limits specified in 40 CFR Part 190.

Subsequent dose modeling using NRC's MILDOS code was done in 1991 for Umetco a previous owner of the Mill (Enecotech 1991) in support of the Mill's 1997 license renewal. The modeling done for Umetco assumed the maximal conditions shown below:

- 730,000 tons of ore per year,
- average grade of 0.53% U_3O_8,
- average uranium recovery of 94%,
- operating 24 hr/day for 340 days per year,
- 15 years of project life, and,
- a yellowcake production of 4380 tons of U_3O_8 per year (8.8 million lb/yr).

By comparison, the dose calculations reported in the FES were for an average ore grade of 0.15% U_3O_8 and an annual yellowcake production of about 800 tons.

From the analysis described in the FES, assuming a total population of 46,000 people living within an 50 mile radius of the Mill, the NRC staff predicted an annual (TEDE) dose of about 3.4 person-rem. In the 1991 re-analysis using an updated model (MILDOS) developed by the NRC for this specific type of application, and assuming a much higher ore grade and quantity of yellowcake produced, a population dose of about 2.4 person-rems per year was estimated for a population of about 9,000 people assumed to live within 50 miles of the Mill. For comparison, the dose from natural background radiation to this same 9,000 people would be about 3,600 person-rem per year (i.e. 9,000 people x 400 mrem/year). The potential incremental population dose to the people living around the Mill is a tiny percentage (less than 0.10%) of the unavoidable annual dose from natural background.

In addition to the population dose, the MILDOS code also calculates the concentrations of radioactive dust and radon at individual receptor locations around the Mill. The MILDOS code

then compares these predicted concentrations to reference concentrations (referred to as maximum permissible concentrations, or MPC's). For the nearest residence, the combined ratios of predicted air concentrations (that is concentrations of U-238, U-234, Ra-226, Pb-210 and Rn-222 (and decay products)) to the corresponding NRC MPC, the sum of fractions is more than 600 times smaller than the allowable total.

In a similar fashion, the MILDOS Code also calculates results for comparison to the dose limits EPA 40 CFR 190. While the 1991 MILDOS run included a number of receptors, it did not include a receptor at the current nearest residence, 1.2 miles north of the Mill. The dose to a resident at this location was estimated by scaling on the basis of distance from the Mill to give a whole body dose of 0.44 mrem/yr and a bone dose of 6.22 mrem/yr.

2.13.2.6 Operational Environmental Monitoring Data

The environmental monitoring carried out at the Mill is described in the Semi Annual Effluent Reports prepared by IUSA for submission to the NRC as a condition of the Mill Licence. (License Condition 11.3.) These programs include source monitoring, radon flux measurements, air particulate monitoring and measurement of gamma exposure rates. Each of these is discussed briefly below.

2.13.2.6.1 Radon Flux

Clean Air Act ("CAA") NESHAPs requires that the Mill demonstrate on an annual basis that, on average, the radon flux from existing uranium mill tailings piles not exceed 20 pCi/m^2 –s. In order to satisfy this requirement, the radon fluxes from tailings surfaces at the Mill are measured and reported to the State on an annual basis. These data consistently demonstrate that the radon fluxes from the surfaces of tailings at the Mill are below the NESHAPs criteria, which, according to EPA, protects public health and safety with an ample margin of safety. Table 2.13-6 shows the radon flux data for the Mill's tailings cells over the last five years.

Table 2.13-6
Radon Flux For The Mill's Tailings Cells (pCi/m^3)

Year	Radon Flux Cell 2	Radon Flux Cell 3
1998	14.3	14.9
1999	13.3	12.2
2000	9.3	10.1
2001	19.4	10.7
2002	19.3	16.3

Source: Mill NESHAPS Reports.

The higher values reported in 2001 and 2002 were due largely to the drought conditions in those years which reduced the moisture content in the interim cover placed over the inactive portions of tailings Cells 2 and 3 and, in the case of 2002, to the commencement of the 2002 Mill run which resulted in increased activities at the tailings cells. As a result of the higher radon flux

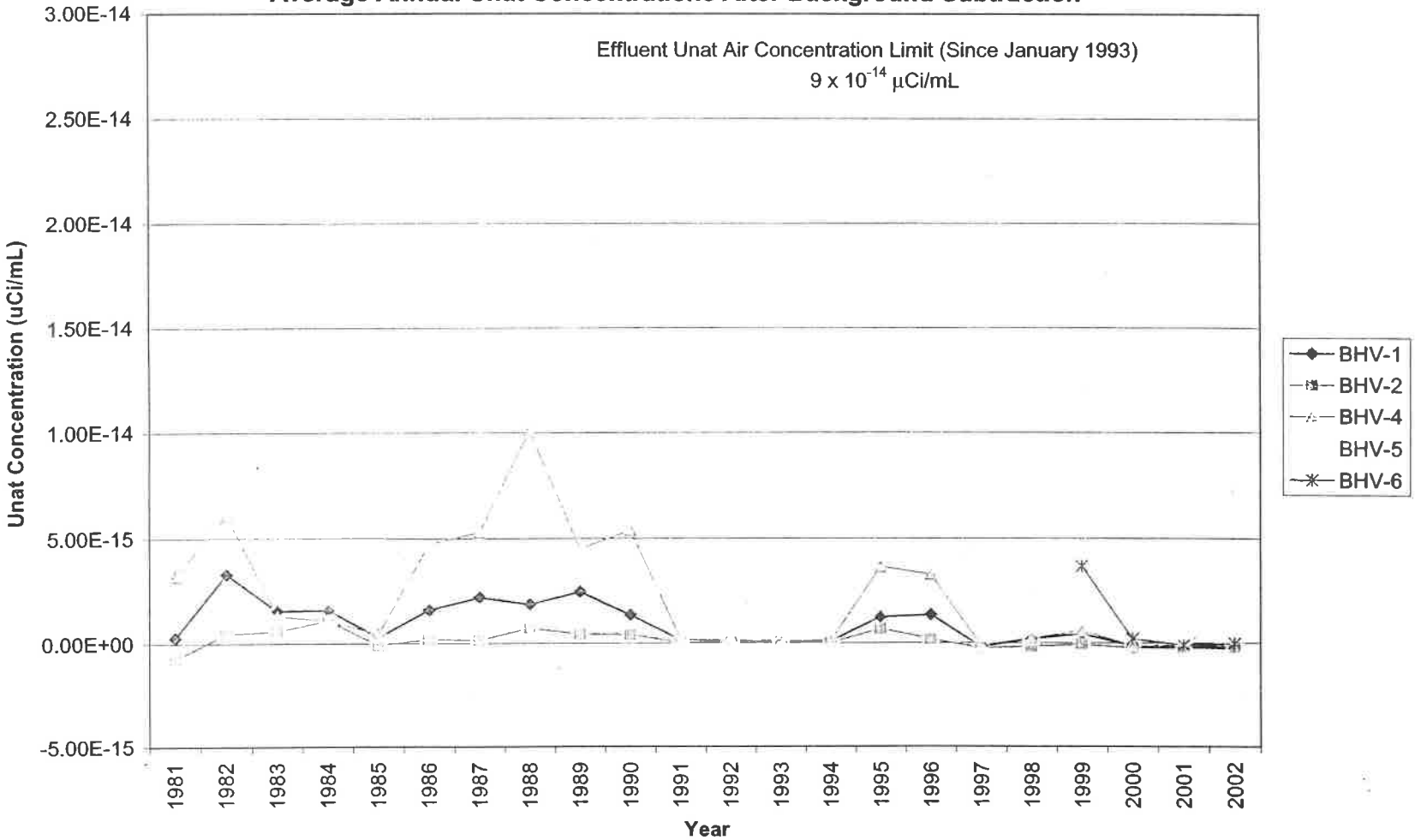
levels in 2001 and 2002, additional interim cover has been placed on the inactive portions of Cells 2 and 3 in order to reduce radon flux levels to those in previous years.

2.13.2.6.2 Air Particulate Monitoring

Air particulate monitoring is carried out at four high volume continuous air sampling stations as required by NRC at locations BHV-1 (currently, the nearest residence), BHV-2, BHV-4, and BHV-5) (Figure 2.3-2). High volume sampling was previously carried out at a "background" station on Black Mesa (BHV-3). However, air particulate sampling at this station was discontinued, with NRC approval, since it was collectively agreed that sufficient data had been collected at BHV-3 to provide a reliable evaluation of average background conditions. IUSA currently voluntarily operates a fifth air particulate monitoring station at BHV-6. This station was installed by IUSA at the request of the White Mesa Ute community in 1997.

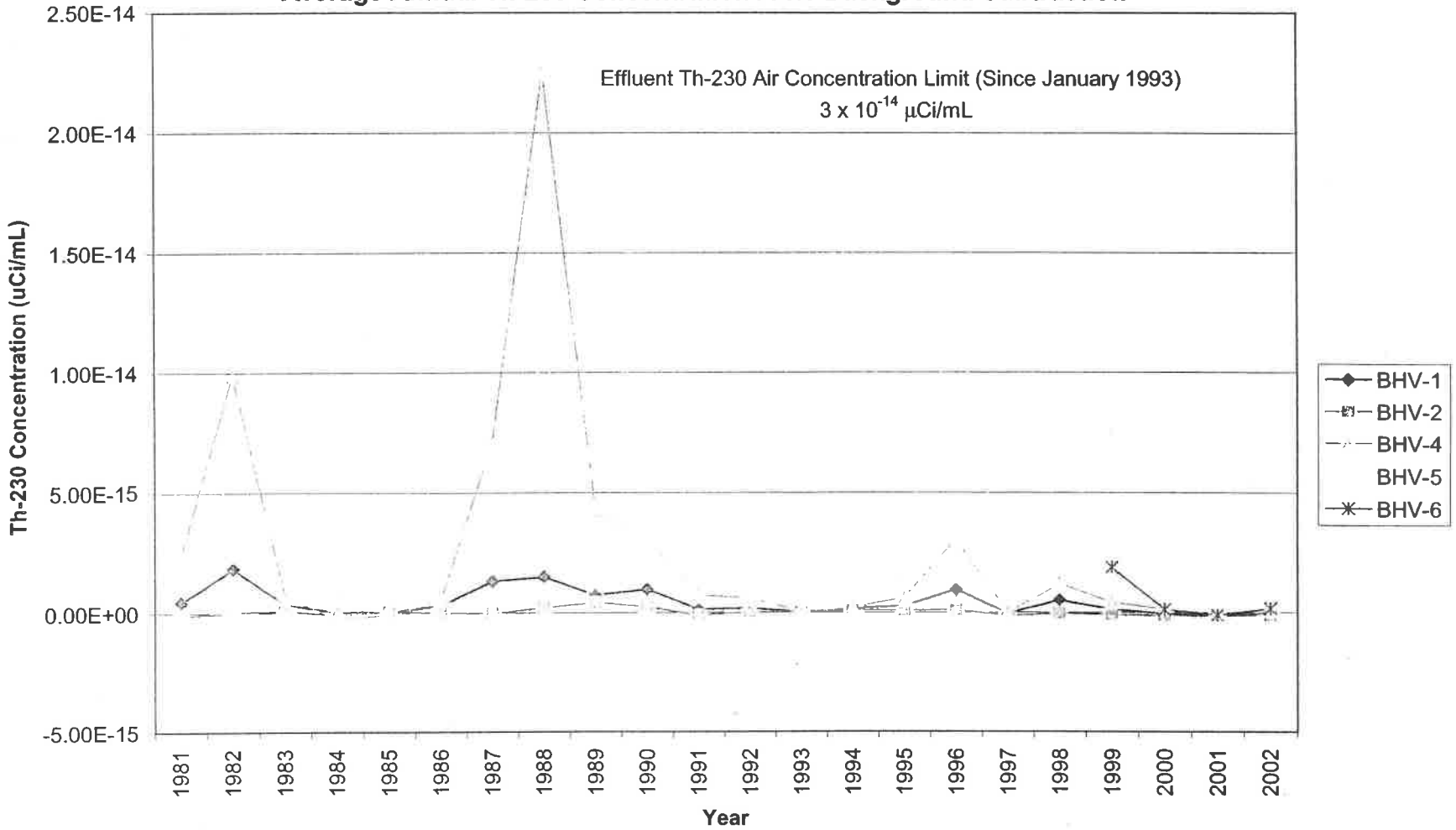
The air particulate data, with the background levels measured at BHV-3 subtracted, are shown in Figures 2.13-1, 2.13-2, 2.13-3, and 2.13-4 for Unat, Th-230, Ra-226, and Pb–210 respectively. The background levels at BHV-3 from 1996 to 2002 were set equal to the average concentrations measured at BHV-3 during 1981 to 1995. During the period of 1981 to 1995, there was generally a decreasing trend in the measured Pb-210 concentrations in air at BHV-3 and the other monitoring stations. Therefore, the use of a period average (i.e., 1981 to 1995) Pb-210 concentration at BHV-3 tends to overestimate the background Pb-210 at all monitoring stations during the period 1996 to 2002 resulting in the net level below zero at other monitoring stations. It is worth noting that all of the measured concentrations show levels below the values from 10CFR Part 20, Appendix B, which by itself demonstrates compliance with NRC's public dose limit.

Figure 2.13-3
Average Annual Unat Concentrations After Background Subtraction



1. All concentrations reported as zero were entered as the detection limit.

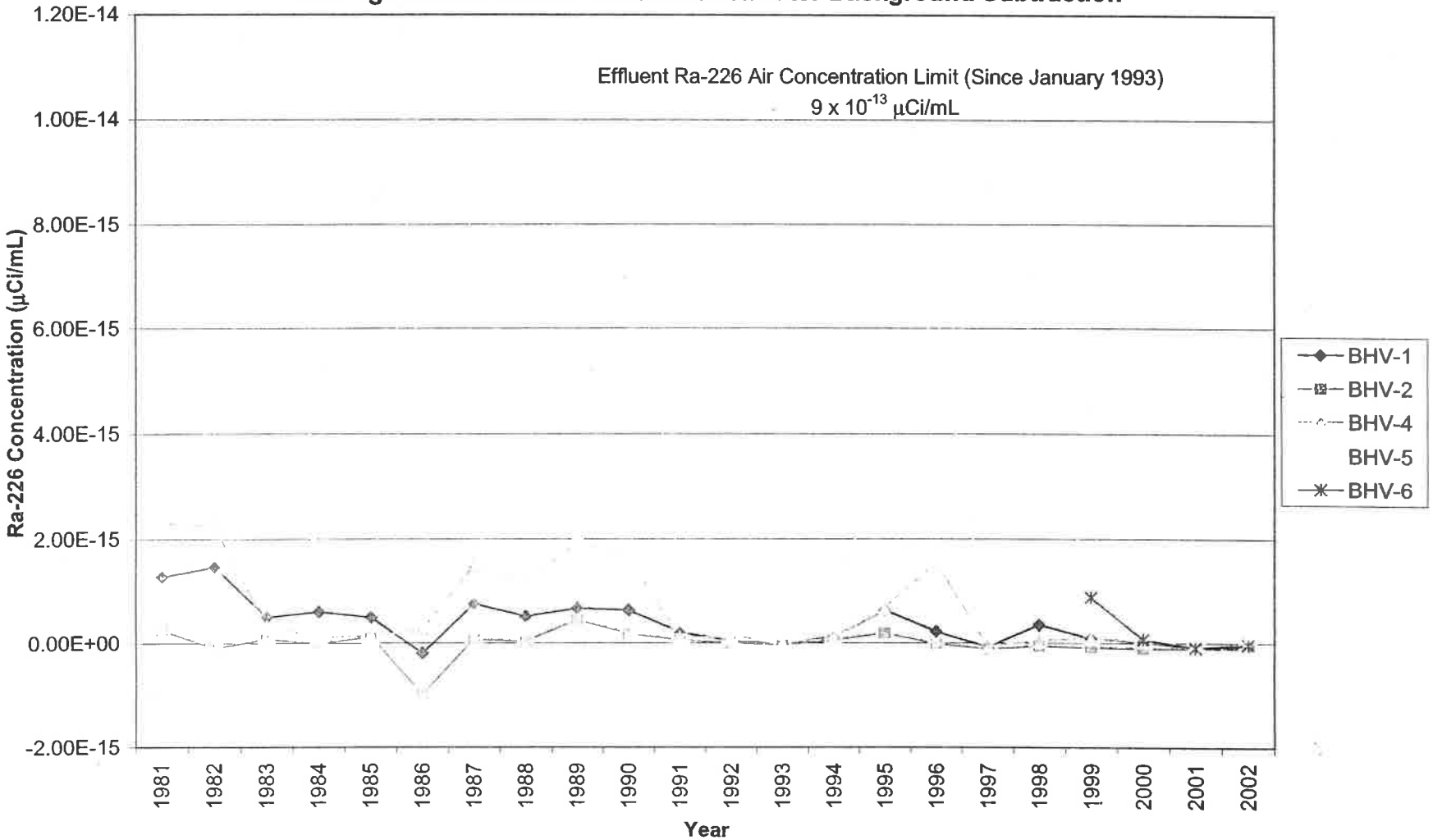
Figure 2.13-4
Average Annual Th-230 Concentration After Background Subtraction



1. All concentrations reported as zero were entered as the detection limit.

Figure 2.13-5

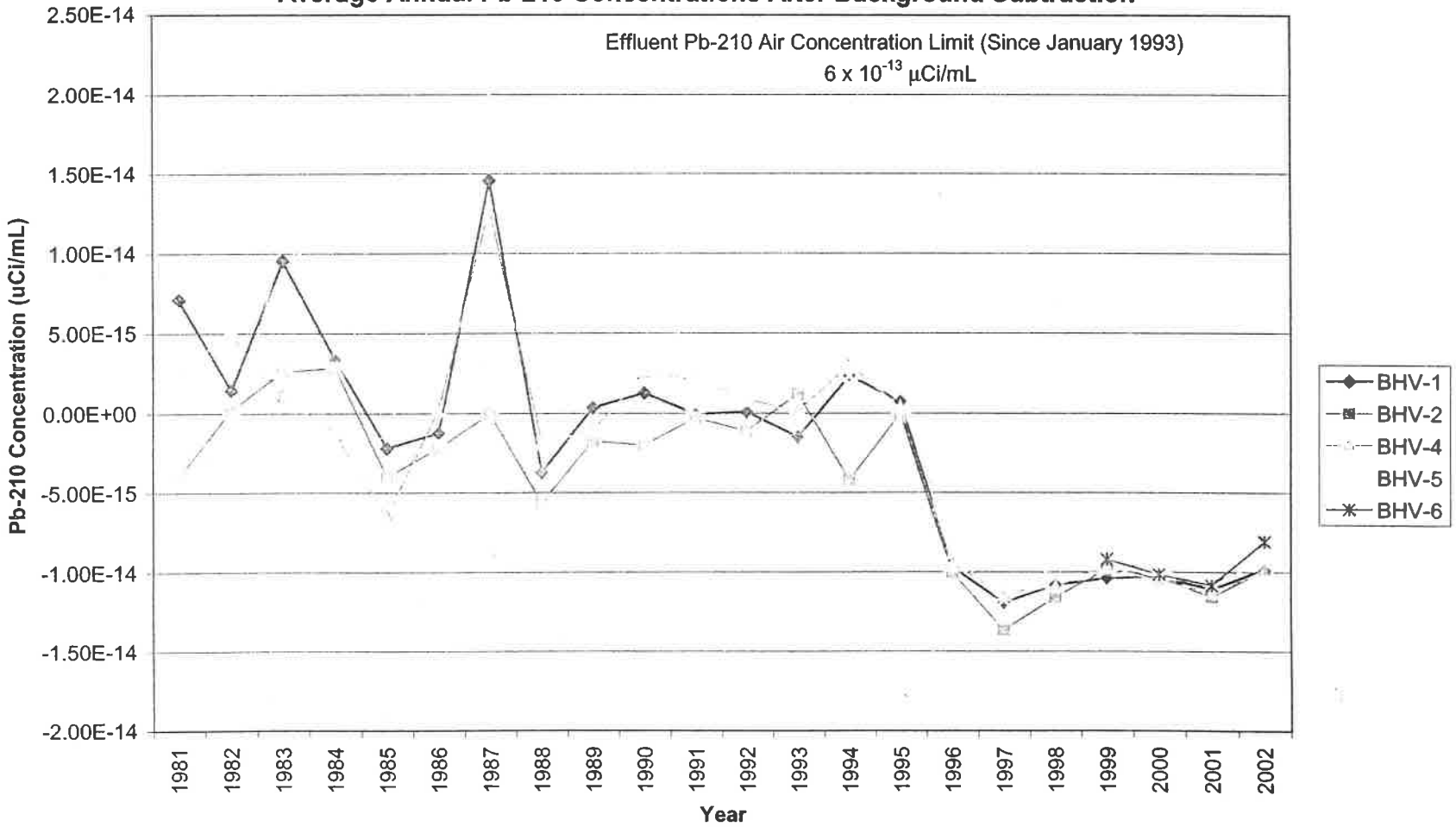
Average Annual Ra-226 Concentration After Background Subtraction



1. All concentrations reported as zero were entered as the detection limit.

Date: May 2003

Figure 2.13-6
Average Annual Pb-210 Concentrations After Background Subtraction



1. All concentrations reported as zero were entered as the detection limit.

Date: May 2003

2.13.2.6.3 External Gamma radiation

TLDs are co-located with the high volume air samplers at the station shown on Figure 2.3-2. In addition, TLDs continue to be installed and analyzed at BHV-3. The quarterly results of the TLD measurements for 1999 (after subtracting the measurements from the control location BHV-3, which has been accepted by NRC as background) are summarized in Table 2.13-7. 1999 was chosen as a reference year, because it is the year in which the last Mill run occurred. In some cases the control was higher than the measurement at the other sites. These values are in brackets in Table 2.13-7.

Table 2.13-7
1999 External Gamma Dose (after background subtraction)

Location	Gamma dose (mrem)						
	Jan 1/99-Apr 13/99	Apr 1/99-July 15/99	July 1/99-Oct 12/99	Oct 1/99-Jan 10/00	Maximum	Average	Minimum
BHV-1	1.00	(0.60)	3.80	0.00	3.80	1.05	(0.60)
BHV-2	5.20	0.00	(0.20)	6.40	6.40	2.85	(0.20)
BHV-4	6.00	0.00	3.00	0.80	6.00	2.45	0.00
BHV-5	2.80	7.60	4.60	6.60	7.60	5.40	2.80
BHV-6	2.40	0.60	3.40	2.00	3.40	2.10	0.60

Source: Mill monitoring data.

The measured levels at BHV-5 are the highest, perhaps reflecting proximity to the ore storage area. The levels at BHV-1 are the lowest. Since BHV-2 is further from the Mill than BHV-1 and shows a higher annual gamma dose, it is not unreasonable to infer that the levels at BHV-2 are in fact natural and un-impacted by activities at the Mill. Variations in naturally occurring radiation in soils and the use of phosphate fertilizer could readily explain such variations in natural background.

2.13.2.6.4 Vegetation

Vegetation samples are collected at three locations to the northeast, the northwest, and southwest of the Mill around the Mill periphery. The samples are collected during the growth seasons in spring and fall. The data are reported in Table III of each of the Semi Annual Effluent Reports, attached hereto as Appendix B. The measurements are also plotted over time. With the exception of a few data points for Ra-226 in the mid to late 1980's the levels are consistently low and show no evidence of any increase over time. Sample results for the last five years are given in Table 2.13-6.

Table 2.13-8
Vegetation Sample Data North East of Mill

Sample Date	Ra-226 North East of Mill µCi/Kg	Ra-226 North West of Mill µCi/Kg	Ra-226 Southwest of Mill µCi/Kg	Pb-210 Northeast of Mill µCi/Kg	Pb-210 Northwest of Mill µCi/Kg	Pb-210 Southwest of Mill µCi/Kg
23-Mar-98	<9.10E-05	<9.20E-05	<7.90E-05	<4.50E-04	<4.60E-04	<3.90E-04
16-Jun-98	1.80E-05	< 6.50E-08	3.60E-07	4.00E-05	<3.20E-07	<1.7E-07
05-Nov-98	5.70E-05	4.20E-05	4.30E-05	8.70E-05	1.70E-04	2.50E-04
15-Apr-99	2.00E-04	6.20E-05	2.40E-05	3.00E-04	1.40E-04	1.70E-04
07-Jul-99	6.03E-05	5.45E-05	2.23E-05	1.40E-04	9.20E-05	2.30E-04
02-Dec-99	2.30E-05	1.10E-04	1.50E-04	2.10E-05	2.80E-05	1.70E-05
21-Apr-00	1.50E-04	3.70E-05	1.00E-04	1.60E-04	2.70E-04	1.10E-04
22-Jun-00	1.20E-06	2.90E-05	1.30E-06	1.60E-04	2.80E-04	2.00E-04
21-Dec-00	1.60E-06	2.30E-06	1.20E-06	5.10E-05	3.30E-04	1.20E-04
30-Apr-01	1.00E-06	2.10E-05	1.80E-06	<1.2E-06	<7.6E-07	<8.3E-07
14-Jun-01	2.30E-06	1.30E-06	2.60E-06	3.80E-06	1.80E-06	1.10E-06
17-Dec-01	9.10E-06	3.70E-05	2.63E-06	3.57E-05	6.72E-05	9.40E-05
07-May-02	3.30E-05	4.90E-05	3.50E-05	4.50E-05	1.28E-04	1.36E-04
07-Jul-02	5.55E-05	8.88E-05	4.02E-05	5.31E-05	8.33E-05	7.04E-05
15-Dec-02	7.75E-05	1.50E-04	8.10E-05	1.29E-04	3.16E-04	2.87E-04
Maximum	2.00E-04	1.50E-04	1.50E-04	3.00E-04	3.30E-04	2.87E-04
Mean	4.60E-05	4.56E-05	3.37E-05	8.17E-05	1.27E-04	1.12E-04

Source: Mill monitoring data.

2.13.2.6.5 Soils

Soil samples are collected annually at each of the BHV-1, BHV-2, BHV-3, BHV-4 and BHV-5 locations and analyzed for Unat and Ra-226. Soil sampling data, laboratory analyses and graphical representations, since the Mill's inception of this program, are contained in Table VIII of the Semi-Annual Effluent Reports attached as Appendix B. No obvious analyte trend is evident from comparison of results over time. Sample results for the last five years is given in Table 2.13-8.

Table 2.13-9
Soil Sample Data
(Values x 1.0E-03 µCi/kg)

	BHV-1		BHV-2		BHV-3		BHV-4		BHV-5	
Date	**Ra-226**	**U-Nat**	**Ra-226**	**U-Nat**	**Ra-226**	**U-Nat**	**Ra-226**	**U-Nat**	**Ra-226**	**U-Nat**
1-Jul-98	1.600	3.050	0.700	0.580	0.500	0.450	1.000	1.190	3.000	2.760
24-Aug-99	2.270	1.740	0.780	0.840	0.530	0.420	0.840	0.770	3.270	3.150
1-Dec-00	1.510	1.210	0.810	0.530	*	*	0.830	1.220	2.810	3.250
23-Aug-01	1.000	1.000	0.600	0.300	0.400	0.300	0.900	1.000	1.200	1.100
1-Aug-02	1.300	1.350	0.900	0.524	0.500	0.297	1.200	1.490	2.400	2.810
Mean	1.54	1.67	0.76	0.55	0.39	0.29	0.95	1.13	2.54	2.61

* Data not available.

Source: Mill monitoring data.

2.13.2.7 Occupational Doses

The FES notes that uranium mills are designed and built to minimize the exposure of mill workers, that occupational exposures for workers are monitored and kept below the NRC limits and that workplace radiation protection measures are periodically reviewed and updated as appropriate. The NRC staff also comment in the FES that based on staff review of mill exposure data that uranium mill workers were unlikely to be exposed to more than 25% of the NRC's permissible limits. The actual doses to workers at the Mill have in fact been low as illustrated in the following discussion.

IUSA has a comprehensive radiological workplace and worker monitoring program in place at the Mill. Radiological monitoring of the Mill workplace includes area measurements of external gamma radiation, radon decay progeny and long-lived alpha activity in airborne dust.

2.13.2.7.1 Dose Limits

In order to provide a context for the workplace and worker monitoring data given below, it is necessary to briefly comment on the current NRC dose limits for workers which are given in 10 CFR Part 20. Without going into detail, the fundamental dose limit is given in terms of a Total Effective Dose Equivalent (TEDE) which, in effect, is the sum of the deep dose equivalent for external exposures and the committed effective dose equivalent for internal exposures from radionuclides taken into the body.

The deep dose equivalent is the standard measure of the "whole body" dose from external radiation. The effective dose equivalent is the standard measure of the whole body dose from radioactivity in internal organs and tissues (summed over all organs using appropriate weighting factors for radiation quality and radio-sensitivity of the various organs.)

The term "committed" simply means that the entire dose attributable to the intake of a radionuclide during the 50 year period after intake is taken into account and assigned to the year of intake. Both doses are reported in "rems".

While the basic dose limit set out in 10 CFR Part 20 is a TEDE dose of 5 rem (5,000 mrem) per year, in practice the dose from internally deposited radioactivity is determined through the use of derived limits. The Derived Air Concentrations (DAC's) are the concentrations of airborne radioactivity which if breathed in by a worker for an entire working year (assumed to be 2,000 hours) would result in a dose of 5 rem. These DAC's are commonly used to control occupational exposures.

10 CFR Part 20 (App B Table 1) also provides a DAC for radon-222 of 0.33WL. A full year of exposure to radon decay progeny of 0.33 WL (WL; working level) is assumed to carry the same risk as exposure to 5 rem. Thus, the workers TEDE doses can be assessed using a sum rule of the form given below.

Annual TEDE = (gamma/5) + (C_A/DAC_A +C_B/DAC_B + C_C/DAC_C...) + (WL/0.33) < 1

Where:

- gamma is the annual workplace gamma dose in Rems
- C_A is the average workplace air concentration of radionuclide A, in µCi/ml
- WL is the average workplace exposure to radon decay progeny (WL)

2.13.2.7.2 ALARA Program

As required by 10 CFR 20.1101 the Mill uses, to the extent practicable, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are ALARA. Under the Mill's ALARA Program, the Mill has set a goal of maintaining occupational exposures to levels that are no more than 25% of regulatory standards, to the extent reasonably achievable. In addition to engineering controls, mandatory use of respirators in areas of higher airborne particulate and managing worker time in higher gamma radiation areas are two measures used to keep exposures within regulatory limits and as low as is reasonably achievable.

2.13.2.7.3 Use of Respirators

10 CFR Part 20, Appendix A sets out protection factors for respirators to be used where the contaminants have been identified and the concentrations (or possible concentrations) are known. The protection factor is a measure of the degree of protection afforded by a respirator, defined as the ratio of the concentration of airborne radioactive material outside the respiratory protective equipment to that inside the equipment (usually inside the face piece) under conditions of use. It is applied to the ambient airborne concentration to estimate the concentrations inhaled by the wearer according to the following formula:

Concentration inhaled = (Ambient airborne concentration)/(Protection Factor)

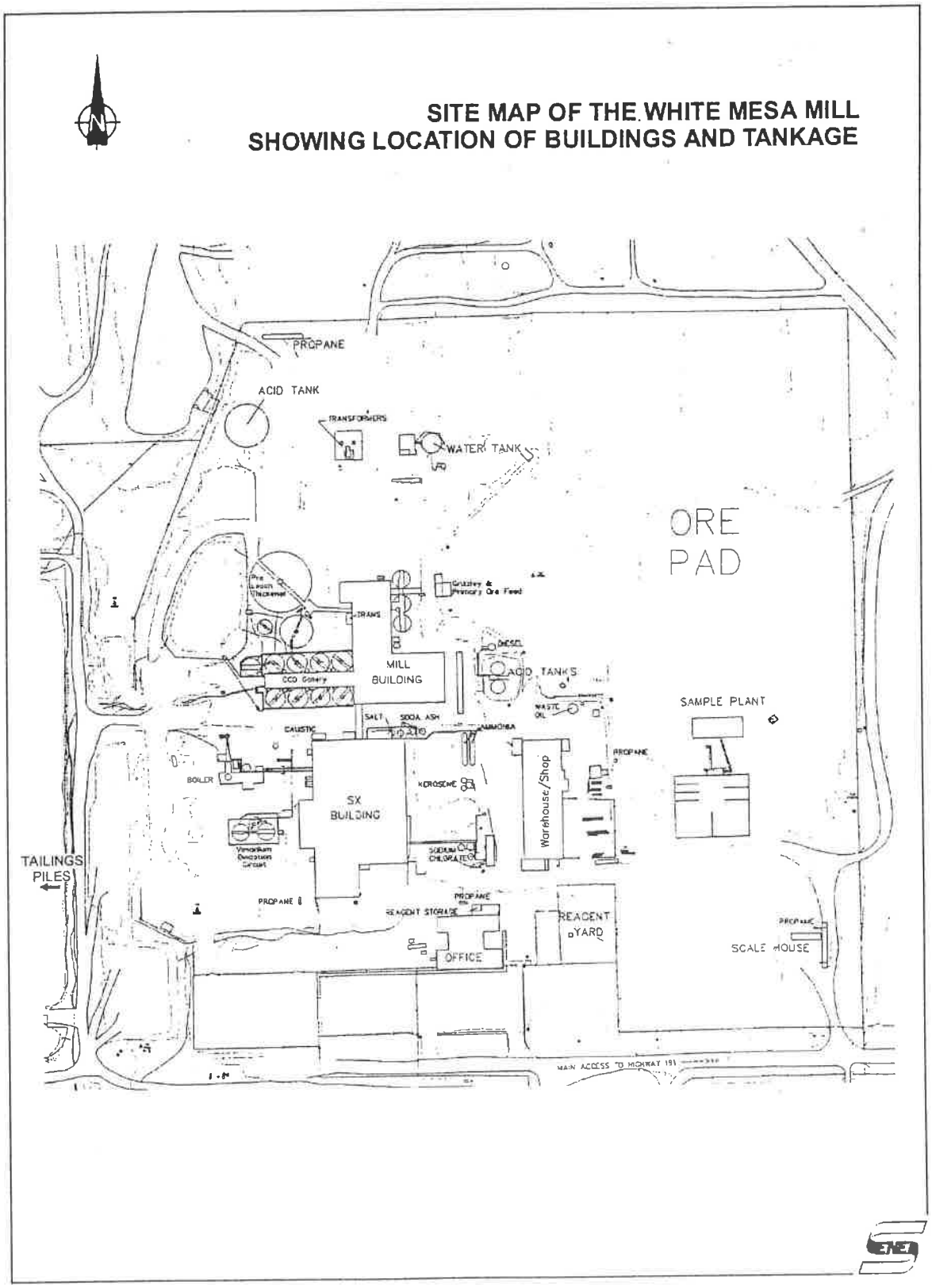
The concentration inhaled, as determined by use of this formula, is then compared to the applicable DAC to determine regulatory compliance. Likewise, for administering the Mill's ALARA Program, an ambient airborne concentration that is expressed as a percentage of DAC can be divided by the specific respirator protection factor to arrive at the percentage of DAC if a respirator is used.

Typically, depending on the circumstances, the Mill employs the use of full or half-mask negative pressure (i.e., negative phase during inhalation) respirators, with protection factors of 50 and 10, respectively. Other respiratory equipment is used at the Mill as required in special circumstances.

2.13.2.7.4 Workplace Monitoring Locations

Airborne dust and gamma radiation levels are routinely collected in areas at the Mill with potential for worker exposure. The general site is shown in Figure 2.13-5.

Figure 2.13-5



Date: May 2003

Ore and alternate feed materials are delivered to the Mill by truck at the southeast entrance. The trucks are weighed and inspected at the scalehouse, and the feed material is unloaded in designated areas on the 20-acre ore pad.

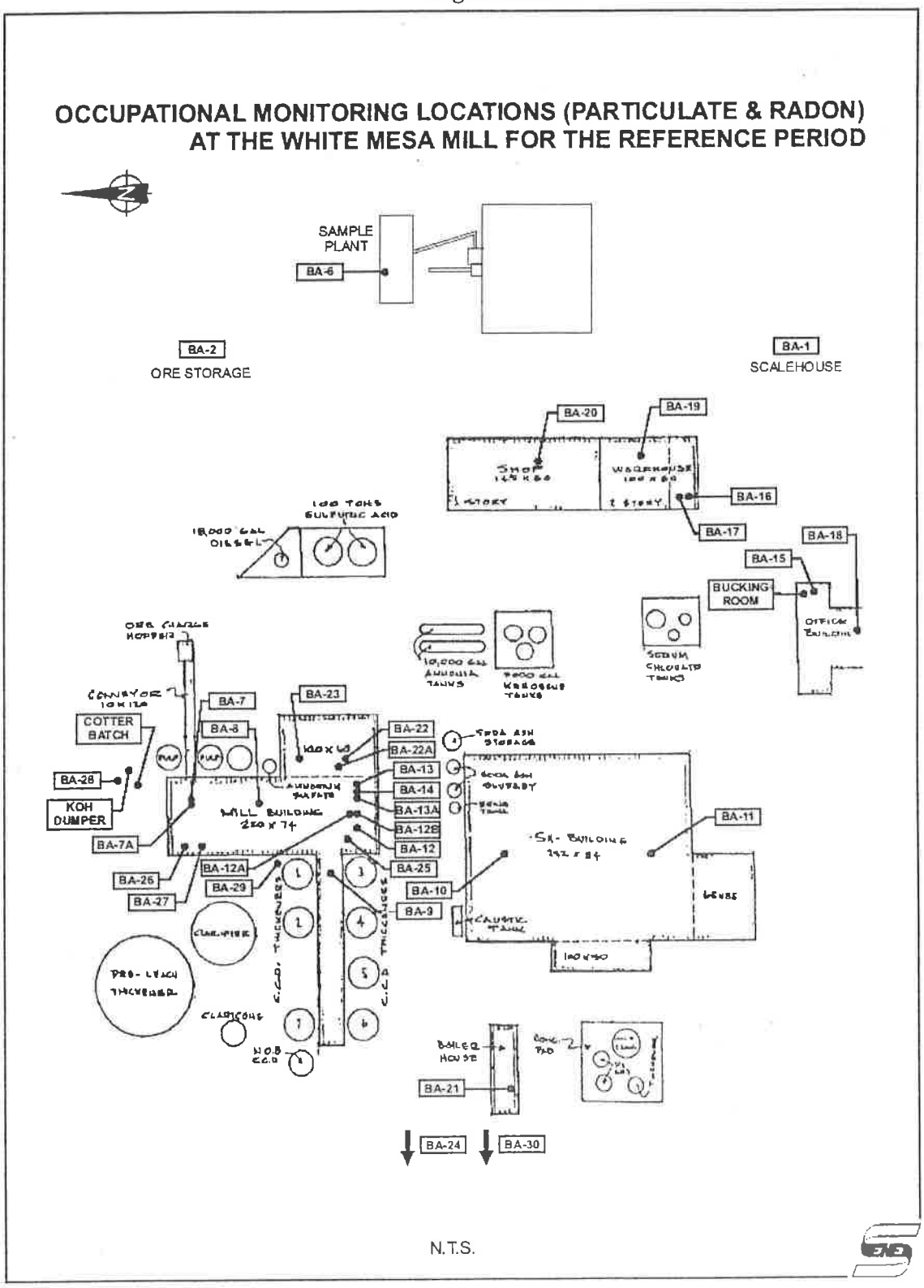
The Mill building houses the first stages of the extraction processes: grinding, pulp storage and acid leaching. After the acid leach stage, the process fluid is in slurry form and is pumped to the counter-current decantation (CCD) circuit for washing and solid-liquid separation. The CCD circuit is located outside the Mill building. After separation, the slurry of solids is pumped to the tailings cell, and the acidic solution bearing uranium is pumped to the solvent extraction (SX) circuit. From the SX circuit, the uranium bearing solution is returned to the Mill building where the final stages of the extraction processes are carried out: precipitation, drying and packaging of uranium oxide. Airborne uranium dust is controlled in these areas of the Mill building. When certain ores have been processed, vanadium was also precipitated and packaged in the Mill building.

The SX building houses the solvent extraction circuit. In this building, there are negligible sources of radon, gamma radiation, and airborne dust (all processes are wet). Waste streams (raffinate) from the SX building are pumped to the CCD circuit for re-use or to the tailings pond. Uranium bearing solutions are pumped to the Mill building as described above.

The Warehouse/Shop building houses the worker change and shower facilities, the lunch room, and a training area. Site offices and metallurgical laboratory facilities are located in the Administration building.

A more detailed view of the site, Figure 2.13-6 shows the occupational monitoring locations. The corresponding identification codes for each monitoring location are provided in Table 2.13-9.

Figure 2.13-6



Date: May 2003

Table 2.13-10
Identification Codes for the Monitoring Locations

Identification Code	Location
BA-1	Ore Scalehouse
BA-2	Ore Storage
BA-6	Sample Plant
BA-7	Sag Mill Area
BA-7A	Sag Mill Control Room
BA-8	Leach Tank Area
BA-9	CCD Circuit Thickeners
BA-10	SX Building North Area
BA-11	SX Building South Area
BA-12	YC Precipitation & Wet Storage Area
BA-12A	North YC Dryer Enclosure
BA-12B	South YC Dryer Enclosure
BA-13	YC Precipitation & Wet Storage Area
BA-13A	YC Packaging Enclosure
BA-14	Packaged YC Staging Area
BA-15	Metallurgical Lab Sample Prep Room
BA-16	Lunch Room Area (New Training Room)
BA-17	Change Room
BA-18	Administration Building
BA-19	Warehouse
BA-20	Maintenance Shop
BA-21	Boiler
BA-22	Vanadium Panel
BA-22[a]	Vanadium Dryer
BA-23	Filter Belt/Rotary Dryer
BA-24	Tails
BA-25	Control Room
BA-26	Shifters Office
BA-27	Operators Lunch Room
BA-28	Dump Station
BA-29	Filter Press
BA-30	Truck Shop

Source: IUSA Monitoring Data.

To facilitate the discussion of occupational exposures, the individual workplace monitoring locations shown in Figure 2.13-6 and listed in Table 2.13-10 were grouped according to factors such as proximity to Mill processes, type of exposure and similarity of DACs. For example, the monitoring locations at the SAG mill and at the SAG mill control are grouped together due to their proximity and similarity of activities. Other groupings were assembled in a similar manner.

These groupings are shown in Table 2.13-11. Each grouped location indicated in the first column of Table 2.13-11 has its own DAC; similarly, each workplace location indicated in the fourth column uses the DAC for the respective grouped location.

Table 2.13-11
Grouped Workplace Locations for Airborne Particulate and Radon Monitoring

Grouped Location	Secondary Grouping	Identification Code	Workplace Location
Ore-Grind	Southeast of Mill	BA-1	Ore Scalehouse
		BA-2	Ore Storage
		BA-20	Maintenance Shop
		BA-19	Warehouse
		BA-16	Lunch Room
		BA-17	Change Room
		BA-18	Administration Building
		BA-15	Bucking Room
	Outside of Mill	BA-28	Dump Station
	Inside the Mill	BA-7	SAG Mill
		BA-7A	SAG Mill Control
		BA-26	Shifter's Office
		BA-27	Operations Lunch Room
		BA-29	Filter Press
	Inside the Mill, Just Outside YC Areas	BA-25	Control Room
Leach		BA-8	Leach Tank Area
CCD		BA-9	CCD Circuit Thickeners
SX		BA-11	SX Building South
Outside SX		BA-21	Boiler
Yellowcake Precipitation		BA-12	Yellowcake Precipitation and Wet Storage Area
Yellowcake Enclosure		BA-12A	North Yellowcake Dryer Enclosure
		BA-12B	South Yellowcake Dryer Enclosure
		BA-13A	Yellowcake Packaging Enclosure
Yellowcake Packaging		BA-13	Yellowcake Drying and Packaging Area
Yellowcake Storage		BA-14	Packaged Yellowcake Staging Area
Vanadium Processes		BA-22	Vanadium Panel
		BA-22A	Vanadium Dryer
		BA-23	Vanadium Belt Screen (Filter Belt/Rotary Dryer)
Tailings		BA-30	Truck Shop
		BA-24	Tailings

Source: IUSA Monitoring Data.

2.13.2.7.5 Airborne Dust

The routine airborne particulate radioactivity levels are reported in terms of gross alpha activity. These measurements can be compared to DAC's developed by IUSA for each stage of the

process and approved by the NRC. The relevant DAC is defined according to the source of airborne dust (e.g. from ore, tailings or yellowcake), the lung solubility class according to the chemical form of the radionuclides and the relative abundance of the radionuclides. The basis for the current NRC approved DAC's is summarized in Table 2.13-12.

Table 2.13-12
Solubility Class, Chemical Form And Abundance of Feed Material at the Mill

Location	U_{Nat}	Th-230	Ra-226	Pb-210
Ore-Grind	DAC is specified in 10 CFR Part 20			
Leach	1/2 Ore, 1/2 Precipitation	1/2 Ore, ½ Precipitation	1/2 Ore, 1/2 Precipitation	1/2 Ore, 1/2 Precipitation
CCD	Class D Sulfate 25%	Class W [(a)] Sulfate 25%	Class W [(a)] Sulfate 25%	Class D [(a)] Sulfate 25%
SX	Class D Sulfate 25%	Class W [(a)] Sulfate 25%	Class W [(a)] Sulfate 25%	Class D [(a)] Sulfate 25%
Precipitation	Class D [(b)] Diuranate 100%	0%	0%	0%
Packaging	Class Y: 90 % and Class W: 10 % Oxide 100%	0%	0%	0%
Tailings	Class Y Oxide 4%	Class Y [(b)] Oxide 32%	Class W [(a)] Oxide 32%	Class W [(a)] Oxide 32%

Source: IUSA Monitoring Data.

Reference: Standard Mill Operating Procedure
(a) 10 CFR Part 20, Appendix B
(b) NUREG/CR-0530, PNL-2870, D.R. Kalkwarf, 1979, "Solubility Classifications of Airborne Products from Uranium Ores and Tailings Piles"

The actual results of the airborne dust monitoring for 1999, the most recent year in which a Mill run occurred, corresponding to the grouped locations are shown in the following Table 2.13-13 along with the percentage of the DAC that the measured concentrations represent. These data demonstrate that the airborne radioactive particulate concentrations are well below the corresponding DACs.

Table 2.13-13
Particulate Concentrations (Gross Alpha) In Workplace Locations For 1999 Mill Run

Grouped Location	DAC (µCi/mL)	Individual Location	Production Period Concentration (µCi/mL)	Production Concentration % of DAC	Non-Production Period Concentration (µCi/mL)	Non-Production Concentration % of DAC
Southeast of Mill	6.00E-11	Ore Scalehouse	1.46E-12	2.43	NA	NA
		Ore Storage	2.41E-12	4.01	NA	NA
		Maintenance Shop	2.06E-12	3.44	NA	NA
		Warehouse	1.26E-12	2.11	NA	NA
		Lunch Room	7.33E-13	1.22	NA	NA
		Change Room	3.19E-12	5.32	NA	NA
		Administration Bldg	1.41E-12	2.35	NA	NA
		Bucking Room	1.63E-12	2.72	NA	NA
		Average	1.77E-12	2.95	NA	NA
Outside of Mill	6.00E-11	Dump Station	2.06E-11	34.26	3.72E-13	0.62
Inside the Mill	6.00E-11	SAG Mill	1.34E-11	22.27	3.37E-12	5.62
		SAG Mill Control	1.90E-12	3.17	3.49E-12	5.81
		Shifter's Office	1.56E-12	2.59	4.96E-13	0.83
		Operations Lunch Rm	7.49E-13	1.25	1.80E-13	0.30
		Filter Press	5.71E-12	9.51	N/D	ND
		Average	4.66E-12	7.76	1.88E-12	3.14
Leach	5.00E-10	Leach Tank Area	1.58E-12	0.32	8.40E-13	0.17
Inside Mill, outside YC	6.00E-11	Control Room	1.46E-12	2.43	5.15E-13	0.86
YC Precipitation	5.00E-10	YC Precipitation &Wet Storage	1.59E-12	0.32	6.40E-13	0.13
YC Enclosures	2.20E-11	North YC Dryer Enc	1.20E-11	54.57	2.53E-12	11.48
		South YC Dryer Enc	5.24E-12	23.81	1.34E-12	6.11
		YC Pkg Enclosure	3.68E-12	16.71	6.04E-13	2.75
		Average	6.97E-12	31.70	1.49E-12	6.78
YC Packaging	2.20E-11	YC Drying & Packaging Area	2.73E-12	12.40	5.68E-13	2.58
YC Storage	2.20E-11	Packaged YC Storage Room	2.22E-12	10.08	6.22E-13	2.83

Grouped Location	DAC (µCi/mL)	Individual Location	Production Period Concentration (µCi/mL)	Production Concentration % of DAC	Non-Production Period Concentration (µCi/mL)	Non-Production Concentration % of DAC
Vanadium Processes		Vanadium Panel	2.44E-12	N/A	1.21E-12	NA
		Vanadium Dryer	6.30E-12	N/A	1.86E-12	NA
		Vanadium Belt Screen	7.06E-12	N/A	1.28E-12	NA
		Average	5.26E-12	N/A	1.45E-12	NA
CCD Circuit	1.20E-11	CCD Circuit Thickeners	1.25E-12	10.41	2.59E-12	21.58
SX	1.20E-11	SX Building South	1.62E-12	13.50	2.48E-13	2.07
Outside of SX		Boiler	3.05E-13	2.54	N/D	N/D
Tailings	1.70E-11	Truck Shop	8.51E-13	5.01	NA	NA
		Tailings	6.95E-13	4.09	NA	NA
Average			**7.73E-13**	**4.55**	**NA**	**NA**

Source: IUSA Monitoring Data.

It should be noted that several of these locations (e.g. yellowcake enclosure) are areas where mandatory respiratory protection is required and thus, potential exposures to workers in these areas would be lower than suggested by the simple application of data in Table 2.13-14.

2.13.2.7.6 External Gamma

Gamma radiation is continuously monitored by TLD measurements at numerous fixed locations within the Mill and at nearby locations on the property where workers may be exposed. Figure 2.13-7 shows the individual gamma dose rates at individual workplace locations for both the production and the non-production periods in 1999. The average gamma levels for key work areas are summarized in Table 2.13-14.

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Figure 2.13-7

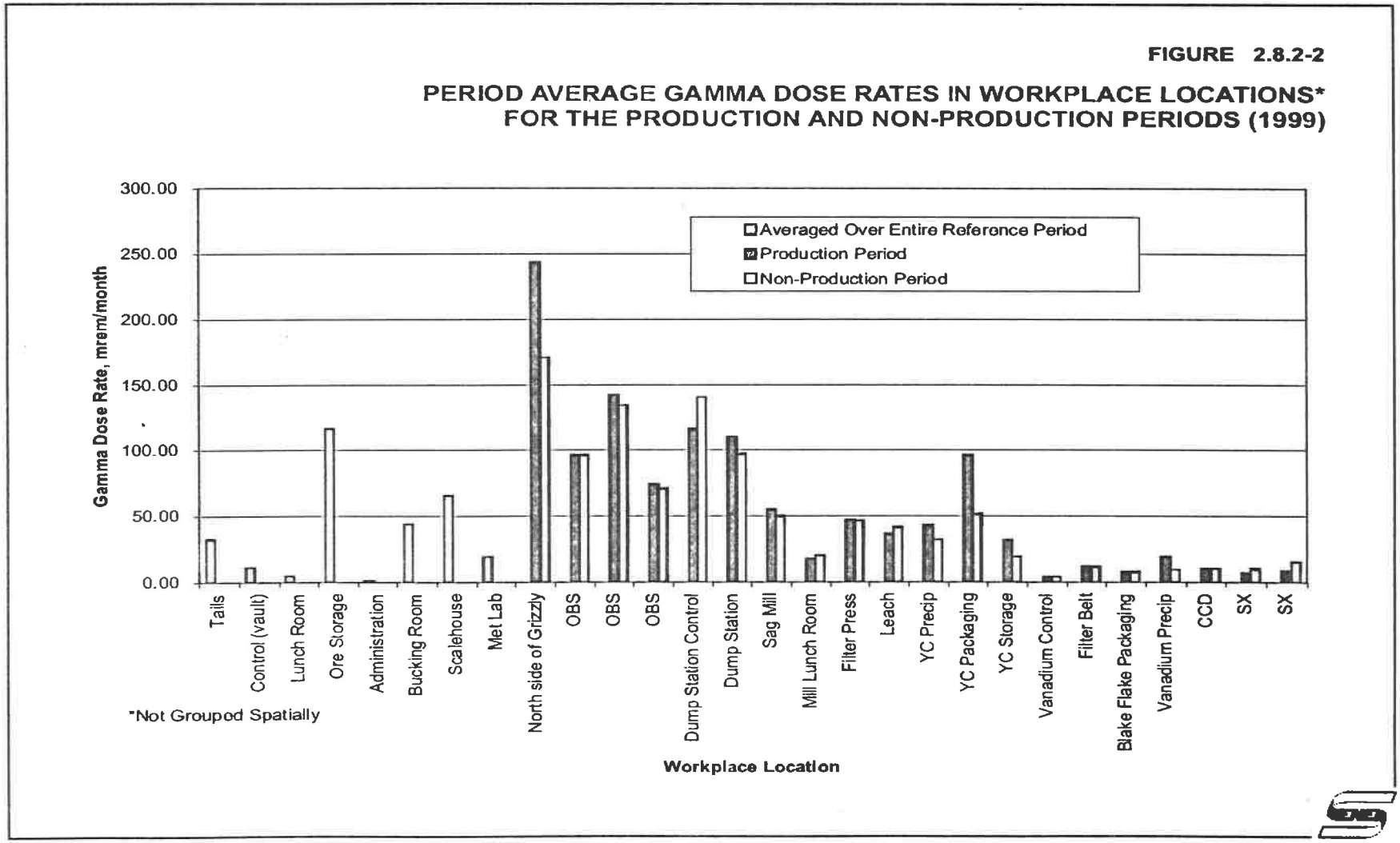
FIGURE 2.8.2-2
PERIOD AVERAGE GAMMA DOSE RATES IN WORKPLACE LOCATIONS*
FOR THE PRODUCTION AND NON-PRODUCTION PERIODS (1999)
Averaged Over Entire Reference Period
Production Period
Non-Production Period
Gamma Dose Rate, mrem/month
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Tails
Control (vault)
Lunch Room
Ore Storage
Administration
Bucking Room
Scalehouse
Met Lab
North side of Grizzly
OBS
OBS
OBS
Dump Station Control
Dump Station
Sag Mill
Mill Lunch Room
Filter Press
Leach
YC Precip
YC Packaging
YC Storage
Vanadium Control
Filter Belt
Blake Flake Packaging
Vanadium Precip
CCD
SX
SX
*Not Grouped Spatially
Workplace Location

Table 2.13-14
Average Radon Decay Progeny and Gamma
(Measured During The 1999 Mill Run)

Area	RDP, WL	Gamma, mrem/h
Leach	0.005	0.05
CCD	0.011	0.01
SX	0.012	0.01
YC Precipitation	0.010	0.06
YC Enclosure	0.015	NA
YC Packaging	0.010	0.13
YC Storage	0.007	0.04
Tailings	0.004	0.04

Source: IUSA Monitoring Data.

2.13.2.7.7 Radon

Conventional ores and some of the alternate feeds that have been processed at the Mill contain Ra-226 and therefore are a source of Ra-222. The results of monthly measurements at the fixed monitoring locations are shown in Figure 2.13-8 and summarized for key work areas in Table 2.13-15. The regulatory limit (DAC) for radon in the work place is 0.33 WL. The measured values are a factor of ten smaller than the DAC.

Figure 2.13-8 illustrates the average radon working levels in the various workplace locations in 1999 for production and non-production periods.

Figure 2.13-8

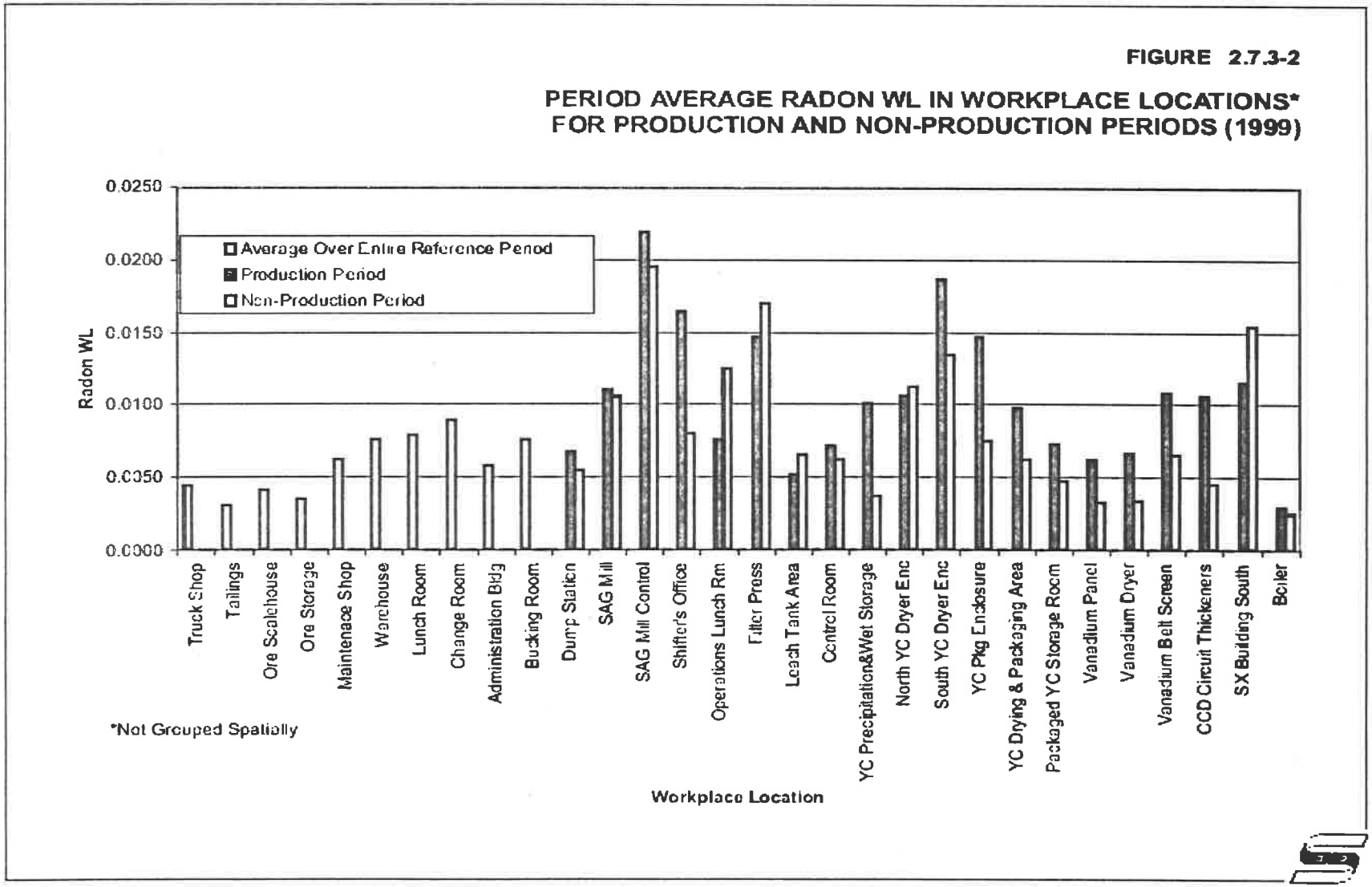
FIGURE 2.7.3-2
PERIOD AVERAGE RADON WL IN WORKPLACE LOCATIONS*
FOR PRODUCTION AND NON-PRODUCTION PERIODS (1999)
Average Over Entire Reference Period
Production Period
Non-Production Period
Radon WL
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
Truck Shop
Tailings
Ore Scalehouse
Ore Storage
Maintenace Shop
Warehouse
Lunch Room
Change Room
Administration Bldg
Bucking Room
Dump Station
SAG Mill
SAG Mill Control
Shifter's Office
Operations Lunch Rm
Filter Press
Leach Tank Area
Control Room
YC Precipitation&Wet Storage
North YC Dryer Enc
South YC Dryer Enc
YC Pkg Enclosure
YC Drying & Packaging Area
Packaged YC Storage Room
Vanadium Panel
Vanadium Dryer
Vanadium Belt Screen
CCD Circuit Thickeners
SX Building South
Boiler
*Not Grouped Spatially
Workplace Location

2.13.2.7.8 Worker Dose

Worker doses from external gamma radiation are monitored continuously at the Mill by personal TLD measurements. The doses from internal radionuclides and radon are determined from workplace airborne radioactivity measurements and analysis of how much time each worker spends in each workplace.

From the data for all workers who were present throughout the full duration of one or more of the recent processing periods, the average and maximum TEDE dose for the Mill workforce TEDE doses were calculated as summarized in Table 2.13-15.

Table 2.13-15
TEDE Dose (Rem)
(Annual Dose Limit of 5 Rem)

Production Period	Mean	Maximum
1999	0.109	0.73
1997	0.070	0.15
1995/96	0.084	0.29

Source: IUSA Monitoring Data.

The TEDE doses are well below NRC's dose limit of 5 rem per year.

2.13.2.7.9 Area Contamination Monitoring

IUSA carries out alpha surveys on a routine basis. To date, there has never been any indication of a trend suggesting any increase in contamination. Where elevated levels of contamination have been identified, they have been identified to arise from inadvertent cross contamination from clothing. In such situations the Mill has reminded the employees of practicing good hygiene work practices. It is believed that good operational contamination controls supported by area contamination monitoring contributes to the low doses to workers seen at the Mill.

2.13.2.8 Radiological Impact on Biota Other Than Man

The 1978 ER considered the potential radiological impacts of radioactivity on "biota other than man" (non-human biota) and concluded that because of the low levels of airborne radioactivity that would be deposited on the ground arising from the operation of the Mill, no detrimental effect on non human biota would be expected.

The FES (Section 4.7.7) concluded that because the effluents from the Mill would be maintained within radiological protection limits for man, there would be no adverse radiological impact on non-human biota such as birds and mammals.

It was only in the early 1990's that attempts were made to look in general at the effects of radiation on plants and animals at levels implied by the radiation protection standards for humans

Description of the Affected Environment

White Mesa Mill
Blanding, Utah

For

Transport by Slurry Pipeline and Disposal of the Moab Tailings

Prepared by:

International Uranium (USA) Corporation
1050 17th Street, Suite 950
Denver, Colorado 80265

May 2003

Appendix A

Semi - Annual Meteorological Monitoring Reports for the Periods January to June and July to December 2002

White Mesa Mill

International Uranium (USA) Corporation
1050 17th Street, Suite 950
Denver, Colorado 80265

Appendix A will be provided under separate cover

Appendix B

Semi - Annual Effluent Monitoring Reports for the Periods January to June and July to December 2002

White Mesa Mill

International Uranium (USA) Corporation
1050 17th Street, Suite 950
Denver, Colorado 80265

INTERNATIONAL
URANIUM (USA)
CORPORATION

6425 S. Hwy. 191 • P.O. Box 809 • Blanding, UT 84511 • 435-678-2221 (phone) • 435-678-2224 (fax)

August 28, 2002

United States Nuclear Regulatory Commission
Region IV, Arlington Field Office
611 Ryan Plaza Drive
Suite 1000
Arlington, TX 76011

Re: INTERNATIONAL URANIUM (USA) CORPORATION
SOURCE MATERIAL LICENSE No. SUA-1358
WHITE MESA MILL, BLANDING, UTAH
Semi-Annual Effluent Monitoring Report for Period
January 1, 2002 through June 30, 2002

Dear Sir/Madame:

As required by the Code of Federal Regulations, Title 10, Part 40.65, and License Condition 11.3 A of NRC Materials License No. SUA-1358, enclosed is the semi-annual effluent monitoring report for the White Mesa Mill for the period January 1, 2002 through June 30, 2002.

If you have any questions regarding this report, please contact Mr. Ron Berg or Mr. Kenneth Miyoshi at telephone number (435) 678-2221.

Sincerely,

R. E. Berg

Ron E. Berg,
Radiation Safety Officer

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T. Kenneth Miyoshi
William J. Sinclair, Utah Department of Environmental Quality
Mr. Tom Rice – Ute Mountain Ute Tribe
Denver Central File
Central File

U. S. Mail - Express Mail, Return Receipt – EU392488090US

1.0 Gas Stack Sampling

No gas stack samples were collected on any White Mesa Mill effluent gas pollution control systems for the period January 1, 2002 through June 30, 2002. The Mill was in abeyant operations for the period of January 1, 2002 through June 12, 2002 and these systems did not operate during this time. While the Mill was in operation from June 13, 2002, through June 30, 2002, no material processed during this period required the use of any gas control systems at the Mill therefore no data was collected during this period. Gas stack sampling information would normally be reported in Table I of this report.

2.0 Environmental Radiological and Effluent Monitoring Data

2.1 Environmental Radon

Radon 222 flux was not directly measured, because IUSA's license does not require direct radon monitoring by the use of TLD chips. IUSA demonstrates conformance to the limits and requirements of 10 CFR 20.1302 (b) (1) by use of computational methods.

2.2 Direct Radiation

Gamma exposure rates were determined for the first and second quarters of 2002 utilizing passive integrating devices. Thermo luminescent (TLD) dosimeters were located at each high volume air sampling station: BHV-1, BHV-2, BHV-3, BHV-4 and BHV-5. Data from location BHV-3 are used as background for direct radiation because of its remoteness to the plant mill site (approximately 3.5 miles distant). The gamma exposure radiation results from this location are subtracted from results of other sample locations. Table II lists gamma exposure rate measurements for the first and second quarters of 2002 before and after a background correction has been applied to locations BHV-1, BHV-2, BHV-4 and BHV-5. A comparison of these data to the average gamma exposure rate value in mRem/quarter at each location since 1988, indicates no increased trend in direct radiation at any location.

2.3 Vegetation

Vegetation samples are collected at three (3) locations around the mill periphery. The sampling locations are northeast, northwest and southwest of the mill facility. Vegetation samples are collected during early spring, late spring and fall (growth seasons). Vegetation sample results are presented in Table III. A review of these data compared with results of several previous years indicate no increased concentration of Ra-226 or Pb-210 in vegetation growth. Laboratory results are attached.

Graphical representations of the vegetation sampling data for the White Mesa Mill vegetation sampling locations since inception are included with this report. Note that all values that are reported below LLD values are not plotted on these graphs. Values

reported below LLD are by definition not quantifiable.

2.4 Environmental Air Monitoring

The environmental air particulate monitoring program is conducted at the White Mesa Mill utilizing four high volume continuous air sampling stations located as indicated in Figure 1.0 attached. High volume air sample station BHV-3 is no longer utilized to collect air particulate data, with U.S. NRC approval, for background correctional application to other sampling locations, because sufficient data have been accumulated at BHV-3 to make appropriate background corrections to the other sample location data. The results of radionuclide concentrations for air sampling locations BHV-1, BHV-2 (nearest residence) BHV-4 and BHV-5 are presented in Table IV. A review of the information, comparing results to those from previous years indicate no potential upward trends in radionuclide concentrations at any location. Laboratory results are attached.

Graphical representations of the air sampling data for the White Mesa Mill air sampling locations since inception are included with this report. Note that all values that are reported below LLD values are not plotted on these graphs. Values reported below LLD are by definition not quantifiable.

2.5 Ground Water Monitoring

The ground water monitoring program sample results for the first and second quarters of 2002 are presented in Table V. Quality Control samples and Quality Assurance samples are indicated on the respective quarterly results. An analysis and discussion of this information is attached in Attachment I, Table V.

2.6 Surface Water Monitoring

Surface water samples were collected for Cottonwood Creek and are presented in Table VI. To date for the year 2002, there has not been sufficient water in Westwater Creek to collect a surface water sample, therefore no results are available from this source. No obvious analyte trend is evident from comparison of previous data with Cottonwood surface water samples collected for the period January 1, to June 30, 2002. Laboratory results are attached.

2.7 Soil Sampling

Annual soil samples are collected in August, therefore no data was collected during the current reporting period.

3.0 Meteorological Data

McVehil-Monnet,Inc., will prepare the White Mesa Mill Semi-annual Meteorological Monitoring Report for the period of January 1, 2002 through June 30, 2002. This information will be retained at the Mill site for review and inspection.

IUC – White Mesa Mill
Table I – Gas Stack Effluent Release
For the Period of July 1 through December 31, 2001

Constituent	1st Quarter 2002 Date Sampled: NA Mill in abeyant operation	2nd Quarter 2002 Date Sampled: NA Mill in abeyant operation
U-nat conc. U-Nat Release Rate U-nat LLD Ra-226 conc. Ra-226 Release Rate Ra-226 LLD Th-230 conc. Th-230 Release Rate Th-230 LLD Pb-210 conc. Pb-210 Release Rage Pb-210 LLD	Not measured – Mill in abeyant operation	Not measured – Mill in abeyant operation for the period of January 1, 2002 through June 12, 2002. From June 13, 2002 through June 30, 2002, no gas collection systems were utilized, therefore no data was collected during this period.

IUC – White Mesa Mill
Table II – Gamma Exposure Rate Above Background (mRem/Qtr.)
For the Period of January 1, 2002 through June 30, 2002

Location	1st Quarter 2002	2nd Quarter 2002
BHV-1	0.00 mRem/Qtr. ± 0.00	1.00 mRem/Qtr. ± 0.70
BHV-2	0.00 mRem/Qtr. ± 0.30	1.00 mRem/Qtr. ± 0.70
BHV-4	4.00 mRem/Qtr. ± 2.50	3.00 mRem/Qtr. ± 0.90
BHV-5	9.00 mRem/Qtr. ± 1.10	3.00 mRem/Qtr. ± 1.10

Notes: (1) First Quarter results are determined by subtracting measured background data collected from Location BHV-3, 35 mRem/Qtr. ± 1.90 mRem/Qtr.

(2) Second Quarter results are determined by subtracting measured background data collected from Location BHV-3, 25 mRem/Qtr. ± 1.6 mRem/Qtr..

STACK SAMPLING MONITORING RESULTS FOR THE PERIOD OF JANUARY 1, 2002 THROUGH JUNE 30, 2002

IUC – White Mesa Mill
Table I – Gas Stack Effluent Release
For the Period of July 1 through December 31, 2001

Constituent	1st Quarter 2002 Date Sampled: NA Mill in abeyant operation	2nd Quarter 2002 Date Sampled: NA Mill in abeyant operation
U-nat conc. U-Nat Release Rate U-nat LLD Ra-226 conc. Ra-226 Release Rate Ra-226 LLD Th-230 conc. Th-230 Release Rate Th-230 LLD Pb-210 conc. Pb-210 Release Rage Pb-210 LLD	Not measured – Mill in abeyant operation	Not measured – Mill in abeyant operation for the period of January 1, 2002 through June 12, 2002. From June 13, 2002 through June 30, 2002, no gas collection systems were utilized, therefore no data was collected during this period.

ENVIRONMENTAL GAMMA RADIATION MONITORING RESULTS FOR THE PERIOD OF JANUARY 1, 2002 THROUGH JUNE 30, 2002

IUC – White Mesa Mill
Table II – Gamma Exposure Rate Above Background (mRem/Qtr.)
For the Period of January 1, 2002 through June 30, 2002

Location	1st Quarter 2002	2nd Quarter 2002
BHV-1	0.00 mRem/Qtr. ± 0.00	1.00 mRem/Qtr. ± 0.70
BHV-2	0.00 mRem/Qtr. ± 0.30	1.00 mRem/Qtr. ± 0.70
BHV-4	4.00 mRem/Qtr. ± 2.50	3.00 mRem/Qtr. ± 0.90
BHV-5	9.00 mRem/Qtr. ± 1.10	3.00 mRem/Qtr. ± 1.10

Notes: (1) First Quarter results are determined by subtracting measured background data collected from Location BHV-3, 35 mRem/Qtr. ± 1.90 mRem/Qtr.

(2) Second Quarter results are determined by subtracting measured background data collected from Location BHV-3, 25 mRem/Qtr. ± 1.6 mRem/Qtr..

INTERNATIONAL URANIUM (USA) CORP.
WHITE MESA MILL
DIRECT RADIATION
MR/QTR
Location: BHM1, Meterological Station

Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate*	Net Error	Total Rate Mr/week	Counting Error Mr/week
30-Sep-81	23.88	0.00		0.00	1.82	
31-Dec-81	25.87	0.00		0.00	1.89	
31-Mar-82	20.00	0.00		0.00	2.00	
30-Jun-82	24.05	0.00		0.00	1.85	
01-Oct-82	25.35	0.00		0.00	1.95	
03-Jan-83	30.39	0.00		0.00	2.35	
04-Apr-83	22.40	0.00		0.00	1.73	
05-Jul-83	32.11	0.00		0.00	2.47	
03-Oct-83	20.54	0.00		0.00	1.58	
03-Jan-84	22.75	0.00		0.00	1.75	
03-Apr-84	24.70	0.00		0.00	1.90	
02-Jul-84	22.49	0.00		0.00	1.73	
02-Oct-84	19.89	2.21		4.37	1.53	0.17
02-Jan-85	21.58	3.12		4.89	1.66	0.24
04-Apr-85	23.40	10.01		10.70	1.80	0.77
08-Jul-85	16.60	0.50		7.58	1.30	0.50
07-Oct-85	20.28	1.58		2.49	1.56	0.12
17-Jan-86	23.79	5.89		8.32	1.83	0.45
22-Apr-86	23.92	-0.70		0.92	1.84	-0.05
21-Jul-86	17.94	26.40		30.31	1.38	2.03
03-Nov-86	19.83	0.09		4.58	1.51	0.01
03-Feb-87	20.97	0.05		1.55	1.59	0.00
01-Apr-87	22.75	1.92		2.02	1.75	0.15
01-Jul-87	Sample lost in the field					
09-Oct-87	17.94	0.03		1.07	1.38	0.00
14-Jan-88	20.80	1.58		1.83	1.6	0.12
19-Apr-88	25.81	2.37		3.43	1.97	0.18
15-Jul-88	38.52	7.37		8.28	2.04	0.57
11-Oct-88	20.02	5.81		5.81	1.54	0.45
19-Jan-89	23.14	2.61		3.30	1.78	0.20
08-May-89	30.42	5.01		7.14	2.34	0.43
21-Jul-89	27.43	6.75		8.65	2.11	0.52
30-Oct-89	25.00	12.38		15.12	1.93	0.97
18-Jan-90	23.27	9.23		10.97	1.79	0.71
19-Apr-90	20.26	4.12		5.11	2.02	0.32
10-Jul-90	22.75	2.05		3.12	1.75	0.16
01-Oct-90	22.10	1.95		1.05	1.70	0.15
02-Jan-91	23.61	2.24		2.60	1.97	0.17
01-Apr-91	22.49	2.35		4.94	1.73	0.18
01-Jul-91	23.02	5.62		5.83	1.04	0.43
30-Sep-91	23.27	0.87		0.98	1.79	0.07
13-Jan-91	34.97	0.97		0.47	2.69	0.07
10-Apr-92	22.10	1.62		0.32	1.70	0.12
15-Jul-92	23.14	1.26		2.50	1.78	0.10
01-Oct-92	21.97	5.50		6.04	1.69	0.42
04-Jan-93	27.04	1.53		2.26	2.08	0.12
08-Apr-93	21.45	3.13		3.13	1.65	0.24
13-Jul-93	24.05	7.80		8.19	1.85	0.61
08-Oct-93	26.65	1.57		3.01	2.05	0.12
13-Jan-94	31.85	4.50		5.41	2.45	0.35
11-Apr-94	31.20	1.03		5.04	2.4	0.08
11-Jul-94	23.01	3.02		3.22	1.77	0.23
11-Oct-94	22.62	0.08		0.64	1.74	0.47
11-Jan-95	19.11	15.77		21.81	1.47	1.21
11-Apr-95	21.97	2.04		2.86	1.60	0.16
11-Jul-95	23.70	0.61		7.07	1.83	0.51
18-Oct-95	25.46	7.82		7.76	1.96	0.58
16-Jan-96	18.84	4.08		4.51	1.28	0.31
11-Apr-96	21.71	2.15		4.32	1.67	0.17
16-Jul-96	18.33	2.07		5.86	1.41	0.16
10-Oct-96	22.02	3.23		7.20	1.74	0.25
07-Jan-97	21.45	3.78		5.29	1.63	0.29
07-Apr-97	21.58	4.26		8.77	1.66	0.33
08-Jul-97	20.93	1.88		3.88	1.61	0.14
10-Nov-97	21.45	0.38		11.47	1.65	0.03
21-Jan-98	20.93	1.42		3.45	1.61	0.11
09-Apr-98	22.49	0.23		2.00	1.73	0.02
23-Jul-98	24.31	3.53		3.59	1.87	0.27
12-Oct-98	19.76	9.01		12.65	1.52	0.68
22-Jan-99	22.40	3.79		8.33	1.73	0.29
13-Apr-99	20.41	5.78		8.30	1.57	0.44
12-Jul-99	18.63	5.72		7.51	1.51	0.44
12-Oct-99	21.06	7.05		12.80	1.62	0.54
31-Dec-99	24.57	0.04		1.01	1.89	0.05
07-Apr-00	18.33	1.69		6.21	1.41	0.13
21-Jul-00	17.88	2.23		2.08	1.38	0.17
07-Nov-00	21.19	0.80		3.10	1.63	0.06
20-Feb-01	22.10	2.85		2.86	1.70	0.22
30-Apr-01	43.29	4.30		4.61	3.33	0.33
19-Jul-01	27.82	1.49		4.91	2.14	0.11
24-Oct-01	24.31	0.75		0.78	1.87	0.06
28-Jan-02	26.00	1.60		1.89	2.00	0.12
15-Apr-02	34.06	1.30		2.50	2.62	0.10
15-Jul-02	27.82	0.70		1.46	2.14	0.05
Mean	23.35	3.34	-0.20	4.03	1.82	0.30
Std. Dev.	4.85	4.01	3.14	4.77	0.33	0.31

* "-" means exposure is less than the background site

INTERNATIONAL URANIUM (USA) CORP.
WHITE MESA MILL
DIRECT RADIATION
MR/QTR
Location: B-N-2, Nearest Residence

Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate*	Net Error	Total Rate Mr/week	Counting Error Mr/week
30-Sep-81	19.11	0.00	[redacted]	0.00	1.47	
31-Dec-81	24.07	0.00	[redacted]	0.00	1.80	
31-Mar-82	27.04	0.00	[redacted]	0.00	2.08	
30-Jun-82	23.68	0.00	[redacted]	0.00	1.82	
01-Oct-82	22.88	0.00	[redacted]	0.00	1.76	
03-Jan-83	25.61	0.00	[redacted]	0.00	1.97	
04-Apr-83	22.88	0.00	[redacted]	0.00	1.76	
05-Jul-83	23.69	0.00	[redacted]	0.00	1.82	
03-Oct-83	22.75	0.00	[redacted]	0.00	1.75	
03-Jan-84	29.30	0.00	[redacted]	0.00	2.26	
03-Apr-84	23.82	0.00	[redacted]	0.00	1.84	
02-Jul-84	20.02	0.00	[redacted]	0.00	1.54	
02-Oct-84	23.92	3.12	[redacted]	4.89	1.84	0.24
02-Jan-85	22.23	3.38	[redacted]	5.08	1.71	0.26
04-Apr-85	9.10	3.77	[redacted]	5.33	0.70	0.29
07-Jul-85	15.47	5.72	[redacted]	0.92	1.19	0.44
07-Oct-85	21.32	-0.12	[redacted]	1.93	1.64	-0.01
17-Jan-86	21.97	8.89	[redacted]	9.18	1.69	0.68
22-Apr-86	29.51	9.40	[redacted]	9.92	2.27	0.75
21-Jul-86	25.35	7.30	[redacted]	10.59	1.95	0.56
03-Nov-86	22.88	0.09	[redacted]	4.59	1.76	0.01
03-Feb-87	29.25	-0.75	[redacted]	1.72	2.25	-0.06
01-Apr-87	22.88	0.02	[redacted]	1.16	1.76	0.09
01-Jul-87	30.29	4.81	[redacted]	8.85	2.33	0.35
09-Oct-87	17.81	3.73	[redacted]	3.84	1.37	0.29
14-Jan-88	21.19	4.08	[redacted]	4.10	1.63	0.31
19-Apr-88	27.82	4.72	[redacted]	5.35	2.14	0.38
13-Jul-88	25.48	6.02	[redacted]	7.88	1.96	0.51
11-Oct-88	25.35	8.51	[redacted]	8.51	1.95	0.65
19-Jan-89	24.44	5.21	[redacted]	6.96	1.88	0.40
08-May-89	32.37	2.61	[redacted]	5.12	2.49	0.20
21-Jul-89	27.95	2.33	[redacted]	2.00	2.15	0.18
30-Oct-89	22.88	2.58	[redacted]	8.77	1.78	0.20
18-Jan-90	24.05	2.43	[redacted]	6.41	1.85	0.19
19-Apr-90	24.83	0.42	[redacted]	3.05	1.91	0.03
18-Jul-90	23.14	0.85	[redacted]	2.44	1.78	0.06
01-Oct-90	23.14	7.55	[redacted]	7.55	1.78	0.58
02-Jan-91	30.42	5.34	[redacted]	10.78	2.34	0.41
01-Apr-91	25.61	9.85	[redacted]	10.68	1.97	0.77
01-Jul-91	24.70	4.12	[redacted]	4.41	1.9	0.32
30-Sep-91	25.74	6.77	[redacted]	6.77	1.98	0.52
13-Jan-92	38.81	8.70	[redacted]	10.80	2.97	0.67
10-Apr-92	23.68	1.22	[redacted]	8.44	1.82	0.09
15-Jul-92	26.13	4.58	[redacted]	5.05	2.01	0.35
01-Oct-92	23.01	6.40	[redacted]	7.71	1.77	0.49
04-Jan-93	28.65	-0.07	[redacted]	1.80	2.05	-0.05
08-Apr-93	22.88	4.53	[redacted]	4.53	1.76	0.35
13-Jul-93	17.42	3.78	[redacted]	4.38	1.34	0.29
08-Oct-93	26.91	4.27	[redacted]	4.98	2.07	0.33
13-Jan-94	30.42	4.30	[redacted]	5.24	2.34	0.33
11-Apr-94	19.89	7.53	[redacted]	9.00	1.53	0.58
11-Jul-94	26.13	6.32	[redacted]	8.42	2.01	0.49
11-Oct-94	25.09	10.18	[redacted]	10.53	1.83	0.78
12-Jan-95	28.08	-0.03	[redacted]	14.77	2.16	0.00
11-Apr-95	24.18	4.34	[redacted]	4.80	1.86	0.33
11-Jul-95	24.10	3.81	[redacted]	4.55	1.88	0.29
16-Oct-95	27.17	7.57	[redacted]	7.60	2.09	0.58
15-Jan-96	17.81	5.06	[redacted]	5.43	1.37	0.39
11-Apr-96	24.44	1.15	[redacted]	3.92	1.88	0.09
16-Jul-96	19.78	2.57	[redacted]	5.86	1.52	0.20
10-Oct-96	21.06	6.03	[redacted]	8.62	1.62	0.46
07-Jan-97	20.54	5.10	[redacted]	8.37	1.58	0.40
07-Apr-97	21.06	2.48	[redacted]	5.61	1.62	0.19
08-Jul-97	20.67	3.48	[redacted]	4.70	1.59	0.27
10-Nov-97	21.07	7.94	[redacted]	13.04	1.62	0.61
21-Jan-98	18.07	6.72	[redacted]	7.43	1.38	0.52
09-Apr-98	23.14	1.69	[redacted]	2.61	1.78	0.13
23-Jul-98	25.22	2.43	[redacted]	2.52	1.94	0.18
12-Oct-98	18.07	5.71	[redacted]	10.70	1.39	0.44
22-Jan-99	21.32	6.80	[redacted]	8.55	1.64	0.53
13-Apr-99	23.27	10.78	[redacted]	12.31	1.79	0.83
15-Jul-99	20.02	7.22	[redacted]	8.71	1.54	0.56
12-Oct-99	18.20	4.05	[redacted]	11.42	1.4	0.31
31-Dec-99	28.99	6.74	[redacted]	6.78	2.23	0.52
07-Apr-00	19.63	5.19	[redacted]	7.92	1.51	0.40
21-Jul-00	17.03	6.43	[redacted]	6.60	1.31	0.49
07-Nov-00	21.45	2.00	[redacted]	3.66	1.65	0.15
20-Feb-01	25.61	4.03	[redacted]	4.05	1.97	0.31
30-Apr-01	30.29	2.53	[redacted]	2.68	2.33	0.19
19-Jul-01	26.84	0.70	[redacted]	4.73	2.28	0.05
24-Oct-01	25.35	0.45	[redacted]	0.50	1.95	0.03
28-Jan-02	26.00	0.20	[redacted]	1.02	2.00	0.02
15-Apr-02	30.64	2.30	[redacted]	2.98	2.38	0.18
15-Jul-02	27.82	1.10	[redacted]	1.70	2.14	0.08
Mean	23.80	3.85	0.17	5.58	1.83	0.35
Std. Dev	4.28	3.05	3.53	3.76	0.33	0.22

* "-" means exposure is less than the background site

INTERNATIONAL URANIUM (USA) CORP.
WHITE MESA MILL
DIRECT RADIATION
MR/QTR

Location: BHV-3, Black Mesa (Background)

Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate	Net Error	Total Rate Mr/week	Counting Error Mr/week
30-Sep-81	19.78	0.00		0.00	1.52	
31-Dec-81	28.08	0.00		0.00	2.18	
31-Mar-82	24.31	0.00		0.00	1.87	
30-Jun-82	27.69	0.00		0.00	2.13	
01-Oct-82	22.23	0.00		0.00	1.71	
03-Jan-83	25.61	0.00		0.00	1.97	
04-Apr-83	24.31	0.00		0.00	1.87	
05-Jul-83	24.57	0.00		0.00	1.89	
03-Oct-83	21.07	0.00		0.00	1.62	
03-Jan-84	23.66	0.00		0.00	1.78	
03-Apr-84	23.14	0.00		0.00	1.60	
02-Jul-84	20.80	0.00		5.33	1.59	0.29
02-Oct-84	18.07	3.77		5.33	1.38	0.29
02-Jan-85	20.28	3.77		5.33	1.72	0.29
04-Apr-85	22.30	3.77		5.32	0.95	0.30
07-Jul-85	12.35	3.90		2.73	1.44	0.16
07-Oct-85	19.72	1.83		3.24	1.72	0.18
17-Jan-86	22.36	2.29		0.85	1.77	0.05
22-Apr-86	23.01	0.00		21.07	1.87	1.15
21-Jul-86	24.31	14.90		8.48	1.74	0.35
03-Nov-86	22.82	4.59		2.19	1.49	0.12
03-Feb-87	19.37	1.55		1.18	2.38	0.08
01-Apr-87	30.84	0.82		10.35	1.83	0.56
01-Jul-87	25.09	7.32		1.51	1.23	-0.08
09-Oct-87	19.89	-1.07		0.59	1.61	-0.03
14-Jan-88	20.93	-0.42		3.56	1.88	0.18
18-Apr-88	24.18	2.32		5.33	1.91	0.29
15-Jul-88	24.83	3.77		0.30	1.57	0.02
11-Oct-88	20.41	0.21		6.52	1.87	0.35
18-Jan-89	24.31	4.61		6.24	2.32	0.34
08-May-89	30.18	4.41		2.45	2.02	0.13
21-Jul-89	26.26	1.73		11.85	1.79	0.64
30-Oct-89	22.75	8.30		8.39	1.73	0.46
18-Jan-90	22.49	5.93		4.27	1.8	0.23
19-Apr-90	23.40	3.02		3.32	1.07	0.18
19-Jul-90	24.31	2.36		0.00	1.71	0.00
01-Oct-90	22.23	0.00		13.21	2.49	0.72
02-Jan-91	32.37	9.34		8.15	1.63	0.53
01-Apr-91	23.79	4.35		2.21	2.43	-0.12
01-Jul-91	31.59	-1.58		0.24	1.82	0.01
30-Sep-91	23.66	0.17		9.03	2.00	0.49
13-Jan-92	37.44	6.40		8.94	2.08	0.49
10-Apr-92	27.04	6.32		3.05	1.07	0.17
15-Jul-92	25.61	2.18		6.00	1.73	0.33
01-Oct-92	22.49	4.30		2.36	2.28	-0.13
04-Jan-93	29.64	-1.07		0.24	1.82	-0.01
08-Apr-93	23.66	-0.17		3.10	1.78	0.17
13-Jul-93	22.60	2.19		3.63	1.91	0.20
08-Oct-93	24.83	2.57		4.24	2.38	0.23
12-Jan-94	30.94	3.00		6.97	2.42	0.38
11-Apr-94	31.46	4.93		1.58	1.85	0.09
11-Jul-94	24.05	1.12		3.79	1.68	0.23
11-Oct-94	21.97	2.68		20.69	1.99	1.14
12-Jan-95	25.07	14.77		2.88	1.77	0.18
11-Apr-95	23.01	2.04		3.55	1.76	0.19
11-Jul-95	22.75	2.51		1.58	2.02	0.09
18-Oct-95	20.28	1.12		2.77	1.48	0.15
16-Jan-96	18.86	1.96		5.30	2	0.29
11-Apr-96	26.00	3.73		7.45	1.51	0.41
18-Jul-96	19.63	5.27		9.09	1.67	0.49
10-Oct-96	21.71	6.45		5.22	1.77	0.28
07-Jan-97	23.01	3.69		7.44	1.60	0.40
07-Apr-97	21.19	5.20		4.47	1.55	0.24
08-Jul-97	20.15	3.18		16.21	2.08	0.86
10-Nov-97	27.04	11.48		4.47	1.97	0.24
21-Jan-98	25.61	3.10		2.81	1.73	0.15
09-Apr-98	22.49	1.99		0.98	1.85	0.05
23-Jul-98	24.05	0.68		12.85	1.42	0.70
12-Oct-98	18.45	9.18		7.17	1.71	0.39
22-Jan-99	22.23	5.07		8.44	1.54	0.46
13-Apr-99	20.02	5.07		6.89	1.54	0.37
15-Jul-99	20.02	4.67		15.10	1.41	0.82
12-Oct-99	18.33	10.68		1.10	1.89	0.06
31-Dec-99	24.57	0.78		8.46	1.51	0.46
07-Apr-00	19.63	5.98		2.11	1.19	0.11
21-Jul-00	15.47	1.49		4.37	1.84	0.24
07-Nov-00	21.32	3.09		0.55	1.80	0.03
20-Feb-01	24.18	0.39		2.25	2.27	0.12
30-Apr-01	29.51	1.69		6.62	2.13	0.38
19-Jul-01	27.60	4.00		0.31	1.86	0.02
24-Oct-01	24.44	0.22		1.41	2.00	0.08
28-Jan-02	28.00	1.00		2.60	2.09	0.15
15-Apr-02	34.97	1.80		1.84	2.08	0.10
15-Jul-02	26.78	1.30				
Mean	23.50	3.16	0.00	4.83	1.82	0.29
Std. Dev.	3.99	3.38	0.00	4.62	0.31	0.28

INTERNATIONAL URANIUM (USA) CORP.
WHITE MESA MILL
DIRECT RADIATION
MR/QTR

Location: BHV-4, South Tailings Area

Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate*	Net Error	Total Rate Mr/week	Counting Error Mr/week
30-Sep-81	18.33	0.00		0.00	1.41	
31-Dec-81	25.81	0.00		0.00	1.97	
31-Mar-82		0.00		0.00	0.00	
30-Jun-82		0.00		0.00	0.00	
01-Oct-82	27.45	0.00		0.00	2.11	
03-Jan-83	37.31	0.00		0.00	2.87	
04-Apr-83	28.08	0.00		0.00	2.16	
05-Jul-83	25.09	0.00		0.00	1.93	
03-Oct-83	26.85	0.00		0.00	2.05	
03-Jan-84	31.46	0.00		0.00	2.42	
03-Apr-84	26.85	0.00		0.00	2.05	
02-Jul-84	26.50	0.00		0.00	2.03	
02-Oct-84	18.95	4.94		6.21	1.46	0.38
02-Jan-85	21.46	1.58		4.06	1.65	0.12
04-Apr-85	24.31	1.69		4.13	1.87	0.13
07-Jul-85	13.52	4.42		5.89	1.04	0.34
07-Oct-85	21.43	0.68		2.04	1.65	0.05
17-Jan-86	24.05	6.69		7.07	1.85	0.51
22-Apr-86	28.21	23.40		23.41	2.17	1.80
21-Jul-86	25.61	3.60		15.33	1.97	0.28
03-Nov-86	24.18	2.69		3.32	1.86	0.21
03-Feb-87	23.27	2.55		2.86	1.79	0.20
01-Apr-87	22.36	2.12		2.27	1.72	0.16
01-Jul-87	26.26	14.71		10.43	2.02	1.13
09-Oct-87	20.15	-0.87		1.38	1.55	-0.07
14-Jan-88	22.36	2.88		2.71	1.72	0.21
19-Apr-88	26.13	-1.68		3.03	2.01	-0.13
15-Jul-88	27.69	1.77		4.18	2.13	0.14
11-Oct-88	23.40	2.81		2.82	1.80	0.22
19-Jan-89	24.18	3.91		6.04	1.86	0.30
08-May-89	32.50	0.01		4.45	2.5	0.05
21-Jul-89	29.64	-0.57		1.82	2.28	-0.04
30-Oct-89	21.97	-1.52		8.46	1.69	-0.10
18-Jan-90	23.82	9.23		10.97	1.84	0.71
19-Apr-90	25.61	2.62		4.00	1.97	0.20
18-Jul-90	21.58	2.76		3.82	1.66	0.21
01-Oct-90	23.66	0.25		0.25	1.82	0.02
02-Jan-91	24.83	1.24		8.50	1.91	0.13
01-Apr-91	24.05	0.45		4.37	1.85	0.03
01-Jul-91	28.00	5.82		5.83	2	0.43
30-Sep-91	23.40	2.37		2.35	1.8	0.18
13-Jan-92	34.58	10.00		12.55	2.66	0.83
10-Apr-92	25.74	1.02		8.40	1.98	0.08
15-Jul-92	23.92	-0.84		2.25	1.84	-0.05
01-Oct-92	29.64	6.90		8.13	2.28	0.53
04-Jan-93	28.73	8.73		8.89	2.21	0.67
08-Apr-93	25.61	3.83		3.83	1.97	0.29
15-Jul-93	23.40	4.48		5.00	1.8	0.35
08-Oct-93	22.36	6.17		6.66	1.72	0.47
13-Jan-94	29.51	5.80		6.53	2.27	0.45
11-Apr-94	29.64	3.73		6.18	2.28	0.29
11-Jul-94	27.17	6.82		6.91	2.09	0.52
11-Oct-94	23.53	3.98		4.80	1.81	0.31
12-Jan-95	23.14	10.37		18.05	1.78	0.80
11-Apr-95	23.66	2.84		3.50	1.82	0.22
11-Jul-95	24.31	3.31		4.15	1.87	0.25
16-Oct-95	27.17	5.82		5.83	2.09	0.45
18-Jan-96	27.58	1.50		2.51	2.12	0.12
11-Apr-96	24.44	10.75		11.39	1.88	0.83
15-Jul-96	18.88	1.57		5.30	1.46	0.12
10-Oct-96	20.41	3.13		7.15	1.57	0.24
07-Jan-97	23.70	1.70		4.10	1.83	0.14
07-Apr-97	24.31	4.48		5.80	1.87	0.34
08-Jul-97	20.41	0.26		3.17	1.57	0.02
10-Nov-97	22.10	0.24		11.46	1.7	0.02
21-Jan-98	18.11	0.22		9.75	1.47	0.71
09-Apr-98	22.73	2.19		2.95	1.75	0.17
23-Jul-98	26.52	3.42		3.49	2.04	0.28
12-Oct-98	21.58	8.21		12.56	1.66	0.63
22-Jan-99	22.49	1.59		5.31	1.73	0.12
13-Apr-99	23.88	13.06		14.36	1.82	1.00
15-Jul-99	20.02	7.02		8.54	1.54	0.54
12-Oct-99	20.64	7.55		13.08	1.58	0.58
31-Dec-99	25.09	0.84		1.15	1.93	0.06
07-Apr-00	21.06	1.99		8.30	1.62	0.15
21-Jul-00	17.28	2.43		2.85	1.33	0.19
07-Nov-00	20.41	2.80		4.17	1.57	0.22
20-Feb-01	26.61	0.43		0.50	1.97	0.03
30-Apr-01	32.11	0.47		1.66	2.47	0.04
19-Jul-01	29.64	0.09		4.68	2.28	0.01
24-Oct-01	23.40	0.35		0.41	1.80	0.03
25-Jan-02	26.00	0.80		1.17	2.00	0.05
15-Apr-02	39.00	2.50		3.14	3.00	0.19
15-Jul-02	28.88	0.90		1.58	2.22	0.07
Mean	24.61	3.38	0.37	5.50	1.86	0.31
Std. Dev.	3.90	4.12	5.33	4.63	0.42	0.32

"*" means exposure is less than background site

INTERNATIONAL URANIUM (USA) CORP.
WHITE MESA MILL
DIRECT RADIATION
MR/QTR
Location: DRV-5, East Tailings Area

Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate*	Net Error	Total Rate Mr/week	Counting Error Mr/week
30-Sep-81	28.28	0.00	[redacted]	0.00	1.58	
31-Dec-81		0.00	[redacted]	0.00	0.00	
31-Mar-82	27.85	0.00	[redacted]	0.00	2.15	
30-Jun-82	28.52	0.00	[redacted]	0.00	2.04	
01-Oct-82	24.06	0.00	[redacted]	0.00	1.92	
03-Jan-83	31.50	0.00	[redacted]	0.00	2.43	
04-Apr-83	31.46	0.00	[redacted]	0.00	2.42	
05-Jul-83	25.22	0.00	[redacted]	0.00	1.94	
03-Oct-83	23.80	0.00	[redacted]	0.00	1.82	
03-Jan-84	30.16	0.00	[redacted]	0.00	2.32	
03-Apr-84	28.21	0.00	[redacted]	0.00	2.17	
02-Jul-84	23.79	0.00	[redacted]	0.00	1.83	
02-Oct-84	20.80	1.58	[redacted]	4.06	1.00	0.12
02-Jan-85	23.88	4.03	[redacted]	6.52	1.82	0.31
04-Apr-85	24.31	6.50	[redacted]	7.51	1.07	0.50
07-Jul-85	13.52	2.99	[redacted]	4.01	1.04	0.23
07-Oct-85	23.55	-0.92	[redacted]	2.14	1.81	-0.07
17-Jan-88	28.78	9.09	[redacted]	9.37	2.08	0.70
22-Apr-88	24.83	8.40	[redacted]	8.42	1.81	0.65
21-Jul-88	25.09	1.80	[redacted]	15.01	1.03	0.14
03-Nov-88	21.97	0.29	[redacted]	4.60	1.08	0.02
03-Feb-87	21.19	1.65	[redacted]	2.28	1.83	0.13
01-Apr-87	23.14	9.52	[redacted]	9.66	1.78	0.73
01-Jul-87	31.33	13.11	[redacted]	15.02	2.41	1.01
09-Oct-87	20.54	2.23	[redacted]	2.47	1.58	0.17
14-Jan-88	26.13	-1.22	[redacted]	1.29	2.01	-0.09
18-Apr-88	27.30	3.82	[redacted]	4.56	2.10	0.29
15-Jul-88	29.84	2.07	[redacted]	4.30	2.28	0.16
11-Oct-88	23.33	1.51	[redacted]	1.52	1.81	0.12
19-Jan-89	25.74	6.21	[redacted]	7.73	1.98	0.48
08-May-89	32.11	4.91	[redacted]	6.60	2.47	0.38
21-Jul-89	31.08	0.93	[redacted]	1.90	2.40	0.07
30-Oct-89	27.04	6.88	[redacted]	10.84	2.08	0.53
18-Jan-90	28.08	4.03	[redacted]	7.17	2.16	0.31
19-Apr-90	27.09	2.62	[redacted]	4.00	2.13	0.20
16-Jul-90	25.35	2.35	[redacted]	3.32	1.95	0.18
01-Oct-90	25.87	1.85	[redacted]	1.85	1.99	0.14
02-Jan-91	27.69	9.04	[redacted]	13.84	2.13	0.70
01-Apr-91	26.13	1.15	[redacted]	4.60	2.01	0.09
01-Jul-91	27.04	0.42	[redacted]	1.82	2.08	0.03
30-Sep-91	28.00	2.97	[redacted]	2.97	2.00	0.23
13-Jan-92	37.18	9.26	[redacted]	11.21	2.86	0.71
10-Apr-92	29.90	10.52	[redacted]	12.27	2.30	0.81
15-Jul-92	27.04	3.50	[redacted]	4.18	2.08	0.27
01-Oct-92	28.98	3.60	[redacted]	3.61	2.23	0.28
04-Jan-93	34.32	8.93	[redacted]	9.08	2.64	0.69
08-Apr-93	25.09	2.23	[redacted]	2.24	1.93	0.17
13-Jul-93	28.47	5.29	[redacted]	5.73	2.19	0.41
08-Oct-93	29.25	7.87	[redacted]	8.28	2.25	0.61
13-Jan-94	35.75	7.00	[redacted]	8.17	2.75	0.54
11-Apr-94	30.42	13.13	[redacted]	14.03	2.34	1.01
11-Jul-94	30.42	1.12	[redacted]	1.58	2.34	0.09
11-Oct-94	28.34	4.58	[redacted]	5.31	2.18	0.35
12-Jan-95	20.02	14.87	[redacted]	20.96	1.54	1.14
11-Apr-95	28.78	3.74	[redacted]	4.28	2.00	0.29
11-Jul-95	35.35	11.21	[redacted]	11.39	1.95	0.86
18-Oct-95	28.85	7.92	[redacted]	8.00	2.22	0.61
16-Jan-96	23.66	10.46	[redacted]	10.64	1.82	0.80
11-Apr-96	28.09	6.45	[redacted]	7.46	2.23	0.50
18-Jul-96	22.62	0.01	[redacted]	5.27	1.74	0.00
16-Oct-96	24.70	7.03	[redacted]	8.53	1.90	0.54
07-Jan-97	20.80	4.29	[redacted]	5.66	1.60	0.33
07-Apr-97	24.31	4.46	[redacted]	8.60	1.87	0.34
08-Jul-97	23.01	6.88	[redacted]	7.59	1.77	0.51
10-Nov-97	23.92	0.84	[redacted]	11.46	1.84	0.05
21-Jan-98	23.66	2.32	[redacted]	3.92	1.82	0.18
09-Apr-98	20.28	0.71	[redacted]	2.11	1.58	0.05
23-Jul-98	26.52	3.63	[redacted]	3.65	2.04	0.28
12-Oct-98	19.88	20.11	[redacted]	22.10	1.53	1.55
22-Jan-99	25.22	0.99	[redacted]	5.17	1.94	0.08
13-Apr-99	21.71	12.98	[redacted]	14.77	1.67	1.00
15-Jul-99	24.44	0.42	[redacted]	4.89	1.88	0.03
12-Oct-99	21.58	2.09	[redacted]	10.87	1.66	0.16
31-Dec-99	29.12	9.34	[redacted]	9.37	2.24	0.72
07-Apr-00	21.19	3.19	[redacted]	3.21	1.63	0.25
21-Jul-00	18.46	7.53	[redacted]	7.70	1.42	0.58
07-Nov-00	31.45	8.10	[redacted]	7.68	2.42	0.47
20-Feb-01	24.18	5.23	[redacted]	5.23	1.86	0.40
30-Apr-01	32.89	0.33	[redacted]	3.16	2.53	0.03
19-Jul-01	31.59	0.91	[redacted]	3.51	2.43	0.07
24-Oct-01	27.04	0.05	[redacted]	0.05	2.08	0.00
28-Jan-02	30.29	1.30	[redacted]	1.30	2.33	0.10
15-Apr-02	43.94	1.10	[redacted]	1.10	3.38	0.08
15-Jul-02	30.03	1.10	[redacted]	1.10	2.31	0.08
Mean	26.98	4.15	2.26	5.72	2.01	0.37
Std. Dev.	4.53	4.28	4.32	4.78	0.41	0.33

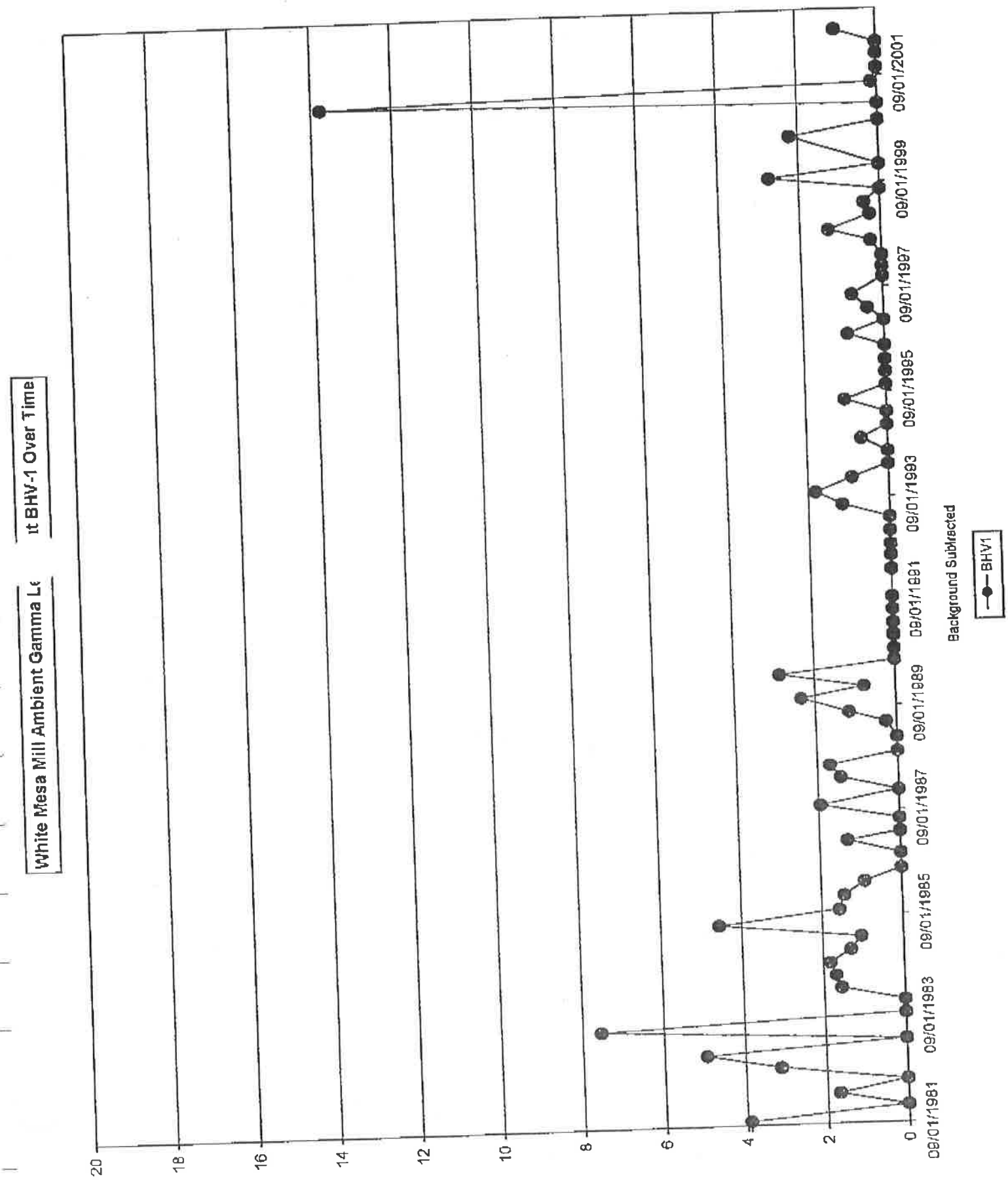
* "-" means exposure is less than background site

INTERNATIONAL URANIUM (USA) CORP.
WHITE MESA MILL
DIRECT RADIATION
MR/QTR

Location: B-N-2 VERSUS DRN-6, DUPLICATION

Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate*	Net Error	Total Rate MR/week	Counting Error MR/week
18-Jul-90	24.83	0.55	[redacted]	2.41	1.91	0.04
01-Oct-90	17.88	23.76	[redacted]	23.76	1.38	1.83
02-Jan-91	29.51	1.74	[redacted]	9.50	2.27	0.13
01-Apr-91	25.48	6.73	[redacted]	8.03	1.96	0.52
01-Jul-91	26.91	4.92	[redacted]	5.16	2.07	0.38
30-Sep-91	23.27	2.97	[redacted]	2.97	1.79	0.23
13-Jan-92	36.14	7.50	[redacted]	8.68	2.78	0.58
10-Apr-92	23.79	4.82	[redacted]	7.05	1.83	0.37
15-Jul-92	24.57	3.86	[redacted]	4.42	1.89	0.30
01-Oct-92	22.88	7.51	[redacted]	8.65	1.76	0.58
04-Jan-93	29.84	8.33	[redacted]	8.50	2.29	0.64
08-Apr-93	28.73	3.03	[redacted]	3.03	2.21	0.23
13-Jul-93	20.93	1.59	[redacted]	2.59	1.61	0.11
08-Oct-93	25.48	2.77	[redacted]	3.78	1.96	0.21
13-Jan-94	31.48	5.90	[redacted]	8.82	2.42	0.45
11-Apr-94	34.58	15.03	[redacted]	16.39	2.66	1.20
11-Jul-94	28.13	7.02	[redacted]	7.90	2.01	0.60
11-Oct-94	25.09	7.08	[redacted]	8.13	1.93	0.59
12-Jan-95	28.08	4.77	[redacted]	15.52	2.16	0.37
11-Apr-95	23.06	6.94	[redacted]	7.23	1.82	0.53
11-Jul-95	23.68	4.91	[redacted]	5.51	1.82	0.38
18-Oct-95	26.13	8.22	[redacted]	8.30	2.01	0.63
16-Jan-96	18.33	4.96	[redacted]	9.33	1.41	0.38
11-Apr-96	24.31	10.35	[redacted]	11.01	1.87	0.80
16-Jul-96	18.46	1.47	[redacted]	5.47	1.42	0.11
10-Oct-96	20.54	6.93	[redacted]	9.45	1.58	0.53
07-Jan-97	22.88	1.69	[redacted]	4.06	1.76	0.13
07-Apr-97	20.02	2.78	[redacted]	5.94	1.54	0.21
08-Jul-97	16.12	1.68	[redacted]	3.36	1.24	0.13
21-Nov-97	23.79	4.74	[redacted]	12.40	1.83	0.36
21-Jan-98	23.40	6.32	[redacted]	7.07	1.80	0.49
09-Apr-98	23.92	3.89	[redacted]	4.37	1.84	0.30
23-Jul-98	28.99	5.43	[redacted]	5.47	2.23	0.42
12-Oct-98	19.37	5.91	[redacted]	10.60	1.49	0.45
22-Jan-99	22.36	2.29	[redacted]	5.58	1.72	0.18
13-Apr-99	21.45	0.88	[redacted]	11.53	1.65	0.76
15-Jul-99	20.26	2.02	[redacted]	8.27	1.58	0.16
12-Oct-99	20.80	0.25	[redacted]	10.08	1.60	0.02
31-Dec-99	26.00	16.84	[redacted]	16.88	2.00	1.30
07-Apr-00	20.93	3.69	[redacted]	7.03	1.61	0.28
21-Jul-00	17.29	1.39	[redacted]	2.04	1.33	0.11
28-Oct-00	23.40	5.20	[redacted]	6.05	1.80	0.40
24-Oct-01	20.13	1.85	[redacted]	1.89	2.01	0.14
28-Jan-02	37.31	3.40	[redacted]	3.75	2.87	0.26
15-Apr-02	31.08	0.80	[redacted]	4.75	2.46	0.06
15-Jul-02	27.02	2.20	[redacted]	2.21	2.14	0.17

* " - " means exposure is less than background


White Mesa Mill Ambient Gamma Le
it BHV-1 Over Time
mRem/Quarter
20
18
16
14
12
10
8
6
4
2
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09/01/1981
09/01/1983
09/01/1985
09/01/1987
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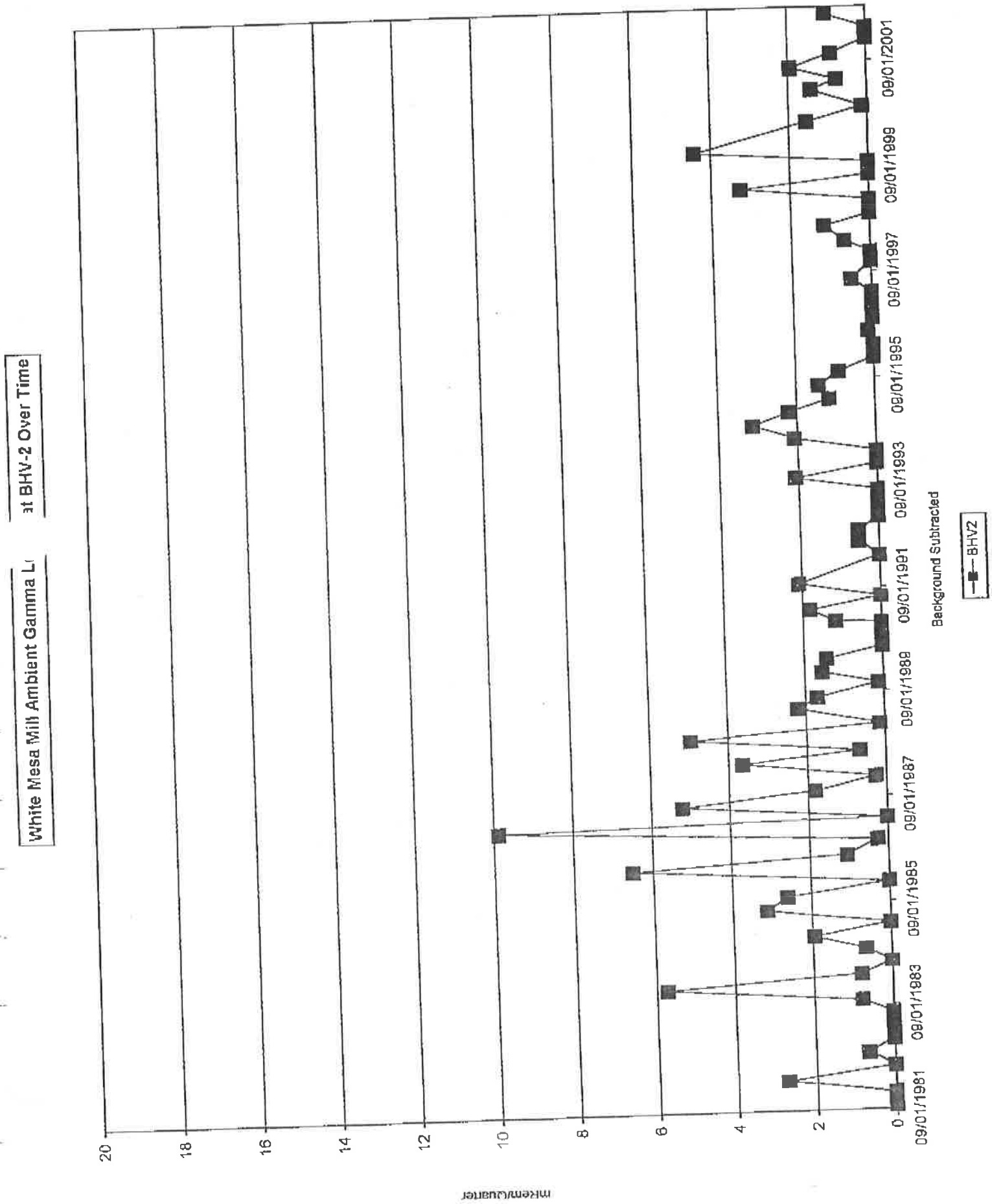
09/01/1997
09/01/1999
09/01/2001
Background Subtracted
BHV1


White Mesa Mill Ambient Gamma L
at BHV-2 Over Time
mREM/QUARTER
20
18
16
14
12
10
8
6
4
2
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09/01/1983
09/01/1985
09/01/1987
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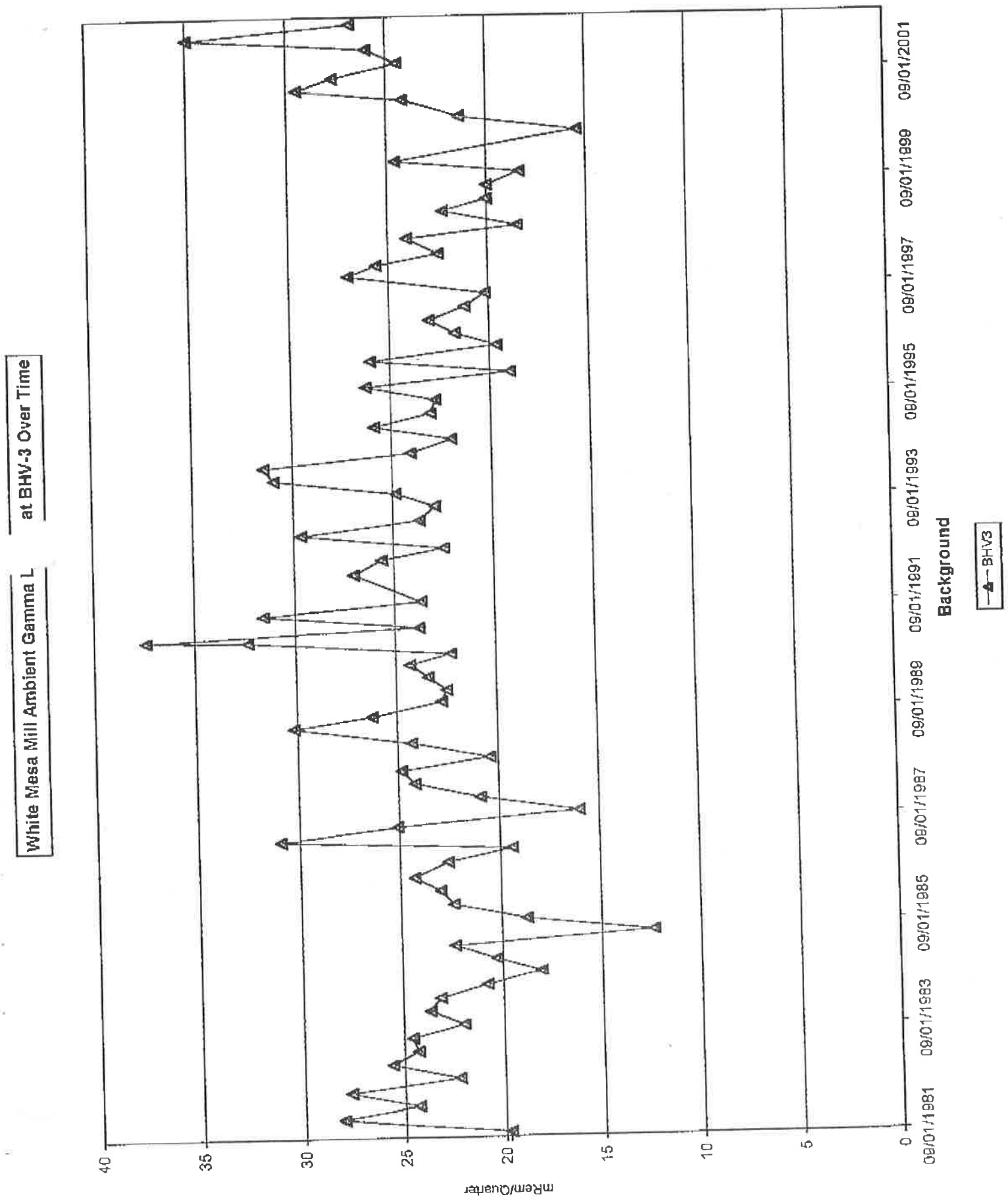
09/01/2001
Background Subtracted
BHV2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at BHV-3 Over Time
mRem/Quarter
40
35
30
25
20
15
10
5
0
08/01/1981
08/01/1983
09/01/1985
09/01/1987
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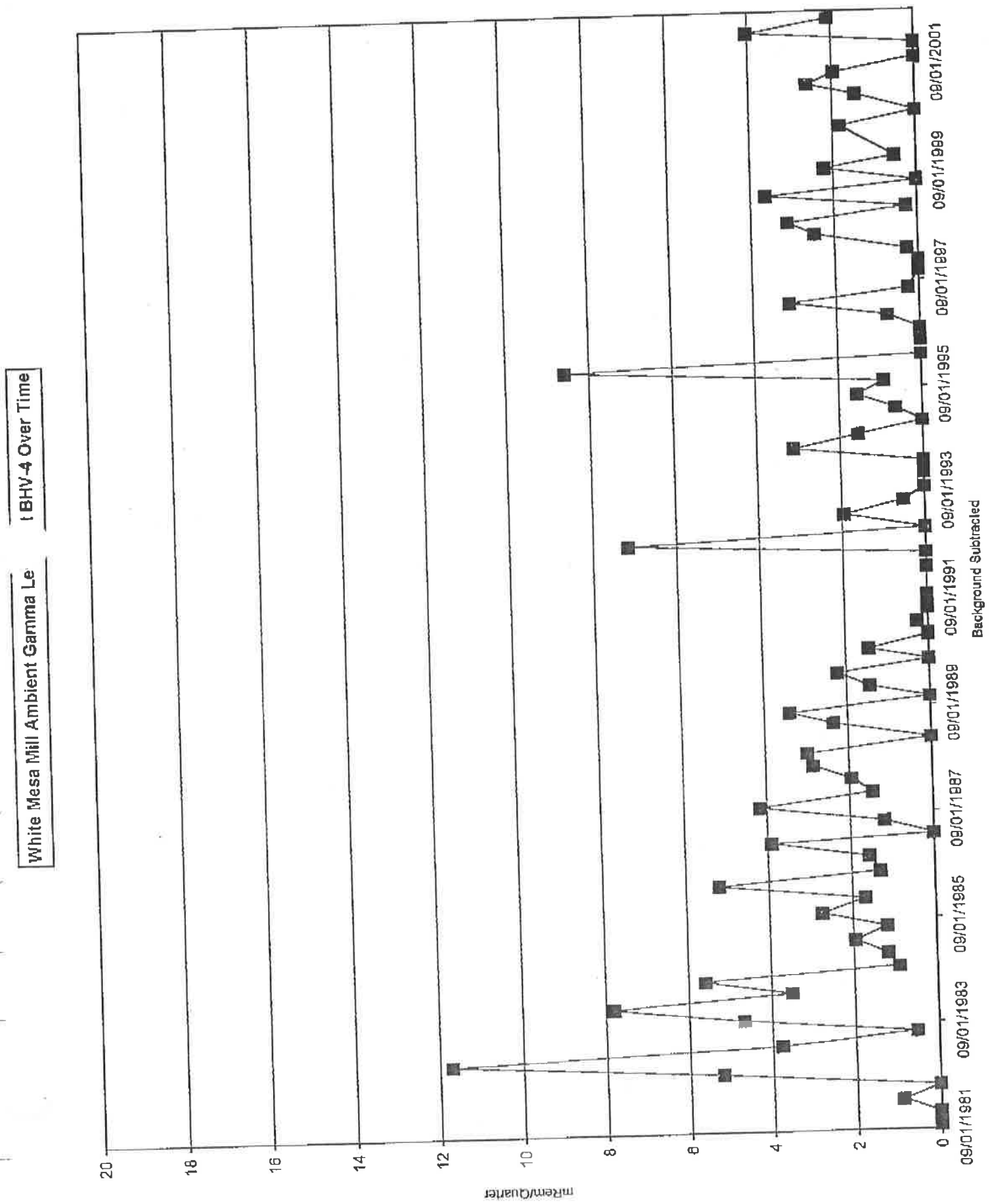
09/01/2001
Background
BHV3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t BHV-4 Over Time
mRem/Quarter
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18
16
14
12
10
8
6
4
2
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09/01/1983
09/01/1985
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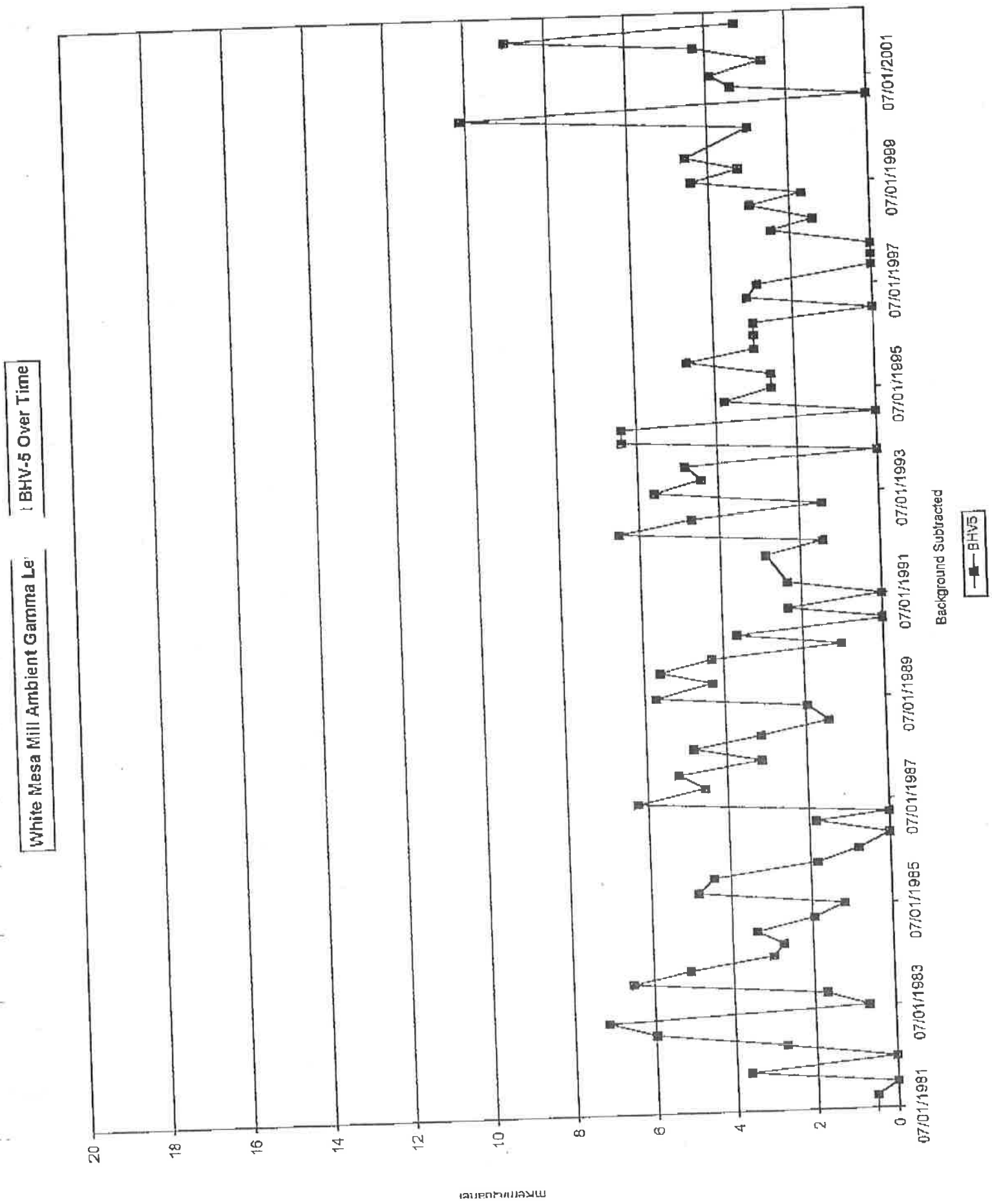
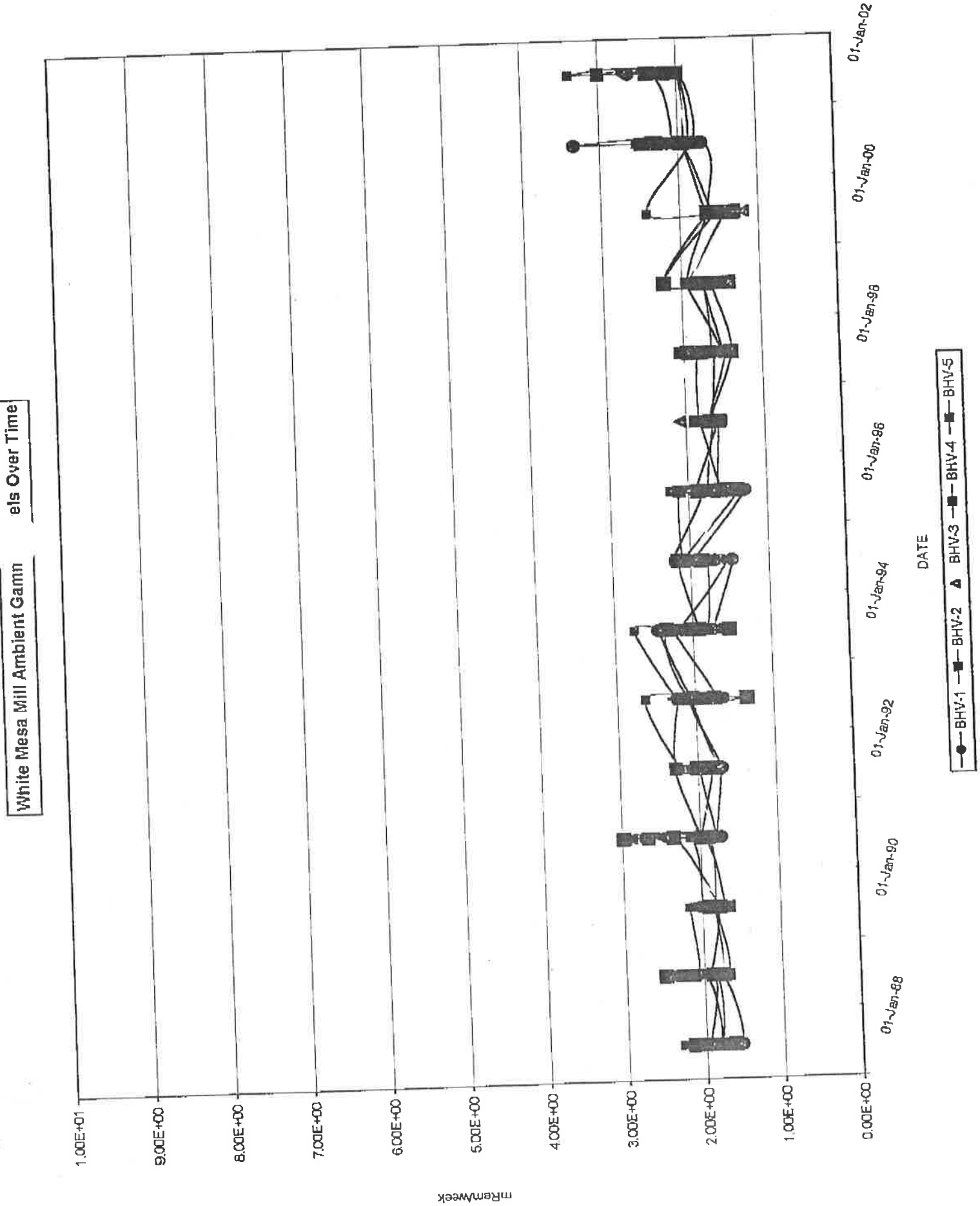
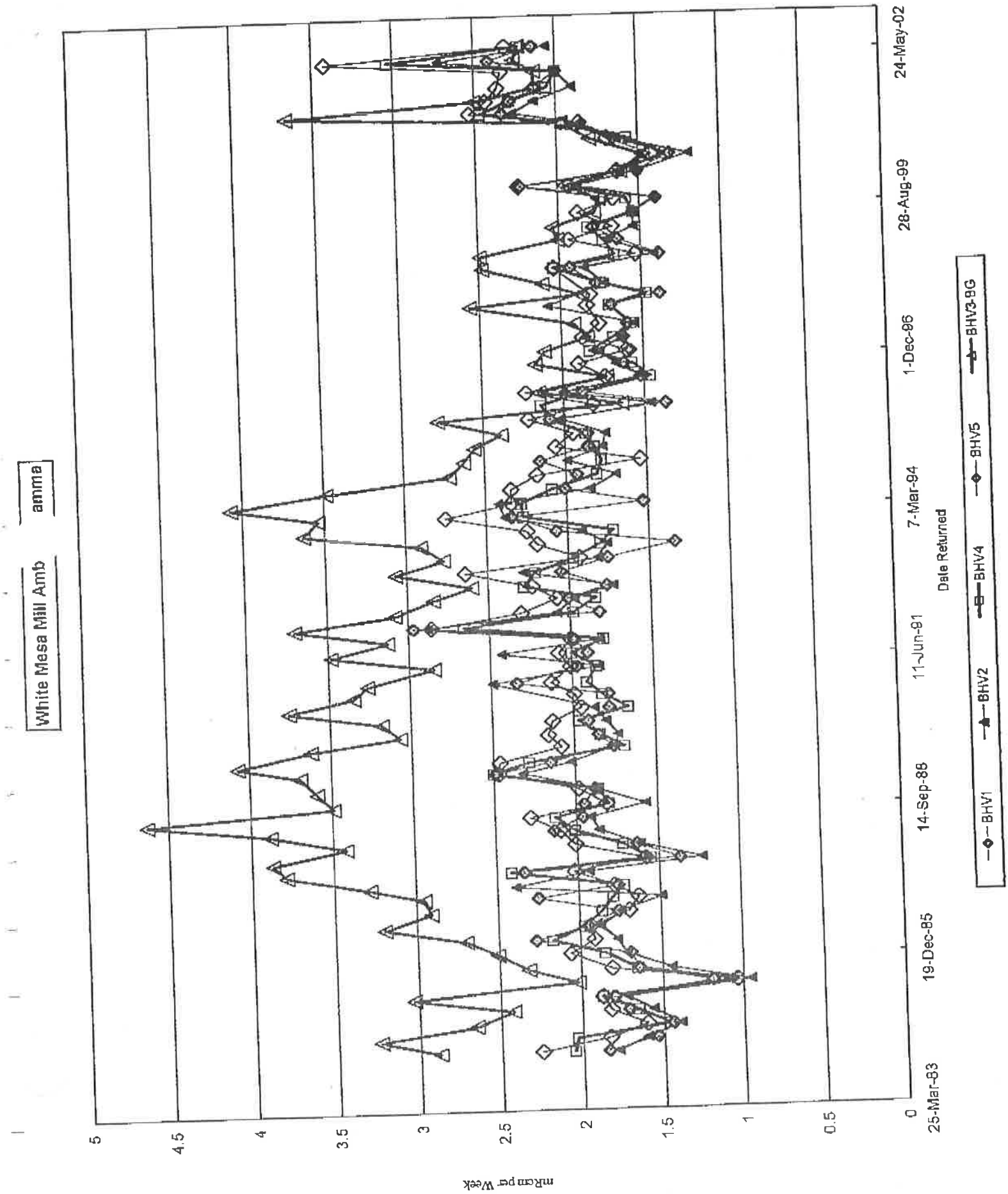
09/01/1999
09/01/2001
Background Subtracted


White Mesa Mill Ambient Gamma Le
BHV-5 Over Time
mrem/quarter
20
18
16
14
12
10
8
6
4
2
0
07/01/1981
07/01/1983
07/01/1985
07/01/1987
07/01/1989
07/01/1991
07/01/1993
07/01/1995
07/01/1997
07/01/1999
07/01/2001
Background Subtracted
BHV5


White Mesa Mill Ambient Gamm
els Over Time
1.00E+01
9.00E+00
8.00E+00
7.00E+00
6.00E+00
5.00E+00
4.00E+00
3.00E+00
2.00E+00
1.00E+00
0.00E+00
mRem/week
01-Jan-88
01-Jan-90
01-Jan-92
01-Jan-94
01-Jan-96
01-Jan-98
01-Jan-00
01-Jan-02
DATE
BHV-1
BHV-2
BHV-3
BHV-4
BHV-5


White Mesa Mill Amb
amma
mRem per Week
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
25-Mar-83
19-Dec-85
14-Sep-88
11-Jun-91
7-Mar-94
1-Dec-96
28-Aug-99
24-May-02
Date Returned
BHV1
BHV2
BHV4
BHV5
BHV3-BG

VEGETATION ENVIRONMENTAL MONITORING RESULTS FOR THE PERIOD OF JANUARY 1, 2002 THROUGH JUNE 30, 2002

TABLE III

INTERNATIONAL URANIUM CORP.
WHITE MESA MILL
FORAGE RADIONUCLIDE DATA
NORTH EAST OF MILL

SAMPLED DATE	Ra-226 VALUE uCi/Kg	Ra-226 ERROR uCi/Kg	LLD uCi/Kg 5.0E-08	Pb-210 VALUE uCi/Kg	Pb-210 ERROR uCi/Kg	LLD uCi/Kg 1.0E-06
27-Aug-81	3.90E-04	1.0E-05	5.0E-08	1.10E-03	1.0E-04	1.0E-06
20-Oct-81	1.40E-04	1.0E-05	5.0E-08	6.80E-04	8.0E-05	1.0E-06
15-Apr-82	1.31E-04	1.3E-05	1.0E-06	4.90E-04	7.0E-05	8.0E-05
01-Jul-82	1.60E-04	1.0E-05	5.0E-08	8.00E-04	1.7E-04	1.0E-07
30-Nov-82	2.67E-06	1.1E-06	1.0E-06	1.08E-04	9.0E-06	1.0E-05
13-Apr-83	9.36E-05	6.2E-06	8.0E-09	4.97E-04	9.3E-05	1.0E-04
01-Jul-83	1.12E-04	1.2E-05	6.0E-06	1.84E-04	1.2E-05	1.0E-06
30-Jan-84	1.09E-04	8.0E-06	4.0E-06	7.80E-04	6.2E-05	6.0E-05
28-Jun-84	3.47E-04	1.2E-05	2.0E-09	3.75E-03	1.6E-04	4.0E-08
14-Nov-84	5.61E-04	2.0E-04	2.0E-07	7.82E-03	3.3E-04	7.0E-08
27-Mar-85	1.05E-03	3.0E-05	2.0E-06	3.22E-03	1.4E-04	2.0E-05
15-Jul-85	8.20E-05	7.0E-06	3.0E-06	7.70E-04	1.3E-04	2.0E-04
09-Oct-85	1.15E-04	1.0E-05	3.0E-06	5.10E-04	3.0E-05	2.0E-05
24-Mar-86	5.72E-04	2.1E-05	4.0E-06	2.49E-03	1.0E-04	1.0E-05
10-Jul-86	5.01E-04	1.3E-05	3.0E-05	1.57E-03	1.7E-03	2.0E-04
18-Dec-86	8.70E-04	5.0E-05	3.0E-06	6.80E-04	3.0E-05	3.0E-06
20-Apr-87	5.90E-04	7.0E-05	5.0E-08	1.50E-03	1.0E-04	1.0E-06
05-Jun-87	1.60E-04	3.0E-05	5.0E-08	9.50E-04	4.0E-05	1.0E-06
22-Dec-87	2.10E-04	4.0E-05	5.0E-08	1.70E-03	1.0E-04	1.0E-06
19-Apr-88	4.50E-04	7.0E-05	5.0E-08	1.40E-03	1.0E-04	1.0E-06
28-Jul-88	3.20E-05	2.2E-05	5.0E-08	1.50E-04	4.4E-04	1.0E-06
07-Apr-89	5.60E-04	4.0E-05	***	1.10E-03	1.0E-01	***
06-Jun-89	1.50E-04	2.0E-05	***	2.30E-04	2.0E-05	***
07-Nov-89	6.00E-04	5.0E-05	7.0E-06	2.04E-03	7.0E-05	1.4E-05
17-Apr-90	2.60E-04	3.0E-05	4.0E-06	3.30E-04	2.0E-05	2.2E-05
20-Jun-90	1.80E-04	2.0E-05	5.0E-08	3.20E-04	2.0E-05	1.0E-06
17-Oct-90	1.60E-04	2.0E-05	5.0E-08	3.30E-04	2.0E-05	1.0E-06
10-Apr-91	1.20E-04	2.0E-05	5.0E-06	3.00E-04	2.0E-05	1.0E-06
11-Jun-91	9.10E-05	1.6E-05	2.0E-07	1.90E-04	2.0E-05	2.0E-07
20-Nov-91	4.50E-04	4.0E-05	5.0E-08	1.09E-03	5.0E-05	1.0E-06
22-Apr-92	3.60E-05	1.0E-05	2.0E-06	1.50E-04	2.0E-05	1.0E-05
10-Jun-92	1.00E-05	7.0E-06	2.0E-07	7.50E-05	2.0E-05	1.0E-06
10-Jun-92	7.90E-05	3.5E-05	3.0E-06	7.10E-04	7.0E-05	2.0E-05
13-Apr-93	3.70E-05	2.2E-05	3.0E-06	2.80E-04	3.0E-05	2.0E-05
26-Jun-93	3.00E-05	1.5E-05	3.0E-06	4.30E-05	3.5E-05	2.0E-05
12-Oct-93	6.60E-05	2.7E-05	3.0E-06	5.30E-04	6.0E-05	2.0E-05
11-May-94	1.80E-04	4.0E-05	3.0E-05	4.40E-04	6.0E-05	2.0E-04
19-Jul-94	1.71E-05	1.2E-06	9.0E-08	3.00E-05	6.1E-06	4.5E-06
28-Nov-94	2.40E-04	1.5E-05	1.7E-07	1.70E-04	1.1E-05	8.3E-07
11-Apr-95	6.70E-05	5.4E-06	1.6E-07	1.40E-04	1.3E-05	7.9E-07
06-Jul-95	1.50E-05	1.5E-06	1.5E-07	5.10E-05	4.5E-06	7.6E-07
15-Nov-95	5.50E-05	5.0E-06	1.8E-07	6.70E-05	1.0E-05	8.8E-07
23-Apr-96	5.20E-05	2.5E-06	1.5E-07	3.20E-05	4.5E-06	1.8E-07
31-Jul-96	*	*	*	*	*	*
14-Nov-96	3.00E-05	2.5E-06	1.8E-07	1.40E-04	7.1E-06	9.3E-07
21-Apr-97	1.10E-05	4.7E-07	1.2E-07	4.10E-05	3.6E-06	6.1E-07
05-Sep-97	1.10E-05	4.3E-07	1.3E-07	2.10E-05	7.3E-07	6.7E-07
20-Nov-97	8.00E-06	1.2E-06	5.6E-07	1.40E-04	4.6E-06	1.1E-07
23-Mar-98	<9.10E-05	9.1E-05	9.1E-05	<4.50E-04	4.5E-04	4.5E-04
16-Jun-98	1.80E-05	1.2E-06	6.3E-08	4.00E-05	1.6E-06	3.2E-07
05-Nov-98	5.70E-05	1.0E-06	8.2E-08	8.70E-05	5.0E-06	4.1E-07
15-Apr-99	2.00E-04	3.0E-06	1.2E-07	3.00E-04	1.0E-05	6.0E-05
07-Jul-99	6.03E-05	1.4E-06	8.3E-08	1.40E-04	4.7E-06	4.2E-07
02-Dec-99	2.30E-05	1.0E-06	2.3E-07	2.10E-05	1.0E-06	1.1E-06
21-Apr-00	1.50E-04	3.0E-06	1.2E-07	1.60E-04	8.0E-06	5.9E-07
22-Jun-00	1.20E-06	1.0E-07	2.8E-07	1.60E-04	1.0E-05	1.4E-06
21-Dec-00	1.60E-06	1.1E-06	3.7E-07	5.10E-05	5.0E-06	1.9E-06
30-Apr-01	1.00E-06	1.0E-07	2.4E-07	<1.2E-06	1.0E-07	2.4E-07
14-Jun-01	2.30E-06	2.0E-07	9.9E-08	3.80E-06	2.0E-07	5.0E-07
17-Dec-01	9.10E-06	2.4E-06	1.2E-07	3.57E-05	3.0E-06	6.0E-07
07-May-02	3.30E-05	1.8E-06	7.6E-07	4.50E-05	2.6E-06	1.0E-05
# OBSERVED	6.10E+01	6.10E+01	6.10E+01	6.10E+01	6.10E+01	6.10E+01
MAXIMUM	1.05E-03	1.99E-04	9.10E-05	7.82E-03	1.00E-01	4.50E-04
MEAN	1.76E-04	1.97E-05	3.06E-06	6.75E-04	1.72E-03	2.59E-05
STD. DEV.	2.25E-04	3.01E-05	1.20E-05	1.20E-03	1.27E-02	7.11E-05

*2nd quarter 1996 we were declared a disaster due to drought and no samples were taken

TABLE III (Cont.)

INTERNATIONAL URANIUM CORP.
WHITE MESA MILL
FORAGE RADIONUCLIDE DATA
NORTH WEST OF MILL

SAMPLED DATE	Ra-226 VALUE uCi/Kg	Ra-226 ERROR uCi/Kg	LLD uCi/Kg 5.0E-08	Pb-210 VALUE uCi/Kg	Pb-210 ERROR uCi/Kg	LLD uCi/Kg 1.0E-06
27-Aug-81	2.73E-03	5.0E-05	5.0E-08	7.10E-03	3.0E-04	1.0E-06
20-Oct-81	2.00E-04	1.0E-05	5.0E-08	8.30E-04	5.0E-05	1.0E-06
15-Apr-82	1.04E-04	9.0E-06	7.0E-06	6.40E-04	5.0E-05	4.0E-05
01-Jul-82	2.00E-05	1.0E-05	5.0E-08	2.20E-04	9.0E-05	1.0E-07
30-Nov-82	2.36E-06	9.5E-07	1.0E-06	8.00E-05	1.0E-05	1.0E-05
13-Apr-83	8.58E-05	1.4E-05	2.0E-08	3.53E-04	1.9E-05	1.0E-05
01-Jul-83	1.19E-04	1.1E-05	5.0E-06	1.58E-04	1.3E-05	1.0E-05
30-Jan-84	9.78E-05	7.0E-06	2.0E-08	2.16E-03	3.4E-04	3.0E-04
28-Jun-84	2.08E-04	1.0E-05	3.0E-09	1.60E-03	7.0E-05	3.0E-08
14-Nov-84	6.05E-04	1.6E-04	2.0E-07	2.58E-03	1.1E-04	3.0E-08
27-Mar-85	1.10E-04	8.0E-06	3.0E-06	8.63E-04	4.2E-05	3.0E-05
15-Jul-85	6.10E-05	6.0E-06	2.0E-06	5.40E-04	5.0E-05	5.0E-05
09-Oct-85	1.07E-04	6.0E-06	2.0E-06	3.80E-04	3.0E-05	2.0E-05
24-Mar-86	8.86E-04	1.8E-05	2.0E-06	4.40E-03	1.9E-04	3.0E-05
10-Jul-86	6.66E-04	1.8E-05	3.0E-06	4.78E-03	2.1E-04	6.0E-05
18-Dec-86	5.20E-04	1.0E-04	3.0E-06	1.70E-03	1.0E-04	6.0E-05
20-Apr-87	4.10E-04	1.0E-04	5.0E-08	1.60E-03	1.0E-04	1.0E-06
05-Jun-87	1.60E-04	3.0E-05	5.0E-08	5.50E-04	4.0E-05	1.0E-06
22-Dec-87	3.60E-04	5.0E-05	5.0E-06	1.80E-03	1.0E-04	1.0E-06
19-Apr-88	2.60E-04	5.0E-05	5.0E-08	1.90E-03	1.0E-04	1.0E-06
28-Jul-88	3.10E-05	1.9E-05	5.0E-08	1.60E-04	4.0E-05	1.0E-06
07-Apr-89	6.20E-04	5.0E-05	***	1.70E-03	1.0E-04	***
06-Jun-89	3.40E-04	3.0E-05	***	7.40E-04	3.0E-05	***
07-Nov-89	5.10E-04	6.0E-05	7.0E-06	1.00E-03	7.0E-05	1.4E-05
17-Apr-90	3.60E-04	3.0E-05	4.0E-06	4.80E-04	2.0E-05	2.2E-05
20-Jun-90	1.70E-04	2.0E-05	5.0E-08	3.20E-04	2.0E-05	1.0E-06
17-Oct-90	8.80E-05	1.8E-05	5.0E-08	2.90E-04	2.0E-05	1.0E-06
10-Apr-91	3.00E-04	3.0E-05	5.0E-06	4.10E-04	2.0E-05	1.0E-06
11-Jun-91	3.10E-04	3.0E-05	2.0E-07	4.70E-04	2.0E-05	2.0E-07
20-Nov-91	5.00E-04	4.0E-05	5.0E-08	1.50E-03	1.0E-04	1.0E-06
22-Apr-92	2.00E-05	8.0E-06	2.0E-06	9.60E-05	1.4E-05	1.0E-05
10-Jun-92	6.50E-06	6.0E-06	2.0E-06	1.20E-04	2.0E-05	1.0E-06
10-Jun-92	1.20E-04	4.0E-05	3.0E-06	1.21E-03	8.0E-05	2.0E-05
13-Apr-93	1.80E-05	1.7E-05	3.0E-06	2.10E-04	3.0E-05	2.0E-05
26-Jun-93	5.20E-05	1.9E-05	3.0E-06	1.70E-05	3.6E-05	2.0E-05
12-Oct-93	5.10E-05	2.3E-05	3.0E-06	7.10E-04	6.0E-05	2.0E-05
11-May-94	1.20E-04	1.0E-05	3.0E-05	9.80E-04	1.8E-04	2.0E-04
19-Jul-94	3.73E-05	1.6E-06	8.4E-08	7.80E-05	7.1E-06	4.2E-07
28-Nov-94	2.40E-04	1.5E-05	1.7E-07	2.60E-04	1.3E-05	8.3E-07
11-Apr-95	8.40E-05	6.1E-06	1.5E-07	1.20E-04	1.1E-05	7.5E-05
06-Jul-95	1.90E-05	1.5E-06	1.4E-07	4.50E-05	4.3E-06	7.2E-07
15-Nov-95	1.20E-04	6.8E-06	1.4E-07	1.00E-05	5.8E-06	7.1E-07
23-Apr-96	8.30E-05	3.3E-06	1.9E-07	6.80E-05	6.3E-06	1.8E-07
31-Jul-96	*	*	*	*	*	*
14-Nov-96	3.80E-05	2.5E-06	1.6E-07	8.50E-05	5.6E-06	8.4E-07
21-Apr-97	3.30E-05	2.3E-06	1.7E-07	4.40E-05	4.8E-06	8.4E-07
05-Sep-97	5.40E-06	3.5E-07	1.6E-07	3.20E-05	9.0E-07	7.8E-07
20-Nov-97	8.90E-06	7.2E-07	5.4E-07	3.40E-04	6.7E-06	1.1E-07
23-Mar-98	<9.20E-05	9.2E-05	9.2E-05	<4.60E-04	4.6E-04	4.6E-04
16-Jun-98	< 6.50E-08	6.5E-08	6.5E-08	<3.20E-07	3.2E-07	3.2E-07
05-Nov-98	4.20E-05	1.0E-06	1.1E-07	1.70E-04	1.0E-05	5.5E-07
15-Apr-99	6.20E-05	1.0E-06	1.0E-07	1.40E-04	7.0E-06	1.0E-07
07-Jul-99	5.45E-05	1.4E-06	8.3E-08	9.20E-05	4.0E-06	4.2E-07
02-Dec-99	1.10E-04	3.0E-06	2.2E-07	2.80E-05	1.0E-06	1.1E-06
21-Apr-00	3.70E-05	1.0E-06	2.4E-07	2.70E-04	1.0E-05	1.2E-06
22-Jun-00	2.90E-05	1.0E-06	3.3E-07	2.80E-04	2.0E-05	1.7E-06
21-Dec-00	2.30E-05	1.4E-06	3.7E-07	3.30E-04	5.0E-05	1.9E-06
30-Apr-01	2.10E-05	1.0E-06	1.5E-07	<7.6E-07	N/A	7.6E-07
14-Jun-01	1.30E-06	4.0E-08	1.2E-07	1.80E-06	3.0E-08	5.9E-07
17-Dec-01	3.70E-05	7.67E-07	8.30E-08	6.72E-05	2.62E-06	6.00E-07
07-May-02	4.90E-05	2.40E-06	7.60E-07	1.28E-04	5.61E-06	1.00E-05
# OBSERVED	6.1E+01	6.1E+01	6.1E+01	6.1E+01	6.1E+01	6.1E+01
MAXIMUM	2.73E-03	1.64E-04	9.20E-05	7.10E-03	4.60E-04	4.60E-04
MEAN	2.04E-04	2.08E-05	3.11E-06	7.74E-04	5.72E-05	2.49E-05
STD. DEV.	3.81E-04	2.99E-05	1.22E-05	1.26E-03	8.56E-05	7.31E-05

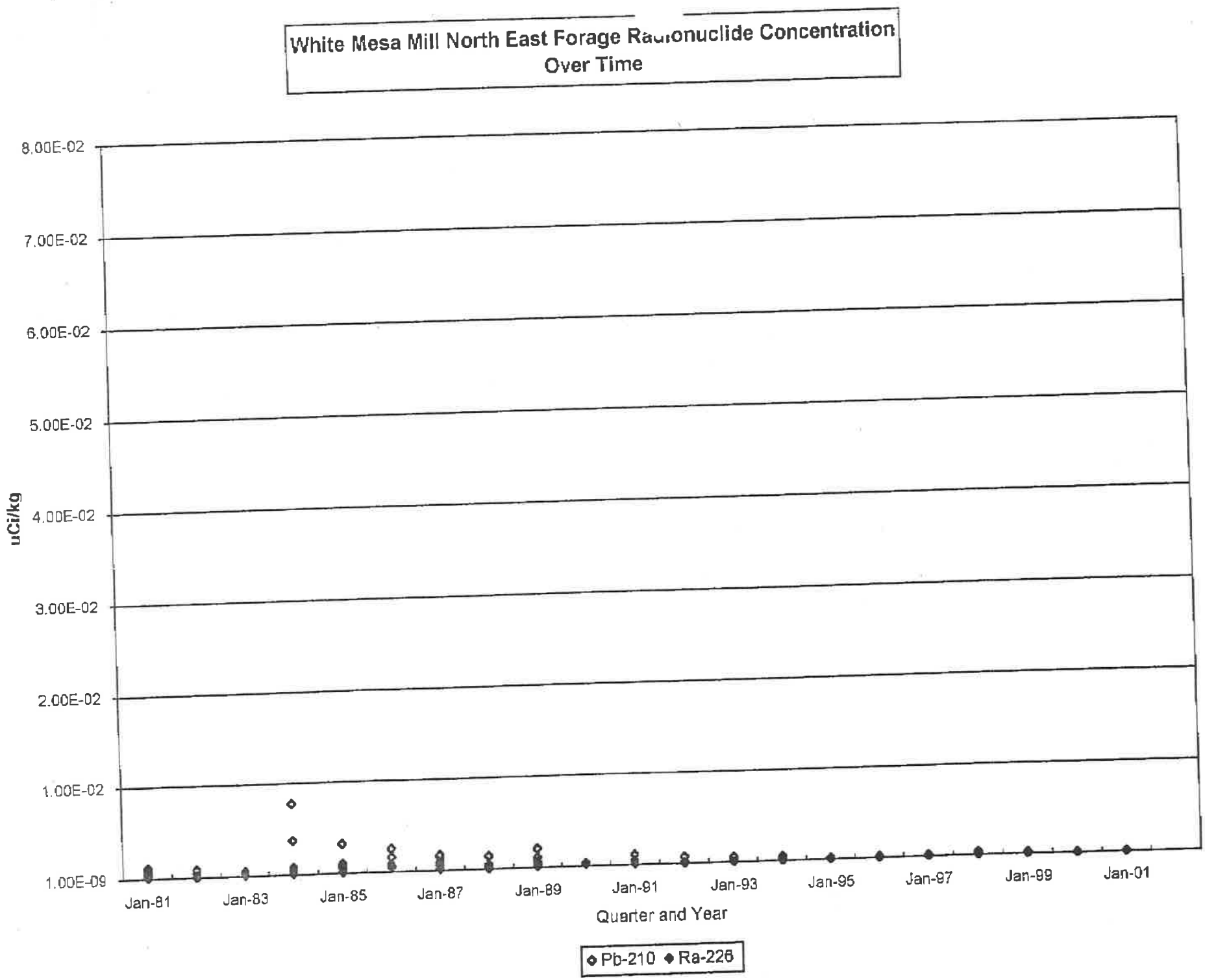
*2nd quarter of 1996 we were declared a disaster area due to drought, no samples were taken

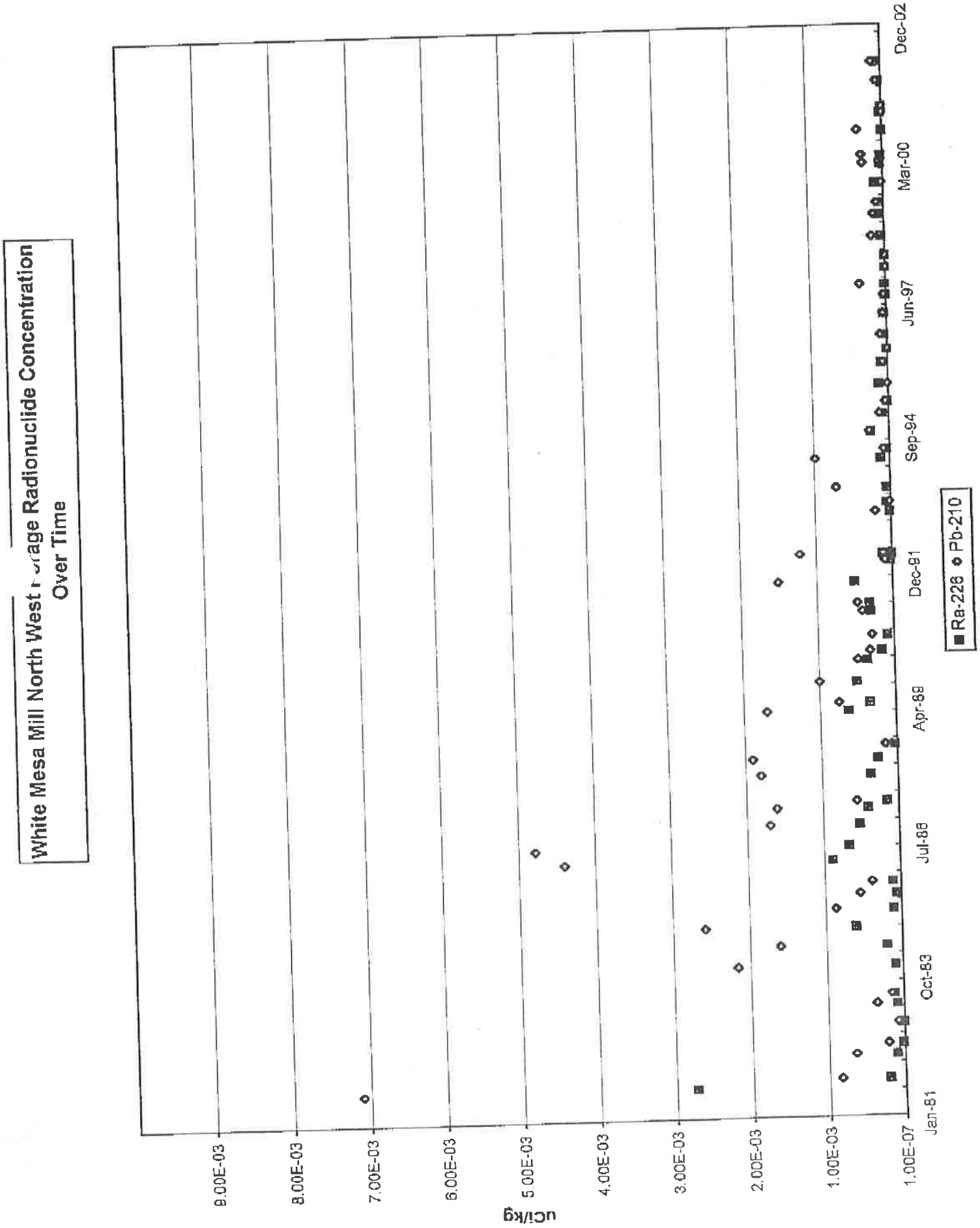
TABLE III (Cont.)

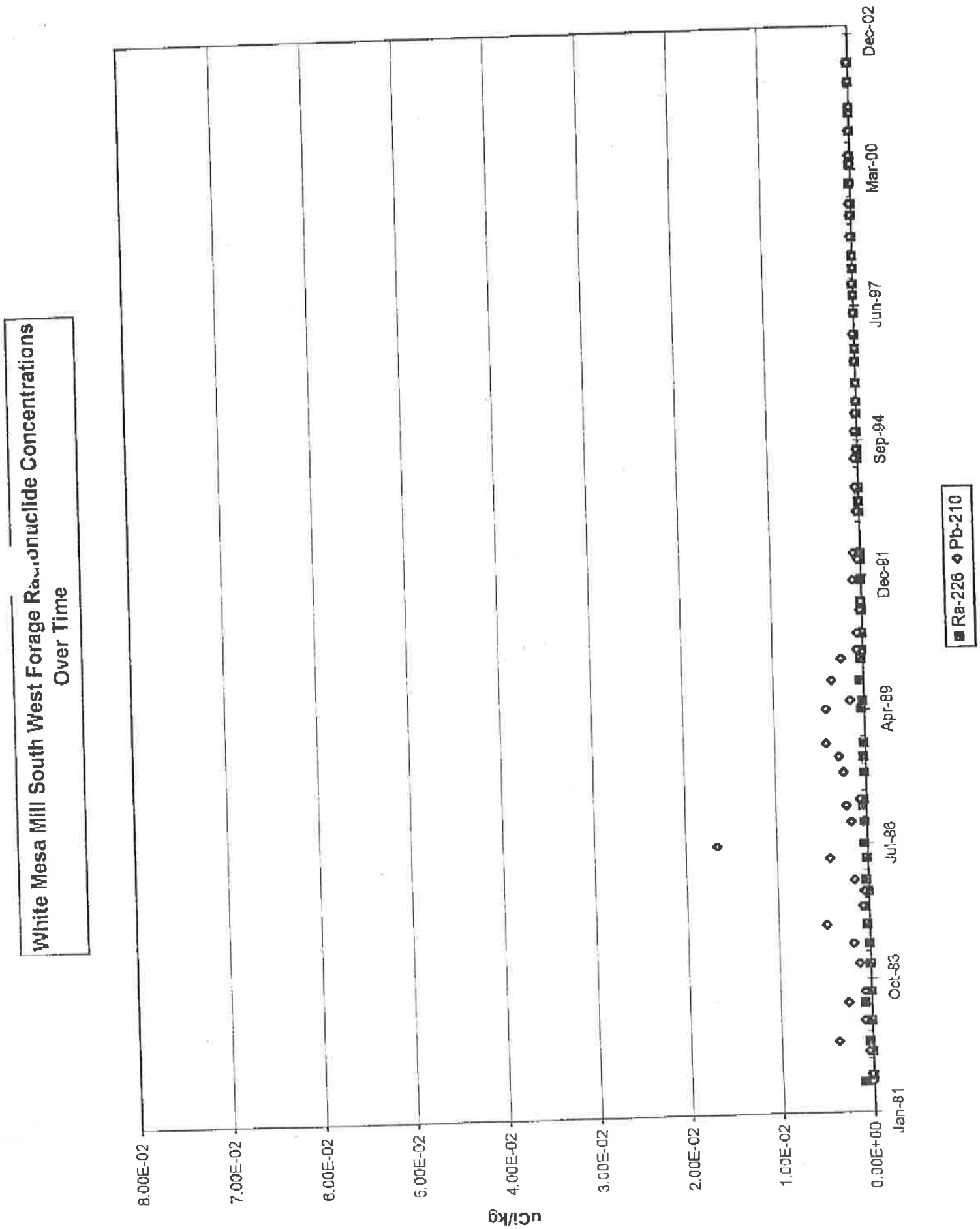
INTERNATIONAL URANIUM CORP.
WHITE MESA MILL
FORAGE RADIONUCLIDE DATA
SOUTH WEST OF MILL

SAMPLED DATE	Ra-226 VALUE uCi/Kg	Ra-226 ERROR uCi/Kg	LLD uCi/Kg 5.0E-08	Pb-210 VALUE uCi/Kg	Pb-210 ERROR uCi/Kg	LLD uCi/Kg 1.0E-06
27-Aug-81	9.50E-04	2.0E-05	5.0E-08	1.50E-04	1.0E-05	1.0E-06
21-Oct-81	3.00E-05	3.0E-06	5.0E-08	1.50E-04	2.0E-05	1.0E-06
15-Apr-82	1.37E-05	3.0E-06	3.0E-06	3.80E-04	4.0E-05	4.0E-05
01-Jul-82	3.40E-04	2.0E-05	5.0E-08	3.68E-03	2.7E-04	1.0E-07
30-Nov-82	1.75E-05	3.0E-06	2.0E-06	7.92E-04	4.0E-06	2.0E-05
14-Apr-83	7.13E-04	7.3E-05	9.0E-08	2.51E-03	3.0E-04	3.0E-04
01-Jul-83	5.39E-05	4.5E-06	2.0E-06	6.88E-04	4.3E-05	4.0E-05
30-Jan-84	6.40E-05	7.0E-06	4.0E-06	1.20E-03	1.0E-04	4.0E-05
28-Jun-84	8.27E-05	6.3E-06	3.0E-09	1.80E-03	1.0E-04	9.0E-08
14-Nov-84	2.72E-04	1.5E-04	2.0E-07	4.70E-03	7.2E-04	3.0E-07
27-Mar-85	4.73E-04	1.6E-07	3.0E-06	7.07E-04	3.6E-05	3.0E-05
15-Jul-85	6.60E-05	7.0E-06	4.0E-06	4.90E-04	3.0E-05	3.0E-05
09-Oct-85	2.83E-04	2.0E-05	7.0E-06	1.50E-03	1.0E-04	7.0E-05
24-Mar-86	1.57E-04	1.0E-05	4.0E-06	4.14E-03	1.8E-04	3.0E-05
10-Jul-86	3.78E-04	1.0E-05	2.0E-06	1.65E-02	7.0E-04	1.0E-04
18-Dec-86	2.60E-04	2.0E-05	2.0E-06	1.70E-03	1.0E-04	1.0E-04
20-Apr-87	4.10E-04	7.0E-05	5.0E-08	2.20E-03	1.0E-04	1.0E-06
05-Jun-87	2.90E-04	4.0E-05	5.0E-08	7.50E-04	5.0E-05	1.0E-06
22-Dec-87	1.80E-04	3.0E-05	5.0E-08	2.40E-03	1.0E-04	1.0E-06
19-Apr-88	2.30E-04	5.0E-05	5.0E-08	2.90E-03	1.0E-04	1.0E-06
28-Jul-88	1.50E-04	3.0E-05	5.0E-08	4.30E-03	2.0E-04	1.0E-06
07-Apr-89	3.10E-04	4.0E-05	***	4.20E-03	1.0E-04	***
06-Jun-89	1.30E-04	2.0E-05	***	1.50E-03	1.0E-04	***
07-Nov-89	4.30E-04	5.0E-05	1.4E-05	3.50E-03	1.4E-04	2.7E-05
28-Mar-90	2.50E-04	3.0E-05	5.0E-06	2.39E-03	5.0E-05	2.5E-05
13-Jun-90	1.10E-04	2.0E-05	5.0E-08	6.60E-04	3.0E-05	1.0E-06
23-Oct-90	6.10E-05	1.4E-05	5.0E-08	6.10E-04	3.0E-05	1.0E-06
10-Apr-91	3.40E-05	1.1E-05	5.0E-06	2.20E-04	1.0E-05	1.0E-06
11-Jun-91	8.00E-05	6.0E-06	2.0E-07	1.20E-04	1.0E-05	2.0E-07
20-Nov-91	6.50E-05	1.4E-05	5.0E-08	9.10E-04	5.0E-05	1.0E-06
22-Apr-92	1.60E-05	7.0E-06	2.0E-06	3.20E-04	2.0E-05	1.0E-05
10-Jun-92	1.90E-05	1.0E-05	2.0E-07	2.20E-04	2.0E-05	1.0E-06
08-Dec-92	1.60E-05	1.8E-05	3.0E-06	7.60E-04	6.0E-05	2.0E-05
13-Apr-93	2.60E-05	2.0E-05	3.0E-06	3.40E-04	3.0E-05	2.0E-05
27-Jun-93	3.00E-05	1.4E-05	3.0E-06	0.00E+00	3.0E-05	2.0E-05
27-Oct-93	3.10E-05	1.6E-05	3.0E-06	4.20E-04	6.0E-05	2.0E-05
01-May-94	2.00E-05	5.0E-06	3.0E-05	3.90E-04	8.0E-05	2.0E-04
19-Jul-94	1.75E-05	1.7E-06	7.6E-08	1.30E-04	7.8E-06	3.8E-07
16-Nov-94	1.00E-04	9.0E-06	1.5E-07	2.60E-04	1.2E-05	7.4E-07
05-Apr-95	1.70E-05	1.5E-06	1.6E-07	1.60E-04	1.5E-05	8.1E-07
07-Jul-95	6.40E-06	6.0E-07	1.4E-07	4.40E-05	4.2E-06	7.0E-07
09-Nov-95	2.30E-05	2.2E-06	1.7E-07	6.60E-05	9.6E-06	8.3E-07
24-Apr-96	4.20E-05	2.2E-06	1.7E-07	1.00E-04	6.7E-06	1.8E-07
31-Jul-96	*	*	*	*	*	*
14-Nov-96	2.10E-05	2.0E-06	1.6E-07	1.90E-04	7.3E-06	8.2E-07
21-Apr-97	5.50E-06	4.2E-07	1.4E-07	3.30E-05	3.9E-06	7.0E-07
05-Sep-97	5.30E-06	3.2E-07	1.3E-07	1.90E-05	6.9E-07	6.3E-07
20-Nov-97	2.50E-05	9.5E-07	5.9E-07	1.30E-04	4.7E-06	1.2E-07
26-Mar-98	<7.90E-05	7.9E-05	7.9E-05	<3.90E-04	3.9E-04	3.9E-04
16-Jun-98	3.60E-07	1.4E-07	3.3E-08	<1.7E-07	1.7E-07	1.7E-07
09-Nov-98	4.30E-05	1.0E-06	7.6E-08	2.50E-04	1.0E-05	3.8E-07
15-Apr-99	2.40E-05	1.0E-06	1.2E-07	1.70E-04	8.0E-06	6.2E-07
07-Jul-99	2.23E-05	8.6E-07	1.2E-07	2.30E-04	7.0E-06	5.9E-07
07-Dec-99	1.50E-04	3.0E-06	2.0E-07	1.70E-05	1.0E-06	1.0E-06
21-Apr-00	1.00E-04	2.0E-06	1.2E-07	1.10E-04	7.0E-06	6.1E-07
22-Jun-00	1.30E-06	1.0E-07	2.4E-07	2.00E-04	1.0E-05	1.2E-06
21-Dec-00	1.20E-06	9.0E-07	2.4E-07	1.20E-04	3.0E-05	1.2E-06
30-Apr-01	1.80E-06	1.0E-07	1.7E-07	<8.3E-07	N/A	8.3E-07
14-Jun-01	2.60E-06	2.0E-07	9.9E-08	1.10E-06	2.0E-08	5.0E-07
17-Dec-01	2.63E-06	4.6E-05	1.2E-07	9.40E-05	3.7E-06	6.0E-07
07-May-02	3.50E-05	2.2E-06	7.6E-07	1.36E-04	5.6E-06	1.0E-05
# OBSERVED	6.1E+01	6.1E+01	6.1E+01	6.1E+01	6.1E+01	6.1E+01
MAXIMUM	9.50E-04	1.46E-04	7.90E-05	1.65E-02	7.20E-04	3.90E-04
MEAN	1.26E-04	1.68E-05	3.04E-06	1.19E-03	7.65E-05	2.57E-05
STD. DEV.	1.81E-04	2.53E-05	1.07E-05	2.35E-03	1.39E-04	6.75E-05

*2nd quarter of 1996 San Juan County, Utah, was declared a disaster area due to drought, no samples were collected during this period.


White Mesa Mill North East Forage Radionuclide Concentration Over Time
8.00E-02
7.00E-02
6.00E-02
5.00E-02
4.00E-02
3.00E-02
2.00E-02
1.00E-02
1.00E-09
uCi/kg
Jan-81
Jan-83
Jan-85
Jan-87
Jan-89
Jan-91
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Quarter and Year
Pb-210
Ra-226


White Mesa Mill North West Storage Radionuclide Concentration
Over Time
uCi/kg
9.00E-03
8.00E-03
7.00E-03
6.00E-03
5.00E-03
4.00E-03
3.00E-03
2.00E-03
1.00E-03
1.00E-07
Jan-81
Oct-83
Jul-88
Apr-89
Dec-91
Sep-94
Jun-97
Mar-00
Dec-02
Ra-226
Pb-210


White Mesa Mill South West Forage Radionuclide Concentrations
Over Time
uCi/kg
8.00E-02
7.00E-02
6.00E-02
5.00E-02
4.00E-02
3.00E-02
2.00E-02
1.00E-02
0.00E+00
Jan-81
Oct-83
Jul-86
Apr-89
Dec-91
Sep-94
Jun-97
Mar-00
Dec-02
Ra-226
Pb-210

ENERGY LABORATORIES
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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: Early Spring Vegetation

Lab Order: C02050308
Report Date: 06/03/02

Lab ID: C02050308-001
Client Sample ID: Southwest Area (3.215)
Matrix: VEGETATION

Collection Date: 05/07/02 07:45
DateReceived: 05/09/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Lead 210	1.36E-01	pCi/g		1.0E-02		NERHL-65-4	05/21/02 16:01 / ph
Lead 210 precision	5.61E-03	pCi/g				NERHL-65-4	05/21/02 16:01 / ph
Radium 226	3.5E-02	pCi/g		7.6E-04		E903.0	05/22/02 00:00 / rs
Radium 226 precision	2.2E-03	pCi/g				E903.0	05/22/02 00:00 / rs

Lab ID: C02050308-002
Client Sample ID: Northwest Area (3.152)
Matrix: VEGETATION

Collection Date: 05/07/02 09:10
DateReceived: 05/09/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Lead 210	1.28E-01	pCi/g		1.0E-02		NERHL-65-4	05/21/02 16:01 / ph
Lead 210 precision	4.22E-03	pCi/g				NERHL-65-4	05/21/02 16:01 / ph
Radium 226	4.9E-02	pCi/g		7.6E-04		E903.0	05/22/02 00:00 / rs
Radium 226 precision	2.4E-03	pCi/g				E903.0	05/22/02 00:00 / rs

Lab ID: C02050308-003
Client Sample ID: Northeast Area (4.064 kg)
Matrix: VEGETATION

Collection Date: 05/07/02 08:25
DateReceived: 05/09/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Lead 210	4.50E-02	pCi/g		1.0E-02		NERHL-65-4	05/21/02 16:01 / ph
Lead 210 precision	2.61E-03	pCi/g				NERHL-65-4	05/21/02 16:01 / ph
Radium 226	3.3E-02	pCi/g		7.6E-04		E903.0	05/22/02 00:00 / rs
Radium 226 precision	1.8E-03	pCi/g				E903.0	05/22/02 00:00 / rs

Entered into P:\Radiation\Environmental\Environ\02 Data\WMveg.xls 6/18/02 WB

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACKING NO. PAGE NO.
50308R00001

ENVIRONMENTAL AIR MONITORING RESULTS FOR THE PERIOD OF JANUARY 1, 2002 THROUGH JUNE 30, 2002

TABLE IV

INTERNATIONAL URANIUM CORPORATION
WHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
Location: 89-AV-1

	1st	2nd	3rd	4th
Current Quarter				
% time operated	86.7%	99.7%		
Air Volume, SCF x 106	4.05	4.80		

PERIOD ENDING	URANIUM NAT GROSS CONC. µCi/cc	URANIUM NAT LLD (1E-16)	URANIUM NAT % MPC*	THORIUM- 230 GROSS CONC. µCi/cc	THORIUM- 230 COUNTING ERROR	THORIUM- 230 LLD (1E-16)	THORIUM- 230 % MPC*	RADIUM- 228 GROSS CONC. µCi/cc	RADIUM- 228 COUNTING ERROR	RADIUM- 228 LLD (1E-16)	RADIUM- 228 % MPC*	LEAD -210 GROSS CONC. µCi/cc	LEAD -210 COUNTING ERROR	LEAD -210 LLD (1E-16)	LEAD -210 % MPC*
26-Sep-81	2.35E-15	5E-17	4.70E-02	7.82E-16	2.75E-16	1E-16	2.61E-01	1.06E-15	1.24E-16	1E-16	5.30E-02	2.57E-14	1.52E-16	2E-15	3.21E-01
14-Dec-81	1.56E-15	6E-17	3.12E-02	1.46E-15	2.10E-16	1E-16	4.97E-01	1.93E-15	3.34E-16	1E-16	9.85E-02	2.64E-14	2.28E-15	2E-15	3.30E-01
29-Mar-82	2.16E-15	9E-16	4.32E-02	2.93E-15	1.16E-15	3E-16	9.77E-01	1.19E-15	5.78E-16	4E-15	5.60E-02	2.09E-14	2.76E-15	2E-14	2.61E-01
30-Jun-82	4.69E-15	1E-16	9.38E-02	3.46E-15	3.28E-16	1E-16	1.15E+00	2.38E-15	4.77E-16	5E-16	1.19E-01	2.14E-14	3.70E-15	5E-15	2.68E-01
27-Sep-82	4.45E-15	1E-16	8.90E-02	3.29E-15	4.76E-16	1E-16	1.10E+00	3.23E-15	4.02E-16	1E-16	1.62E-01	1.99E-14	3.80E-15	2E-15	2.49E-01
3-Jan-83	4.39E-15	5E-17	8.78E-02	5.91E-16	1.34E-16	7E-17	1.97E-01	9.14E-16	1.03E-16	6E-17	4.57E-02	4.87E-14	2.70E-15	2E-15	8.08E-01
4-Apr-83	7.51E-16	5E-17	1.50E-02	2.13E-16	3.05E-17	2E-17	7.10E-02	3.20E-16	7.63E-17	5E-17	1.60E-02	1.68E-14	1.00E-15	9E-16	2.35E-01
30-Jun-83	2.68E-16	5E-17	5.36E-03	6.92E-16	1.32E-16	9E-17	2.31E-01	7.92E-16	1.32E-16	1E-16	3.96E-02	2.00E-14	2.00E-15	1E-15	2.50E-01
3-Oct-83	Sample Lost														
3-Jan-84	2.87E-16	1E-16	5.74E-02	1.14E-16	4.98E-17	8E-17	3.80E-02	1.79E-16	7.69E-17	1E-16	8.95E-03	1.06E-14	1.90E-15	2E-15	1.33E-01
2-Apr-84	1.59E-15	5E-17	3.18E-02	3.40E-16	1.01E-16	3E-17	1.13E-01	3.71E-16	7.80E-17	7E-17	1.86E-02	3.34E-14	1.69E-15	1E-15	4.18E-01
2-Jul-84	3.10E-15	8E-17	6.20E-02	1.00E-15	3.59E-16	3E-16	3.33E-01	2.08E-15	2.28E-16	1E-16	1.05E-01	1.88E-14	1.10E-15	9E-16	2.35E-01
1-Oct-84	6.42E-16	5E-17	1.28E-02	1.39E-16	1.17E-16	7E-17	4.63E-02	1.94E-16	1.11E-16	9E-17	9.70E-03	1.65E-14	1.39E-15	1E-15	2.31E-01
2-Jan-85	5.06E-16	5E-16	1.01E-02	4.56E-16	2.26E-16	2E-16	1.52E-01	3.49E-16	1.32E-16	1E-16	1.75E-02	3.03E-14	1.17E-15	7E-16	3.79E-01
1-Apr-85	0.00E+00	5E-17	0.00E+00	1.23E-15	2.52E-16	4E-17	4.10E-01	4.88E-16	1.09E-16	8E-17	2.44E-02	6.08E-15	8.99E-16	8E-16	1.01E-01
1-Jul-85	7.17E-16	6E-17	1.43E-02	0.00E+00	4.70E-14	1E-16	0.00E+00	1.05E-15	1.50E-16	7E-17	5.25E-02	2.13E-14	1.32E-15	8E-16	2.88E-01
30-Sep-85	6.13E-16	5E-16	1.23E-02	1.18E-16	1.18E-16	1E-16	3.93E-02	3.71E-16	8.56E-17	7E-17	1.85E-02	3.64E-15	6.61E-16	9E-16	4.55E-02
2-Jan-86	3.42E-15	9E-16	6.84E-02	4.74E-16	1.32E-16	2E-16	1.58E-01	1.22E-16	2.15E-15	2E-16	6.11E-03	5.00E-16	3.22E-16	2E-15	6.25E-03
1-Apr-86	3.98E-15	2E-16	7.96E-02	9.74E-16	2.05E-16	6E-16	3.25E-01	1.50E-15	2.07E-16	4E-16	7.51E-02	1.41E-14	4.06E-15	1E-16	1.78E-01
30-Jun-86	5.51E-17	1E-17	1.10E-03	3.52E-16	3.13E-17	2E-16	1.17E-01	1.37E-15	3.01E-17	4E-16	6.87E-02	1.23E-14	6.01E-16	5E-16	1.54E-01
27-Oct-86	1.99E-15	2E-16	3.98E-02	3.08E-16	8.00E-17	3E-16	1.02E-01	1.25E-15	1.00E-16	2E-16	6.25E-02	1.08E-14	2.00E-16	4E-16	1.35E-01
15-Dec-86	1.67E-15	3E-16	3.34E-02	1.16E-16	4.00E-17	2E-17	3.87E-02	5.98E-16	1.00E-16	4E-17	2.99E-02	1.37E-14	2.00E-16	3E-17	1.71E-01
16-Mar-87	2.33E-15	3E-16	4.66E-02	4.30E-16	9.00E-17	6E-16	1.43E-01	1.82E-16	5.00E-17	5E-16	9.60E-03	5.59E-14	1.00E-15	6E-16	6.99E-01
11-May-87	2.36E-15	5E-16	4.72E-02	7.06E-16	1.60E-16	5E-16	2.58E-01	6.76E-16	1.00E-16	5E-16	4.38E-02	1.45E-14	3.00E-16	3E-17	1.81E-01
9-Sep-87	2.27E-15	1E-16	4.54E-02	2.44E-15	2.00E-16	6E-16	8.13E-01	8.51E-16	1.40E-16	4E-16	4.26E-02	3.14E-14	5.00E-16	8E-16	3.93E-01
2-Nov-87	2.75E-15	1E-17	5.50E-02	2.46E-15	3.00E-16	1E-17	8.20E-01	1.34E-15	2.00E-16	1E-17	6.70E-02	2.79E-14	1.00E-15	5E-17	3.48E-01
16-Feb-88	1.07E-15	5E-16	2.14E-02	1.47E-16	6.00E-17	2E-17	4.90E-02	4.44E-16	5.00E-17	3E-17	2.22E-02	4.01E-14	2.00E-16	6E-17	5.01E-01
18-May-88	1.98E-15	3E-16	3.96E-02	1.25E-15	1.00E-16	2E-17	4.17E-01	6.40E-16	7.00E-17	1E-17	3.20E-02	1.07E-14	1.00E-16	3E-17	1.34E-01
15-Aug-88	2.06E-15	3E-16	4.12E-02	3.41E-15	2.00E-16	1E-17	1.14E+00	5.08E-16	6.00E-17	2E-17	2.54E-02	1.62E-14	3.00E-16	2E-17	2.03E-01
14-Nov-88	3.84E-15	3E-16	7.68E-02	2.12E-15	1.00E-16	1E-17	7.07E-01	1.01E-15	5.00E-17	1E-17	5.05E-02	2.47E-14	1.00E-16	3E-17	3.09E-01
13-Feb-89	1.99E-16	4E-17	3.98E-02	6.73E-16	7.68E-17	1E-16	1.81E-01	5.98E-16	3.49E-17	2E-16	3.00E-02	3.23E-14	2.36E-16	5E-16	4.04E-01
16-May-89	1.70E-15	7E-16	3.40E-02	6.32E-16	7.00E-17	7E-16	2.11E-01	5.86E-16	5.00E-17	7E-16	2.93E-02	6.16E-15	1.00E-16	3E-17	7.70E-02
14-Aug-89	2.31E-15	2E-16	4.62E-02	2.31E-16	3.00E-17	8E-16	7.70E-02	1.77E-16	5.00E-17	8E-16	8.85E-03	7.63E-15	1.00E-16	4E-17	9.38E-02
13-Nov-89	4.72E-15	2E-17	9.44E-02	1.71E-15	2.00E-16	3E-16	5.70E-01	1.52E-15	2.00E-16	8E-16	7.61E-02	1.89E-14	3.00E-16	2E-17	2.37E-01
12-Feb-90	3.44E-16	3E-16	6.88E-03	8.39E-16	1.00E-16	6E-16	2.80E-01	8.31E-16	8.00E-17	2E-17	4.16E-02	2.57E-14	3.00E-16	5E-17	3.21E-01
14-May-90	3.03E-15	1E-16	6.06E-02	1.47E-15	2.00E-16	1E-16	4.90E-01	1.04E-15	1.00E-15	1E-16	5.20E-02	1.79E-14	3.00E-16	2E-16	2.24E-01
14-Aug-90	1.64E-15	1E-16	3.28E-02	1.49E-15	7.00E-17	1E-16	4.97E-01	3.34E-16	5.00E-17	1E-16	1.67E-02	8.27E-15	2.00E-16	2E-16	1.03E-01
Nov-90	1.48E-15	1E-16	2.96E-02	7.50E-16	1.10E-16	1E-16	2.50E-01	5.80E-16	7.00E-17	1E-16	2.90E-02	2.16E-14	4.00E-16	2E-16	2.70E-01
Feb-91	1.80E-16	1E-16	3.60E-03	3.48E-17	2.10E-17	1E-16	1.16E-02	7.91E-17	2.30E-17	1E-16	3.96E-03	3.79E-14	1.00E-15	2E-16	4.74E-01
May-91	3.42E-16	1E-16	6.84E-03	1.34E-15	1.00E-16	1E-16	4.47E-01	7.39E-16	9.00E-17	1E-16	3.70E-02	1.49E-14	1.00E-15	2E-15	1.83E-01
12-Aug-91	2.77E-16	1E-16	5.54E-03	4.17E-17	8.00E-18	1E-16	1.39E-02	1.45E-16	7.00E-17	1E-16	7.25E-03	1.80E-14	3.00E-16	2E-15	2.25E-01
11-Nov-91	6.65E-17	1E-16	1.33E-03	9.13E-17	3.00E-17	2E-17	3.04E-02	2.77E-17	2.00E-17	2E-17	1.39E-03	1.08E-14	2.00E-16	1E-10	1.33E-01
10-Feb-92	1.94E-16	1E-16	3.88E-03	4.28E-17	3.00E-17	2E-17	1.43E-02	4.08E-17	2.20E-17	2E-17	2.04E-03	3.51E-14	6.00E-17	1E-16	4.39E-01
11-May-92	2.54E-16	1E-16	5.08E-03	6.48E-16	5.00E-17	2E-19	2.16E-01	6.86E-17	4.00E-17	2E-16	3.43E-03	1.38E-14	2.00E-16	1E-16	1.73E-01
10-Aug-92	1.73E-16	2E-16	3.46E-03	1.55E-16	4.00E-17	4E-16	5.17E-02	1.20E-16	6.00E-17	2E-16	6.00E-03	1.53E-14	2.00E-16	2E-17	1.91E-01
08-Nov-92	1.56E-16	3E-16	3.12E-03	3.19E-17	2.10E-17	4E-16	1.06E-02	4.90E-16	2.20E-17	3E-16	2.45E-04	1.86E-14	2.00E-16	2E-17	2.33E-01
09-Feb-93	2.10E-16	1E-16	4.20E-03	0.00E+00	4.60E-17	4E-16	0.00E+00	3.85E-17	7.30E-17	3E-16	1.95E-03	2.52E-14	4.00E-16	2E-17	3.15E-01
10-May-93	0.00E+00	3E-16	0.00E+00	4.11E-17	3.00E-17	4E-16	1.37E-02	6.43E-17	4.00E-17	3E-16	3.22E-03	1.20E-14	2.00E-16	2E-17	1.68E-01
10-Aug-93	2.30E-16	2E-16	4.60E-03	8.00E-17	5.00E-17	4E-16	2.00E-02	6.43E-17	4.10E-17	3E-16	3.22E-03	1.80E-14	2.00E-16	2E-17	2.00E-01
08-Nov-93	0.00E+00	2E-16	0.00E+00	0.00E+00	3.00E-17	4E-16	0.00E+00	0.00E+00	1.00E-16	3E-16	0.00E+00	1.57E-14	3.00E-16	2E-17	1.98E-01
07-Feb-94	1.82E-16	3E-21	3.03E-01	5.00E-16	6.00E-17	4E-16	1.67E-02	4.30E-17	1.60E-16	3E-16	4.78E-03	2.59E-14	5.00E-16	2E-17	4.32E+00
08-May-94	3.60E-16	2E-17	6.00E-01	2.70E-16	1.10E-16	4E-17	9.00E-01	2.87E-16	1.00E-16	3E-17	3.19E-02	1.60E-14	3.00E-16	2E-16	2.67E+00
03-Aug-94	4.04E-16	1E-16	6.73E-01	2.70E-16	6.71E-17	1E-16	9.00E-01	2.94E-16	2.60E-17	1E-16	3.27E-02	2.00E-15	1.90E-16	2E-16	3.33E-01
07-Nov-94	9.18E-17	1E-16	1.53E-01	3.60E-16	4.42E-17	1E-16	1.20E+00	2.01E-16	2.45E-17	1E-16	3.23E-02	2.00E-15	7.81E-17	2E-15	3.33E-01
07-Feb-95	1.77E-16	1E-16	2.95E-01	9.70E-17	1.00E-16	1E-16	3.23E-01	8.70E-17	1.00E-16	1E-16	1.08E-02	8.60E-15	3.76E-16	1E-16	1.43E+00
05-May-95	9.40E-17	1E-22	1.57E-01	5.36E-16	4.39E-17	1E-16	1.79E+00	1.60E-15	7.17E-17	1E-16	1.78E-01	3.84E-15	2.03E-16	1E-16	6.40E-01
08-Aug-95	2.70E-16	1E-16	4.50E-01	1.60E-16	1.50E-17	1E-16	5.33E-01	2.76E-16	4.66E-17	1E-16	3.07E-02	3.76E-16	2.88E-16	2E-15	6.27E-01
11-Nov-95	4.80E-15	1E-16	8.00E+00	6.41E-16	3.75E-17	2E-16	2.14E+00	6.93E-16	4.24E-16	2E-16	9.82E-02	3.20E-15	2.40E-16	1E-15	8.67E-01
05-Feb-96	5.34E-15	1E-16	8.00E+00	2.30E-15	1.50E-16	1E-16	7.67E+00	1.30E-16	7.80E-17	1E-16	1.44E-01	4.20E-15	3.04E-16	1E-16	7.00E-01
06-May-96	5.11E-16	1E-16	8.52E-01	3.06E-16	2.50E-17	1E-16	1.02E+00	1.40E-16	9.67E-18	1E-16	1.56E-02	7.03E-15	5.54E-16	1E-16	1.17E+00
03-Aug-96	5.69E-16	1E-16	9.98E-01	1.55E-15	7.65E-17	1E-16	5.17E+00	2.03E-16	2.83E-17	1E-16	2.26E-02	5.94E-15	3.05E-16	1E-16	9.90E-01
06-Nov-96	3.36E-16	1E-16	5.63E-01	5.45E-16	4.65E-17	1E-16	1.82E+00	1.00E-16	NA	1E-16	1.11E-02	1.22E-14	4.53E-16	1E-16	2.03E+00
06-Feb-97	1.00E-16	1E-16	1.67E-01	1.25E-16	2.47E-17	1E-16	4.17E-01	1.28E-16	1.54E-17	1E-16	1.42E-02	5.68E-15	2.85E-16	1E-16	9.47E-01
05-May-97	1.09E-16	1E-16	1.82E-01	1.00E-16	NA	1E-16	3.33E-01	1.00E-16	NA	1E-16	1.11E-02	4.39E-15	2.86E-16	1E-16	7.32E-01
11-Aug-97	2.88E-16	1E-16	4.80E-01	3.83E-16	4.14E-17	1E-16	1.28E+00	1.82E-16	1.49E-17	1E-16	2.02E-02	5.29E-15	2.84E-16	1E-16	8.82E-01
05-Jan-98	3.24E-16	1E-16	5.40E-01	3.47E-16	N/A	1E-16	1.16E+00	1.19E-16	N/A	1E-16	1.33E-02	4.73E-15	N/A	1E-16	7.88E-01
28-Apr-98	4.75E-16	1E-15	7.92E-01	6.73E-16	3.18E-17	1E-16	2.24E+00	5.06E-16	4.08E-17	1E-16	5.32E-02	5.94E-15	2.92E-16	1E-16	9.90E-01
31-Jul-98	8.84E-16	1E-16	9.82E-01	1.93E-15	N/A	1E-16	6.43E+00	1.43E-15	6.85E-17	1E-16	1.59E-01	5.22E-15	3.33E-16	1E-16	8.70E-01
28-Sep-98	2.01E-16	1E-16	3.12E-01	2.89E-16	2.57E-17	1E-16	0.64E-01	1.60E-16	9.07E-18	1E-16	2.00E-02	4.64E-15	2.24E-16	1E-16	7.73E-01
28-Dec-98	6.08E-16	1E-16	8.97E-01	4.03E-16	2.42E-17	1E-16	1.64E+00	5.01E-16	3.63E-17	1E-16	5.57E-02	1.00E-14	2.66E-16	1E-16	1.76E+00
29-Mar-99	2.06E-16	1E-16	2.29E-01	2.06E-16	1.68E-17	1E-16	6.88E-01	1.42E-16	7.82E-18	1E-16	1.58E-02	6.69E-15	2.99E-16	1E-16	1.12E+00
03-Jul-99	5.31E-16	1E-16	5.90E-01	2.47E-16	1.88E-17	1E-16	8.24E-01	2.23E-16	2.29E-17	1E-16	2.48E-02	8.44E-15	3.08E-16	1E-16	1.07E+00
27-Sep-99	8.98E-16	1E-16	9.97E-01	3.90E-16	2.74E-17	1E-16	1.30E+00	2.09E-16	2.90E-17	1E-16	3.28E-02	7.29E-15	3.19E-16	1E-16	1.22E+00
28-Dec-99	1.48E-15	1E-16	1.64E+00	6.00E-16	5.10E-17	1E-16	2.00E+00	6.57E-16	4.57E-17	1E-16	6.18E-02	6.15E-15	3.09E-16	1E-16	1.03E+00
27-Mar-00	<1.00E-16	1E-16	<1.11E-01	1.06E-16	1.12E-17	1E-16	3.55E-01	<1.00E-16	NA	1E-16	1.11E-02	6.23E-15	2.90E-16	1E-16	1.04E+00
26-Jun-00	3.47E-16	1E-16	5.78E-01	3.46E-16	3.53E-17	1E-16	1.15E+00	3.62E-16	3.99E-17	1E-16	4.02E-02	4.50E-15	3.53E-17	1E-16	7.50E-01
28-Sep-00	2.51E-16	1E-16	2.78E-01	1.78E-16	8.40E-18	1E-16	5.93E-01	3.25E-16	8.40E-18	1E-16	3.81E-02	8.55E-15	2.00E-16	1E-16	1.43E+00
26-Dec-00	<1.00E-16	1E-16	0.00E+00	1.42E-16	9.89E-18	1E-16	4.73E-01	1.31E-16	4.20E-18	1E-16	1.46E-02	7.77E-15	2.28E-16	1E-16	1.30E+00
26-Mar-01	3.10E-16	1E-16	3.45E-01	<1.00E-15		1E-16	<3.33E-00	<1.00E-15		1E-10	<1.11E-0	7.19E-15	3.77E-16	1E-16	1.20E+00
28-Jul-01	1.62E-16	1E-16	1.69E-01	1.44E-16	7.16E-18	1E-16	4.79E-01	1.77E-16	N/A	1E-10	1.97E-02	7.21E-15	1.27E-16	1E-16	1.20E+00
24-Sep-01	1.03E-16	1E-16	1.15E-01	<1.00E-16	NA	1E-16	<3.33E-01	<1.00E-16	NA	1E-16	<1.11E-02	8.00E-16	1.68E-16	1E-16	1.35E+00
31-Dec-01	<1.00E-16	1E-16	<1.11E-01	<1.00E-16	NA	1E-16	<3.33E-01	<1.00E-16	NA	1E-16	<1.11E-02	1.38E-15	1.50E-16	1E-15	2.32E-01
01-Apr-02	2.05E-16	1E-16	2.28E-01	2.44E-16	3.03E-17	1E-16	8.13E-01	2.28E-16	2.45E-17	1E-16	2.55E-02	8.15E-15	1.04E-16	1E-16	1.38E+00
01-Jul-02	3.55E-16	1E-16	3.94E-01	4.85E-16	3.75E-17	1E-16	1.62E+00	1.06E-16	<2.98E-18	1E-18	1.17E-02	7.55E-15	1.79E-16	1E-16	1.26E+00

*1/1/04 Derived air concentrations were implemented as per 10 CFR 20

TABLE IV (Cont.)

INTERNATIONAL URANIUM CORPORATION
WHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
LOCATION: [redacted]

Current Quarter	1st	2nd	3rd	4th
% time operated	100.2%	98.6%		
Air Volume, SCF x 10^6	4.83	4.68		

PERIOD ENDING	URANIUM NAT. GROSS CONC. µCi/cc	URANIUM NAT. LLD (1E-18)	URANIUM NAT. % MPC	THORIUM- 230 GROSS CONC. µCi/cc	THORIUM- 230 COUNTING ERROR	THORIUM- 230 LLD (1E-18)	THORIUM- 230 % MPC	RADIUM- 226 GROSS CONC. µCi/cc	RADIUM- 226 COUNTING ERROR	RADIUM- 226 LLD (1E-18)	RADIUM- 226 % MPC	LEAD -210 GROSS CONC. µCi/cc	LEAD -210 COUNTING ERROR	LEAD -210 LLD (1E-16)	LEAD -210 % MPC
28-Sep-81	1.39E-15	1E-18	2.78E-02	3.89E-18	2.00E-18	1E-18	1.23E-01	5.92E-18	1.33E-18	1E-18	2.98E-02	1.67E-14	1.21E-15	2E-15	2.09E-01
14-Dec-81	4.62E-16	1E-18	9.24E-03	8.03E-18	3.02E-18	1E-18	2.68E-01	3.62E-18	1.72E-18	1E-18	1.81E-02	1.33E-14	2.28E-18	2E-15	1.66E-01
29-Mar-82	7.07E-18	8E-18	1.41E-02	1.10E-15	8.49E-18	3E-15	3.67E-01	7.27E-18	3.96E-18	4E-15	3.64E-02	1.52E-14	3.63E-15	2E-14	1.90E-01
30-Jun-82	8.84E-18	7E-17	1.77E-02	7.73E-18	2.39E-15	8E-17	2.58E-01	4.78E-18	1.09E-18	3E-18	2.39E-02	1.88E-14	1.79E-15	2E-15	2.48E-01
27-Sep-82	1.23E-15	1E-18	2.46E-02	3.60E-18	1.39E-18	1E-16	1.20E-01	8.73E-18	2.71E-18	1E-16	4.37E-02	2.35E-14	5.43E-15	2E-15	2.94E-01
3-Jan-83	2.64E-15	5E-17	5.28E-02	2.55E-18	1.03E-18	5E-17	8.50E-02	1.98E-18	5.68E-17	5E-17	9.90E-03	2.85E-14	2.50E-15	2E-15	3.56E-01
4-Apr-83	2.14E-18	8E-17	4.28E-03	1.02E-18	3.98E-17	5E-17	3.40E-02	1.67E-18	7.63E-17	5E-17	7.05E-03	2.48E-14	1.19E-15	8E-18	3.10E-01
30-Jun-83	2.85E-18	5E-17	5.70E-03	2.06E-18	3.05E-17	8E-17	6.87E-02	2.24E-18	8.68E-17	1E-18	1.12E-02	1.78E-14	9.94E-18	8E-18	2.24E-01
3-Oct-83	2.70E-18	5E-17	5.40E-03	3.36E-18	6.46E-17	4E-17	1.12E-01	4.37E-18	8.81E-17	5E-17	2.19E-02	1.78E-14	1.08E-15	4E-18	2.23E-01
3-Jan-84	2.78E-15	1E-16	5.56E-02	1.20E-18	1.11E-18	1E-18	4.00E-02	6.84E-17	4.52E-18	6E-17	3.32E-03	9.14E-15	1.46E-15	2E-16	1.14E-01
2-Apr-84	4.28E-18	5E-17	8.56E-03	1.75E-18	5.18E-17	5E-17	5.83E-02	4.67E-17	5.03E-17	6E-17	2.29E-03	3.55E-14	1.78E-15	2E-15	4.44E-01
2-Jul-84	2.78E-15	5E-17	5.56E-02	8.12E-18	3.35E-18	0E+00	2.71E-01	1.98E-18	1.00E-18	1E-18	9.90E-03	1.88E-14	1.20E-01	1E-15	2.10E-01
1-Oct-84	2.69E-18	5E-17	5.38E-03	2.68E-17	8.02E-17	1E-16	8.87E-03	0.00E+00	1.17E-18	1E-16	0.00E+00	1.77E-14	1.22E-15	5E-18	2.21E-01
2-Jan-85	2.15E-18	5E-18	4.30E-03	7.55E-18	2.03E-18	8E-17	2.52E-01	2.87E-16	1.14E-18	1E-18	1.44E-02	3.10E-14	1.55E+00	1E-15	3.89E-01
1-Apr-85	0.00E+00	5E-17	0.00E+00	1.07E-16	1.75E-18	3E-17	5.57E-02	6.75E-17	7.09E-17	8E-17	3.38E-03	7.58E-15	8.83E-18	8E-18	9.45E-02
1-Jul-85	3.70E-17	5E-17	7.40E-04	9.00E-18	4.76E-14	3E-16	3.00E-01	4.90E-17	1.03E-16	9E-17	2.45E-03	1.31E-14	1.32E-15	1E-15	1.64E-01
30-Sep-85	8.32E-17	5E-18	1.66E-03	2.18E-18	4.63E-17	3E-18	7.26E-02	3.71E-18	4.64E-17	7E-17	1.86E-02	3.84E-15	2.85E-18	2E-15	4.55E-02
2-Jan-86	1.58E-15	1E-18	3.12E-02	2.16E-18	1.12E-15	7E-18	7.20E-02	2.15E-17	2.31E-18	2E-18	1.08E-03	3.04E-18	1.71E-15	2E-15	3.80E-03
1-Apr-86	1.31E-15	2E-18	2.61E-02	1.50E-18	7.10E-17	5E-18	5.00E-02	3.71E-18	8.45E-17	4E-18	1.85E-02	2.00E-15	2.10E-18	9E-17	3.03E-02
30-Jun-86	2.23E-18	1E-17	4.47E-03	1.32E-15	4.32E-17	2E-17	4.39E-02	7.09E-17	8.61E-18	4E-18	3.55E-03	2.53E-14	2.60E-15	3E-15	3.16E-01
27-Oct-86	8.41E-18	1E-18	1.68E-02	1.74E-18	4.00E-17	2E-18	5.80E-02	3.67E-18	1.00E-18	1E-18	1.84E-02	1.04E-14	2.00E-18	3E-18	1.30E-01
15-Dec-86	3.56E-18	3E-18	7.12E-03	0.00E+00	2.00E-17	2E-17	0.00E+00	1.05E-16	5.00E-17	3E-17	5.25E-03	7.81E-15	1.00E-18	3E-17	9.76E-02
18-Mar-87	5.31E-18	3E-18	1.06E-02	1.30E-18	4.00E-17	5E-18	4.33E-02	7.74E-17	3.00E-17	4E-18	3.87E-03	3.80E-14	1.00E-15	6E-18	4.75E-01
11-May-87	4.06E-18	4E-18	8.12E-03	6.63E-17	7.00E-17	4E-18	2.21E-02	1.34E-18	4.00E-17	4E-18	6.70E-03	1.10E-14	3.00E-18	2E-17	1.38E-01
8-Sep-87	2.74E-18	8E-18	5.48E-03	2.38E-18	5.00E-17	8E-17	7.93E-02	1.38E-18	6.00E-17	2E-17	6.90E-03	1.04E-14	3.00E-18	1E-18	1.30E-01
2-Nov-87	3.73E-18	1E-17	7.46E-03	3.11E-18	8.00E-17	6E-18	1.04E-01	1.83E-18	7.00E-17	6E-17	9.15E-03	1.17E-14	3.00E-18	3E-17	1.46E-01
16-Feb-88	2.78E-15	5E-18	5.56E-02	2.31E-17	5.00E-17	2E-17	7.70E-03	1.20E-18	3.00E-17	3E-17	6.00E-03	3.55E-14	2.00E-18	5E-17	4.44E-01
18-May-88	4.63E-16	3E-18	9.26E-03	1.49E-18	5.00E-17	2E-17	4.97E-02	2.30E-18	6.00E-17	2E-17	1.15E-02	1.18E-14	2.00E-18	4E-17	1.48E-01
15-Aug-88	8.08E-16	3E-18	1.61E-02	8.69E-18	1.50E-16	1E-17	2.90E-01	1.80E-18	4.00E-17	2E-17	9.00E-03	1.42E-14	2.00E-18	2E-17	1.78E-01
14-Nov-88	4.34E-18	3E-18	8.68E-03	6.78E-18	6.00E-17	1E-17	2.26E-01	1.57E-18	3.00E-17	1E-17	7.85E-03	2.25E-14	2.00E-18	3E-17	2.81E-01
13-Feb-89	5.80E-16	4E-17	1.16E-02	2.85E-18	3.09E-17	4E-17	9.50E-02	1.53E-18	2.32E-17	2E-18	7.75E-03	2.80E-14	2.32E-18	5E-18	3.50E-01
15-May-89	5.06E-18	7E-18	1.01E-02	2.28E-18	7.00E-17	7E-18	7.60E-02	1.63E-18	3.00E-17	7E-18	8.15E-03	6.05E-15	1.00E-18	4E-17	7.56E-02
14-Aug-89	4.71E-18	2E-18	9.42E-03	9.60E-18	8.00E-17	8E-18	3.20E-01	1.26E-15	1.00E-18	6E-18	6.30E-02	8.65E-15	1.00E-18	4E-17	8.31E-02
13-Nov-89	1.14E-15	2E-17	2.27E-02	4.08E-18	8.00E-17	3E-18	1.36E-01	4.18E-16	8.00E-17	7E-18	2.09E-02	1.58E-14	3.00E-18	2E-17	1.99E-01
12-Feb-90	1.09E-15	4E-18	2.18E-02	3.25E-18	7.00E-17	7E-18	1.08E-01	3.74E-16	8.00E-17	3E-17	1.87E-02	1.88E-14	3.00E-18	5E-17	2.48E-01
14-May-90	9.32E-18	1E-18	1.86E-02	3.27E-18	1.00E-16	1E-16	1.76E-01	3.97E-18	1.00E-18	1E-18	1.59E-02	1.69E-14	3.00E-18	2E-18	2.11E-01
13-Aug-90	1.66E-18	1E-18	3.32E-03	5.49E-18	3.00E-17	1E-18	1.03E-01	4.75E-17	2.00E-17	1E-18	2.38E-03	1.27E-15	2.00E-18	2E-18	1.59E-02
12-Nov-90	6.05E-18	1E-18	1.21E-02	2.64E-18	8.00E-17	1E-18	6.60E-02	1.63E-18	4.00E-17	1E-18	8.65E-03	2.25E-14	3.00E-18	2E-18	2.81E-01
[illegible]-b-91	8.72E-17	1E-18	1.74E-03	7.00E-18	1.60E-17	1E-16	2.33E-03	3.33E-17	1.80E-17	1E-16	1.67E-03	3.49E-14	1.00E-15	2E-15	4.36E-01
[illegible]-91	1.16E-16	1E-18	2.32E-03	3.86E-18	8.00E-17	1E-18	1.29E-01	2.80E-16	7.00E-17	1E-16	1.40E-02	1.50E-14	1.00E-15	2E-15	1.88E-01
[illegible]-91	9.02E-17	1E-18	1.80E-03	8.82E-17	5.00E-17	1E-18	2.94E-02	7.65E-17	6.00E-17	1E-18	3.83E-03	1.56E-14	3.00E-18	2E-18	1.08E-01
[illegible]-91	4.61E-17	1E-18	9.62E-04	3.82E-17	2.00E-17	2E-17	1.27E-02	2.54E-17	2.00E-17	2E-17	1.27E-03	1.45E-14	4.00E-18	1E-18	1.01E-01
[illegible]-Feb-92	1.54E-16	1E-18	3.08E-03	6.82E-17	4.00E-17	2E-17	2.27E-02	1.40E-17	2.40E-17	2E-17	7.00E-04	3.41E-14	6.00E-17	1E-18	4.29E-01
11-May-92	2.38E-18	1E-18	4.76E-03	7.93E-17	4.00E-17	2E-18	2.54E-02	3.07E-17	3.00E-17	2E-18	1.54E-03	1.27E-14	2.00E-18	1E-18	1.59E-01
10-Aug-92	1.01E-18	2E-18	2.02E-03	7.07E-17	2.60E-17	4E-18	2.36E-02	2.80E-17	4.20E-17	2E-18	1.40E-03	1.41E-14	2.00E-18	2E-17	1.76E-01
09-Nov-92	5.20E-17	3E-21	1.04E-03	3.65E-17	2.40E-17	4E-18	1.22E-02	1.78E-17	2.80E-17	3E-18	8.90E-04	1.71E-14	2.00E-18	2E-17	2.14E-01
09-Feb-93	2.39E-16	1E-22	4.78E-03	2.07E-17	6.30E-17	4E-18	6.90E-03	6.31E-17	3.00E-17	3E-18	3.18E-03	3.41E-14	5.00E-18	2E-17	4.26E-01
10-May-93	0.00E+00	3E-18	0.00E+00	7.11E-17	6.00E-17	4E-18	2.37E-02	3.19E-17	3.20E-17	3E-18	1.60E-03	1.34E-14	2.00E-18	2E-17	1.68E-01
10-Aug-93	1.80E-18	2E-18	3.60E-03	0.00E+00	3.70E-17	4E-18	0.00E+00	0.00E+00	8.10E-17	3E-18	0.00E+00	1.80E-14	4.00E-18	2E-17	2.25E-01
08-Nov-93	0.00E+00	2E-18	0.00E+00	0.00E+00	5.90E-17	4E-18	0.00E+00	0.00E+00	1.90E-16	3E-18	0.00E+00	1.48E-14	2.00E-18	2E-17	1.88E-01
07-Feb-94	2.23E-16	2E-18	3.72E-01	0.00E+00	6.00E-17	4E-18	0.00E+00	1.84E-16	2.00E-18	3E-18	2.04E-02	2.19E-14	5.00E-15	2E-18	3.65E+00
08-May-94	2.16E-18	2E-17	3.60E-01	7.20E-17	8.00E-17	4E-18	2.40E-01	9.89E-17	7.00E-17	3E-17	1.10E-02	1.37E-14	3.00E-18	2E-18	2.28E+00
09-Aug-94	9.29E-17	1E-18	1.55E-01	2.98E-18	2.23E-18	4E-18	9.87E-01	3.04E-16	3.04E-17	1E-18	3.38E-02	0.00E+00	2.14E-16	1E-18	0.00E+00
07-Nov-94	9.21E-17	1E-18	1.54E-01	2.35E-18	3.16E-17	4E-18	7.83E-01	1.00E-18	1.26E-17	1E-18	1.11E-02	0.00E+00	5.29E-17	1E-15	0.00E+00
07-Feb-95	1.18E-16	1E-18	1.97E-01	5.70E-17	1.00E-18	4E-18	3.23E-01	9.70E-17	1.00E-18	1E-18	1.08E-02	7.42E-15	3.59E-18	1E-15	1.24E+00
09-May-95	9.40E-17	1E-18	1.57E-01	1.20E-18	1.00E-18	4E-18	4.00E-01	3.50E-16	3.25E-17	1E-18	3.88E-02	3.90E-15	1.90E-17	1E-18	6.50E-01
09-Aug-95	8.90E-17	1E-18	1.48E-01	9.67E-17		1E-18	3.22E-01	1.35E-16	3.94E-17	1E-16	1.50E-02	2.38E-18	2.00E-15	2E-15	3.97E-02
11-Nov-95	2.03E-15	1E-18	4.72E+00	4.09E-18	3.45E-17	2E-18	1.36E+00	5.23E-18	7.34E-17	2E-18	5.81E-02	6.77E-15	6.35E-16	1E-15	1.13E+00
05-Feb-96	1.75E-15	1E-18	2.92E+00	8.86E-18	4.90E-17	1E-18	2.89E+00	4.86E-16	5.80E-17	1E-16	5.40E-02	3.50E-15	2.78E-18	1E-18	8.83E-01
08-May-96	1.40E-16	1E-18	2.33E-01	1.15E-18	1.90E-17	1E-18	3.83E-01	1.00E-18	NA	1E-18	1.11E-02	6.85E-15	5.44E-18	1E-18	1.14E+00
05-Aug-96	1.43E-16	1E-18	2.38E-01	2.78E-18	3.07E-17	1E-18	9.27E-01	1.00E-18	NA	1E-18	1.11E-02	5.83E-15	3.07E-18	1E-18	9.72E-01
06-Nov-96	1.45E-18	1E-18	2.42E-01	1.57E-18	2.97E-17	1E-18	5.23E-01	1.00E-18	NA	1E-18	1.11E-02	1.19E-14	4.51E-18	1E-18	1.98E+00
06-Feb-97	1.00E-16	1E-18	1.67E-01	1.00E-18	NA	1E-18	3.33E-01	1.00E-18	NA	1E-18	1.11E-02	5.84E-18	3.56E-17	1E-18	9.73E-02
05-May-97	1.00E-18	1E-18	1.67E-01	1.00E-18	NA	1E-18	3.33E-01	1.00E-18	NA	1E-18	1.11E-02	3.89E-15	2.87E-18	1E-18	6.48E-01
11-Aug-97	<1.0E-18	1E-18	0.00E+00	1.09E-18	2.29E-17	1E-18	3.63E-01	<1.0E-18	NA	1E-18	0.00E+00	5.69E-15	3.17E-18	1E-18	9.48E-01
05-Jan-98	2.55E-16	1E-18	4.25E-01	1.07E-18	NA	1E-18	3.57E-01	5.00E-17	NA	1E-18	5.56E-03	5.11E-15	N/A	1E-18	8.52E-01
29-Apr-98	1.20E-18	1E-18	2.00E-01	1.71E-18	1.23E-17	1E-18	5.70E-01	1.28E-18	7.68E-18	1E-18	1.42E-02	8.40E-15	3.04E-18	1E-18	1.07E+00
31-Jul-98	1.47E-18	1E-18	1.63E-01	4.24E-18	2.77E-17	1E-18	1.41E+00	3.39E-18	3.21E-18	1E-18	3.77E-02	4.80E-15	3.21E-18	1E-18	8.00E-01
28-Sep-98	<1.0E-18	1E-18	<1.11E-1	<1.0E-18	NA	1E-18	<3.33E-01	<1.0E-18	NA	1E-18	<1.11E-02	4.28E-15	2.14E-18	1E-18	7.13E-01
28-Dec-98	2.54E-16	1E-18	2.83E-01	2.15E-18	1.54E-17	1E-18	7.17E-01	1.38E-18	6.15E-18	1E-18	1.54E-02	6.88E-15	2.23E-18	1E-18	1.15E+00
26-Mar-99	1.07E-18	1E-18	1.19E-01	<1.0E-18	<1.0E-18	1E-18	<3.33E-01	<1.0E-18	<1.0E-18	1E-18	<1.11E-02	7.61E-15	3.00E-18	1E-18	1.27E+00
03-Jul-99	2.46E-16	1E-18	2.74E-01	<1.0E-18	<1.0E-18	1E-18	<3.33E-01	<1.0E-16	<1.0E-16	1E-16	<1.11E-02	6.95E-15	3.28E-18	1E-18	1.16E+00
27-Sep-99	2.81E-18	1E-18	3.12E-01	1.41E-18	1.37E-17	1E-18	4.70E-01	<1.0E-16	<1.0E-16	1E-16	<1.11E-02	7.35E-15	3.09E-18	1E-18	1.23E+00
28-Dec-99	5.20E-16	1E-18	5.78E-01	2.60E-18	3.05E-17	1E-18	8.66E-01	2.01E-16	2.44E-17	1E-18	2.33E-02	7.00E-15	3.26E-18	1E-15	1.17E+00
27-Mar-00	<1.0E-18	1E-18	<1.11 E-01	<1.0E-18	NA	1E-18	<3.33 E-01	<1.0E-18	NA	1E-18	<1.11 E-02	7.12E-15	3.06 E-18	1E-18	1.19 E+00
28-Jun-00	1.10E-16	1E-18	1.22E-01	<1.0E-18	1.87E-17	1E-18	<3.33 E-01	1.18E-18	1.42E-07	1E-16	1.28E-02	5.07E-16	2.76E-18	1E-18	8.45E-01
26-Sep-00	<1.0E-18	1E-18	0.00E+00	<1.0E-18	NA	1E-18	<3.33 E-01	<1.0E-16	NA	1E-16	<1.11E-02	5.31E-15	1.89E-18	1E-18	8.85E-01
26-Dec-00	1.28E-18	1E-18	1.40E-01	<1.0E-18	NA	1E-18	<3.33 E-01	<1.0E-16	NA	1E-16	<1.11E-02	9.45E-15	2.38E-18	1E-18	1.58E+00
28-Mar-01	<1.00E-18	1E-18	<1.11E-01	<1.00E-18	NA	1E-18	<3.33E-01	<1.0E-18	NA	1E-16	<1.11E-02	6.85E-15	3.72E-18	1E-18	1.16E+00
02-Jul-01	<1.00E-18	1E-18	<1.11E-01	<1.00E-18	NA	1E-18	<3.33E-01	<1.0E-18	NA	1E-16	<1.11E-02	6.59E-15	1.27E-18	1E-18	1.00E+00
24-Sep-01	<1.00E-18	1E-18	<1.11E-01	<1.00E-18	NA	1E-18	<3.33E-01	<1.0E-18	NA	1E-16	<1.11E-02	8.16E-15	1.50E-18	1E-18	1.03E+00
31-Dec-01	<1.00E-18	1E-18	<1.11E-01	<1.00E-18	NA	1E-18	<3.33E-01	<1.0E-16	NA	1E-16	<1.11E-02	2.20E-15	1.72E-18	1E-18	3.67E-01
01-Apr-02	<1.00E-18	1E-18	<1.11E-01	<1.00E-18	NA	1E-18	<3.33E-01	<1.0E-16	NA	1E-16	<1.11E-02	6.85E-15	1.74E-18	1E-18	1.66E+00
01-Jul-02	1.23E-18	1E-18	1.39E-01	1.43E-18	1.38E-17	1E-18	4.77E-01	<1.0E-16	NA	1E-16	<1.11E-02	8.25E-15	1.77E-18	1E-18	1.42E+00

*1/1/04 Derived air concentrations were implemented as per 10 CFR 20

TABLE IV (Cont.)

INTERNATIONAL URANIUM CORPORATION
WHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
LOCATION: BHV-3

Current Quarter	1st	2nd	3rd	4th
% time operated				
Air Volume, SCF x 1e6				

PERIOD ENDING	URANIUM NAT. GROSS CONC. µCi/cc	URANIUM NAT. LLD (1E-16)	URANIUM NAT. % MPC	THORIUM- 230 GROSS CONC. µCi/cc	THORIUM- 230 COUNTING ERROR	THORIUM- 230 LLD (1E-16)	THORIUM- 230 % MPC	RADIUM- 226 GROSS CONC. µCi/cc	RADIUM- 226 COUNTING ERROR	RADIUM- 226 LLD (1E-16)	RADIUM- 226 % MPC	LEAD -210 GROSS CONC. µCi/cc	LEAD -210 COUNTING ERROR	LEAD -210 LLD (1E-16)	LEAD -210 % MPC
28-Sep-81	1.74E-16	1E-16	3.48E-02	9.02E-16	4.46E-16	1E-16	3.01E-01	2.87E-16	2.23E-16	1E-16	1.44E-02	1.54E-14	2.53E-15	2E-15	1.93E-01
14-Dec-81	1.59E-15	1E-16	3.18E-02	3.03E-16	3.09E-16	1E-16	1.88E-01	1.30E-16	1.36E-16	1E-16	6.50E-03	2.25E-14	2.13E-15	2E-15	2.81E-01
29-Mar-82	3.76E-16	9E-18	7.52E-03	5.25E-16	6.30E-16	3E-15	1.75E-01	4.08E-16	5.72E-16	4E-15	2.04E-02	1.86E-14	3.48E-15	2E-14	2.45E-01
30-Jun-82	3.83E-16	5E-17	7.66E-03	2.16E-16	2.24E-16	6E-17	7.20E-02	1.41E-15	1.03E-15	2E-16	7.05E-02	2.40E-14	2.10E-15	2E-15	3.00E-01
27-Sep-82	5.95E-16	1E-16	1.19E-02	1.44E-15	2.74E-16	1E-16	4.80E-01	5.36E-16	2.35E-16	1E-16	2.68E-02	1.43E-14	3.00E-15	2E-15	1.79E-01
3-Jan-83	2.05E-16	5E-17	4.10E-03	1.23E-16	3.11E-17	2E-17	4.10E-02	1.10E-16	5.52E-17	7E-17	5.50E-03	3.01E-14	2.10E-15	2E-15	3.76E-01
4-Apr-83	Lost in Lab			6.84E-17	2.31E-17	5E-17	2.31E-02	8.11E-17	5.65E-17	8E-17	3.06E-03	1.39E-14	1.00E-15	1E-15	1.74E-01
30-Jun-83	3.06E-16	1E-16	6.12E-03	8.58E-17	1.52E-16	2E-16	3.20E-02	2.08E-16	1.62E-16	2E-16	1.04E-02	1.70E-14	2.00E-15	2E-15	2.13E-01
3-Oct-83	1.81E-16	1E-16	3.62E-03	3.05E-16	4.98E-17	6E-16	1.02E-01	2.79E-16	5.73E-17	1E-17	1.40E-02	1.78E-14	4.03E-15	1E-16	2.20E-01
3-Jan-84	3.01E-16	1E-16	6.02E-03	9.31E-17	6.19E-17	1E-16	3.17E-02	0.00E+00	5.73E-17	1E-16	0.00E+00	9.17E-15	5.10E-16	5E-16	1.15E-01
2-Apr-84	8.22E-16	5E-17	1.64E-02	7.52E-16	1.72E-16	5E-17	2.51E-01	5.20E-17	4.89E-17	7E-17	2.60E-03	3.47E-14	1.70E-15	1E-15	4.34E-01
2-Jul-84	5.29E-16	5E-17	1.05E-02	8.18E-16	7.89E-16	6E-16	2.06E-01	1.40E-16	9.13E-17	1E-16	7.00E-03	1.32E-14	9.69E-16	1E-14	1.65E-01
1-Oct-84	1.74E-16	5E-17	3.48E-03	7.10E-17	6.16E-17	4E-17	2.37E-02	0.00E+00	9.15E-17	1E-16	0.00E+00	1.08E-14	1.22E-15	1E-15	1.35E-01
2-Jan-85	1.00E-17	5E-18	2.00E-04	7.10E-17	1.27E-16	7E-17	2.37E-02	7.80E-17	9.35E-17	7E-17	3.90E-03	2.73E-14	1.26E-15	6E-16	3.41E-01
1-Apr-85	0.00E+00	5E-17	0.00E+00	2.76E-16	2.02E-16	7E-17	9.20E-02	4.10E-17	6.82E-17	6E-17	2.05E-03	1.12E-14	9.33E-16	8E-16	1.40E-01
1-Jul-85	1.04E-16	5E-17	2.08E-03	0.00E+00	4.76E-14	4E-16	0.00E+00	0.00E+00	9.36E-17	6E-17	0.00E+00	1.84E-14	1.24E-15	8E-16	2.05E-01
30-Sep-85	0.00E+00	5E-16	0.00E+00	1.00E-15	1.31E-16	7E-17	3.34E-01	0.00E+00	4.88E-17	7E-17	0.00E+00	1.73E-14	1.01E-15	8E-16	2.16E-01
2-Jan-86	1.00E-15	1E-15	2.00E-02	3.17E-16	3.71E-15	4E-15	1.06E-01	1.25E-16	4.49E-16	3E-16	8.25E-03	1.21E-17	3.51E-15	4E-15	1.51E-04
1-Apr-86	8.04E-16	2E-16	1.61E-02	1.93E-17	6.94E-17	6E-16	6.42E-03	1.54E-16	8.33E-17	4E-16	7.71E-03	1.69E-14	4.07E-15	1E-16	2.12E-01
30-Jun-86	4.29E-16	2E-17	8.58E-03	1.77E-16	2.18E-17	1E-17	5.89E-02	2.83E-16	1.72E-17	5E-16	1.42E-02	1.97E-14	1.50E-15	2E-15	2.46E-01
27-Oct-86	6.45E-16	1E-16	1.29E-02	9.89E-17	4.00E-17	2E-16	3.30E-02	4.10E-15	1.00E-16	2E-16	2.08E-01	1.64E-14	2.00E-16	4E-16	2.05E-01
15-Dec-86	1.31E-16	3E-16	2.62E-03	0.00E+00	2.00E-17	2E-17	0.00E+00	4.16E-17	4.00E-17	3E-17	2.08E-03	4.60E-15	1.00E-16	3E-17	5.75E-02
16-Mar-87	2.01E-16	3E-16	4.02E-03	1.20E-16	4.00E-17	5E-16	4.00E-02	5.73E-17	3.00E-17	4E-16	2.87E-03	1.80E-14	1.00E-15	8E-16	2.00E-01
11-May-87	2.16E-16	4E-16	4.32E-03	1.96E-16	6.00E-17	4E-16	6.53E-02	7.38E-17	3.00E-17	4E-16	3.69E-03	1.59E-14	2.00E-16	2E-17	1.99E-01
8-Sep-87	2.41E-16	2E-17	4.82E-03	2.18E-16	1.50E-16	2E-16	7.27E-02	3.52E-17	1.10E-16	7E-17	1.76E-03	1.49E-14	1.00E-15	1E-16	1.83E-01
2-Nov-87	2.44E-16	4E-17	4.88E-03	2.32E-16	6.00E-17	4E-16	7.73E-02	2.37E-17	3.00E-17	4E-17	1.18E-03	2.48E-14	5.00E-16	2E-17	3.10E-01
16-Feb-88	8.08E-16	6E-16	1.62E-02	2.55E-16	6.00E-17	2E-17	8.50E-02	3.42E-16	5.00E-17	3E-17	1.71E-02	5.61E-14	3.00E-16	6E-17	7.01E-01
18-May-88	1.14E-16	3E-16	2.28E-03	4.14E-17	1.00E-16	1E-17	1.38E-02	0.00E+00	4.00E-17	1E-17	0.00E+00	1.20E-14	1.00E-16	4E-17	1.50E-01
15-Aug-88	2.08E-16	3E-16	4.16E-03	3.06E-16	8.00E-17	1E-17	1.02E-01	3.63E-17	3.10E-17	2E-17	1.83E-03	1.36E-14	2.00E-16	2E-17	1.70E-01
14-Nov-88	4.21E-16	3E-16	8.42E-03	2.03E-16	3.00E-17	1E-17	9.77E-02	1.09E-16	2.00E-17	1E-17	5.45E-03	2.48E-14	1.00E-16	3E-17	3.10E-01
13-Feb-89	4.45E-16	4E-17	8.90E-03	4.78E-17	1.65E-17	1E-16	1.59E-02	2.47E-17	1.85E-17	2E-17	1.24E-03	3.34E-14	3.29E-16	5E-16	4.16E-01
15-May-89	1.05E-16	1E-16	2.10E-03	0.00E+00	1.60E-17	7E-16	0.00E+00	2.46E-17	1.40E-17	7E-16	1.23E-03	6.58E-15	1.00E-16	3E-17	8.20E-02
14-Aug-89	1.31E-16	2E-16	2.62E-03	5.85E-17	2.10E-17	6E-16	1.95E-02	3.97E-17	3.00E-17	6E-16	1.99E-03	6.75E-15	1.00E-16	5E-17	8.44E-02
13-Nov-89	1.67E-16	2E-17	3.35E-03	3.87E-17	4.00E-17	3E-16	1.29E-02	8.03E-17	3.00E-17	8E-16	4.02E-03	1.69E-14	3.00E-16	2E-17	2.11E-01
12-Feb-90	4.43E-16	3E-16	8.86E-03	0.00E+00	4.00E-17	7E-16	0.00E+00	3.50E-17	4.00E-17	2E-17	1.75E-03	2.37E-14	3.00E-16	4E-17	2.96E-01
14-May-90	3.84E-16	1E-16	7.68E-03	2.54E-16	1.00E-16	1E-16	8.47E-02	1.02E-16	6.00E-17	1E-16	5.10E-03	1.68E-14	3.00E-16	2E-16	2.10E-01
13-Aug-90	7.27E-17	1E-16	1.45E-03	2.87E-16	2.00E-17	1E-16	9.57E-02	1.21E-17	2.00E-17	1E-16	6.05E-04	7.88E-15	2.00E-16	2E-16	9.83E-02
Nov-90	1.84E-16	1E-16	3.68E-03	1.34E-16	8.00E-17	1E-16	4.47E-02	8.53E-17	4.00E-17	1E-16	4.27E-03	2.01E-14	4.00E-16	2E-16	2.51E-01
b-91	4.66E-17	1E-16	9.32E-04	8.48E-16	8.00E-17	1E-16	2.83E-01	1.94E-17	1.60E-17	1E-16	9.70E-04	3.69E-14	1.00E-15	2E-16	4.61E-01
y-91	5.05E-17	1E-16	1.01E-03	7.40E-17	6.00E-17	1E-16	2.47E-02	7.00E-18	4.00E-17	1E-16	3.50E-04	1.50E-14	1.00E-15	2E-15	1.88E-01
g-91	7.14E-17	1E-16	1.43E-03	6.22E-17	8.00E-17	1E-16	2.07E-02	7.95E-17	8.00E-17	1E-16	3.98E-03	1.77E-14	5.00E-16	2E-15	2.21E-01
11-Nov-91	1.41E-17	1E-16	2.82E-04	2.19E-16	3.00E-16	2E-17	7.30E-04	2.75E-17	2.00E-17	2E-17	1.30E-03	1.18E-14	2.00E-16	1E-16	1.48E-01
10-Feb-92	8.12E-17	1E-16	1.62E-03	2.35E-17	3.80E-17	2E-17	7.83E-03	2.78E-16	1.30E-17	2E-17	1.38E-04	3.57E-14	6.00E-17	1E-16	4.46E-01
11-May-92	9.18E-17	1E-16	1.84E-03	5.80E-17	2.00E-16	2E-16	1.93E-02	3.39E-17	3.00E-17	2E-16	1.69E-03	1.28E-14	2.00E-16	1E-16	1.60E-01
10-Aug-92	2.00E-16	2E-16	4.00E-05	4.16E-17	2.30E-17	4E-16	1.40E-02	2.00E-16	4.30E-17	2E-16	1.00E-04	1.59E-14	2.00E-16	2E-17	1.99E-01
09-Nov-92	4.00E-17	3E-21	8.00E-04	2.88E-17	1.80E-17	4E-16	8.93E-03	1.07E-17	2.10E-17	3E-16	5.35E-04	1.81E-14	2.00E-16	2E-17	2.26E-01
09-Feb-93	7.94E-17	1E-22	1.59E-03	0.00E+00	5.30E-17	4E-16	0.00E+00	1.09E-16	9.00E-17	3E-16	5.45E-03	2.89E-14	4.00E-16	2E-17	3.36E-01
10-May-93	1.60E-17	3E-22	3.20E-04	5.07E-17	4.40E-17	4E-16	1.68E-02	7.64E-17	4.00E-17	3E-16	3.82E-03	1.28E-14	2.00E-16	2E-17	1.56E-01
10-Aug-93	6.00E-17	2E-16	1.20E-03	6.00E-16	3.40E-17	4E-16	2.00E-03	0.00E+00	4.30E-17	3E-16	0.00E+00	1.50E-14	3.00E-16	2E-17	1.88E-01
08-Nov-93	0.00E+00	2E-16	0.00E+00	0.00E+00	4.20E-17	4E-16	0.00E+00	0.00E+00	1.50E-16	3E-16	0.00E+00	2.10E-14	4.00E-16	2E-17	2.63E-01
07-Feb-94	1.81E-16	2E-16	2.86E-01	0.00E+00	8.00E-17	4E-16	0.00E+00	2.22E-16	2.20E-16	3E-16	2.47E-02	2.23E-14	4.00E-16	2E-17	3.72E+00
09-May-94	2.77E-16	2E-17	4.62E-01	2.80E-17	1.40E-16	4E-17	9.33E-02	8.37E-16	1.00E-16	3E-17	8.30E-04	1.40E-14	4.00E-16	2E-16	2.33E+00
09-Aug-94	7.36E-17	1E-16	1.23E-01	1.00E-16	1.00E-16	1E-16	3.33E-01	1.14E-16	2.02E-17	1E-16	1.27E-02	1.00E-16	1.88E-16	2E-16	1.67E-02
07-Nov-94	9.05E-17	1E-16	1.51E-01	1.00E-16	1.00E-16	1E-16	3.33E-01	1.00E-16	7.64E-18	1E-16	1.11E-02	1.00E-16	1.16E-16	2E-15	1.67E-02
07-Feb-95	7.86E-17	1E-16	1.33E-01	6.60E-17	1.00E-16	1E-16	3.20E-01	9.60E-17	1.00E-16	1E-16	1.07E-02	9.05E-15	4.73E-16	1E-16	1.51E+00
09-May-95	9.40E-17	1E-16	1.57E-01	9.80E-17	1.00E-16	1E-16	3.27E-01	8.60E-17	1.00E-16	1E-16	9.58E-03	2.68E-15	1.70E-16	1E-16	4.80E-01
09-Aug-95	7.30E-17	1E-16	1.22E-01	9.20E-17		1E-16	3.07E-01	4.40E-17		1E-16	4.88E-03	1.96E-15		1E-16	3.27E-01
11-Nov-95	3.10E-16			1.31E-16				6.58E-17				1.91E-14			
05-Feb-96	3.41E-16			2.26E-16				1.18E-16				2.69E-14			
05-May-96	1.31E-16			1.39E-16				1.82E-16				1.53E-14			
08-Aug-96	3.00E-16			3.43E-16				3.99E-16				1.31E-14			
06-Nov-96	3.16E-16			1.31E-16				6.58E-17				1.91E-14			
03-Feb-97	3.41E-16			2.26E-16				1.18E-16				2.69E-14			
05-May-97	1.31E-16			1.39E-16				1.82E-16				1.53E-14			
11-Aug-97	3.00E-16			3.43E-16				3.99E-16				1.31E-14			
05-Jan-98	3.16E-16			1.31E-16				6.58E-17				1.91E-14			
28-Apr-98	3.41E-16			2.26E-16				1.18E-16				2.60E-14			
31-Jul-98	1.31E-16			1.39E-16				1.82E-16				1.53E-14			
28-Sep-98	3.00E-16			3.43E-16				3.99E-16				1.31E-14			
28-Dec-98	3.16E-16			1.31E-16				6.58E-17				1.91E-14			
29-Mar-99	3.41E-16			2.26E-16				1.18E-16				2.69E-14			
03-Jul-99	1.31E-16			1.39E-16				1.02E-16				1.53E-14			
27-Sep-99	3.00E-16			3.43E-16				3.99E-16				1.31E-14			
28-Dec-99	3.16E-16			1.31E-16				6.58E-17				1.91E-14			
26-Mar-00	3.41E-16			2.26E-16				1.18E-16				2.65E-14			
28-Jun-00	1.31E-16			1.39E-16				1.82E-16				1.53E-14			
28-Sep-00	3.00E-16			3.43E-16				3.99E-16				1.31E-14			
28-Dec-00	3.16E-16			1.31E-16				6.58E-17				1.91E-14			
26-Mar-01	3.41E-16			2.26E-16				1.10E-16				2.60E-14			
02-Jul-01	1.31E-16			1.39E-16				1.82E-16				1.53E-14			
24-Sep-01	3.00E-16			3.43E-16				3.99E-16				1.31E-14			
31-Dec-01	3.16E-16			1.31E-16				3.99E-16				1.91E-14			
01-Apr-02	3.41E-16			2.26E-16				1.10E-16				2.60E-14			
01-Jul-02	1.31E-16			1.39E-16				1.82E-16				1.53E-14			

** BHV-3 was taken down due to excessive vandalisms and Quarterly averages are being used in the place of samples

TABLE IV (Cont.)

INTERNATIONAL URANIUM CORPORATION
WHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
LOCATION: BHV-4

Current Quarter	1st	2nd	3rd	4th
% time operated	93.1%	96.9%		
Air Volume, SCF x 1e6	4.49	4.67		

	URANIUM NAT.			THORIUM- 230				RADIUM- 226				LEAD -210			
PERIOD ENDING	GROSS CONC. µCi/cc	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC
28-Sep-81	5.20E-15	1E-16	1.04E-01	3.21E-15	5.70E-16	1E-16	1.07E+00	2.74E-15	8.15E-16	1E-16	1.37E-01	1.84E-14	2.72E-15	2E-15	2.30E-01
14-Dec-81	4.53E-15	1E-16	9.06E-02	2.93E-15	5.06E-16	1E-16	9.77E-01	2.29E-15	3.34E-16	1E-16	1.15E-01	2.54E-14	2.13E-15	2E-15	3.18E-01
29-Mar-82	1.06E-15	9E-16	2.12E-02	1.78E-15	1.12E-15	3E-15	5.93E-01	1.07E-15	4.71E-16	4E-15	5.35E-02	2.31E-14	4.16E-15	2E-14	2.89E-01
30-Jun-82	6.03E-15	6E-17	1.21E-01	1.42E-14	1.18E-15	8E-17	4.73E+00	2.62E-15	3.09E-16	3E-16	1.31E-01	2.25E-14	3.00E-15	2E-15	2.81E-01
27-Sep-82	1.26E-14	1E-16	2.52E-01	1.57E-14	7.17E-15	1E-16	5.23E+00	5.35E-15	5.47E-16	1E-16	2.68E-01	2.68E-14	3.60E-15	2E-15	3.35E-01
3-Jan-83	4.33E-15	5E-17	8.66E-02	7.59E-16	1.18E-16	5E-17	2.53E-01	6.04E-16	9.16E-17	6E-17	3.02E-02	2.57E-14	1.80E-15	2E-15	3.21E-01
4-Apr-83	1.25E-15	5E-17	2.50E-02	6.62E-16	5.55E-17	5E-17	2.17E-01	6.76E-16	1.36E-16	1E-16	3.38E-02	2.00E-14	1.09E-15	9E-16	2.50E-01
30-Jun-83	3.73E-16	1E-16	7.46E-03	7.17E-16	2.14E-16	2E-16	2.39E-01	4.13E-16	1.88E-16	2E-16	2.07E-02	1.20E-14	2.00E-15	2E-15	1.50E-01
3-Oct-83	2.54E-16	4E-17	5.08E-03	9.43E-16	1.13E-16	2E-17	3.14E-01	2.65E-16	8.73E-17	3E-17	1.33E-02	2.50E-14	1.14E-15	4E-16	3.13E-01
3-Jan-84	2.76E-15	1E-16	5.52E-02	1.51E-16	3.92E-17	4E-17	5.03E-02	1.05E-16	6.78E-17	8E-17	5.23E-03	1.50E-16	8.00E-18	6E-18	1.99E-03
2-Apr-84	4.27E-16	5E-17	8.54E-03	1.80E-16	9.05E-17	1E-16	5.33E-02	6.28E-16	9.83E-17	8E-17	3.14E-02	3.67E-14	1.79E-05	1E-16	4.59E-01
2-Jul-84	2.57E-15	5E-17	5.14E-02	2.33E-16	1.03E-16	6E-17	7.77E-02	1.11E-16	7.93E-17	1E-16	5.55E-03	1.58E-14	1.09E-15	1E-15	1.88E-01
1-Oct-84	4.18E-16	5E-17	8.36E-03	1.30E-16	5.37E-17	4E-17	4.53E-02	1.10E-17	9.55E-17	8E-17	5.50E-04	9.83E-15	1.43E-15	2E-15	1.23E-01
2-Jan-85	5.30E-17	5E-19	1.06E-03	3.54E-16	1.60E-16	5E-17	1.18E-01	7.00E-18	8.88E-17	7E-17	3.50E-04	2.57E-14	1.46E-15	1E-15	3.21E-01
1-Apr-85	0.00E+00	5E-17	0.00E+00	3.55E-17	1.97E-16	1E-16	1.18E-02	4.35E-17	8.68E-17	5E-17	2.18E-03	5.02E-15	8.76E+00	9E-18	6.28E-02
1-Jul-85	9.36E-16	5E-17	1.87E-02	6.00E-16	4.76E-14	6E-16	2.00E-01	2.36E-16	1.14E-16	7E-17	1.18E-02	7.48E-15	1.08E-15	9E-16	9.35E-02
30-Sep-85	1.46E-15	6E-18	2.91E-02	2.33E-16	8.01E-17	7E-17	7.78E-02	5.38E-16	1.09E-16	6E-17	2.50E-02	7.86E-15	7.50E-16	8E-16	9.83E-02
2-Jan-86	8.40E-15	2E-15	1.68E-01	7.68E-16	1.80E-15	1E-15	2.56E-01	2.99E-16	8.13E-18	3E-18	1.50E-02	2.12E-14	2.50E-14	5E-15	2.65E-01
1-Apr-86	5.79E-15	2E-16	1.16E-01	7.60E-16	8.86E-17	5E-18	2.53E-01	1.34E-16	5.50E-17	4E-18	6.71E-02	1.33E-14	3.08E-16	1E-15	1.66E-01
30-Jun-86	5.19E-15	1E-17	1.04E-01	5.80E-16	3.73E-17	4E-18	1.93E-01	2.20E-15	4.00E-17	5E-18	1.10E-01	7.14E-18	7.89E-18	1E-15	8.93E-03
27-Oct-86	4.60E-15	1E-18	9.20E-02	7.83E-16	1.10E-16	2E-18	2.81E-01	2.37E-15	1.00E-16	1E-16	1.18E-01	1.13E-14	2.00E-16	3E-18	1.41E-01
15-Dec-86	2.75E-15	3E-16	5.50E-02	4.87E-16	9.00E-17	2E-17	1.56E-01	9.39E-16	1.00E-18	4E-17	4.70E-02	1.20E-14	2.00E-16	4E-17	1.50E-01
16-Mar-87	4.64E-15	3E-16	9.28E-02	5.90E-16	1.20E-16	8E-18	1.97E-01	4.97E-16	1.00E-16	6E-18	2.48E-02	5.89E-14	1.00E-15	1E-17	7.36E-01
11-May-87	4.35E-16	6E-18	8.70E-02	1.18E-15	2.00E-16	6E-18	3.93E-01	1.13E-15	1.00E-16	8E-17	5.65E-02	2.21E-14	6.00E-16	3E-17	2.78E-01
9-Sep-87	6.39E-15	8E-18	1.28E-01	1.23E-14	1.00E-15	1E-16	4.10E+00	2.28E-15	2.00E-16	4E-17	1.13E-01	1.57E-14	1.00E-15	1E-18	1.98E-01
2-Nov-87	6.72E-15	6E-18	1.34E-01	1.50E-14	1.00E-15	4E-18	5.00E+00	2.20E-15	2.00E-16	6E-18	1.10E-01	2.55E-14	1.00E-15	3E-17	3.19E-01
16-Feb-88	1.91E-15	5E-18	3.82E-02	4.53E-16	7.00E-17	2E-17	1.51E-01	4.42E-16	6.00E-17	2E-17	2.21E-02	4.44E-14	2.00E-16	5E-17	5.55E-01
18-May-88	1.78E-14	3E-18	3.56E-01	1.35E-14	3.00E-16	2E-17	4.50E+00	4.92E-16	6.00E-17	2E-17	2.46E-02	1.38E-14	2.00E-16	4E-17	1.73E-01
15-Aug-88	7.56E-15	4E-18	1.51E-01	4.38E-14	1.00E-15	1E-17	1.46E+01	1.51E-15	1.00E-16	2E-17	7.55E-02	1.97E-14	2.00E-16	2E-17	2.46E-01
14-Nov-88	1.47E-14	4E-18	2.94E-01	3.31E-14	3.00E-16	1E-17	1.10E+01	2.57E-15	1.00E-16	1E-17	1.29E-01	2.12E-14	2.00E-16	3E-17	2.65E-01
13-Feb-89	2.47E-15	4E-17	4.94E-02	1.56E-15	1.02E-16	1E-18	5.20E-01	6.94E-16	5.10E-17	2E-18	3.47E-02	2.12E-14	3.08E-16	5E-16	2.65E-01
15-May-89	2.50E-16	1E-18	5.00E-03	3.14E-15	1.00E-16	7E-18	1.05E+00	9.03E-16	7.00E-17	7E-18	4.52E-02	8.05E-15	1.00E-16	4E-17	1.01E-01
14-Aug-89	6.50E-15	5E-17	1.30E-01	7.68E-15	2.00E-16	9E-18	2.56E+00	2.35E-15	2.00E-16	9E-18	1.18E-01	9.05E-15	1.00E-16	5E-17	1.24E-01
13-Nov-89	8.63E-15	2E-17	1.93E-01	4.72E-16	2.00E-16	3E-18	1.57E+00	4.03E-15	2.00E-16	8E-18	2.01E-01	1.98E-14	3.00E-16	2E-17	2.40E-01
12-Feb-90	8.92E-15	3E-18	1.78E-01	4.05E-15	2.00E-16	6E-18	1.35E+00	2.69E-15	2.00E-16	2E-17	1.45E-01	2.60E-14	2.00E-16	4E-17	3.38E-01
14-May-90	8.90E-15	1E-16	1.78E-01	3.50E-16	3.00E-16	1E-16	1.19E+00	2.33E-15	2.00E-16	1E-18	1.17E-01	2.09E-14	4.00E-16	2E-16	2.61E-01
13-Aug-90	1.92E-15	1E-18	3.84E-02	3.58E-15	8.00E-17	1E-16	1.19E+00	5.08E-16	6.00E-17	1E-16	2.53E-02	8.86E-15	2.00E-16	2E-16	1.11E-01
12-Nov-90	2.91E-16	1E-16	5.82E-02	1.87E-15	2.00E-16	1E-16	6.23E-01	1.08E-15	1.00E-16	1E-16	5.40E-02	2.19E-14	4.00E-16	2E-16	2.74E-01
11-Feb-91	1.87E-16	1E-16	3.34E-03	2.25E-17	2.10E-17	1E-16	7.50E-03	6.38E-17	2.50E-17	1E-16	3.19E-03	4.19E-14	1.00E-15	2E-16	5.24E-01
9-91	1.87E-16	1E-16	3.74E-03	7.89E-16	1.00E-16	1E-16	2.63E-01	3.54E-16	8.00E-17	1E-16	1.77E-02	1.40E-14	1.00E-15	2E-15	1.75E-01
-91	4.83E-16	1E-16	9.70E-03	2.61E-15	2.00E-16	1E-16	8.70E-01	1.27E-16	8.00E-17	1E-16	6.35E-03	2.20E-14	5.00E-16	2E-15	2.75E-01
-91	1.77E-16	1E-16	3.54E-03	4.36E-16	7.00E-17	2E-17	1.46E-01	3.76E-17	3.00E-17	2E-17	1.88E-03	1.15E-14	2.00E-16	1E-16	1.44E-01
eb-92	1.83E-16	1E-16	3.66E-03	1.46E-16	8.00E-17	2E-17	4.87E-02	1.33E-16	4.00E-17	2E-17	6.65E-03	3.35E-14	6.00E-17	1E-16	4.19E-01
11-May-92	4.40E-16	1E-16	8.80E-03	1.95E-16	1.00E-16	2E-19	6.50E-01	4.04E-16	8.00E-17	2E-19	2.02E-02	1.41E-14	2.00E-16	1E-18	1.70E-01
10-Aug-92	9.09E-17	2E-18	1.82E-03	2.56E-16	4.00E-17	4E-18	8.53E-02	4.50E-17	4.00E-17	2E-18	2.25E-03	1.57E-14	2.00E-16	2E-17	1.96E-01
09-Nov-92	2.07E-16	3E-21	4.14E-03	1.15E-16	3.00E-17	4E-18	3.83E-02	3.62E-17	2.80E-17	3E-18	1.81E-03	2.24E-14	3.00E-16	2E-17	2.80E-01
09-Feb-93	1.73E-16	1E-22	3.46E-03	0.00E+00	8.00E-17	4E-18	0.00E+00	2.89E-17	4.30E-17	3E-18	1.45E-03	3.06E-14	5.00E-16	2E-17	3.83E-01
10-May-93	2.70E-17	3E-22	5.40E-04	2.76E-17	3.20E-17	4E-18	9.20E-03	8.74E-17	6.00E-17	3E-18	4.37E-03	1.25E-14	2.00E-16	2E-17	1.56E-01
10-Aug-93	9.00E-17	2E-18	1.80E-03	2.50E-17	3.90E-17	4E-18	8.33E-03	0.00E+00	3.70E-17	3E-18	0.00E+00	1.50E-14	3.00E-16	2E-17	1.86E-01
08-Nov-93	0.00E+00	2E-18	0.00E+00	1.76E-16	9.00E-17	4E-18	5.87E-02	9.00E-17	1.80E-16	3E-18	3.00E-03	1.75E-14	4.00E-16	2E-17	2.19E-01
07-Feb-94	1.10E-16	2E-16	1.83E-01	0.00E+00	1.56E-16	4E-18	0.00E+00	2.21E-16	2.30E-16	3E-18	2.46E-02	3.08E-14	8.00E-16	2E-17	5.13E+00
08-May-94	3.80E-16	2E-17	6.33E-01	3.38E-16	1.20E-16	4E-17	1.13E+00	3.46E-16	1.00E-16	3E-17	3.84E-02	1.73E-14	2.00E-16	2E-16	2.88E+00
08-Aug-94	3.05E-16	1E-16	6.42E-01	2.82E-16	9.81E-17	1E-18	9.40E-01	1.00E-16	1.70E-17	1E-16	1.11E-02	1.00E-16	1.00E-16	2E-15	1.67E-02
07-Nov-94	6.21E-17	1E-18	1.04E-01	3.53E-16	4.21E-17	1E-18	1.18E+00	1.96E-16	2.08E-17	1E-16	2.18E-02	1.00E-16	1.00E-16	2E-15	1.67E-02
07-Feb-95	3.70E-16	1E-16	6.17E-01	9.70E-17	1.00E-16	1E-16	3.23E-01	9.70E-17	3.02E-17	1E-16	1.08E-02	8.84E-15	3.89E-16	2E-15	1.47E+00
06-May-95	9.40E-17	1E-16	1.57E-01	9.80E-17	1.00E-16	1E-16	3.27E-01	1.80E-16	2.46E-17	1E-16	2.11E-02	2.80E-15	1.70E-15	2E-16	4.83E-01
09-Aug-95	1.45E-16	1E-18	2.42E-01	2.86E-16	3.75E-17	1E-16	9.53E-01	7.10E-17	3.62E-17	1E-16	7.88E-03	2.70E-15	2.17E-16	2E-15	4.50E-01
11-Nov-95	1.43E-14	1E-16	2.38E+01	2.31E-15	1.24E-16	2E-16	7.70E+00	2.81E-15	7.31E-17	2E-13	2.60E-01	6.60E-15	2.48E-16	1E-15	9.33E-01
05-Feb-96	1.18E-14	1E-18	1.98E+01	5.70E-15	1.95E-16	1E-16	1.90E+01	6.10E-15	1.60E-16	1E-18	6.78E-01	8.48E-15	3.78E-16	1E-18	1.08E+00
08-May-96	4.55E-16	1E-18	7.58E-01	3.80E-16	3.10E-17	1E-16	1.27E+00	2.84E-16	1.47E-17	1E-16	3.16E-02	7.68E-15	5.74E-16	1E-18	1.28E+00
05-Aug-96	7.78E-16	1E-18	1.30E+00	3.57E-15	2.42E-16	1E-16	1.19E+01	1.88E-16	1.42E-17	1E-18	1.88E-02	4.90E-15	2.62E-16	1E-16	8.17E-01
05-Nov-96	1.36E-15	1E-18	2.27E+00	3.51E-16	1.66E-16	1E-16	1.17E+01	4.21E-16	3.98E-17	1E-16	4.68E-02	1.10E-14	4.35E-16	1E-18	1.83E+00
06-Feb-97	1.00E-16	1E-16	1.67E-01	1.00E-16	NA	1E-16	3.33E-01	1.03E-16	1.55E-17	1E-16	1.14E-02	6.78E-15	3.27E-16	1E-18	1.13E+00
05-May-97	1.00E-16	1E-16	1.67E-01	1.40E-16	2.51E-17	1E-16	4.67E-01	2.24E-16	1.67E-17	1E-16	2.49E-02	4.55E-15	2.84E-16	1E-16	7.58E-01
11-Aug-97	4.74E-16	N/A	7.90E-01	4.00E-16	3.08E-17	1E-16	1.33E+00	<1.0E-16	N/A	1E-16	0.00E+00	5.55E-15	2.90E-16	1E-18	9.25E-01
05-Jan-98	8.31E-16	1E-16	1.38E+00	8.07E-16	N/A	1E-16	3.02E+00	1.77E-16	N/A	1E-16	1.57E-02	5.28E-15	N/A	1E-16	8.80E-01
28-Apr-98	3.32E-16	1E-16	5.53E-01	4.82E-16	2.81E-17	1E-16	1.81E+00	1.21E-16	7.68E-18	1E-16	1.34E-02	7.43E-15	3.24E-16	1E-16	1.24E+00
31-Jul-98	4.60E-16	1E-16	5.11E-01	4.43E-16	1.26E-16	1E-16	1.48E+01	3.54E-16	1.23E-17	1E-16	3.03E-02	6.91E-15	3.66E-16	1E-18	1.15E+00
28-Sep-98	4.09E-16	1E-16	4.53E-01	8.02E-16	5.22E-17	1E-16	3.01E+00	2.53E-16	1.08E-17	1E-16	2.81E-02	4.32E-15	2.09E-16	1E-16	7.53E-01
28-Dec-98	7.72E-16	1E-16	8.58E-01	4.93E-16	2.81E-17	1E-16	1.64E+00	3.43E-16	3.07E-17	1E-16	3.81E-02	6.73E-15	2.20E-16	1E-16	1.12E+00
29-Mar-99	5.11E-16	1E-16	5.68E-01	3.75E-16	2.15E-17	1E-16	1.25E+00	3.70E-16	1.62E-17	1E-16	4.11E-02	8.98E-15	3.56E-16	1E-16	1.49E+00
03-Jul-99	5.90E-16	1E-16	6.56E-01	4.70E-16	3.04E-17	1E-16	1.57E+00	1.28E-16	8.75E-18	1E-16	1.42E+00	6.40E-15	3.51E-16	1E-16	1.07E+00
27-Sep-99	1.70E-15	1E-16	1.89E+00	9.89E-16	5.81E-17	1E-16	3.30E+00	4.81E-16	3.71E-17	1E-16	5.13E-02	7.88E-15	3.48E-16	1E-16	1.31E+00
28-Dec-99	1.03E-15	1E-16	1.15E+00	7.50E-16	6.92E-17	1E-16	2.50E+00	2.43E-16	2.87E-17	1E-16	2.70E-02	6.42E-15	3.46E-16	1E-16	1.07E+00
27-Mar-00	<1.00E-16	1E-16	<1.11E-01	7.50E-16	1.63E-17	1E-16	00-Jan-00	2.20E-16	8.93E-18	1E-16	2.45E-02	5.01E-15	2.85E-16	1E-16	9.34E-01
26-Jun-00	1.75E-16	1E-16	2.92E-01	2.13E-16	1.88E-17	1E-16	7.10E-01	1.11E-16	1.29E-17	1E-16	1.23E-02	3.82E-15	2.51E-16	1E-16	6.53E-01
26-Sep-00	3.85E-16	1E-16	3.85E-01	3.08E-16	1.34E-17	1E-16	1.03E+00	2.24E-16	7.44E-18	1E-16	2.49E-02	7.76E-15	2.19E-16	1E-16	1.30E+00
26-Dec-00	2.27E-16	1E-16	2.52E-01	2.01E-16	1.04E-17	1E-16	6.70E-01	4.35E-16	1.04E-17	1E-16	4.83E-02	8.45E-15	2.25E-16	1E-16	1.41E+00
28-Mar-01	1.45E-16	1E-16	1.61E-01	<1.00E-16	NA	1E-16	<3.33E-01	<1.00E-16	NA	1E-16	<1.11E-02	9.37E-15	3.56E-16	1E-16	1.08E+00
02-Jul-01	<1.00E-16	1E-16	N/A	<1.00E-16	N/A	1E-16	3.33E-01	<1.00E-16	N/A	1E-16	<1.11E-02	6.99E-15	1.30E-16	1E-16	1.17E+00
24-Sep-01	1.81E-16	1E-16	2.12E-01	1.05E-16	2.82E-18	1E-16	3.51E-01	2.01E-16	2.45E-17	1E-16	2.32E-02	8.04E-15	1.84E-16	1E-16	1.34E+00
31-Dec-01	1.38E-16	1E-16	1.54E-01	<1.00E-16	N/A	1E-16	<3.33E-01	<1.00E-16	N/A	1E-16	<1.11E-02	1.83E-15	1.64E-16	1E-16	3.06E-01
01-Apr-02	2.20E-16	1E-16	2.44E-01	2.05E-16	2.68E-17	1E-16	6.85E-01	1.28E-16	7.44E-18	1E-16	1.41E-02	7.48E-15	1.62E-16	1E-16	1.25E+00
01-Jul-02	1.97E-16	1E-16	2.19E-01	3.38E-16	3.27E-18	1E-16	1.13E+00	<1.00E-16	N/A	1E-16	<1.11E-02	7.40E-15	1.80E-16	1E-16	1.13E+00

*1/1/94 Derived air concentrations were implemented as per 10 CFR 20

TABLE IV (Cont.)

INTERNATIONAL URANIUM CORPORATION
WHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
LOCATION: BHV-5

Current Quarter	1st	2nd	3rd	4th
% time operated	100.4%	99.9%		
Air Volume, SCF x 10^6	4.84	4.07		

PERIOD ENDING	URANIUM NAT. GROSS CONC. µCi/cc	URANIUM NAT. LLD (1E-16)	URANIUM NAT. % MPC	THORIUM- 230 GROSS CONC. µCi/cc	THORIUM- 230 COUNTING ERROR	THORIUM- 230 LLD (1E-16)	THORIUM- 230 % MPC	RADIUM- 226 GROSS CONC. µCi/cc	RADIUM- 226 COUNTING ERROR	RADIUM- 226 LLD (1E-16)	RADIUM- 226 % MPC	LEAD -210 GROSS CONC. µCi/cc	LEAD -210 COUNTING ERROR	LEAD -210 LLD (1E-16)	LEAD -210 % MPC
28-Sep-81	2.44E-16	1E-16	4.88E-02	1.53E-15	4.11E-16	1E-16	5.10E-01	7.54E-16	4.31E-16	1E-16	3.77E-02	1.88E-14	2.57E-15	2E-15	2.11E-01
14-Dec-81	4.84E-15	1E-16	9.68E-02	2.78E-15	3.58E-16	1E-16	9.27E-01	1.84E-16	2.84E-16	1E-16	9.20E-02	1.53E-14	2.28E-15	2E-15	1.91E-01
29-Mar-82	1.04E-15	9E-18	2.08E-02	2.82E-15	9.48E-16	3E-15	8.73E-01	1.11E-15	4.82E-16	4E-15	5.55E-02	2.98E-14	8.16E-15	2E-14	3.73E-01
30-Jun-82	3.61E-15	5E-17	7.22E-02	7.61E-15	9.40E-16	7E-17	2.54E+00	1.39E-15	2.19E-16	2E-16	6.95E-02	1.80E-15	1.89E-15	2E-15	2.25E-02
27-Sep-82	1.71E-14	1E-16	3.42E-01	9.46E-15	6.02E-16	1E-16	3.15E+00	3.80E-15	4.68E-16	1E-16	1.90E-01	2.35E-14	4.85E-15	2E-15	2.04E-01
3-Jan-83	1.90E-14	5E-17	3.80E-01	5.77E-15	1.99E-16	3E-17	1.92E+00	9.34E-17	3.10E-16	8E-17	4.67E-03	4.32E-14	2.80E-15	2E-15	5.40E-01
4-Apr-83	Lost in Lab			2.33E-15	1.00E-16	2E-17	7.77E-01	5.93E-16	1.08E-16	9E-17	2.97E-02	3.01E-14	1.40E-15	9E-16	3.76E-01
30-Jun-83	7.62E-16	5E-17	1.52E-02	3.25E-15	1.70E-16	6E-17	1.08E+00	6.28E-15	3.59E-16	1E-16	3.14E-01	2.68E-14	1.00E-15	1E-15	3.35E-01
3-Oct-83	4.86E-16	1E-16	9.72E-03	1.10E-15	3.09E-16	1E-16	3.67E-01	3.03E-16	1.08E-16	1E-16	1.82E-02	2.08E-14	1.13E-15	9E-16	2.60E-01
3-Jan-84	8.98E-15	1E-16	1.38E-01	9.68E-16	9.66E-17	6E-17	3.23E-01	9.80E-16	6.53E-17	1E-16	4.80E-02	1.83E-14	2.92E-15	2E-15	2.29E-01
2-Apr-84	1.64E-15	5E-17	3.28E-02	1.34E-15	1.20E-16	7E-17	4.47E-01	3.88E-15	2.29E-16	5E-17	1.94E-01	4.87E-14	2.10E-01	1E-15	5.84E-01
2-Jul-84	1.12E-15	5E-17	2.24E-02	1.92E-15	1.69E-16	7E-17	6.40E-01	3.31E-15	2.70E-16	1E-16	1.66E-01	2.21E-14	1.20E-15	1E-16	2.76E-01
1-Oct-84	1.11E-15	5E-17	2.22E-02	3.13E-16	1.26E-16	5E-17	1.04E-01	4.21E-16	1.34E-16	1E-16	2.11E-02	1.57E-14	1.39E-15	1E-15	1.98E-01
2-Jan-85	7.32E-16	6E-16	1.46E-02	6.71E-16	1.66E-16	5E-17	2.24E-01	4.94E-16	1.35E-16	1E-16	2.47E-02	2.42E-14	1.28E-15	9E-16	3.03E-01
1-Apr-85	2.36E-16	5E-17	4.72E-03	5.43E-16	2.18E-16	1E-16	1.81E-01	2.71E-16	9.00E-17	7E-17	1.38E-02	1.25E-14	1.02E-15	8E-16	1.56E-01
1-Jul-85	7.56E-16	5E-17	1.52E-02	4.00E-16	9.43E-16	5E-16	1.33E-01	6.90E-16	1.50E-16	9E-17	3.45E-02	2.13E-14	1.42E-15	9E-16	2.69E-01
30-Sep-85	7.47E-16	7E-16	1.49E-01	1.16E-15	1.42E-16	8E-17	3.87E-01	2.19E-15	2.21E-16	1E-16	1.10E-01	9.20E-15	1.11E-15	1E-15	1.16E-01
2-Jan-86	1.75E-14	6E-16	3.60E-01	7.24E-15	2.20E-15	1E-15	2.41E+00	3.83E-15	3.83E-15	1E-16	1.92E-01	1.13E-16	1.00E-15	1E-15	1.41E-03
1-Apr-86	2.99E-14	2E-16	5.98E-01	7.84E-15	8.30E-17	4E-16	2.55E+00	1.51E-14	5.02E-16	4E-16	7.57E-01	2.22E-14	5.04E-16	9E-17	2.78E-01
30-Jun-86	2.23E-14	1E-17	4.47E-01	5.18E-15	3.30E-16	2E-17	1.73E+00	1.03E-14	1.00E-16	4E-16	5.24E-01	2.16E-14	2.00E-15	2E-15	2.70E-01
27-Oct-86	2.39E-14	1E-16	4.80E-01	7.76E-15	3.00E-16	2E-16	2.58E+00	1.60E-14	1.00E-15	1E-16	8.00E-01	2.02E-14	2.00E-16	3E-16	2.53E-01
15-Dec-86	3.40E-14	3E-17	6.80E-01	5.35E-15	2.00E-16	2E-17	1.78E+00	1.47E-14	5.00E-16	4E-17	7.35E-01	2.82E-14	2.00E-16	3E-17	3.53E-01
18-Mar-87	2.06E-14	3E-16	4.12E-01	4.50E-15	3.00E-16	5E-16	1.50E+00	0.74E-15	2.00E-16	4E-16	3.37E-01	7.29E-14	1.00E-15	7E-16	8.11E-01
11-May-87	2.50E-14	5E-16	5.00E-01	8.54E-15	2.00E-16	5E-16	2.85E+00	8.15E-15	3.00E-16	5E-16	4.08E-01	3.28E-14	2.00E-16	2E-17	4.10E-01
9-Sep-87	2.65E-14	6E-16	5.30E-01	6.62E-15	3.00E-16	7E-17	2.21E+00	9.34E-15	3.00E-16	2E-17	4.67E-01	2.77E-14	4.00E-16	1E-16	3.46E-01
2-Nov-87	1.80E-14	4E-16	3.60E-01	7.09E-15	3.00E-16	4E-16	2.36E+00	7.20E-15	3.00E-16	4E-16	3.60E-01	1.77E-14	5.00E-16	2E-17	2.21E-01
16-Feb-88	1.01E-14	5E-16	2.02E-01	2.88E-15	1.00E-16	2E-17	9.63E-01	3.83E-15	1.00E-16	2E-17	1.97E-01	3.36E-14	2.00E-16	5E-17	4.20E-01
18-May-88	1.78E-14	3E-16	3.56E-01	6.14E-15	3.00E-16	2E-17	2.71E+00	7.43E-15	3.00E-16	2E-17	3.72E-01	2.12E-14	2.00E-16	4E-17	2.65E-01
15-Aug-88	1.79E-14	3E-16	3.58E-01	1.46E-14	1.00E-15	1E-17	4.97E+00	5.34E-15	2.00E-16	2E-17	2.67E-01	2.46E-14	3.00E-16	2E-17	3.08E-01
14-Nov-88	4.46E-14	3E-16	8.92E-01	1.39E-14	2.00E-16	1E-17	4.63E+00	1.17E-14	2.00E-16	1E-17	5.85E-01	3.43E-14	2.00E-16	3E-17	4.29E-01
13-Feb-89	1.67E-14	4E-17	3.34E-01	5.54E-15	1.02E-16	1E-16	1.85E+00	7.20E-15	1.40E-16	2E-16	3.60E-01	5.02E-14	2.10E-16	6E-16	6.28E-01
15-May-89	2.03E-14	1E-16	4.06E-01	7.03E-15	2.00E-16	6E-17	2.35E+00	9.56E-16	2.00E-16	8E-16	4.78E-02	1.43E-14	1.00E-16	3E-17	1.79E-01
14-Aug-89	2.81E-15	2E-18	5.62E-02	3.78E-15	2.00E-16	8E-18	1.26E+00	9.28E-15	3.00E-16	8E-18	4.63E-01	1.50E-14	1.00E-16	4E-17	1.88E-01
13-Nov-89	5.38E-14	2E-17	1.08E+00	8.01E-15	3.00E-16	3E-18	2.67E+00	1.81E-14	3.00E-16	7E-18	9.06E-01	4.09E-14	5.00E-16	2E-17	5.12E-01
12-Feb-90	4.48E-14	3E-18	8.96E-01	1.48E-14	1.00E-15	6E-18	4.93E+00	1.28E-14	2.00E-17	2E-17	6.40E-01	3.88E-14	3.00E-16	5E-17	4.85E-01
14-May-90	2.10E-14	1E-18	4.36E-01	1.70E-14	1.00E-15	1E-16	5.67E+00	1.56E-14	1.00E-15	1E-16	7.95E-01	3.48E-14	1.00E-15	2E-18	4.36E-01
Aug-90	9.53E-15	1E-16	1.91E-01	1.70E-14	1.00E-16	1E-16	5.67E+00	5.27E-15	1.10E-16	1E-10	1.64E-01	1.27E-14	2.00E-18	2E-16	1.59E-01
Nov-90	1.11E-14	1E-16	2.22E-01	5.27E-15	3.00E-14	1E-16	1.76E+00	5.38E-15	3.00E-16	1E-16	2.69E-01	1.56E-14	4.00E-15	2E-16	1.95E-01
eb-91	6.35E-16	1E-16	1.27E-02	3.13E-16	8.00E-17	1E-16	1.04E-01	2.31E-16	4.00E-17	1E-16	1.16E-02	3.86E-14	1.00E-15	2E-16	4.83E-01
May-91	1.22E-15	1E-16	2.44E-02	6.14E-15	3.00E-16	1E-16	2.05E+00	4.41E-15	2.00E-16	1E-16	2.21E-01	2.50E-14	1.00E-15	2E-16	3.13E-01
12-Aug-91	7.84E-16	1E-16	1.57E-02	1.43E-15	2.00E-16	1E-16	4.77E-01	4.47E-16	1.10E-16	1E-16	2.24E-02	1.84E-14	4.00E-16	2E-15	2.30E-01
11-Nov-91	5.37E-16	1E-16	1.07E-02	4.20E-16	7.00E-17	2E-17	1.40E-01	1.37E-16	3.00E-17	2E-17	6.85E-03	1.27E-14	3.00E-16	1E-16	1.59E-01
10-Feb-92	3.54E-16	1E-16	7.08E-03	1.18E-16	6.00E-17	2E-17	3.93E-02	4.08E-17	3.00E-17	2E-17	2.04E-03	3.89E-14	6.00E-17	1E-16	4.81E-01
11-May-92	4.71E-16	1E-16	9.42E-03	9.58E-16	1.00E-16	2E-16	3.19E-01	8.31E-17	4.00E-16	2E-16	4.16E-03	1.43E-14	2.00E-16	1E-16	1.79E-01
10-Aug-92	5.32E-15	2E-18	1.06E-01	3.36E-16	9.00E-17	4E-18	1.12E-01	1.85E-16	7.00E-17	2E-18	8.25E-03	1.59E-14	2.00E-16	2E-17	1.99E-01
09-Nov-92	3.88E-16	3E-21	7.32E-03	2.25E-16	4.00E-17	4E-18	7.50E-02	1.08E-16	3.00E-17	3E-18	5.40E-03	2.24E-14	2.00E-16	2E-17	2.80E-01
09-Feb-93	2.05E-16	1E-22	4.10E-03	9.14E-17	6.00E-17	4E-18	3.05E-02	6.31E-17	5.00E-17	3E-18	3.16E-03	3.41E-14	5.00E-16	2E-17	4.26E-01
10-May-93	4.80E-16	3E-22	9.60E-03	8.25E-16	1.20E-16	4E-18	2.75E-01	1.26E-15	1.00E-16	3E-18	6.30E-02	1.83E-14	4.00E-16	2E-17	2.29E-01
10-Aug-93	8.30E-16	2E-18	1.66E-02	1.80E-16	7.00E-17	4E-18	6.33E-02	2.10E-16	9.00E-17	3E-18	1.05E-02	1.70E-14	5.00E-16	2E-17	2.13E-01
08-Nov-93	2.70E-16	2E-18	5.40E-03	8.00E-17	8.00E-17	4E-18	2.67E-02	7.00E-17	1.70E-16	3E-18	3.50E-03	2.34E-14	3.00E-16	2E-17	2.03E-01
07-Feb-94	3.18E-16	2E-18	5.30E-01	0.00E+00	5.90E-17	4E-18	0.00E+00	5.18E-16	2.80E-16	3E-18	1.76E-02	3.84E-14	7.00E-16	2E-17	6.07E+00
09-May-94	1.80E-15	2E-17	3.00E+00	9.78E-16	2.00E-16	4E-17	3.26E+00	1.10E-15	2.00E-16	3E-17	1.22E-01	8.90E-15	2.00E-16	2E-16	1.38E+00
08-Aug-94	2.67E-15	1E-16	4.45E+00	1.11E-15	1.70E-16	1E-16	3.70E+00	4.95E-16	3.87E-17	1E-16	5.50E-02	0.00E+00	2.18E-16	1E-16	0.00E+00
07-Nov-94	8.21E-17	1E-16	1.54E-01	1.59E-15	8.80E-17	1E-16	5.30E+00	1.68E-15	5.70E-17	1E-10	1.84E-01	0.00E+00	1.88E-15	1E-15	0.00E+00
07-Feb-95	1.51E-15	1E-16	2.52E+00	9.50E-16	9.29E-16	1E-16	3.17E+00	9.70E-17	6.68E-17	1E-18	1.08E-02	9.35E-15	4.00E-16	1E-15	1.56E+00
09-May-95	2.21E-16	1E-16	3.68E-01	8.55E-16	5.41E-17	1E-16	2.85E+00	3.06E-15	9.49E-17	1E-16	3.40E-01	4.34E-15	2.06E-16	1E-15	7.23E-01
09-Aug-95	1.66E-16	1E-16	2.77E-01	1.67E-15	1.29E-16	1E-16	5.57E+00	3.90E-15	1.34E-16	1E-16	4.33E-01	5.60E-15	1.20E-16	2E-15	9.33E-01
11-Nov-95	2.04E-14	1E-16	3.40E+01	6.70E-15	2.32E-16	2E-16	2.23E+01	7.65E-15	1.24E-16	2E-16	8.50E-01	4.47E-15	2.25E-16	1E-15	7.45E-01
05-Feb-96	4.50E-14	1E-16	7.50E+01	3.38E-14	9.47E-17	1E-10	1.19E+02	2.38E-14	3.38E-16	1E-16	2.66E+00	7.30E-15	3.87E-16	1E-16	1.22E+00
06-May-96	1.70E-15	1E-16	2.83E+00	3.57E-15	2.84E-16	1E-16	1.19E+01	9.55E-16	2.54E-17	1E-16	1.06E-01	7.54E-15	5.83E-16	1E-16	1.26E+00
05-Aug-96	2.37E-15	1E-16	3.95E+00	8.18E-15	4.01E-16	1E-16	2.73E+01	7.48E-16	5.12E-17	1E-16	6.29E-02	5.75E-15	3.04E-16	1E-16	9.58E-01
06-Nov-96	3.53E-15	1E-16	5.88E+00	5.31E-15	1.97E-16	1E-16	1.77E+01	9.38E-16	5.91E-17	1E-16	1.04E-01	1.21E-14	5.32E-16	1E-16	2.02E+00
06-Feb-97	1.84E-16	1E-16	3.07E-01	2.01E-16	2.87E-17	1E-16	6.70E-01	1.87E-16	1.81E-17	1E-16	2.08E-02	8.14E-15	2.02E-16	1E-16	1.02E+00
05-May-97	5.75E-16	1E-16	9.58E-01	7.24E-16	6.36E-17	1E-16	2.41E+00	6.07E-16	4.85E-17	1E-16	8.74E-02	4.75E-15	2.84E-16	1E-16	7.92E-01
11-Aug-97	1.21E-15	1E-16	2.02E+00	7.38E-16	5.50E-17	1E-16	2.46E+00	5.05E-16	4.30E-17	1E-16	5.61E-02	4.92E-15	2.80E-16	1E-16	8.20E-01
05-Jan-98	9.89E-16	1E-16	1.65E+00	1.92E-15	N/A	1E-16	6.40E+00	8.21E-16	N/A	1E-16	9.90E-02	4.68E-15	N/A	1E-16	7.80E-01
28-Apr-98	2.84E-15	1E-16	4.73E+00	2.38E-15	7.70E-17	1E-16	7.93E+00	1.72E-15	6.58E-17	1E-16	1.81E-01	7.35E-15	3.47E-16	1E-16	1.23E+00
31-Jul-98	7.48E-16	1E-15	8.32E-01	1.48E-15	7.13E-17	1E-16	4.87E+00	8.34E-16	6.97E-17	1E-16	9.27E-02	7.01E-15	4.03E-16	1E-16	1.17E+00
28-Sep-98	1.07E-16	1E-16	1.19E+00	9.20E-16	5.66E-17	1E-16	3.07E+00	6.32E-16	4.81E-17	1E-16	7.03E-02	3.85E-15	2.04E-16	1E-16	6.50E-01
28-Dec-98	8.61E-15	1E-16	9.48E+00	4.58E-15	1.14E-16	1E-16	1.63E+01	4.50E-15	1.32E-16	1E-16	5.08E-01	1.43E-14	3.19E-16	1E-16	2.39E+00
29-Mar-99	3.75E-15	1E-16	4.16E-16	2.45E-15	8.25E-17	1E-16	8.17E+00	2.39E-15	9.46E-17	1E-16	2.66E-01	8.46E-15	3.28E-16	1E-16	1.41E+00
03-Jul-99	1.53E-15	1E-16	1.70E+00	8.65E-16	4.46E-17	1E-16	2.88E+00	6.52E-16	4.61E-17	1E-16	7.24E-02	7.20E-15	3.28E-16	1E-16	1.20E+00
27-Sep-99	5.83E-15	1E-16	6.48E+00	3.52E-15	1.18E-16	1E-16	1.17E+01	2.55E-15	8.85E-17	1E-15	2.83E-01	8.22E-15	3.16E-16	1E-16	1.37E+00
28-Dec-99	9.48E-15	1E-16	1.05E+01	6.20E-15	1.96E-16	1E-16	2.07E+01	3.98E-15	1.16E-16	1E-16	4.40E-01	7.58E-15	3.12E-16	1E-16	1.26E+00
27-Mar-00	2.09E-15	1E-16	2.29E+00	1.27E-16	5.74E-17	1E-16	4.25E+00	1.05E-15	5.88E-17	1E-16	1.21E-01	7.72E-15	3.24E-16	1E-16	1.29E+00
26-Jun-00	1.50E-15	1E-16	1.67E+00	1.24E-15	8.61E-17	1E-16	4.13E+00	1.01E-15	6.20E-17	1E-16	1.12E-01	4.35E-15	2.55E-16	1E-16	7.27E-01
26-Sep-00	1.04E-15	1E-16	1.15E+00	5.45E-16	6.15E-17	1E-16	1.82E+00	0.01E-16	7.82E-17	1E-16	8.67E-02	7.67E-15	4.45E-16	1E-16	1.28E+00
26-Dec-00	1.48E-15	1E-16	1.64E+00	7.66E-16	7.78E-17	1E-16	2.62E+00	6.04E-16	7.78E-17	1E-16	7.60E-02	7.00E-15	4.28E-16	1E-16	1.17E+00
26-Mar-01	4.27E-16	1E-16	4.75E-01	2.19E-16	4.27E-17	1E-16	7.32E-01	1.06E-16	2.44E-17	1E-16	2.10E-02	6.13E-15	7.50E-16	1E-16	1.02E+00
02-Jul-01	4.52E-16	1E-16	5.02E-01	4.02E-16	5.90E-17	1E-16	1.34E+00	<1.00E-16	N/A	1E-16	<1.11E-02	7.48E-15	2.67E-16	1E-16	1.25E+00
24-Sep-01	4.85E-16	1E-16	5.18E-01	2.08E-16	1.44E-17	1E-16	6.88E-01	2.02E-16	3.75E-17	1E-16	2.42E-02	6.98E-15	1.58E-16	1E-16	1.16E+00
31-Dec-01	7.40E-16	1E-16	8.23E-01	3.51E-16	3.84E-17	1E-16	1.17E+00	3.84E-16	3.41E-17	1E-16	4.04E-02	4.72E-15	2.03E-16	1E-16	7.86E-01
01-Apr-02	1.28E-15	1E-16	1.40E+00	7.53E-16	8.07E-17	1E-16	2.51E+00	7.19E-16	6.52E-17	1E-16	7.98E-02	9.85E-15	1.72E-16	1E-16	1.81E+00
01-Jul-02	1.02E-15	1E-16	1.14E+00	1.03E-15	6.44E-17	1E-16	3.44E+00	3.39E-16	3.25E-17	1E-16	3.77E-02	7.20E-15	1.72E-16	1E-16	1.20E+00

*1/1/94 Derived air concentrations were implemented as per 10 CFR 20

TABLE IV

INTERNATIONAL URANIUM CORPORATION
WHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
LOCATION: BHV-6

Current Quarter	1st	2nd	3rd	4th
% time operated	94.9%	90.9%		
Air Volume, SCF x 106	4.57	4.67		

PERIOD ENDING	URANIUM NAT. GROSS CONC. µCi/cc	URANIUM NAT. LLD (1E-16)	URANIUM NAT. % MPC	THORIUM- 230 GROSS CONC. µCi/cc	THORIUM- 230 COUNTING ERROR	THORIUM- 230 LLD (1E-18)	THORIUM- 230 % MPC	RADIUM- 226 GROSS CONC. µCi/cc	RADIUM- 226 COUNTING ERROR	RADIUM- 226 LLD (1E-15)	RADIUM- 226 % MPC	LEAD -210 GROSS CONC. µCi/cc	LEAD -210 COUNTING ERROR	LEAD -210 LLD (1E-18)	LEAD -210 % MPC
27-Sep-99	3.03E-15	1E-16	3.38E+00	1.37E-15	6.98E-17	1E-16	4.57E+00	8.72E-16	5.23E-17	1E-16	8.08E-02	7.55E-15	3.06E-16	1E-16	1.20E+00
28-Dec-99	5.01E-15	1E-16	5.56E+00	2.89E-15	1.25E-16	1E-16	9.63E+00	1.31E-15	6.53E-17	1E-16	1.46E-01	8.10E-15	3.17E-16	1E-16	1.35E+00
30-Mar-00	7.46E-16	1E-16	8.29 E-01	5.25E-16	5.04E-17	1E-16	1.75E+00	3.00E-16	1.68E-17	1E-16	3.33E-02	7.83E-15	3.16E-16	1E-16	1.30E+00
26-Jun-00	5.40E-16	1E-16	6.00E-01	3.53E-16	3.62E-17	1E-16	1.18E+00	6.11E-16	5.34E-17	1E-16	6.79E-02	4.83E-15	2.93E-16	1E-16	8.05E-01
25-Sep-00	3.76E-16	1E-16	4.17E-01	2.23E-16	4.23E-17	1E-16	7.44E-01	1.01E-16	2.88E-17	1E-16	2.12E-02	6.41E-15	4.61E-16	1E-16	1.02E+00
26-Dec-00	5.21E-16	1E-16	5.79E-01	3.39E-16	5.04E-17	1E-16	1.13E+00	3.28E-17	2.80E-17	1E-16	3.04E-02	8.57E-15	4.70E-16	1E-16	1.43E+00
26-Mar-01	1.42E-16	1E-16	1.58E-01	<1.00E-16	NA	1E-16	<3.33E-01	<1.00E-16	NA	1E-16	<1.11E-02	8.15E-15	7.06E-16	1E-16	1.03E+00
02-Jul-01	1.81E-16	1E-16	2.01E-01	1.66E-16	3.59E-17	1E-16	5.52E-01	<1.00E-16	N/A	1E-16	<1.11E-02	0.85E-15	2.57E-16	1E-16	1.16E+00
24-Sep-01	3.08E-16	1E-16	3.42E-01	1.01E-16	1.01E-17	1E-16	3.37E-01	1.77E-16	3.03E-17	1E-16	1.97E-02	8.59E-15	1.72E-16	1E-16	1.43E+00
31-Dec-01	3.31E-16	1E-16	3.68E-01	1.25E-16	2.72E-17	1E-16	4.15E-01	1.09E-16	1.00E-17	1E-16	1.21E-02	3.14E-15	1.85E-16	1E-16	5.24E-01
01-Apr-02	4.77E-16	1E-16	5.31E-01	2.94E-16	4.10E-17	1E-16	9.82E-01	1.95E-16	1.61E-17	1E-16	2.16E-02	8.61E-15	1.70E-16	1E-16	1.43E+00
01-Jul-02	3.88E-16	1E-16	4.09E-01	4.41E-16	4.15E-17	1E-16	1.47E+00	1.78E-16	1.29E-17	1E-16	1.98E-02	8.20E-15	1.60E-16	1E-16	1.37E+00

*BHV-6 was installed on 6/25/99.

Period: December 31, 2001 through April 01, 2002 (1st Quarter 2002)

BHV-1 on stream % 96.7%

BHV-1 Total Volume: 4.66E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
	0505	31-Dec-01	7-Jan-02	4.4905	4.4442	0.0463	17366.2	7278.3	10087.9	10,426,500	0.0044	100.1%	36.5
	129199	07-Jan-02	14-Jan-02	4.5276	4.4482	0.0794	27408.8	17366.2	10042.6	10,521,866	0.0075	99.6%	37.0
3	7129193	14-Jan-02	21-Jan-02	4.5624	4.4491	0.1133	37640.7	27408.8	10231.9	10,720,200	0.0106	101.5%	37.0
4	7129187	21-Jan-02	28-Jan-02	4.5924	4.4483	0.1441	47869.5	37640.7	10228.8	10,716,952	0.0134	101.5%	37.0
5	7129181	28-Jan-02	4-Feb-02	4.5883	4.4676	0.1207	57734.0	47869.5	9864.5	10,335,267	0.0117	97.9%	37.0
6	7129175	04-Feb-02	11-Feb-02	4.6069	4.4803	0.1266	67754.2	57734.0	10020.2	10,498,397	0.0121	99.4%	37.0
7	7129169	11-Feb-02	18-Feb-02	4.6314	4.4770	0.1544	77803.4	67754.2	10049.2	10,500,325	0.0147	99.7%	36.9
8	7129163	18-Feb-02	25-Feb-02	4.4774	4.4273	0.0501	83387.6	77803.4	5584.2	5,834,884	0.0086	55.4%	36.9
9	7129157	25-Feb-02	4-Mar-02	4.6168	4.4428	0.1740	93412.4	83387.6	10024.8	10,474,830	0.0166	99.5%	36.9
10	7129151	04-Mar-02	11-Mar-02	4.5861	4.4045	0.1816	103434.8	93412.4	10022.4	10,387,181	0.0175	99.4%	36.6
11	7129145	11-Mar-02	18-Mar-02	4.7344	4.4452	0.2892	13555.1	3434.8	10120.3	10,431,330	0.0277	100.4%	36.4
12	7129139	18-Mar-02	25-Mar-02	4.7050	4.4591	0.2459	23596.0	13555.1	10040.9	10,349,489	0.0238	99.6%	36.4
13	7129133	25-Mar-02	1-Apr-02	4.6378	4.4751	0.1627	34008.5	23596.0	10412.5	10,732,510	0.0152	103.3%	36.4
	Totals	91	2184.0	4.5966923	4.4514385	0.1453			126730.2	131,929,732	0.0141	96.7%	36.8

BHV-2 on stream % 100.2%

BHV-2 Total Volume: 4.83E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7130504	31-Dec-01	07-Jan-02	4.5433	4.4485	0.0948	37292.1	27200.7	10091.4	10,430,117	0.0091	100.1%	36.5
2	7129198	07-Jan-02	14-Jan-02	4.5662	4.4705	0.0957	47336.0	37292.1	10043.9	10,523,228	0.0091	99.6%	37.0
3	7129192	14-Jan-02	21-Jan-02	4.6955	4.4528	0.2427	57548.8	47336.0	10212.8	10,700,189	0.0227	101.3%	37.0
4	7129186	21-Jan-02	28-Jan-02	4.7432	4.4288	0.3144	67816.8	57548.8	10268.0	10,758,023	0.0292	101.9%	37.0
5	7129180	28-Jan-02	04-Feb-02	4.6326	4.4719	0.1607	77654.0	67816.8	9837.2	10,306,664	0.0156	97.6%	37.0
6	7129174	04-Feb-02	11-Feb-02	4.8034	4.4547	0.3487	87678.2	77654.0	10024.2	10,502,588	0.0332	99.4%	37.0
7	7129168	11-Feb-02	18-Feb-02	4.7333	4.4794	0.2539	97733.0	87678.2	10054.8	10,506,177	0.0242	99.8%	36.9
8	7129162	18-Feb-02	25-Feb-02	4.5783	4.4085	0.1698	107819.7	97733.0	10086.7	10,539,509	0.0161	100.1%	36.9
9	7129156	25-Feb-02	04-Mar-02	4.8182	4.4359	0.3823	17921.6	7819.7	10101.9	10,555,391	0.0362	100.2%	36.9
10	7129150	04-Mar-02	11-Mar-02	4.6917	4.4019	0.2898	27945.8	17921.6	10024.2	10,389,047	0.0279	99.4%	36.6
11	7129144	11-Mar-02	18-Mar-02	4.8929	4.4523	0.4406	38066.3	27945.8	10120.5	10,431,536	0.0422	100.4%	36.4
12	7129138	18-Mar-02	25-Mar-02	4.8418	4.4715	0.3703	48108.0	38066.3	10041.7	10,350,314	0.0358	99.6%	36.4
13	7129132	25-Mar-02	01-Apr-02	4.7717	4.4658	0.3059	58509.6	48108.0	10401.6	10,721,275	0.0285	103.2%	36.4
	Totals	91	2184.0	4.716315	4.449423	0.2669			131308.9	138,714,057	0.0254	100.2%	36.8

4 on stream % 93.1%

BHV-4 Total Volume: 4.49E+06

#	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7130503	31-Dec-01	07-Jan-02	4.5335	4.4738	0.0597	42634.7	32538.5	10096.2	10,435,078	0.0057	100.2%	36.5
2	7129197	07-Jan-02	14-Jan-02	4.5218	4.4517	0.0701	52698.8	42634.7	10064.1	10,544,392	0.0066	99.8%	37.0
3	7129191	14-Jan-02	21-Jan-02	4.5663	4.4565	0.1098	62913.3	52698.8	10214.5	10,701,970	0.0103	101.3%	37.0
4	7129185	21-Jan-02	28-Jan-02	4.5818	4.4481	0.1337	73033.7	62913.3	10120.4	10,603,379	0.0126	100.4%	37.0
5	7129179	28-Jan-02	04-Feb-02	4.5555	4.4589	0.0966	82988.2	73033.7	9954.5	10,428,562	0.0093	98.8%	37.0
6	7129173	04-Feb-02	11-Feb-02	4.5356	4.4379	0.0977	93026.7	82988.2	10038.5	10,517,571	0.0093	99.6%	37.0
7	7129167	11-Feb-02	18-Feb-02	4.5541	4.4400	0.1141	103097.3	93026.7	10070.6	10,522,686	0.0108	99.9%	36.9
8	7129161	18-Feb-02	25-Feb-02	4.4693	4.4068	0.0625	13168.7	3097.3	10071.4	10,523,522	0.0059	99.9%	36.9
9	7129155	25-Feb-02	04-Mar-02	4.5446	4.4230	0.1216	23218.9	13168.7	10050.2	10,501,370	0.0116	99.7%	36.9
10	7129149	04-Mar-02	11-Mar-02	4.4505	4.4149	0.0356	24187.6	23218.9	968.7	1,003,957	0.0355	9.6%	36.6
11	7129143	11-Mar-02	18-Mar-02	4.7133	4.4579	0.2554	34127.6	24187.6	9940.0	10,245,488	0.0249	98.6%	36.4
12	7129137	18-Mar-02	25-Mar-02	4.6083	4.3981	0.2102	44170.1	34127.6	10042.5	10,351,138	0.0203	99.6%	36.4
13	7129131	25-Mar-02	01-Apr-02	4.6233	4.4792	0.1441	54539.0	44170.1	10368.9	10,687,570	0.0135	102.9%	36.4
	Totals	91	2184.0	4.5583	4.442062	0.1162			122000.5	127,067,684	0.0136	93.1%	36.8

BHV-5 on stream % 100.4%

BHV-5 Total Volume: 4.84E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7130502	31-Dec-01	07-Jan-02	4.5456	4.4834	0.0622	53849.5	43762.5	10087.0	10,425,569	0.0060	100.1%	36.5
2	7129196	07-Jan-02	14-Jan-02	4.5391	4.4637	0.0754	63912.5	53849.5	10063.0	10,543,240	0.0072	99.8%	37.0
3	7129190	14-Jan-02	21-Jan-02	4.6045	4.4835	0.1210	74127.4	63912.5	10214.9	10,702,389	0.0113	101.3%	37.0
4	7129184	21-Jan-02	28-Jan-02	4.6160	4.4466	0.1694	84516.8	74127.4	10389.4	10,885,217	0.0156	103.1%	37.0
5	7129178	28-Jan-02	04-Feb-02	4.5774	4.4558	0.1216	94217.8	84216.8	10001.0	10,478,281	0.0116	99.2%	37.0
6	7129172	04-Feb-02	11-Feb-02	4.5832	4.4615	0.1217	104243.1	94217.8	10025.3	10,503,741	0.0116	99.5%	37.0
7	7129166	11-Feb-02	18-Feb-02	4.5672	4.4060	0.1612	14312.9	4243.1	10069.8	10,521,850	0.0153	99.9%	36.9
8	7129160	18-Feb-02	25-Feb-02	4.5447	4.4339	0.1108	24393.7	14312.9	10080.8	10,533,344	0.0105	100.0%	36.9
9	7129154	25-Feb-02	04-Mar-02	4.6369	4.4111	0.2258	34494.7	24393.7	10101.0	10,554,451	0.0214	100.2%	36.9
10	7129148	04-Mar-02	11-Mar-02	4.5856	4.4077	0.1779	44524.5	34494.7	10029.8	10,394,851	0.0171	99.5%	36.6
11	7129142	11-Mar-02	18-Mar-02	4.7168	4.4662	0.2506	54645.3	44524.5	10120.8	10,431,845	0.0240	100.4%	36.4
	129136	18-Mar-02	25-Mar-02	4.6858	4.4690	0.2168	64688.2	54645.3	10042.9	10,351,551	0.0209	99.6%	36.4
	129130	25-Mar-02	01-Apr-02	4.6504	4.4784	0.1720	75067.3	64688.2	10379.1	10,698,083	0.0161	103.0%	36.4
	Totals	91	2184.0	4.604092	4.451292	0.1528			131604.8	137,024,411	0.0145	100.4%	36.8

Period: December 31, 2001 through April 01, 2002 (1st Quarter 2002)

BHV-6 on stream % 94.9%

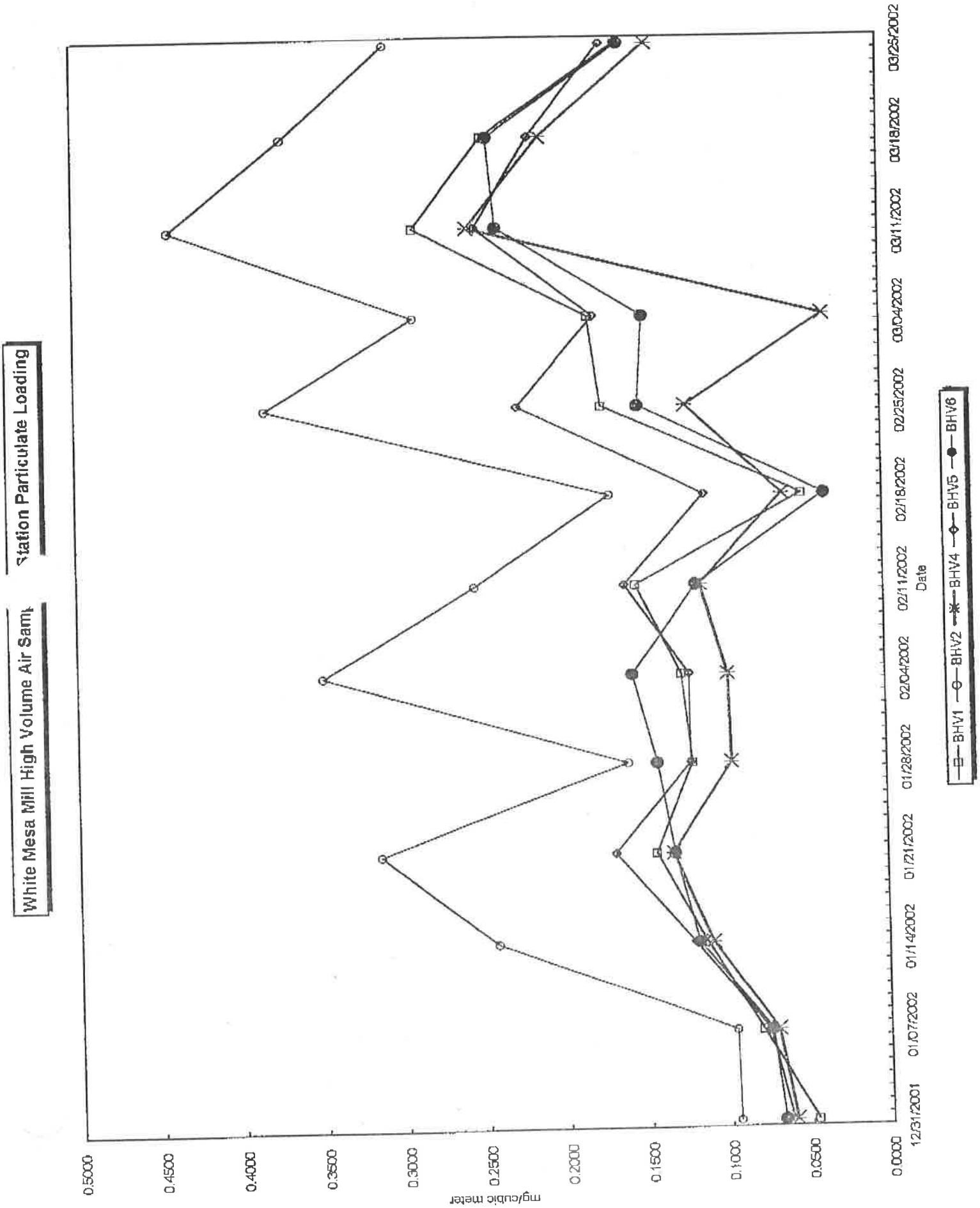
BHV-6 Total Volume: 4.57E+06

	ter umber	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7130501	31-Dec-01	07-Jan-02	4.5201	4.4531	0.0670	74855.7	64772.8	10082.9	10,421,332	0.0064	100.0%	36.5
2	7129195	07-Jan-02	14-Jan-02	4.5426	4.4687	0.0739	84914.9	74855.7	10059.2	10,539,259	0.0070	99.8%	37.0
3	7129189	14-Jan-02	21-Jan-02	4.5847	4.4665	0.1182	95128.2	84914.9	10213.3	10,700,713	0.0110	101.3%	37.0
4	7129183	21-Jan-02	28-Jan-02	4.6051	4.4724	0.1327	105222.5	95128.2	10094.3	10,576,034	0.0125	100.1%	37.0
5	7129177	28-Jan-02	04-Feb-02	4.6069	4.4642	0.1427	15227.2	5222.5	10004.7	10,482,158	0.0136	99.3%	37.0
6	7129171	04-Feb-02	11-Feb-02	4.6079	4.4509	0.1570	25259.5	15227.2	10032.3	10,511,075	0.0149	99.5%	37.0
7	7129165	11-Feb-02	18-Feb-02	4.5485	4.4318	0.1167	35314.4	25259.5	10054.9	10,506,281	0.0111	99.8%	36.9
8	7129159	18-Feb-02	25-Feb-02	4.4671	4.4309	0.0362	38533.6	35314.4	3219.2	3,363,715	0.0108	31.9%	36.9
9	7129153	25-Feb-02	04-Mar-02	4.5515	4.4004	0.1511	48547.7	38533.6	10014.1	10,463,650	0.0144	99.3%	36.9
10	7129147	04-Mar-02	11-Mar-02	4.5534	4.4058	0.1476	58577.3	48547.7	10029.6	10,394,643	0.0142	99.5%	36.6
11	7129141	11-Mar-02	18-Mar-02	4.6878	4.4505	0.2373	68697.6	58577.3	10120.3	10,431,330	0.0227	100.4%	36.4
12	7129135	18-Mar-02	25-Mar-02	4.7079	4.4653	0.2426	78739.7	68692.6	10047.1	10,355,880	0.0234	99.7%	36.4
13	7129129	25-Mar-02	01-Apr-02	4.6602	4.4992	0.1610	89128.3	78739.7	10388.6	10,707,875	0.0150	103.1%	36.4
	Totals	91	2184.0	4.587977	4.450746	0.1372			124360.5	129,453,943	0.0136	94.9%	36.8

* BHV-6 installed 7/1/99

ALL BHV on stream % 97.1%

Week #	Blanks	Start Date	Stop Date	Net
1	7129194	31-Dec-01	07-Jan-02	4.4680
2	7129188	07-Jan-02	14-Jan-02	4.4448
3	7129182	14-Jan-02	21-Jan-02	4.4628
4	7129176	21-Jan-02	28-Jan-02	4.4769
5	7129170	28-Jan-02	04-Feb-02	4.4792
6	7129164	04-Feb-02	11-Feb-02	4.4169
7	7129158	11-Feb-02	18-Feb-02	4.4460
8	7129152	18-Feb-02	25-Feb-02	4.4131
9	7129146	25-Feb-02	04-Mar-02	4.4083
10	7129140	04-Mar-02	11-Mar-02	4.4480
11	29134	11-Mar-02	18-Mar-02	4.4551
	9128	18-Mar-02	25-Mar-02	4.5154
	129122	25-Mar-02	01-Apr-02	4.4185
	Totals	91	2184.0	4.4502


White Mesa Mill High Volume Air Sam
Station Particulate Loading
mg/cubic meter
0.5000
0.4500
0.4000
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01/28/2002
02/04/2002
02/11/2002
02/18/2002
02/25/2002
03/04/2002
03/11/2002
03/18/2002
03/25/2002
Date
BHV1
BHV2
BHV4
BHV5
BHV6

Period: April 01, 2002 through July 01, 2002 (2nd Quarter 2002)

BHV-1 on stream % 99.7% **BHV-1** Total Volume: 4.80E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
	29127	1-Apr-02	8-Apr-02	4.7385	4.4873	0.2512	43716.5	34008.5	9708.0	10,033,848	0.0250	96.3%	36.5
	129121	08-Apr-02	16-Apr-02	4.9729	4.4088	0.5641	55264.5	43716.5	11548.0	12,099,109	0.0466	100.2%	37.0
3	7129115	16-Apr-02	22-Apr-02	5.2341	4.4592	0.7749	63923.9	55264.5	8659.4	9,072,655	0.0854	100.2%	37.0
4	7129109	22-Apr-02	29-Apr-02	4.8674	4.4692	0.3982	73945.2	63923.9	10021.3	10,499,550	0.0379	99.4%	37.0
5	7129103	29-Apr-02	6-May-02	4.8921	4.5024	0.3897	84137.9	73945.2	10192.7	10,679,130	0.0365	101.1%	37.0
6	7196497	06-May-02	14-May-02	4.8141	4.2950	0.5191	95421.8	84137.9	11283.9	11,822,405	0.0439	98.0%	37.0
7	7196491	14-May-02	20-May-02	4.8358	4.4452	0.3906	104075.6	95421.8	8653.8	9,042,283	0.0432	100.2%	36.9
8	7196485	20-May-02	28-May-02	4.8188	4.4490	0.3698	15656.0	4075.6	11580.4	12,100,263	0.0306	100.5%	36.9
9	7196479	28-May-02	3-Jun-02	4.6838	4.4608	0.2230	24383.2	15656.0	8727.2	9,118,978	0.0245	101.0%	36.9
10	7196473	03-Jun-02	10-Jun-02	5.3812	4.3558	1.0254	34474.5	24383.2	10091.3	10,458,589	0.0980	100.1%	36.6
11	7196467	10-Jun-02	17-Jun-02	4.6316	4.3663	0.2653	44439.1	34474.5	9964.6	10,270,844	0.0258	98.9%	36.4
12	7196461	17-Jun-02	24-Jun-02	5.0092	4.4024	0.6068	54510.7	44439.1	10071.6	10,381,133	0.0585	99.9%	36.4
13	7196455	24-Jun-02	1-Jul-02	4.7808	4.4153	0.3655	64605.4	54510.7	10094.7	10,404,943	0.0351	100.1%	36.4
	Totals	91	2184.0	4.8969462	4.4243615	0.4726			130596.9	135,983,732	0.0455	99.7%	36.8

BHV-2 on stream % 96.6% **BHV-2** Total Volume: 4.66E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7129126	01-Apr-02	08-Apr-02	4.9508	4.5263	0.4245	68233.3	58509.6	9723.7	10,050,075	0.0422	96.5%	36.5
2	7129120	08-Apr-02	16-Apr-02	5.1665	4.4305	0.7360	79779.7	68233.3	11546.4	12,097,433	0.0608	100.2%	37.0
3	7129114	16-Apr-02	22-Apr-02	5.3081	4.4586	0.8495	88439.3	79779.7	8659.6	9,072,865	0.0936	100.2%	37.0
4	7129108	22-Apr-02	29-Apr-02	5.0615	4.4606	0.6009	98460.7	88439.3	10021.4	10,499,655	0.0572	99.4%	37.0
5	7129102	29-Apr-02	06-May-02	5.1311	4.5147	0.6164	108635.9	98460.7	10175.2	10,660,795	0.0578	100.9%	37.0
6	7196496	06-May-02	14-May-02	5.0316	4.2853	0.7463	16263.0	8635.9	7627.1	7,991,091	0.0934	66.2%	37.0
7	7196490	14-May-02	20-May-02	4.9836	4.4445	0.5391	24863.8	16263.0	8600.8	8,986,904	0.0600	99.5%	36.9
8	7196484	20-May-02	28-May-02	5.3305	4.4789	0.8516	36223.3	24863.8	11359.5	11,869,447	0.0717	98.6%	36.9
9	7196478	28-May-02	03-Jun-02	4.6436	4.2354	0.4082	45204.8	36443.3	8761.5	9,154,818	0.0446	101.4%	36.9
10	7196472	03-Jun-02	10-Jun-02	6.1631	4.3318	1.8313	55263.9	45204.8	10059.1	10,425,217	0.1757	99.8%	36.6
11	7196466	10-Jun-02	17-Jun-02	4.7832	4.3913	0.3919	65211.3	55263.9	9947.4	10,253,116	0.0382	98.7%	36.4
12	7196460	17-Jun-02	24-Jun-02	5.2112	4.4195	0.7917	75280.4	65211.3	10069.1	10,378,556	0.0763	99.9%	36.4
13	7196454	24-Jun-02	01-Jul-02	4.9555	4.4253	0.5302	85371.0	75280.4	10090.6	10,400,717	0.0510	100.1%	36.4
	Totals	91	2184.0	5.132331	4.415592	0.7167			126641.4	131,840,687	0.0710	97.0%	36.8

V-4 on stream % 96.9% **BHV-4** Total Volume: 4.67E+06

#	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7129125	01-Apr-02	08-Apr-02	4.7645	4.5384	0.2261	64300.0	54539.0	9761.0	10,088,627	0.0224	96.8%	36.5
2	7129119	08-Apr-02	16-Apr-02	4.8785	4.4490	0.2295	74777.2	64300.0	10477.2	10,977,207	0.0209	90.9%	37.0
3	7129113	16-Apr-02	22-Apr-02	5.0475	4.4736	0.5739	83306.8	74777.2	8529.6	8,936,661	0.0642	96.7%	37.0
4	7129107	22-Apr-02	29-Apr-02	4.9051	4.4947	0.4104	93361.3	83306.8	10054.5	10,534,334	0.0390	99.7%	37.0
5	7129101	29-Apr-02	06-May-02	5.0140	4.5242	0.4898	103508.7	93361.3	10147.4	10,631,668	0.0461	100.7%	37.0
6	7196495	06-May-02	14-May-02	4.9140	4.3389	0.5751	14837.3	3508.7	11328.6	11,869,239	0.0485	98.3%	37.0
7	7196489	14-May-02	20-May-02	4.9855	4.4743	0.5112	23497.9	14837.3	8660.6	9,049,389	0.0565	100.2%	36.9
8	7196483	20-May-02	28-May-02	4.8527	4.4352	0.4175	35071.3	23497.9	11573.4	12,092,949	0.0345	100.5%	36.9
9	7196477	28-May-02	03-Jun-02	4.5189	4.2436	0.2753	43728.5	35071.3	8657.2	9,045,836	0.0304	100.2%	36.9
10	7196471	03-Jun-02	10-Jun-02	4.5559	4.3550	0.2009	51395.3	43728.5	7666.8	7,945,845	0.0253	76.1%	36.6
11	7196465	10-Jun-02	17-Jun-02	4.5833	4.3664	0.2169	61345.8	51395.3	9950.5	10,256,311	0.0211	98.7%	36.4
12	7196459	17-Jun-02	24-Jun-02	5.0707	4.3963	0.6744	71488.9	61345.8	10143.1	10,454,830	0.0645	100.6%	36.4
13	7196453	24-Jun-02	01-Jul-02	4.7884	4.4614	0.3270	81567.4	71488.9	10078.5	10,388,245	0.0315	100.0%	36.4
	Totals	91	2184.0	4.821462	4.427	0.3945			127028.4	132,271,141	0.0368	97.0%	36.8

BHV-5 on stream % 96.9% **BHV-5** Total Volume: 4.67E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7129124	01-Apr-02	08-Apr-02	4.8163	4.5179	0.2984	84802.3	75067.3	9735.0	10,061,754	0.0297	96.6%	36.5
2	7129118	08-Apr-02	16-Apr-02	4.8830	4.4586	0.4242	95287.0	84802.3	10484.7	10,985,065	0.0386	91.0%	37.0
3	7129112	16-Apr-02	22-Apr-02	5.5255	4.4539	1.0716	103827.1	95287.0	8540.1	8,947,662	0.1198	98.8%	37.0
4	7129106	22-Apr-02	29-Apr-02	5.1652	4.4973	0.6679	13880.7	3827.1	10053.6	10,533,391	0.0634	99.7%	37.0
5	7126500	29-Apr-02	06-May-02	4.9239	4.3818	0.5421	24038.6	13880.7	10157.9	10,642,669	0.0509	100.8%	37.0
6	7196494	06-May-02	14-May-02	5.3960	4.3935	1.0025	35356.9	24038.6	11318.3	11,858,447	0.0845	98.2%	37.0
7	7196488	14-May-02	20-May-02	4.9531	4.4269	0.5262	44015.7	35356.9	8658.8	9,047,508	0.0582	100.2%	36.9
8	7196482	20-May-02	28-May-02	5.6985	4.4791	1.2194	55592.1	44015.7	11576.4	12,096,084	0.1008	100.5%	36.9
9	7196476	28-May-02	03-Jun-02	4.8840	4.2402	0.6438	64257.1	55592.1	8665.0	9,053,986	0.0711	100.3%	36.9
10	7196470	03-Jun-02	10-Jun-02	4.8955	4.3563	0.5392	71913.8	64257.1	7656.7	7,935,378	0.0679	76.0%	36.6
11	7196464	10-Jun-02	17-Jun-02	4.6761	4.3822	0.2939	81864.9	71913.8	9951.1	10,256,929	0.0287	98.7%	36.4
	7196458	17-Jun-02	24-Jun-02	5.4806	4.4230	1.0576	92007.4	81864.9	10142.5	10,454,212	0.1012	100.6%	36.4
	96452	24-Jun-02	01-Jul-02	4.8467	4.4227	0.4240	102059.6	92007.4	10052.2	10,361,137	0.0409	99.7%	36.4
	Totals	91	2184.0	5.088031	4.417969	0.6701			126992.3	132,234,222	0.0658	97.0%	36.8

Period: April 01, 2002 through July 01, 2002 (2nd Quarter 2002)

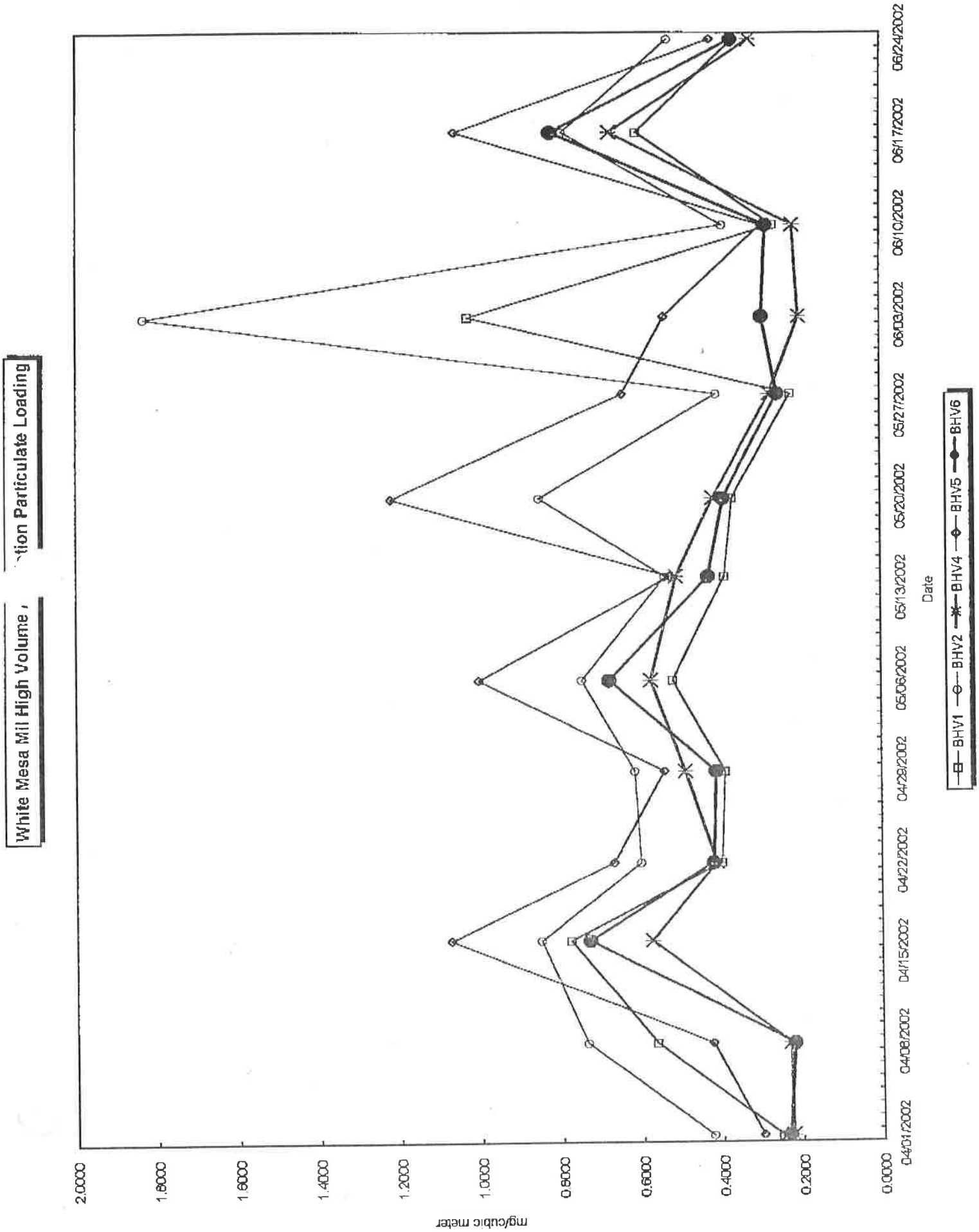
BHV-6 on stream % 96.9% BHV-6 Total Volume: 4.67E+06

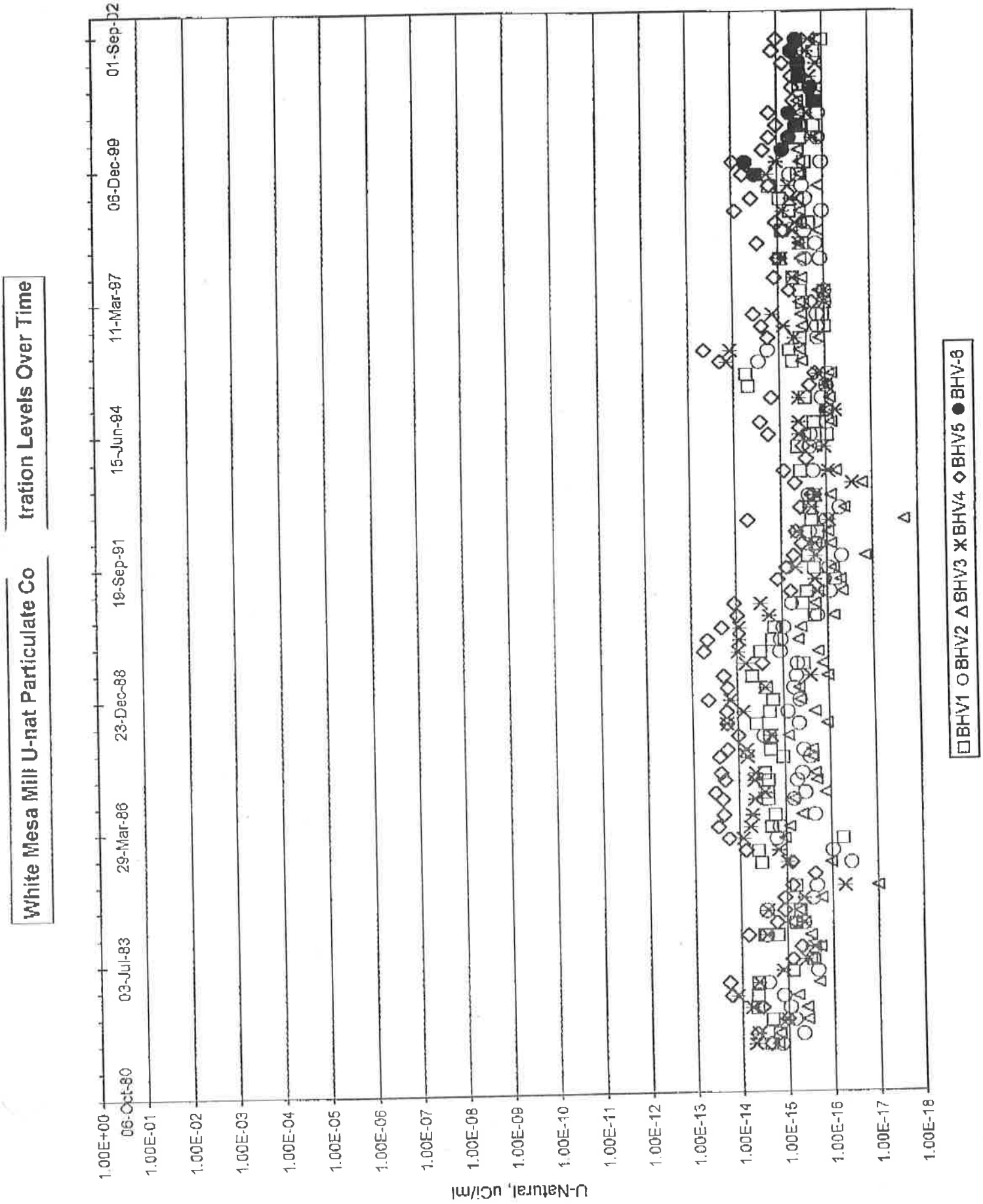
Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7129123	01-Apr-02	08-Apr-02	4.6441	4.4102	0.2339	98859.0	89128.3	9730.7	10,057,310	0.0233	96.5%	36.5
2	7129117	08-Apr-02	16-Apr-02	4.7087	4.4895	0.2192	109326.6	98859.0	10467.6	10,967,149	0.0200	90.9%	37.0
3	7129111	16-Apr-02	22-Apr-02	5.2104	4.4811	0.7293	17873.0	9326.6	8546.4	8,954,263	0.0814	98.9%	37.0
4	7129105	22-Apr-02	29-Apr-02	4.9111	4.4917	0.4194	27928.1	17873.0	10055.1	10,534,963	0.0398	99.8%	37.0
5	7196499	29-Apr-02	06-May-02	4.7796	4.3670	0.4126	38092.3	27928.1	10164.2	10,649,270	0.0387	100.8%	37.0
6	7196493	06-May-02	14-May-02	5.0960	4.4176	0.6784	49400.2	38092.3	11307.9	11,847,551	0.0573	98.2%	37.0
7	7196487	14-May-02	20-May-02	4.8690	4.4389	0.4301	58057.5	49400.2	8657.3	9,045,941	0.0475	100.2%	36.9
8	7196481	20-May-02	28-May-02	4.8805	4.4883	0.3922	69636.5	58057.5	11579.0	12,098,800	0.0324	100.5%	36.9
9	7196475	28-May-02	03-Jun-02	4.5069	4.2508	0.2561	78309.3	69636.5	8672.8	9,062,136	0.0283	100.4%	36.9
10	7196469	03-Jun-02	10-Jun-02	4.6652	4.3720	0.2932	85959.8	78309.3	7650.5	7,928,952	0.0370	75.9%	36.6
11	7196463	10-Jun-02	17-Jun-02	4.6933	4.4101	0.2832	95913.3	85959.8	9953.5	10,259,403	0.0276	98.7%	36.4
12	7196457	17-Jun-02	24-Jun-02	5.2704	4.4504	0.8200	106052.2	95913.3	10138.9	10,450,501	0.0785	100.6%	36.4
13	7196451	24-Jun-02	01-Jul-02	4.8250	4.4546	0.3704	16130.7	6052.2	10078.5	10,388,245	0.0357	100.0%	36.4
	Totals	91	2184.0	4.850785	4.424785	0.4260			127002.4	132,244,464	0.0421	97.0%	36.8

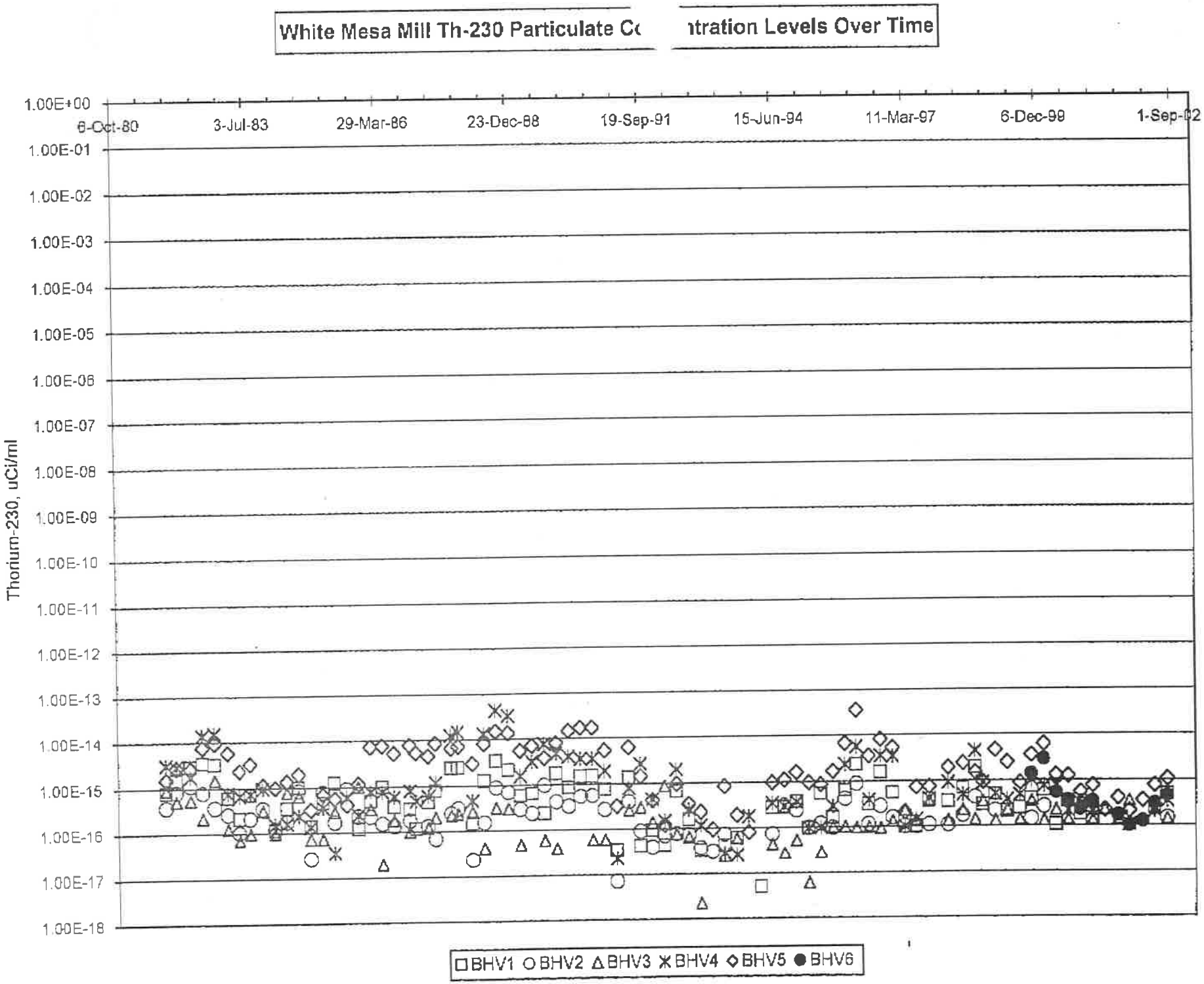
* BHV-6 Installed 7/1/99

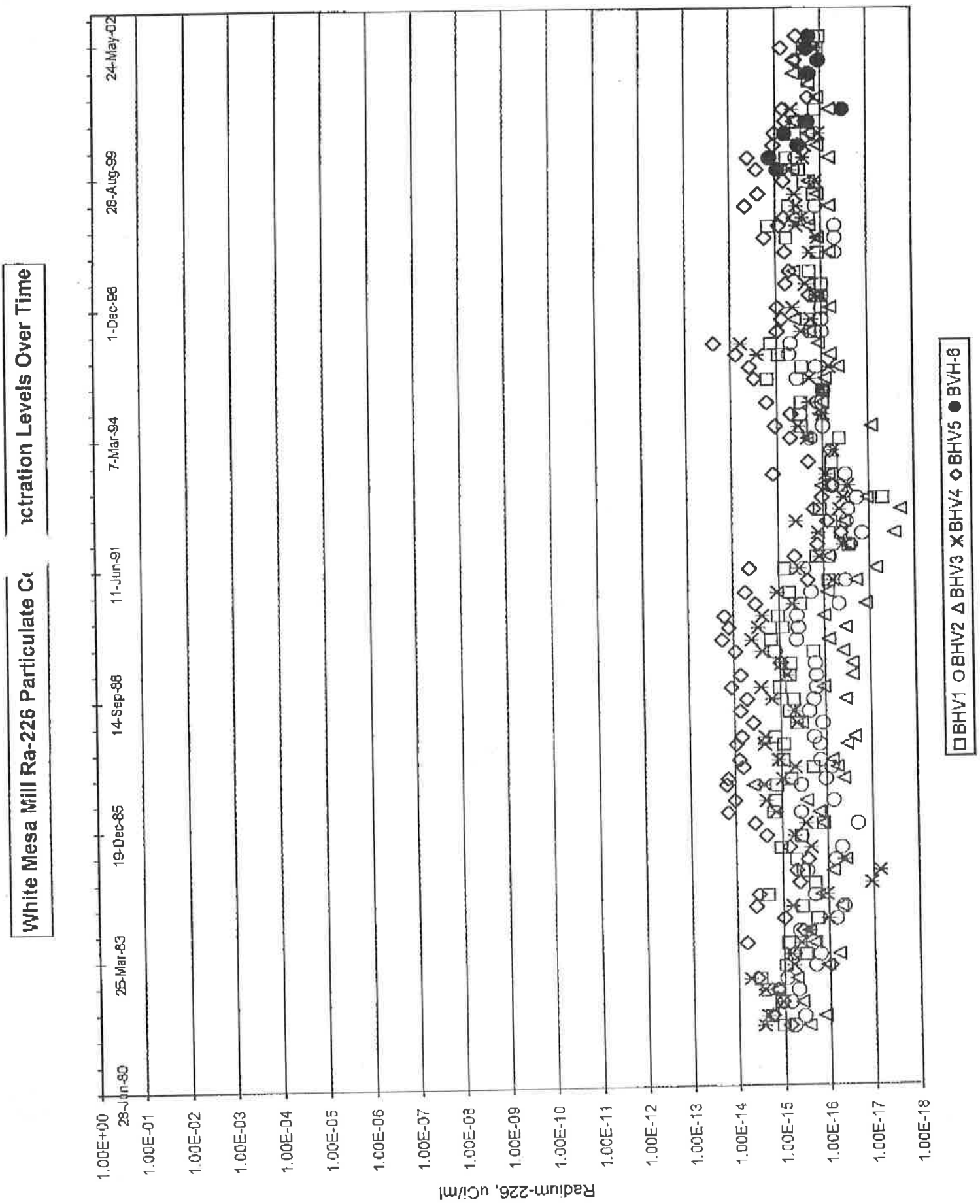
ALL BHV on stream % 97.4%

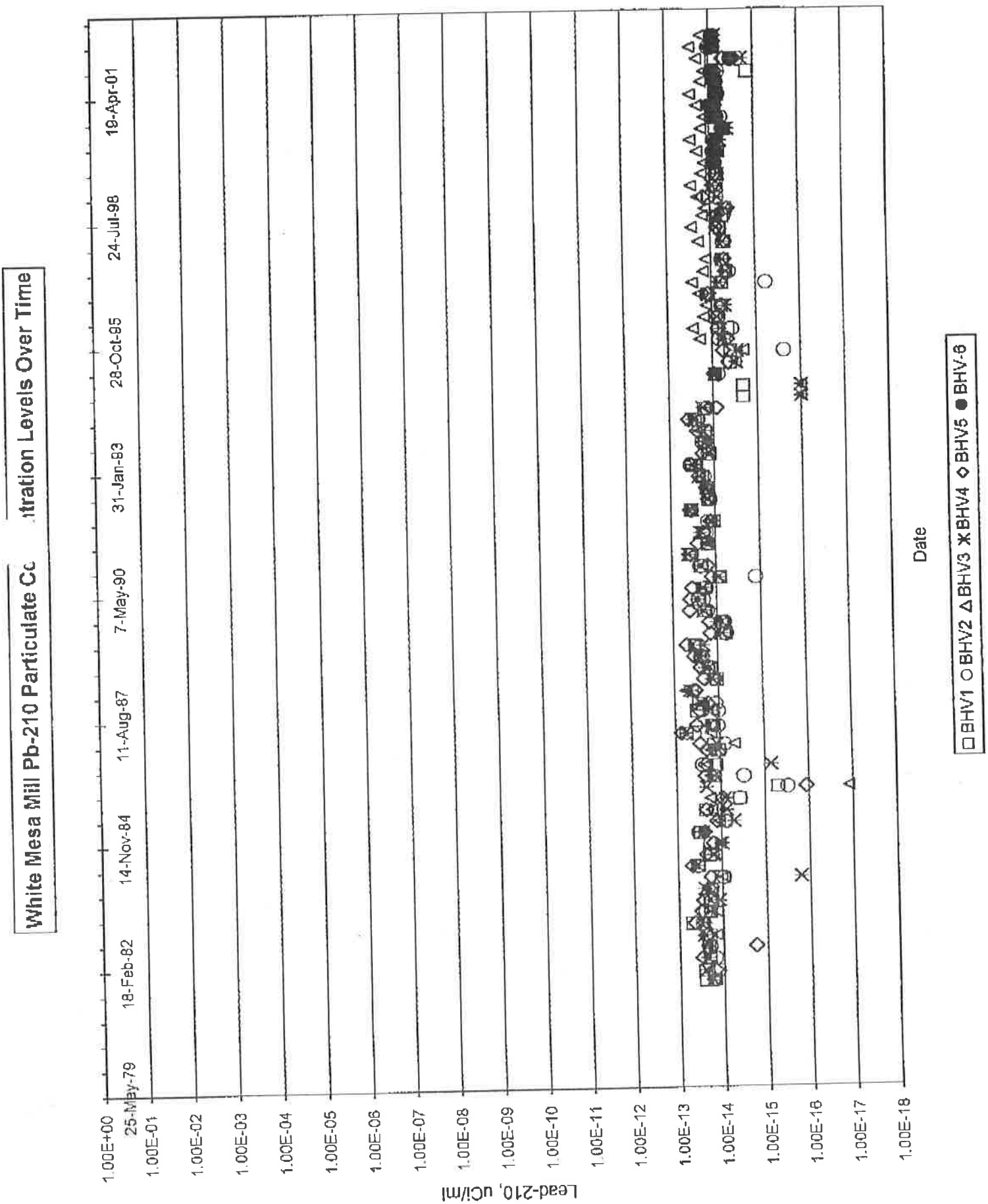
Week #	Blanks	Start Date	Stop Date	Net
1	7129116	01-Apr-02	08-Apr-02	4.4530
2	7129110	08-Apr-02	16-Apr-02	4.4853
3	7129104	16-Apr-02	22-Apr-02	4.5038
4	7196498	22-Apr-02	29-Apr-02	4.4090
5	7196492	29-Apr-02	06-May-02	4.4188
6	7196486	06-May-02	14-May-02	4.4578
7	7196480	14-May-02	20-May-02	4.5005
8	7196474	20-May-02	28-May-02	4.3179
9	7196468	28-May-02	03-Jun-02	4.3911
10	7196462	03-Jun-02	10-Jun-02	4.4005
11	6456	10-Jun-02	17-Jun-02	4.4367
	6450	17-Jun-02	24-Jun-02	4.4700
	964444	24-Jun-02	01-Jul-02	4.2573
	Totals	91	2184.0	4.4232


White Mesa Mil High Volume
tion Particulate Loading
mg/cubic meter
2.0000
1.8000
1.6000
1.4000
1.2000
1.0000
0.8000
0.6000
0.4000
0.2000
0.0000
04/01/2002
04/08/2002
04/15/2002
04/22/2002
04/28/2002
05/06/2002
05/13/2002
05/20/2002
05/27/2002
06/03/2002
06/10/2002
06/17/2002
06/24/2002
Date
BHV1
BHV2
BHV4
BHV5
BHV6


White Mesa Mill U-nat Particulate Co
tration Levels Over Time
U-Natural, uCi/ml
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
1.00E-18
06-Oct-80
03-Jul-83
29-Mar-86
23-Dec-88
19-Sep-91
15-Jun-94
11-Mar-97
06-Dec-99
01-Sep-02
BHV1 BHV2 BHV3 BHV4 BHV5 BHV-8


White Mesa Mill Th-230 Particulate Co ntration Levels Over Time
Thorium-230, uCi/ml
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
1.00E-18
6-Oct-80
3-Jul-83
29-Mar-86
23-Dec-88
19-Sep-91
15-Jun-94
11-Mar-97
6-Dec-99
1-Sep-02
BHV1 BHV2 BHV3 BHV4 BHV5 BHV6


White Mesa Mill Ra-226 Particulate Co
ıctration Levels Over Time
Radium-226, uCi/ml
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
1.00E-18
28-Jun-80
25-Mar-83
19-Dec-85
14-Sep-88
11-Jun-91
7-Mar-94
1-Dec-96
28-Aug-99
24-May-02
BHV1 BHV2 BHV3 BHV4 BHV5 BVH-8


White Mesa Mill Pb-210 Particulate Concentration Levels Over Time
Lead-210, uCi/ml
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
1.00E-18
25-May-79
18-Feb-82
14-Nov-84
11-Aug-87
7-May-90
31-Jan-93
28-Oct-95
24-Jul-98
19-Apr-01
Date
BHV1 BHV2 BHV3 BHV4 BHV5 BHV-6

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: INTERNATIONAL URANIUM CORPORATION
REPORT DATE: August 7, 2002
RELEASE NO. Standing Order
SAMPLE ID: BHV-1

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C02040134-001A	^{238}U	2.05E-16	N/A	1.00E-16	9.00E-14	2.28E-01
First Quarter 2002	^{230}Th	2.44E-16	3.03E-17	1.00E-16	3.00E-14	8.13E-01
Air Volume in mLs	^{226}Ra	2.29E-16	2.45E-17	1.00E-16	9.00E-13	2.55E-02
1.31E+11	^{210}Pb	8.15E-15	1.64E-16	1.00E-16	6.00E-13	1.36E+00
C02070196-001A	^{238}U	3.55E-16	N/A	1.00E-16	9.00E-14	3.94E-01
Second Quarter 2002	^{230}Th	4.85E-16	3.75E-17	1.00E-16	3.00E-14	1.62E+00
Air Volume in mLs	^{226}Ra	1.06E-16	-2.89E-18	1.00E-16	9.00E-13	1.17E-02
1.36E+11	^{210}Pb	7.56E-15	1.79E-16	1.00E-16	6.00E-13	1.26E+00

LLD's are from Regulatory Guide 4.14
* Effluent Concentration provided by International Uranium Corporation

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: INTERNATIONAL URANIUM CORPORATION
REPORT DATE: August 7, 2002

RELEASE NO. Standing Order

SAMPLE ID: BHV-2

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C02040134-002A	^{nat}U	< 1.00E-16	N/A	1.00E-16	9.00E-14	< 1.11E-01
First Quarter 2002	^{230}Th	< 1.00E-16	N/A	1.00E-16	3.00E-14	< 3.33E-01
Air Volume in mLs	^{226}Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
1.37E+11	^{210}Pb	9.95E-15	1.74E-16	1.00E-16	6.00E-13	1.66E+00
C02070196-002A	^{nat}U	1.25E-16	N/A	1.00E-16	9.00E-14	1.39E-01
Second Quarter 2002	^{230}Th	1.43E-16	1.38E-17	1.00E-16	3.00E-14	4.77E-01
Air Volume in mLs	^{226}Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
1.32E+11	^{210}Pb	8.52E-15	1.77E-16	1.00E-16	6.00E-13	1.42E+00

LLD's are from Regulatory Guide 4.14
* Effluent Concentration provided by International Uranium Corporation

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: INTERNATIONAL URANIUM CORPORATION
REPORT DATE: August 7, 2002

RELEASE NO. Standing Order

SAMPLE ID: BHV-4

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C02040134-003A	^{nat}U	2.20E-16	N/A	1.00E-16	9.00E-14	2.44E-01
First Quarter 2002	^{230}Th	2.05E-16	2.68E-17	1.00E-16	3.00E-14	6.85E-01
Air Volume in mLs	^{226}Ra	1.26E-16	7.44E-18	1.00E-16	9.00E-13	1.41E-02
1.27E+11	^{210}Pb	7.48E-15	1.62E-16	1.00E-16	6.00E-13	1.25E+00
C02070196-003A	^{nat}U	1.97E-16	N/A	1.00E-16	9.00E-14	2.19E-01
Second Quarter 2002	^{230}Th	3.38E-16	3.27E-17	1.00E-16	3.00E-14	1.13E+00
Air Volume in mLs	^{226}Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
1.32E+11	^{210}Pb	7.40E-15	1.80E-16	1.00E-16	6.00E-13	1.23E+00

LLD's are from Regulatory Guide 4.14
* Effluent Concentration provided by International Uranium Corporation

lmh: r:\reports\clients2002\international_uranium_corp\air\bhv2q2002.xls

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: INTERNATIONAL URANIUM CORPORATION
REPORT DATE: August 7, 2002

RELEASE NO. Standing Order

SAMPLE ID: BHV-5

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C02040134-004A	^{nat}U	1.26E-15	N/A	1.00E-16	9.00E-14	1.40E+00
First Quarter 2002	^{230}Th	7.53E-16	6.07E-17	1.00E-16	3.00E-14	2.51E+00
Air Volume in mLs	^{226}Ra	7.19E-16	5.52E-17	1.00E-16	9.00E-13	7.99E-02
1.37E+11	^{210}Pb	9.65E-15	1.72E-16	1.00E-16	6.00E-13	1.61E+00
C02070196-004A	^{nat}U	1.02E-15	N/A	1.00E-16	9.00E-14	1.14E+00
Second Quarter 2002	^{230}Th	1.03E-15	6.44E-17	1.00E-16	3.00E-14	3.44E+00
Air Volume in mLs	^{226}Ra	3.39E-16	3.29E-17	1.00E-16	9.00E-13	3.77E-02
1.32E+11	^{210}Pb	7.20E-15	1.72E-16	1.00E-16	6.00E-13	1.20E+00

LLD's are from Regulatory Guide 4.14
* Effluent Concentration provided by International Uranium Corporation

lmk: r:\reports\clients2002\international_uranium_corp\air\bhv2q2002.xls

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: INTERNATIONAL URANIUM CORPORATION

REPORT DATE: August 7, 2002

RELEASE NO.: Standing Order

SAMPLE ID: BHV-6

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C02040134-005A	^{234}U	4.77E-16	N/A	1.00E-16	9.00E-14	5.31E-01
First Quarter 2002	^{230}Th	2.94E-16	4.10E-17	1.00E-16	3.00E-14	9.82E-01
Air Volume in mLs	^{226}Ra	1.96E-16	1.61E-17	1.00E-16	9.00E-13	2.18E-02
1.29E+11	^{210}Pb	8.61E-15	1.70E-16	1.00E-16	6.00E-13	1.43E+00
C02070196-005A	^{234}U	3.68E-16	N/A	1.00E-16	9.00E-14	4.09E-01
Second Quarter 2002	^{230}Th	4.41E-16	4.15E-17	1.00E-16	3.00E-14	1.47E+00
Air Volume in mLs	^{226}Ra	1.76E-16	1.29E-17	1.00E-16	9.00E-13	1.96E-02
1.32E+11	^{210}Pb	8.20E-15	1.80E-16	1.00E-16	6.00E-13	1.37E+00

LLD's are from Regulatory Guide 4.14

* Effluent Concentration provided by International Uranium Corporation

lmh: c:\reports\clients2002\international_uranium_corp\air\bhv2q2002.xls

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HIGH VOLUME AIR ANALYSIS REPORT

CLIENT: INTERNATIONAL URANIUM CORPORATION
REPORT DATE: August 7, 2002
DATE SAMPLED: 2nd Quarter 2002

EPA Method		200.8	903.0		907.0		NERHL-65-4	
Laboratory Number	Sample I.D.	Uranium pCi/filt.	Radium-226 pCi/filt.	+/-	Thorium-230 pCi/filt.	+/-	Lead-210 pCi/filt.	+/-
C02070196-001A	BHV-1	48.9	14.4	0.4	66.0	6.0	1028	23.4
C02070196-002A	BHV-2	17.1	7.0	0.4	18.9	3.0	1125	24.2
C02070196-003A	BHV-4	26.6	10.8	0.4	44.6	5.3	977	22.9
C02070196-004A	BHV-5	136	44.8	4.3	136	8.5	951	22.7
C02070196-005A	BHV-6	49.3	23.2	1.7	58.2	5.5	1083	23.8
C02070196-006A	BHV-Blank	0.6	<0.4	-	<0.4	-	<2.0	-
LLD	pCi/filt	0.4	0.4		0.4		2.0	

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GROUND WATER

ENVIRONMENTAL

MONITORING

RESULTS

FOR

THE PERIOD

OF

JANUARY 1, 2002

THROUGH

JUNE 30, 2002

TABLE V

INTERNATIONAL URANIUM (USA) CORPORATION
WHITE MESA MILL
GROUNDWATER ANALYSIS
SEMI-ANNUAL EFFLUENT REPORT
1ST QUARTER 2002
POINT OF COMPLIANCE PARAMETERS

PARAMETER	MW5	MW11	MW12	MW13	MW13A	MW13B	MW14	MW14A	MW15	MW15A	MW17
DATE OF SAMPLE	03/15/02	03/14/02	03/14/02	03/13/02	03/14/02	03/13/02	03/15/02	03/13/02	03/14/02	03/14/02	03/15/02
CASING ELEVATION, ft.	5615.97	5617.80	5616.10	N/A	N/A	N/A	5605.14	N/A	5606.91	NA	5582.09
Depth to Water (blw.MP)	5508.81	5520.84	5507.22	N/A	N/A	N/A	5500.63	N/A	5499.90	NA	5497.18
pH FIELD	7.42	7.80	6.53	N/A	N/A	N/A	6.44	N/A	6.68	NA	6.69
FIELD SP. COND. (uMHOS)	2182.00	2528.00	3599.00	N/A	N/A	N/A	3676.00	N/A	4022.00	NA	4434.00
CHLORIDE (mg/l)	48.10	30.70	56.30	<1.00	29.80	<1.00	15.70	<1.00	40.40	50.10	25.30
POTASSIUM(mg/l)	7.10	6.70	11.90	<1.00	6.60	<1.00	11.50	<1.00	9.90	47.90	12.60
NICKEL(mg/l)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	11.7	<0.05
U-NAT. (mg/l)	3.40E-03	5.10E-03	1.91E-02	<0.0003	1.60E-03	<0.0003	6.58E-02	<0.0003	4.64E-02	2.60E+00	3.52E-02
U-NAT (µCi/ml)	2.31E-09	2.31E-09	1.29E-08	<LLD	1.08E-09	<LLD	4.45E-08	<LLD	3.14E-08	1.76E-06	2.38E-08
U-NAT. LLD. (mg/l)	3.00E-04	3.00E-04	3.00E-04	3.0E-04	3.0E-04	3.0E-04	3.00E-04	3.0E-04	3.00E-04	3.00E-04	3.00E-04

MW13 is a DI Rinsate of system prior to sample collection
MW13A is a Duplicate of MW11
MW13B is a Trip (DI) Blank
MW14A is a DI Blank
MW15A is a Spike of MW15

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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: First Quarter Ground Water Sampling

Lab Order: C02030448
Report Date: 04/02/02

Lab ID: C02030448-001 POC Sample
Client Sample ID: WMMW #5
Matrix: AQUEOUS

Collection Date: 03/15/02 10:01
DateReceived: 03/19/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	48.1	mg/L		1.0		E200.7	03/28/02 14:40 / cp
Potassium	7.1	mg/L		1.0		E200.7	03/28/02 14:40 / cp
TRACE METALS - DISSOLVED							
Nickel	ND	mg/L		0.05		E200.8	03/26/02 23:32 / ts
Uranium	0.0034	mg/L		0.0003		E200.8	03/26/02 23:32 / ts

~~5.03E-5 pCi/L~~
2.31 10⁶ pCi/L 2.31 E-9 uCi/ml

Lab ID: C02030448-002 POC Sample
Client Sample ID: WMMW #11
Matrix: AQUEOUS

Collection Date: 03/14/02 12:08
DateReceived: 03/19/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	30.7	mg/L		1.0		E200.7	03/28/02 14:43 / cp
Potassium	6.7	mg/L		1.0		E200.7	03/28/02 14:43 / cp
TRACE METALS - DISSOLVED							
Nickel	ND	mg/L		0.05		E200.8	03/26/02 23:37 / ts
Uranium	0.0051	mg/L		0.0003		E200.8	03/26/02 23:37 / ts

3.45 x 10⁶ pCi/L
3.45 E-9 uCi/ml

Entered into P:\Radiation\Environ, 02 Data\WQUAL.xls
4/10/02
LB

Report Definitions: RL - Analyte reporting limit. QCL - Quality control limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: First Quarter Ground Water Sampling

Lab Order: C02030448
Report Date: 04/02/02

Lab ID: C02030448-003 POC Sample
Client Sample ID: WMMW #12
Matrix: AQUEOUS

Collection Date: 03/14/02 13:10
DateReceived: 03/19/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	56.3	mg/L		1.0		E200.7	03/28/02 14:45 / cp
Potassium	11.9	mg/L		1.0		E200.7	03/28/02 14:45 / cp
TRACE METALS - DISSOLVED							
Nickel	ND	mg/L		0.05		E200.8	03/26/02 23:58 / ts
Uranium	0.0191	mg/L		0.0003		E200.8	03/26/02 23:58 / ts

1.29E¹ pCi/L
1.29E⁻⁸ uCi/ml

Lab ID: C02030448-004 DI H_2O Rinsate of pumping system
Client Sample ID: WMMW #13
Matrix: AQUEOUS

Collection Date: 03/13/02 12:30
DateReceived: 03/19/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	ND	mg/L		1.0		E200.7	03/28/02 15:01 / cp
Potassium	ND	mg/L		1.0		E200.7	03/28/02 15:01 / cp
TRACE METALS - DISSOLVED							
Nickel	ND	mg/L		0.05		E200.8	03/27/02 00:19 / ts
Uranium	ND	mg/L		0.0003		E200.8	03/27/02 00:19 / ts

Report Definitions: RL - Analyte reporting limit. QCL - Quality control limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: First Quarter Ground Water Sampling

Lab Order: C02030448
Report Date: 04/02/02

Lab ID: C02030448-005 Duplicate of WMMW #13
Client Sample ID: WMMW #13A
Matrix: AQUEOUS

Collection Date: 03/14/02 12:08
DateReceived: 03/19/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	29.8	mg/L		1.0		E200.7	03/28/02 15:04 / cp
Potassium	6.6	mg/L		1.0		E200.7	03/28/02 15:04 / cp
TRACE METALS - DISSOLVED							
Nickel	ND	mg/L		0.05		E200.8	03/27/02 00:25 / ts
Uranium	0.0016	mg/L		0.0003		E200.8	03/27/02 00:25 / ts

~~[illegible]~~ Duplicate sample, .0051 mg/L
only 4 ppb difference

Lab ID: C02030448-006 DI Blank
Client Sample ID: WMMW #13B Trip Blank
Matrix: AQUEOUS

Collection Date: 03/13/02 12:45
DateReceived: 03/19/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	ND	mg/L		1.0		E200.7	03/28/02 15:06 / cp
Potassium	ND	mg/L		1.0		E200.7	03/28/02 15:06 / cp
TRACE METALS - DISSOLVED							
Nickel	ND	mg/L		0.05		E200.8	03/27/02 00:30 / ts
Uranium	ND	mg/L		0.0003		E200.8	03/27/02 00:30 / ts

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: First Quarter Ground Water Sampling

Lab Order: C02030448
Report Date: 04 02/02

Lab ID: C02030448-007 PGC Sample
Client Sample ID: WMMW #14
Matrix: AQUEOUS

Collection Date: 03/15/02 08:58
DateReceived: 03/19/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	15.7	mg/L		1.0		E200.7	03/28/02 15:09 / cp
Potassium	11.5	mg/L		1.0		E200.7	03/28/02 15:09 / cp
TRACE METALS - DISSOLVED							
Nickel	ND	mg/L		0.05		E200.8	03/27/02 00:35 / ts
Uranium	0.0658	mg/L		0.0003		E200.8	03/27/02 00:35 / ts

4.45x10' pCi/L
4.45E-8 uCi/ml

Lab ID: C02030448-008 DI Blank
Client Sample ID: WMMW #14A
Matrix: AQUEOUS

Collection Date: 03/13/02 12:00
DateReceived: 03/19/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	ND	mg/L		1.0		E200.7	03/28/02 15:11 / cp
Potassium	ND	mg/L		1.0		E200.7	03/28/02 15:11 / cp
TRACE METALS - DISSOLVED							
Nickel	ND	mg/L		0.05		E200.8	03/27/02 00:40 / ts
Uranium	ND	mg/L		0.0003		E200.8	03/27/02 00:40 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: First Quarter Ground Water Sampling

Lab Order: C02030448
Report Date: 04/02/02

Lab ID: C02030448-009 POL Sample
Client Sample ID: WMMW #15
Matrix: AQUEOUS

Collection Date: 03/15/02 09:43
DateReceived: 03/19/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	40.4	mg/L		1.0		E200.7	03/28/02 15:14 / cp
Potassium	9.9	mg/L		1.0		E200.7	03/28/02 15:14 / cp
TRACE METALS - DISSOLVED							
Nickel	ND	mg/L		0.05		E200.8	03/27/02 00:46 / ts
Uranium	0.0464	mg/L		0.0003		E200.8	03/27/02 00:46 / ts

3.14E+1 pCi/L
3.14E-8 uCi/ml

Lab ID: C02030448-010 Spike of MW15
Client Sample ID: WMMW #15A
Matrix: AQUEOUS

Collection Date: 03/13/02 13:15
DateReceived: 03/19/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	50.1	mg/L		1.0		E200.7	03/28/02 15:17 / cp
Potassium	47.9	mg/L		1.0		E200.7	03/28/02 15:17 / cp
TRACE METALS - DISSOLVED							
Nickel	11.7	mg/L		0.05		E200.8	03/27/02 01:07 / ts
Uranium	2.60	mg/L		0.0003		E200.8	03/27/02 01:07 / ts

Cl^- Spike 50 mg/L
K^+ Spike 50 mg/L
Ni^+ 10 mg/L
Li^+ 2.5 mg/L

✓ ok US

Report Definitions: RL - Analyte reporting limit. QCL - Quality control limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: First Quarter Ground Water Sampling

Lab Order: C02030448
Report Date: 04/02/02

Lab ID: C02030448-011
Client Sample ID: WMMW #17
Matrix: AQUEOUS

Collection Date: 03/15/02 12:22
DateReceived: 03/19/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	25.3	mg/L		1.0		E200.7	03/28/02 15:19 / cp
Potassium	12.6	mg/L		1.0		E200.7	03/28/02 15:19 / cp
TRACE METALS - DISSOLVED							
Nickel	ND	mg/L		0.05		E200.8	03/27/02 01:12 / ts
Uranium	0.0352	mg/L		0.0003		E200.8	03/27/02 01:12 / ts
	2.38E+1 pCi/L						
	2.38E-8 uCi/L						

Lab ID: C02030448-012
Client Sample ID: Cottonwood
Matrix: AQUEOUS

Collection Date: 03/13/02 07:15
DateReceived: 03/19/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	376	mg/L		10		A2540 C	03/19/02 16:59 / es
Solids, Total Suspended TSS @ 105 C	3	mg/L	H	1		E160.2	03/20/02 08:53 / es
RADIONUCLIDES - TOTAL							
Gross Alpha - Rn222 & Uranium	ND	pCi/L		1.0		E900.1	03/29/02 12:36 / rs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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TABLE V

INTERNATIONAL URANIUM (USA) CORPORATION
WHITE MESA MILL
GROUNDWATER ANALYSIS
SEMI-ANNUAL EFFLUENT REPORT
2nd QUARTER 2002
POINT OF COMPLIANCE PARAMETERS

PARAMETER	MW5	MW11	MW12	MW13	MW13A	MW13B	MW14	MW14A	MW15	MW15B	MW17
DATE OF SAMPLE	05/20/02	05/20/02	05/21/02	05/20/02	05/20/02	05/20/02	05/20/02	05/20/02	05/20/02	05/20/02	05/20/02
CASING ELEVATION, ft.	5615.97	5617.80	5616.10	N/A	N/A	N/A	5605.14	N/A	5606.91	NA	5582.09
Depth to Water (blw.MP)	5508.49	5520.77	5506.96	N/A	N/A	N/A	5500.48	N/A	5499.80	NA	5497.06
pH FIELD	7.15	7.33	6.37	N/A	N/A	N/A	6.17	N/A	6.30	NA	6.34
FIELD SP. COND. (uMHOS)	2478.00	2555.00	3766.00	N/A	N/A	N/A	3667.00	N/A	4080.00	NA	4640.00
CHLORIDE (mg/l)	58.60	35.90	68.70	<1.00	36.30	<1.00	26.10	<1.00	42.40	79.90	29.20
POTASSIUM(mg/l)	7.60	6.90	12.30	<1.00	6.70	<1.00	11.80	<1.00	10.20	23.00	13.70
NICKEL(mg/l)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	14.00	<0.05
U-NAT. (mg/l)	7.00E-04	1.00E-03	1.98E-02	1.00E-03	1.10E-03	<0.0003	7.64E-02	<0.0003	5.26E-02	5.13E+00	4.08E-02
U-NAT (µCi/ml)	4.74E-10	6.77E-10	1.34E-08	6.77E-10	7.45E-10	<LLD	5.17E-08	<LLD	3.56E-08	3.47E-06	2.76E-08
U-NAT. LLD. (mg/l)	3.00E-04	3.00E-04	3.00E-04	3.0E-04	3.0E-04	3.0E-04	3.00E-04	3.0E-04	3.00E-04	3.00E-04	3.00E-04

MW13 is a DI Rinsate of system prior to sample collection
MW13A is a Duplicate of MW11
MW13B is a Trip (DI) Blank
MW14A is a DI Blank
MW15A is a Spike of MW15

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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: 2nd Quarter POC Samples

Lab Order: C02050746
Report Date: 06/05/02

Lab ID: C02050746-001
Client Sample ID: WMMW #5
Matrix: AQUEOUS

Collection Date: 05/20/02 09:05
DateReceived: 05/23/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS - DISSOLVED							
Chloride	58.6	mg/L		1.0		E200.7	06/03/02 11:59 / cp
Nickel	ND	mg/L		0.050		E200.7	06/03/02 11:59 / cp
Potassium	7.6	mg/L		1.0		E200.7	06/03/02 11:59 / cp
Uranium	0.0007	mg/L		0.0003		E200.8	05/29/02 01:32 / smd

0.4739 pCi/L
4.74 x E-10 uCi/ml

Lab ID: C02050746-002
Client Sample ID: WMMW #11
Matrix: AQUEOUS

Collection Date: 05/20/02 13:46
DateReceived: 05/23/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS - DISSOLVED							
Chloride	35.9	mg/L		1.0		E200.7	06/03/02 12:02 / cp
Nickel	ND	mg/L		0.050		E200.7	06/03/02 12:02 / cp
Potassium	6.9	mg/L		1.0		E200.7	06/03/02 12:02 / cp
Uranium	0.0010	mg/L		0.0003		E200.8	05/29/02 01:35 / smd

0.677 pCi/L
6.77 E-10 uCi/ml

Lab ID: C02050746-003
Client Sample ID: WMMW #12
Matrix: AQUEOUS

Collection Date: 05/21/02 07:52
DateReceived: 05/23/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS - DISSOLVED							
Chloride	68.7	mg/L		1.0		E200.7	06/03/02 12:06 / cp
Nickel	ND	mg/L		0.050		E200.7	06/03/02 12:06 / cp
Potassium	12.3	mg/L		1.0		E200.7	06/03/02 12:06 / cp
Uranium	0.0198	mg/L		0.0003		E200.8	05/29/02 01:38 / smd

13.40 pCi/L
1.34 E-8 uCi/ml

Entered into
P:\Radiation\environmental\
Environ\02 Data\Wqual.xls
6/18/02
WB

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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5074SR00001

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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: 2nd Quarter POC Samples

Lab Order: C02050746
Report Date: 06/05/02

Lab ID: C02050746-004
Client Sample ID: WMMW #13
Matrix: AQUEOUS

Collection Date: 05/20/02 08:10
DateReceived: 05/23/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS - DISSOLVED							
Chloride	ND	mg/L		1.0		E200.7	06/03/02 12:10 / cp
Nickel	ND	mg/L		0.050		E200.7	06/03/02 12:10 / cp
Potassium	ND	mg/L		1.0		E200.7	06/03/02 12:10 / cp
Uranium	0.0010	mg/L		0.0003		E200.8	05/29/02 01:41 / smd

Lab ID: C02050746-005
Client Sample ID: WMMW #13A
Matrix: AQUEOUS

Collection Date: 05/20/02 13:46
DateReceived: 05/23/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS - DISSOLVED							
Chloride	36.3	mg/L		1.0		E200.7	06/03/02 12:14 / cp
Nickel	ND	mg/L		0.050		E200.7	06/03/02 12:14 / cp
Potassium	6.7	mg/L		1.0		E200.7	06/03/02 12:14 / cp
Uranium	0.0011	mg/L		0.0003		E200.8	05/29/02 01:43 / smd

Lab ID: C02050746-006
Client Sample ID: WMMW #13B Trip Blank
Matrix: AQUEOUS

Collection Date: 05/20/02 08:00
DateReceived: 05/23/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS - DISSOLVED							
Chloride	ND	mg/L		1.0		E200.7	06/03/02 12:18 / cp
Nickel	ND	mg/L		0.050		E200.7	06/03/02 12:18 / cp
Potassium	ND	mg/L		1.0		E200.7	06/03/02 12:18 / cp
Uranium	ND	mg/L		0.0003		E200.8	05/29/02 01:46 / smd

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: 2nd Quarter POC Samples

Lab Order: C02050746
Report Date: 06/05/02

Lab ID: C02050746-007
Client Sample ID: WMMW #14
Matrix: AQUEOUS

Collection Date: 05/20/02 12:27
DateReceived: 05/23/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS - DISSOLVED							
Chloride	26.1	mg/L		1.0		E200.7	06/03/02 12:21 / cp
Nickel	ND	mg/L		0.050		E200.7	06/03/02 12:21 / cp
Potassium	11.8	mg/L		1.0		E200.7	06/03/02 12:21 / cp
Uranium	0.0764	mg/L		0.0003		E200.8	05/29/02 01:49 / smd

51.72 pCi/L 5.17 10¹ pCi/L
5.17E-8 uCi/ml

Lab ID: C02050746-008
Client Sample ID: WMMW #14A
Matrix: AQUEOUS

Collection Date: 05/20/02 07:30
DateReceived: 05/23/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS - DISSOLVED							
Chloride	ND	mg/L		1.0		E200.7	06/03/02 12:25 / cp
Nickel	ND	mg/L		0.050		E200.7	06/03/02 12:25 / cp
Potassium	ND	mg/L		1.0		E200.7	06/03/02 12:25 / cp
Uranium	ND	mg/L		0.0003		E200.8	05/29/02 02:00 / smd

Lab ID: C02050746-009
Client Sample ID: WMMW #15
Matrix: AQUEOUS

Collection Date: 05/20/02 13:05
DateReceived: 05/23/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS - DISSOLVED							
Chloride	42.4	mg/L		1.0		E200.7	06/03/02 12:42 / cp
Nickel	ND	mg/L		0.050		E200.7	06/03/02 12:42 / cp
Potassium	10.2	mg/L		1.0		E200.7	06/03/02 12:42 / cp
Uranium	0.0526	mg/L		0.0003		E200.8	05/29/02 02:03 / smd

35.6 pCi/L 3.56 x 10¹ pCi/L
3.56 x 10⁻⁸ uCi/ml

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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50746R00003

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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: 2nd Quarter POC Samples

Lab Order: C02050746
Report Date: 06/05/02

Lab ID: C02050746-010
Client Sample ID: WMMW #15A
Matrix: AQUEOUS

Collection Date: 05/20/02 08:45
DateReceived: 05/23/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS - DISSOLVED							
Chloride	79.9	mg/L		1.0		E200.7	06/03/02 12:46 / cp
Nickel	14.0	mg/L		0.050		E200.7	06/03/02 12:46 / cp
Potassium	23.0	mg/L		1.0		E200.7	06/03/02 12:46 / cp
Uranium	5.13	mg/L		0.0003		E200.8	05/29/02 02:14 / smd

Lab ID: C02050746-011
Client Sample ID: WMMW #17
Matrix: AQUEOUS

Collection Date: 05/20/02 10:59
DateReceived: 05/23/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS - DISSOLVED							
Chloride	29.2	mg/L		1.0		E200.7	06/03/02 12:50 / cp
Nickel	ND	mg/L		0.050		E200.7	06/03/02 12:50 / cp
Potassium	13.7	mg/L		1.0		E200.7	06/03/02 12:50 / cp
Uranium	0.0408	mg/L		0.0003		E200.8	05/29/02 02:17 / smd

2.76×10^{1} pCi/L
2.76×10^{-8} uCi/mL

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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50745R00004

GROUNDWATER

STATISTICAL ANALYSIS

BY

SHEWHART-CUSUM METHOD

JUNE 30, 2002

The NRC February, 1992 Environmental Assessment states that the Mill will use the Shewhart Cusum control chart technique for interpretation of quarterly groundwater data. Copies of each of the current control chart plots for the White Mesa Mill groundwater point of compliance quarterly monitoring data are provided in this section. These plots include data from the most recent quarterly point of compliance sampling event in June 2002.

The control chart method is a parametric test. The underlying assumption in this method is that the charts and control limits be developed based on a parameter that has a normal distribution. In some cases, the parameter which exhibits a normal distribution is the measured concentration of an analyte. In some cases, the parameter is a function of the measured concentration, such as log, square root or other power of the concentration. The parameters used for white Mesa Mill data include measured concentration, log of concentration, or square root (0.5 power) of concentration, as appropriate, to generate a new control chart, or a graphic output that can be compared to an existing control chart.

A summary interpretation of the control charts for this monitoring period is provided below.

Chloride

Monitoring Well 5: This parameter is in control as indicated by the control chart.

Monitoring Well 11: This parameter is in control as indicated by the control chart.

Monitoring Well 12: The analytical results are not random (high serial correlation), hence a control chart cannot be generated. The last period when the data were sufficiently random and normally distributed to generate a control chart (1/98), the upper control limit on the chart was approximately 80 mg/L. The current data is within the previously established upper control limit, hence the parameter is in control.

Monitoring Well 14: This parameter is in control as indicated by the control chart.

Monitoring Well 15: This parameter is in control as indicated by the control chart.

Monitoring Well 17: This parameter is in control as indicated by the control chart.

Nickel

Monitoring Well 5: All analytical values are below detection limits. The parameter is in control.

Monitoring Well 11: All analytical values are below detection limits. The parameter is in control.

Monitoring Well 12: All analytical values are below detection limits. The parameter is in control.

Monitoring Well 14: All analytical values are below detection limits. The parameter is in control.

Monitoring Well 15: All analytical values are below detection limits. The parameter is in control.

Monitoring Well 17: All analytical values are below detection limits. The parameter is in control.

Potassium

Monitoring Well 5: This parameter is in control as indicated by the control chart.

Monitoring Well 11: The analytical results are not sufficiently random (high serial correlation), or normally distributed (not Gaussian), to generate a control chart. The last period when the logarithmic data were sufficiently random and normally distributed to generate a control chart (1/99), the upper control limit on the chart was approximately 20 mg/L. The current logarithmic data is well within the previously established upper control limit, hence the parameter is in control.

Monitoring Well 12: The analytical results are not random (high serial correlation), hence a control chart cannot be generated. The last period when the data were sufficiently random to generate a control chart (1/99), the upper control limit on the chart was approximately 18 mg/L. The current data is well within the previously established upper control limit, hence the parameter is in control.

Monitoring Well 14: This parameter is in control as indicated by the control chart.

Monitoring Well 15: The analytical results are not sufficiently random (high serial correlation), or normally distributed (not Gaussian), to generate a control chart. The last period when the logarithmic data were sufficiently random and normally distributed to generate a control chart (2/00), the upper control limit on the chart was approximately 17 mg/L. The current logarithmic data is well within the previously established upper control limit, hence the parameter is in control.

Monitoring Well 17: This parameter is in control as indicated by the control chart.

U-nat

Monitoring Well 5: The analytical results are not sufficiently random (high serial correlation), or normally distributed (not Gaussian), to generate a control chart—they've been nearly constant. The last period when the data were sufficiently random and normally distributed to generate a control chart (1/98), the up per control limit on the chart was approximately 100 pCi/L. The current logarithmic results are well within the previously established upper control limit, hence the parameter is in control.

Monitoring Well 11: The analytical results are not normally distributed (not Gaussian). Hence a control chart cannot be generated. The last period when the logarithmic data were sufficiently normally distributed to generate a control chart (8/00), the upper control limit on the chart was approximately 80 pCi/L. The current data is well within the previously established upper control limit, hence the parameter is in control.

Monitoring Well 12: The analytical results are not normally distributed (not Gaussian). Hence a control chart cannot be generated. The last period when the logarithmic data were sufficiently normally distributed to generate a control chart (3/99), the upper control limit on the chart was approximately 400 pCi/L. The current logarithmic results are well within the previously established upper control limit, hence the parameter is in control.

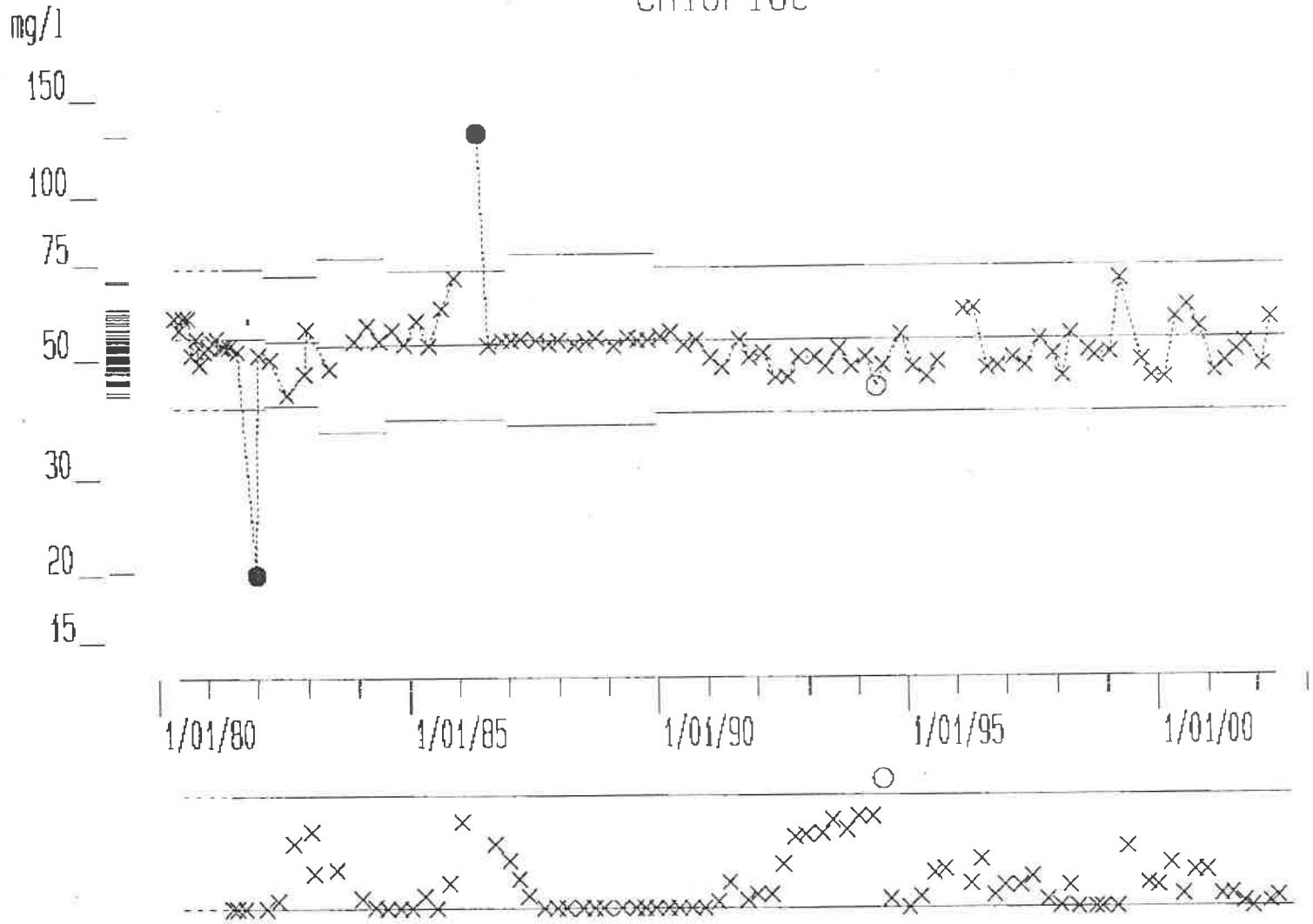
Monitoring Well 14: The analytical results are not sufficiently random (high serial correlation) to generate a control chart. The last period when the logarithmic data were sufficiently random to generate a control chart (1/98), the upper control limit on the chart was approximately 60 pCi/L. The current logarithmic results are well within the previously established upper control limit, hence the parameter is in control.

Monitoring Well 15: The analytical results are not sufficiently random (high serial correlation) to generate a control chart. The last period when the data were sufficiently random to generate a control chart (6/01), the upper control limit on the chart was approximately 55 pCi/L. The current results are well within the previously established upper control limit, hence the parameter is in control.

Monitoring Well 17: The analytical results are not sufficiently random (high serial correlation) to generate a control chart. The last period when the data were sufficiently random to generate a control chart (8/00), the upper control limit on the chart was approximately 45 pCi/L. The current logarithmic results are well within the previously established upper control limit, hence the parameter is in control.

Well WMMW-5

Chloride

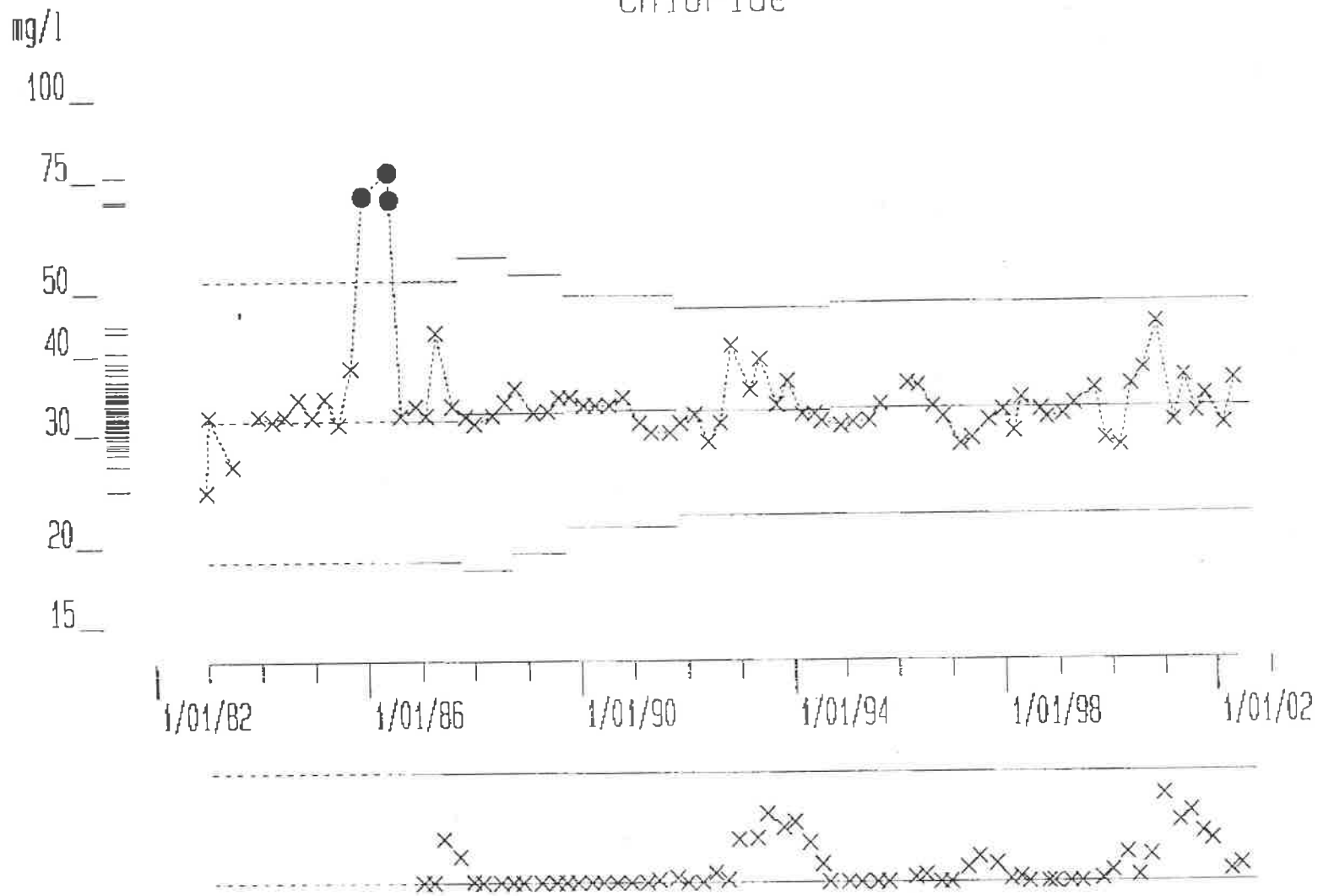


Combined Shewhart-CUSUM control charts

Warning: High serial correlation.

Well WMMW-11

Chloride

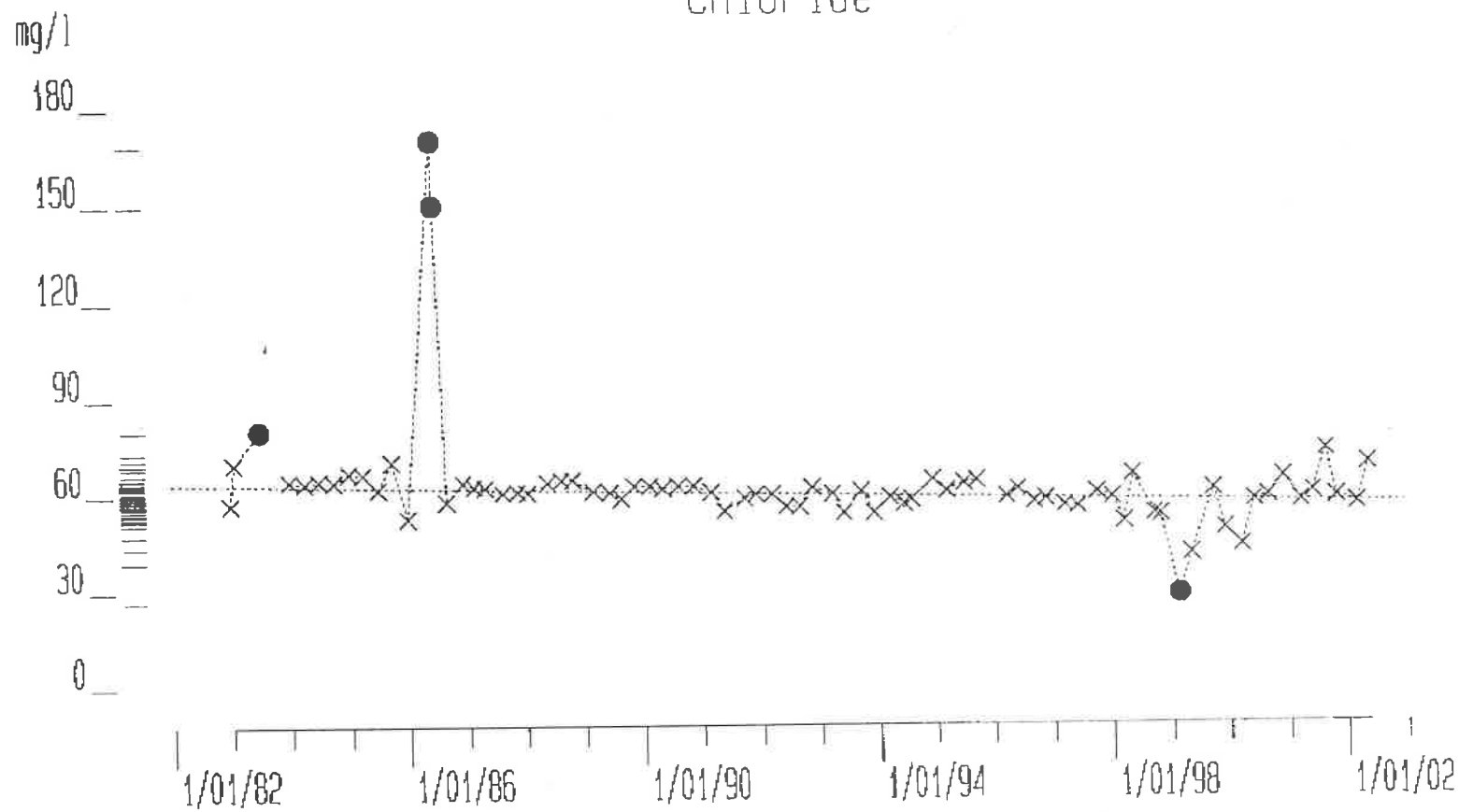


Combined Shewhart-CUSUM control charts

(C) [illegible] & MOORE 1990-93 August 14, [illegible]2 White Mes[illegible]ll

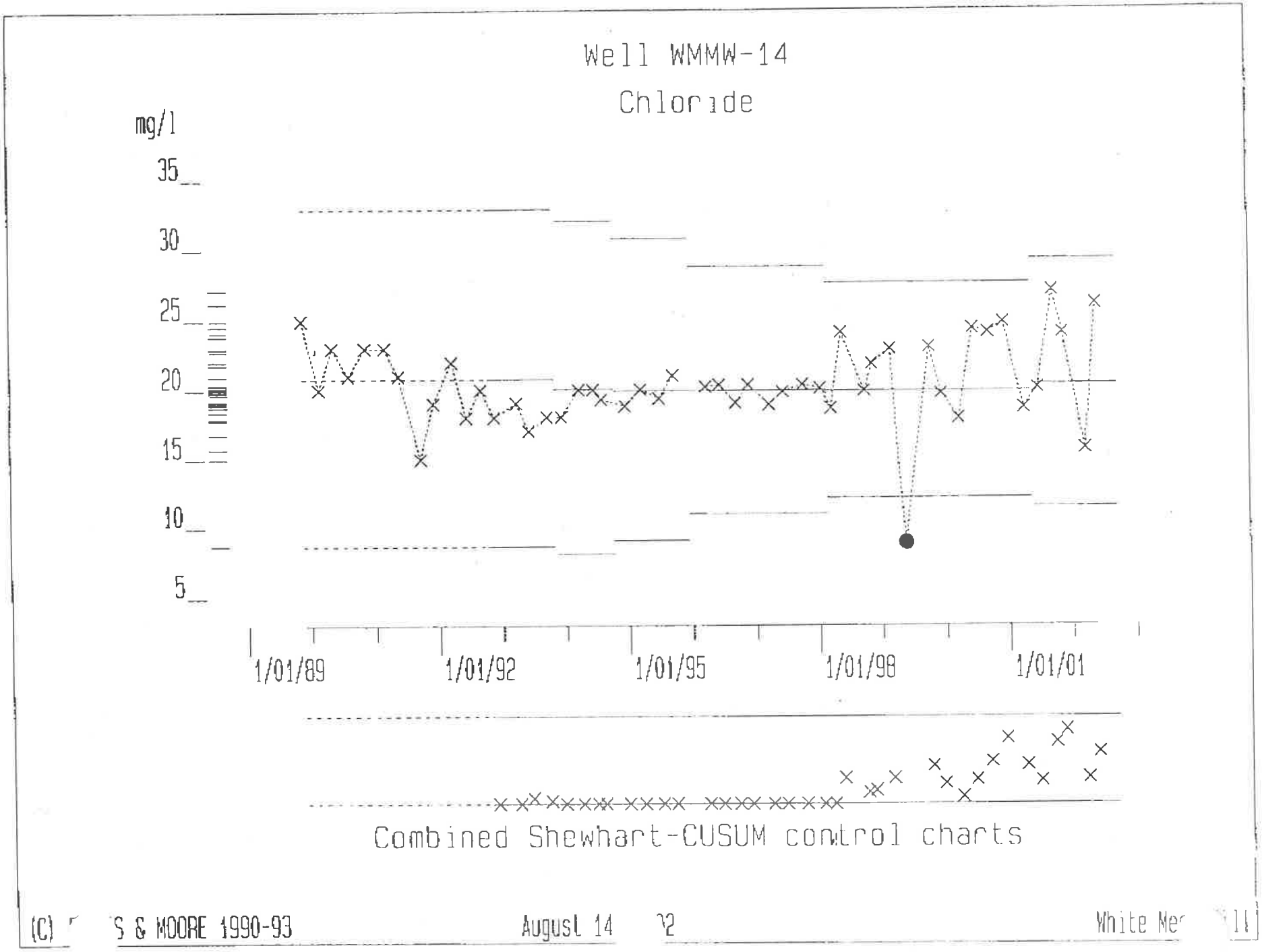
Well WMMW-12

Chloride



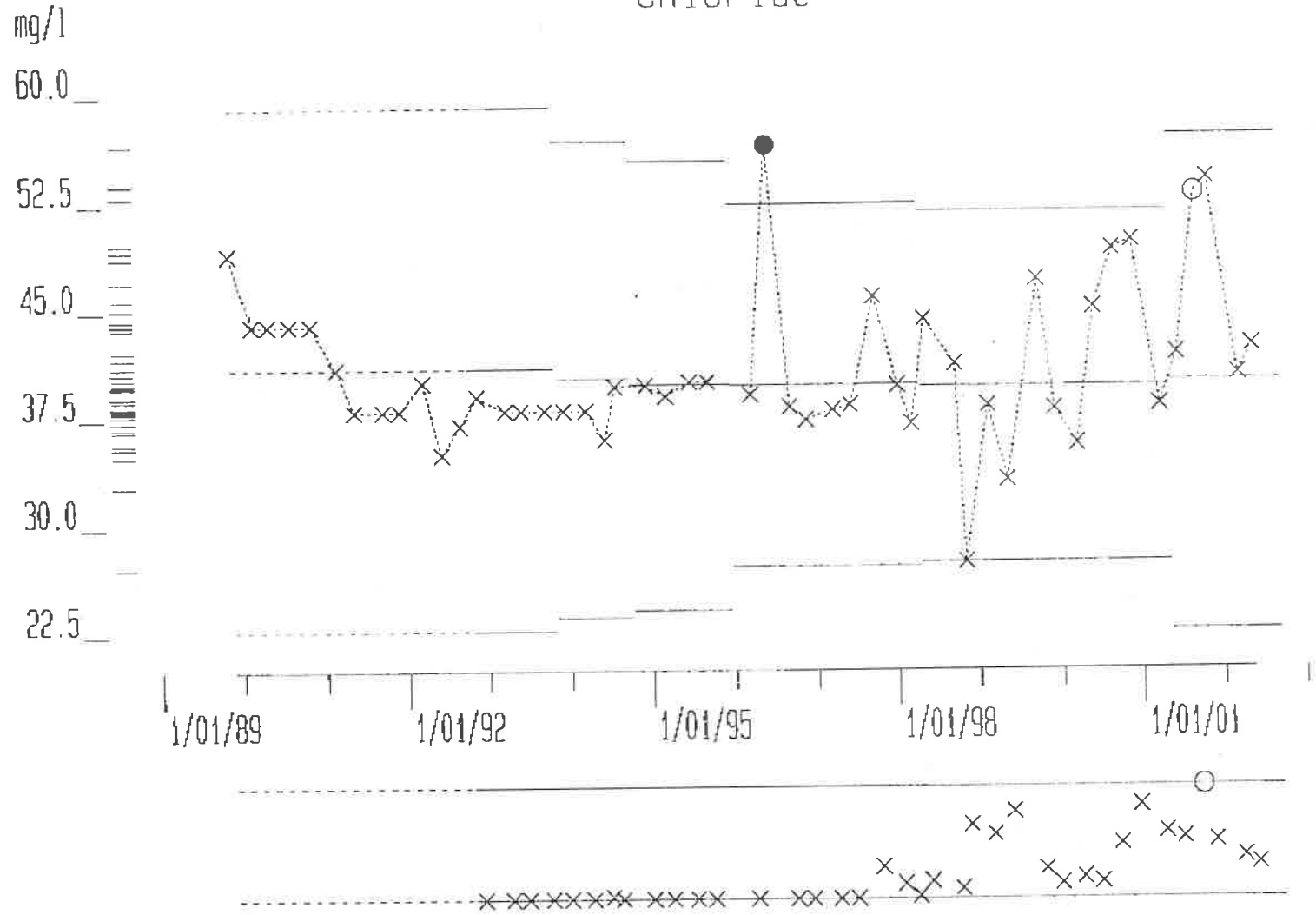
Slope of regression line is -0.3886 mg/l per year.

Warning: High serial correlation.


Well WMMW-14
Chloride
mg/l
35
30
25
20
15
10
5
1/01/89
1/01/92
1/01/95
1/01/98
1/01/01
Combined Shewhart-CUSUM control charts
(C) S & MOORE 1990-93
August 14
White Me

Well WMMW-15

Chloride



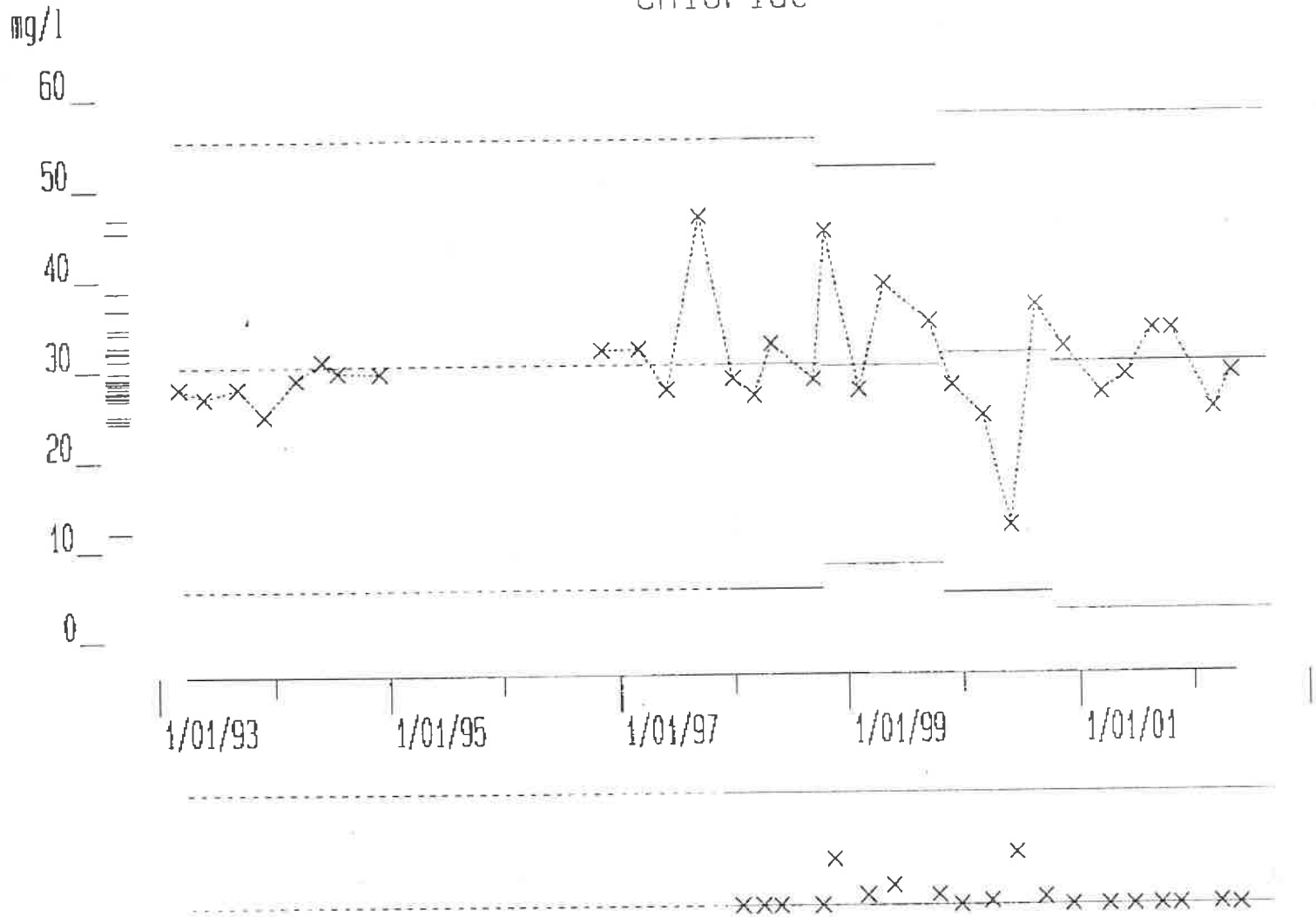
Combined Shewhart-CUSUM control charts

Warning: High serial correlation.

(C) [illegible]S & MOORE 1990-93 August 14 [illegible]02 White Mes[illegible] Mill

Well WMMW-17

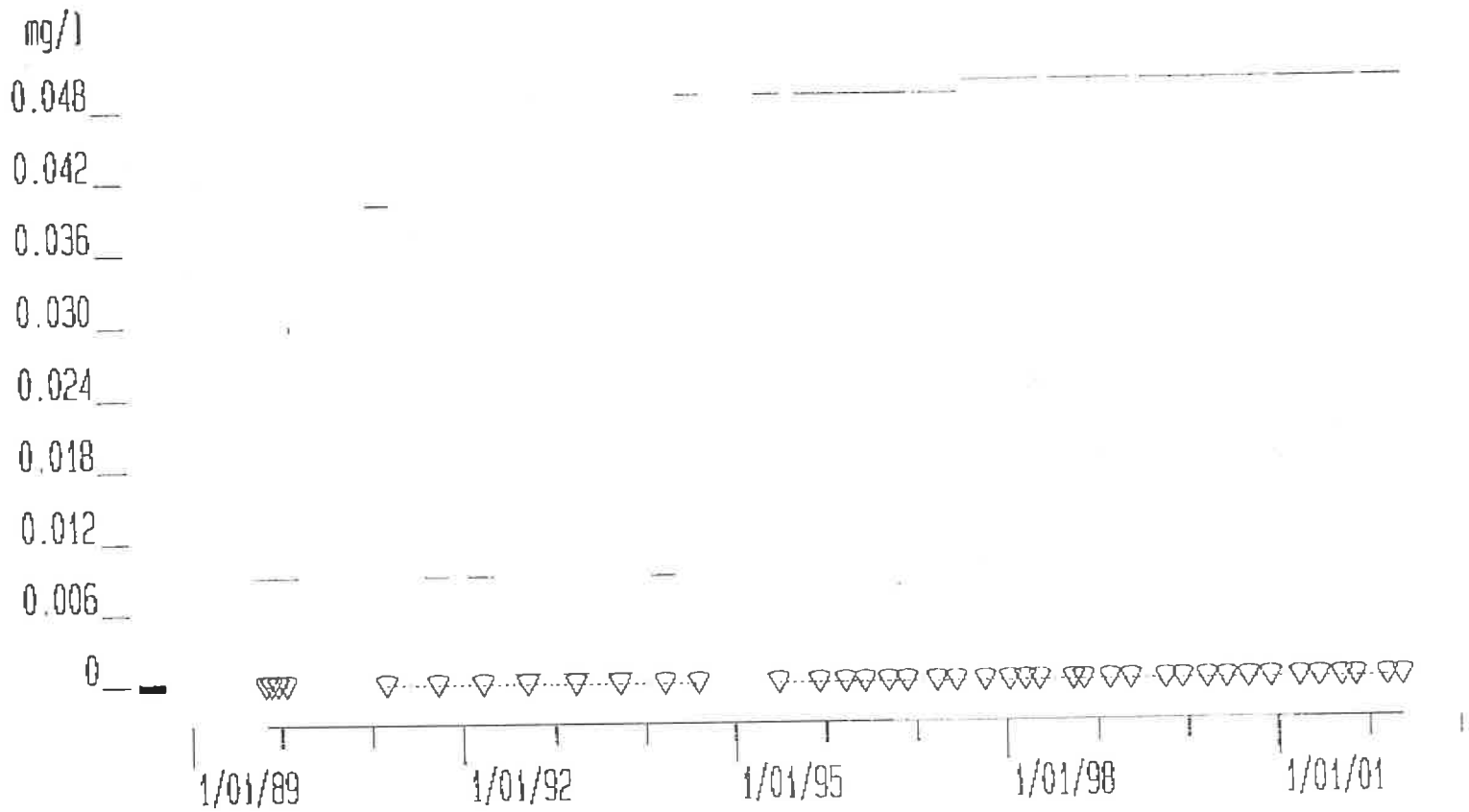
Chloride



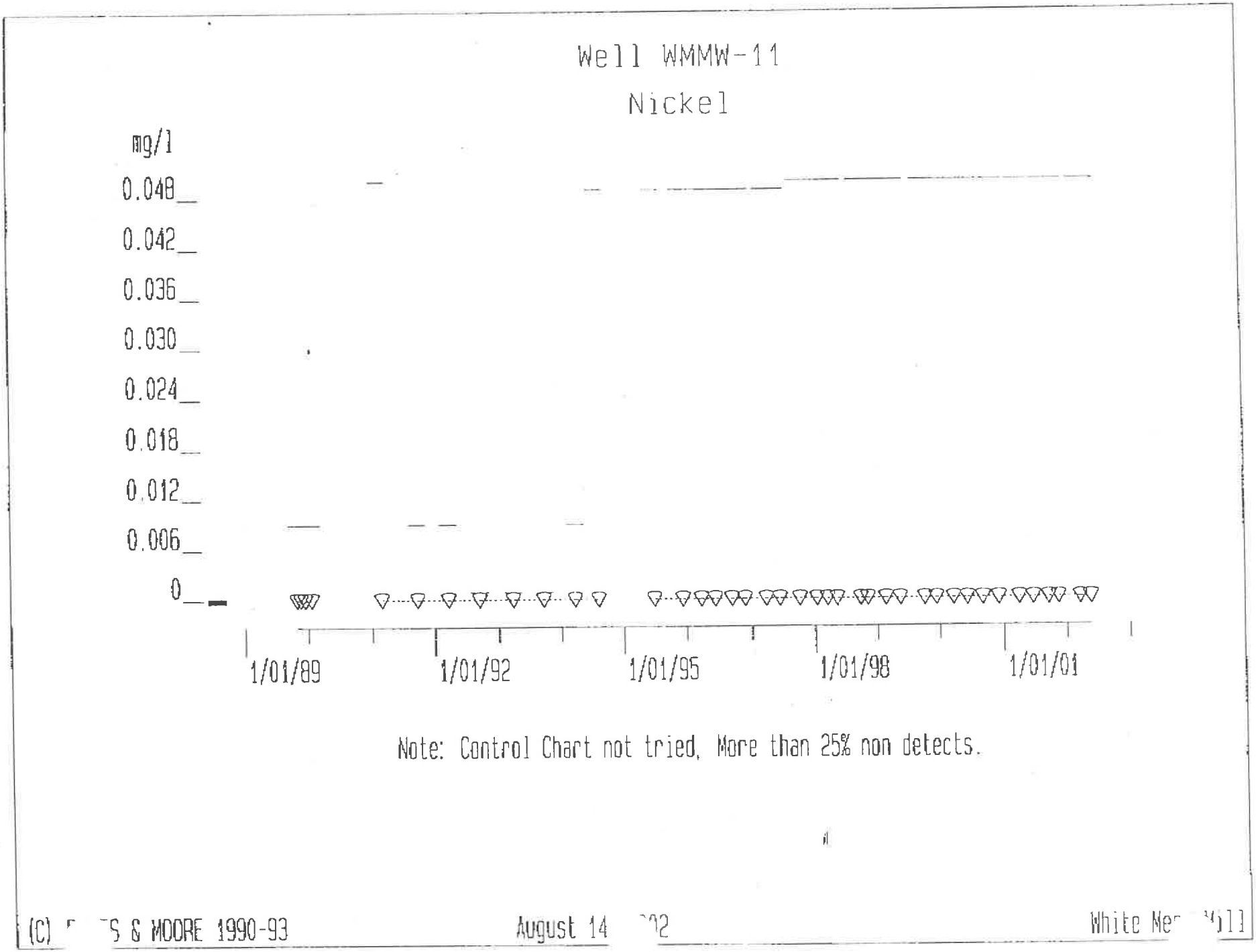
Combined Shewhart-CUSUM control charts

Well WMMW-5

Nickel

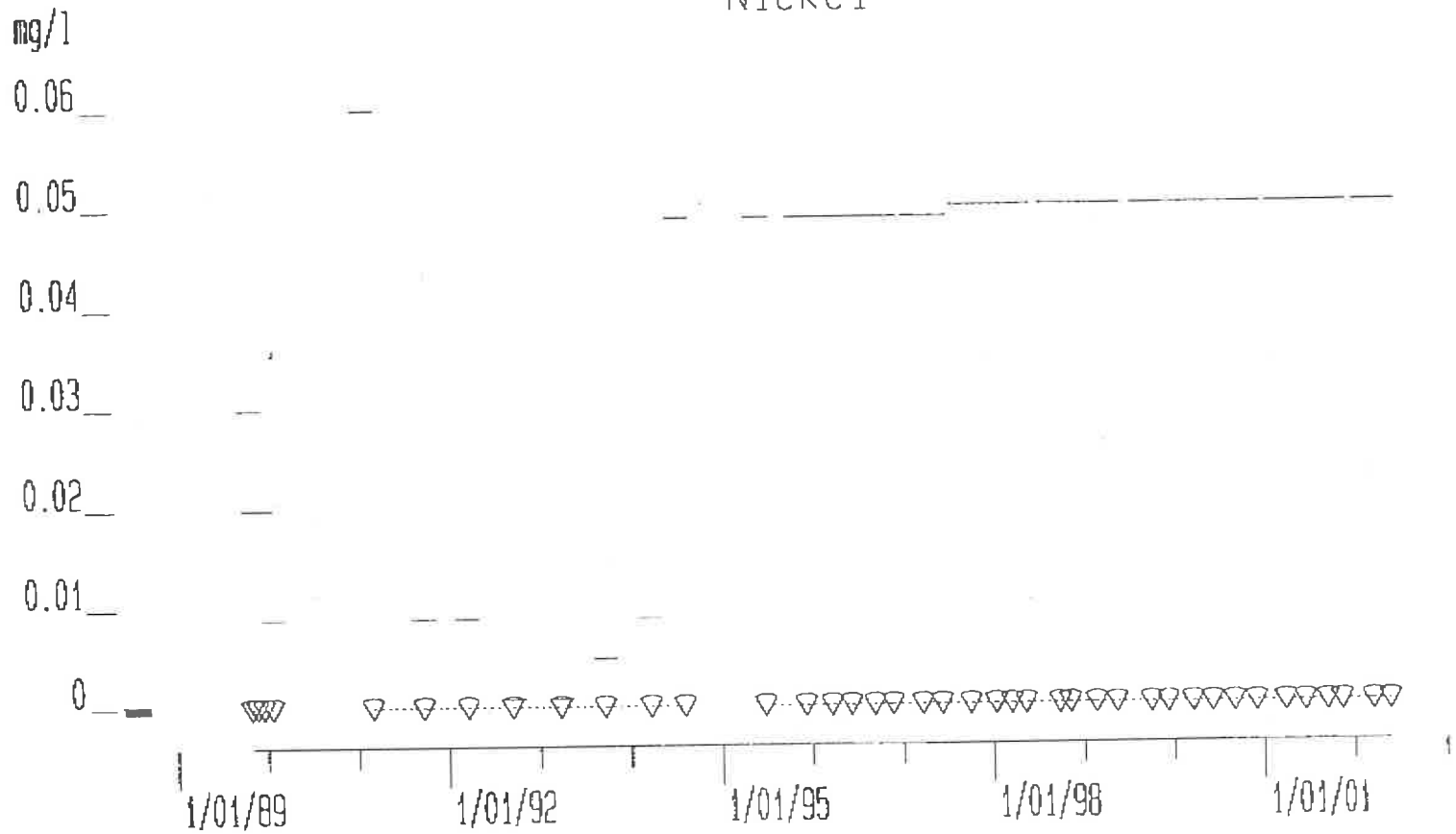


Note: Control Chart not tried, More than 25% non detects.

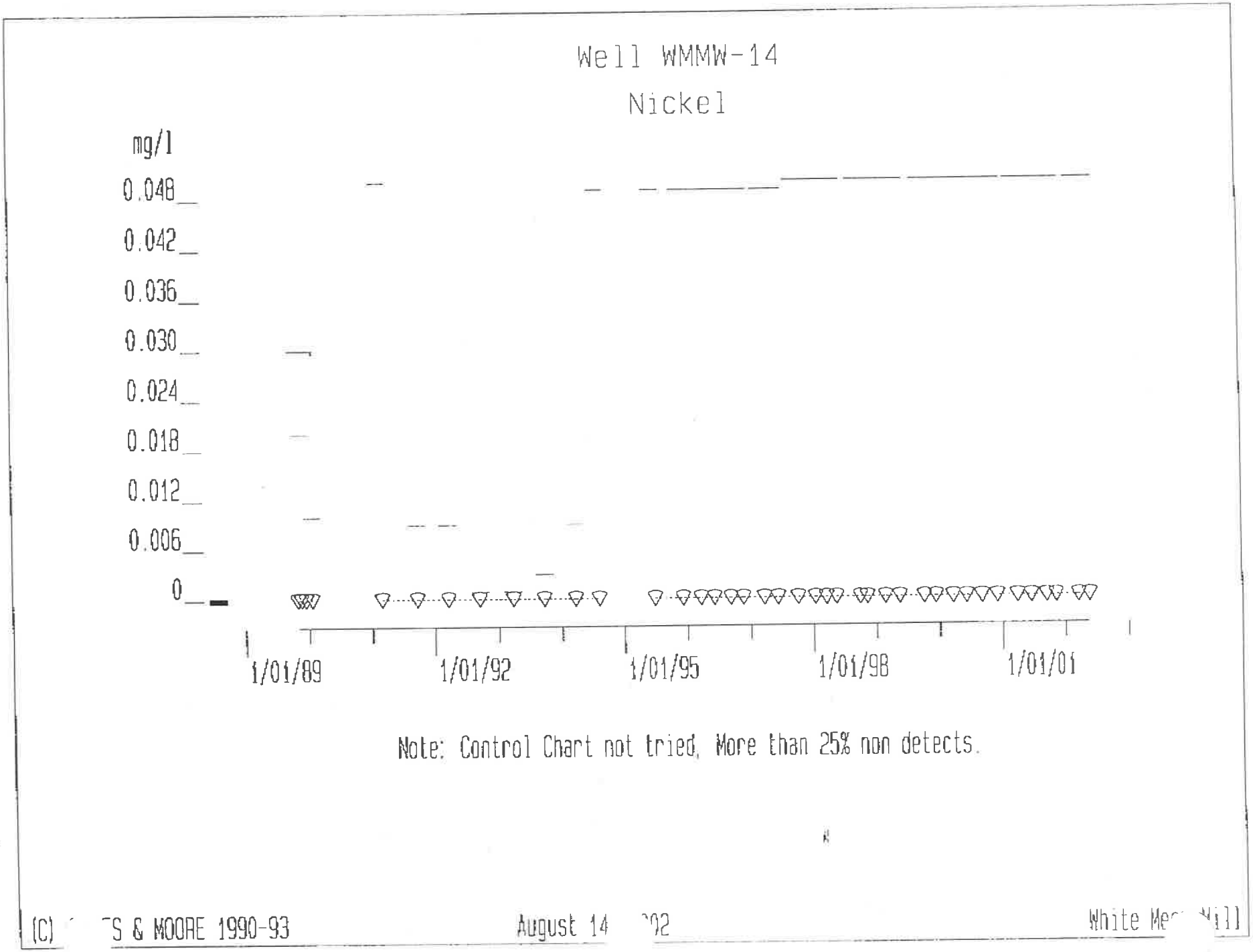

Well WMMW-11
Nickel
mg/l
0.048
0.042
0.036
0.030
0.024
0.018
0.012
0.006
0
1/01/89
1/01/92
1/01/95
1/01/98
1/01/01
Note: Control Chart not tried, More than 25% non detects.
(C) S & MOORE 1990-93
August 14
White Me ill

Well WMMW-12

Nickel

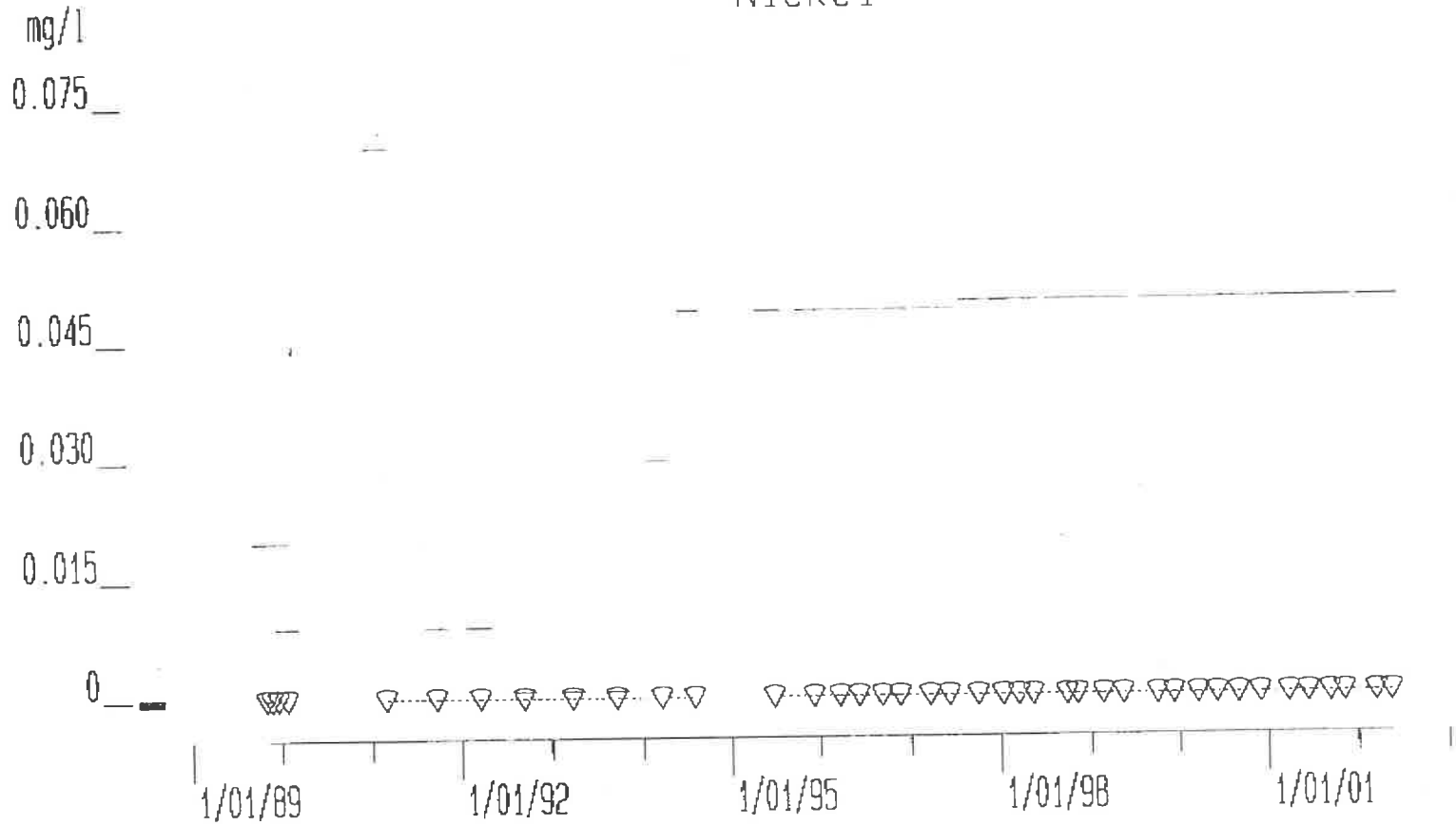


Note: Control Chart not tried, More than 25% non detects.


Well WMMW-14
Nickel
mg/l
0.048
0.042
0.036
0.030
0.024
0.018
0.012
0.006
0
1/01/89
1/01/92
1/01/95
1/01/98
1/01/01
Note: Control Chart not tried, More than 25% non detects.
(C) S & MOORE 1990-93
August 14 02
White Me Hill

Well WMMW-15

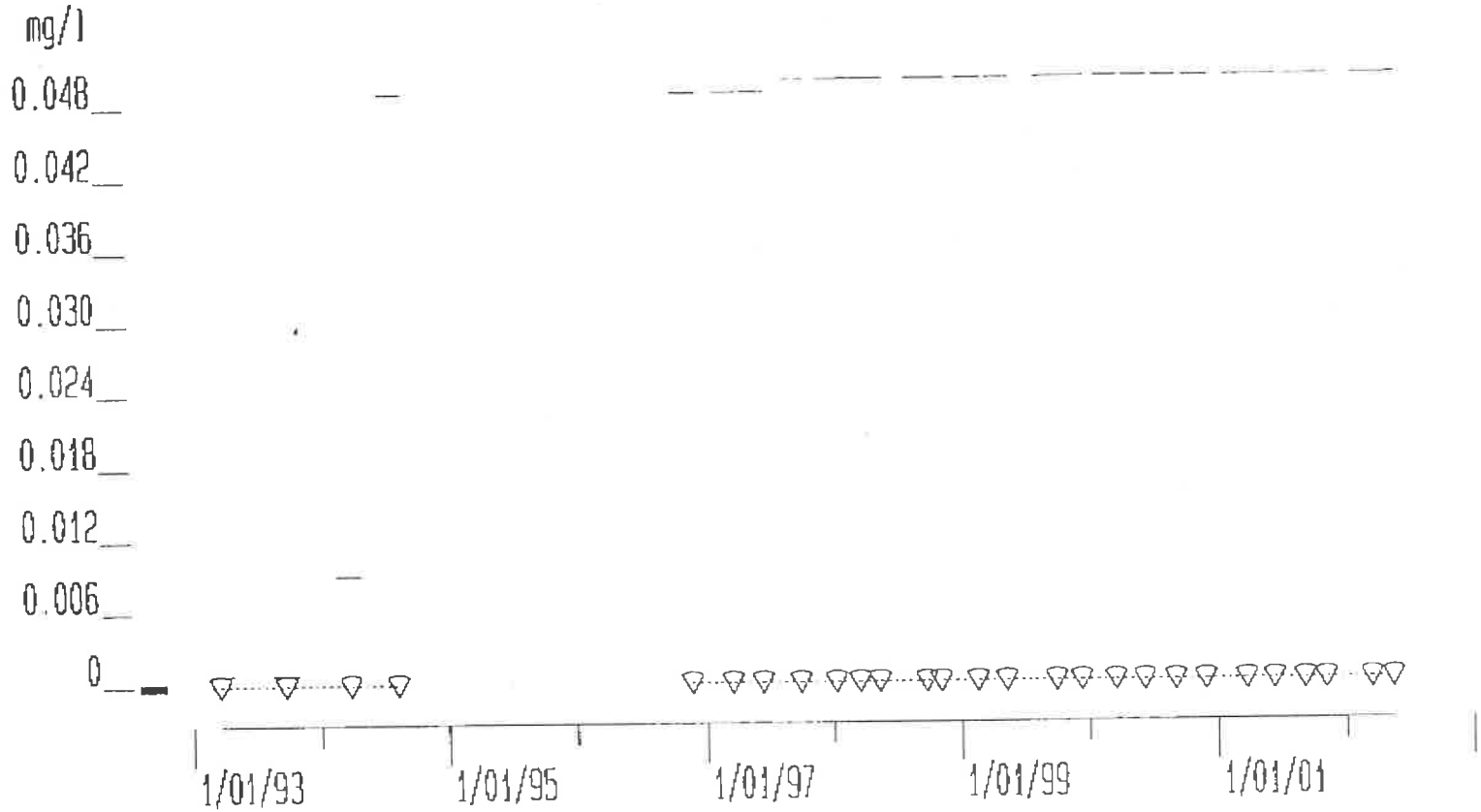
Nickel



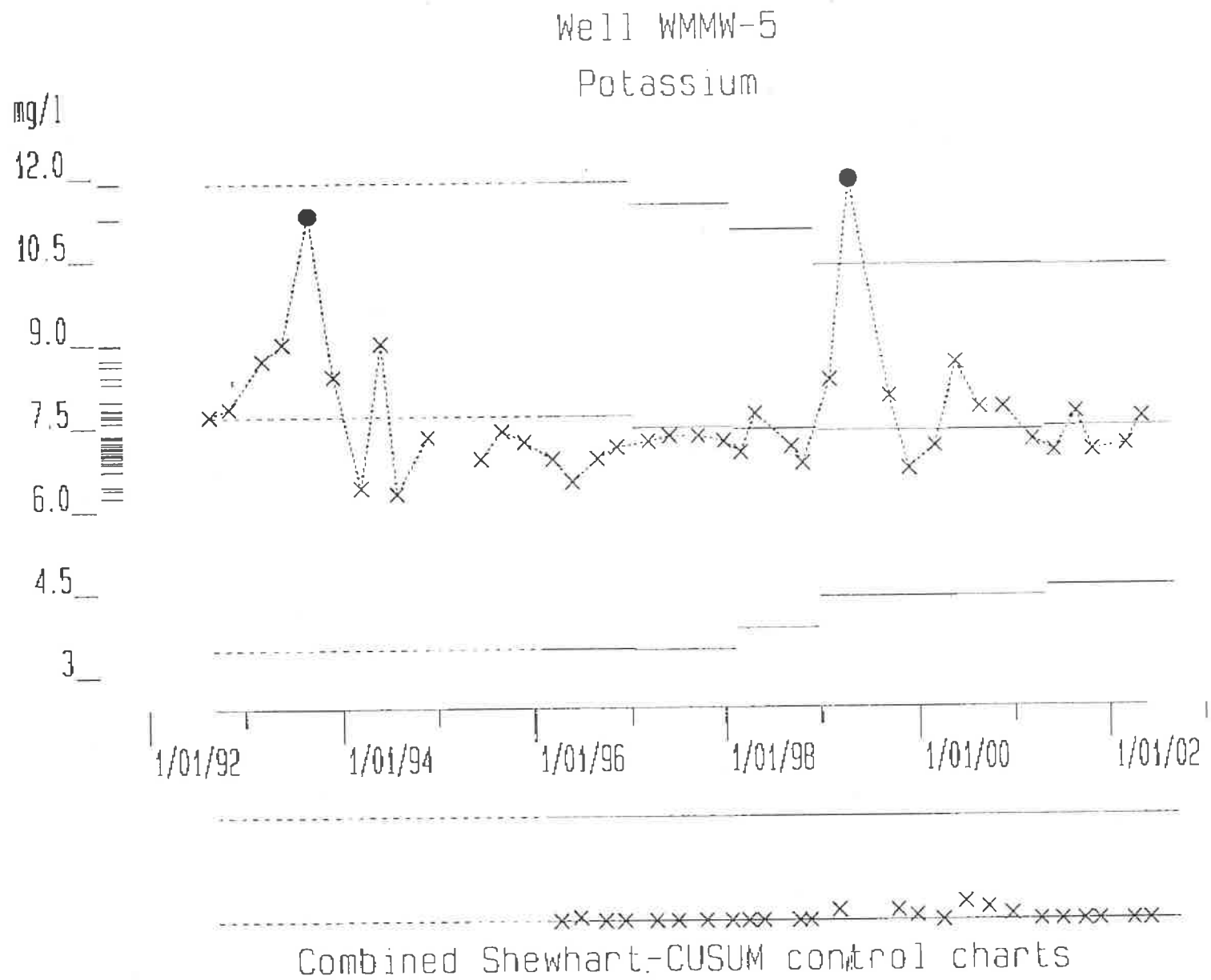
Note: Control Chart not tried, More than 25% non detects.

Well WMMW-17

Nickel

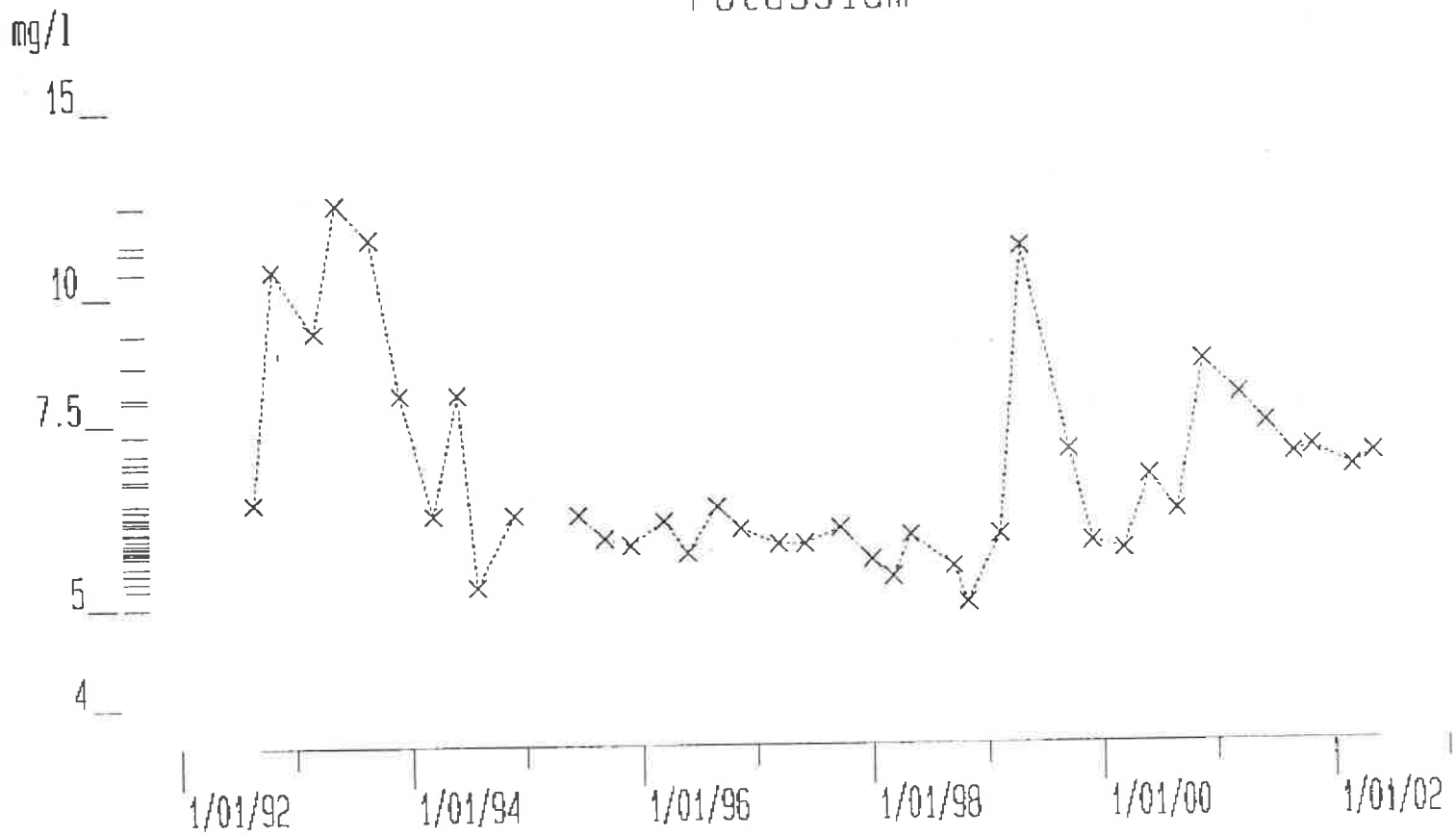


Note: Control Chart not tried, More than 25% non detects.


Well WMMW-5
Potassium
mg/l
12.0
10.5
9.0
7.5
6.0
4.5
3
1/01/92
1/01/94
1/01/96
1/01/98
1/01/00
1/01/02
Combined Shewhart-CUSUM control charts

Well WMMW-11

Potassium

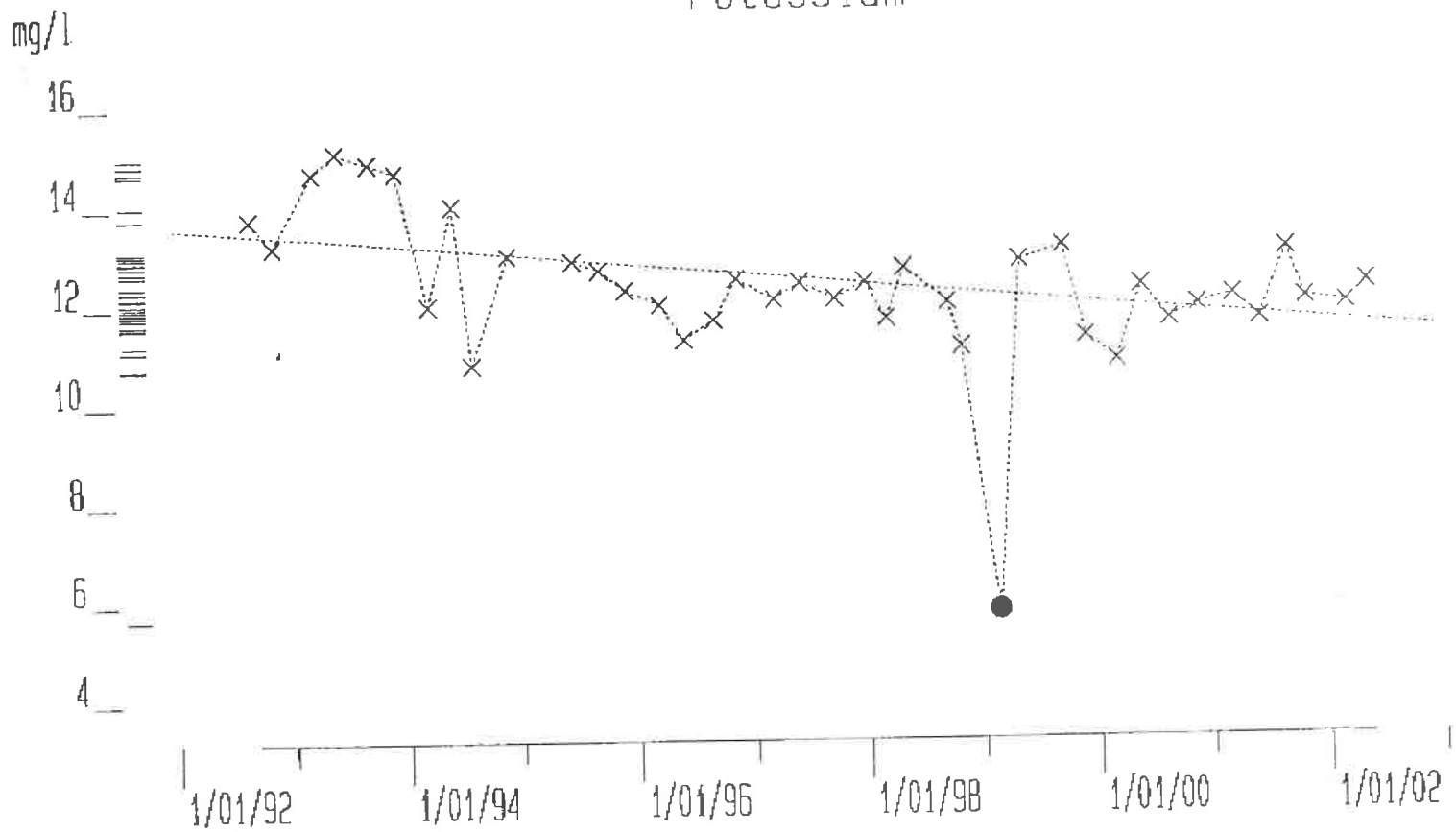


Note: Variability does not appear Gaussian.

All calculations based on log(10) of actual values

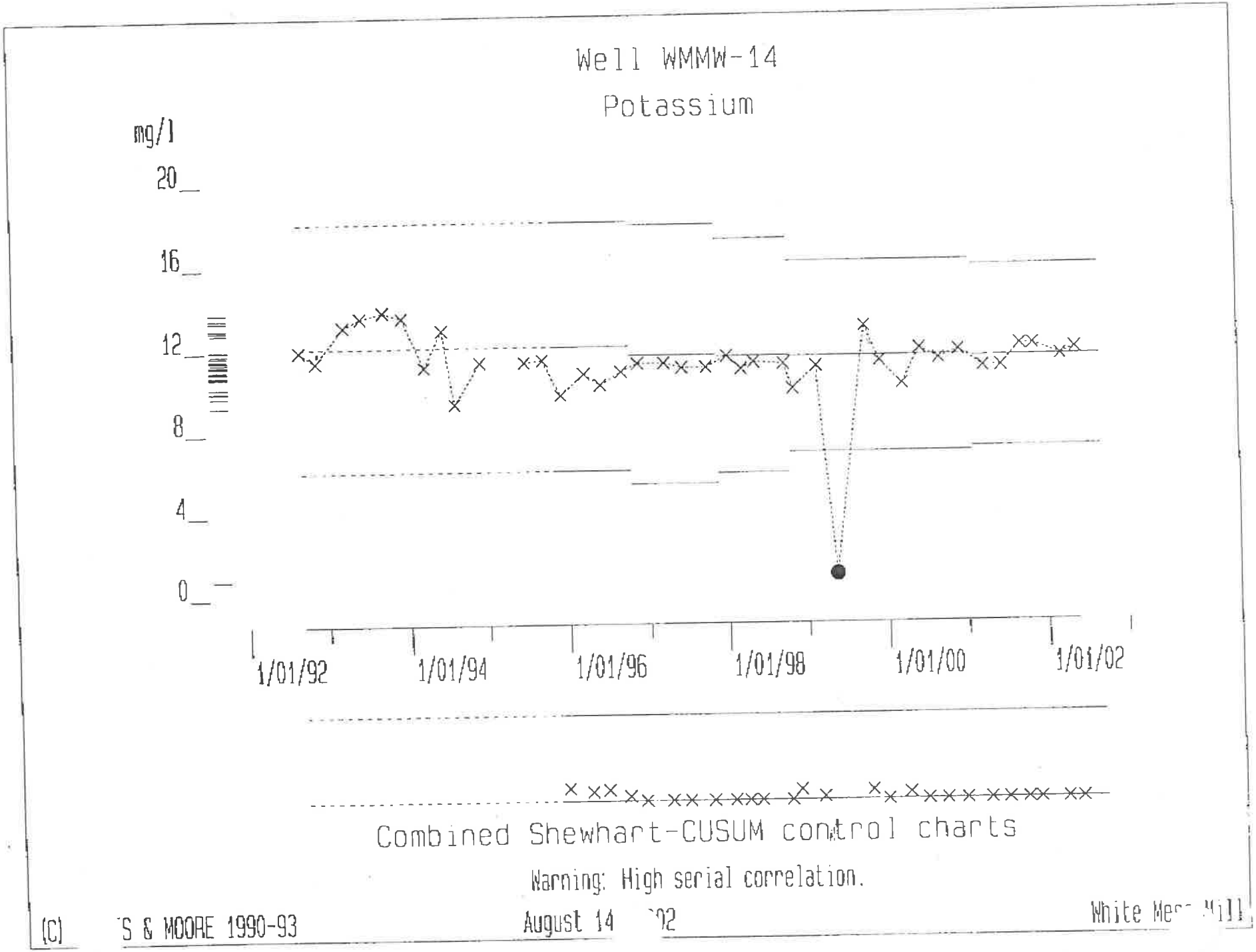
Warning: High serial correlation.

Well WMMW-12
Potassium



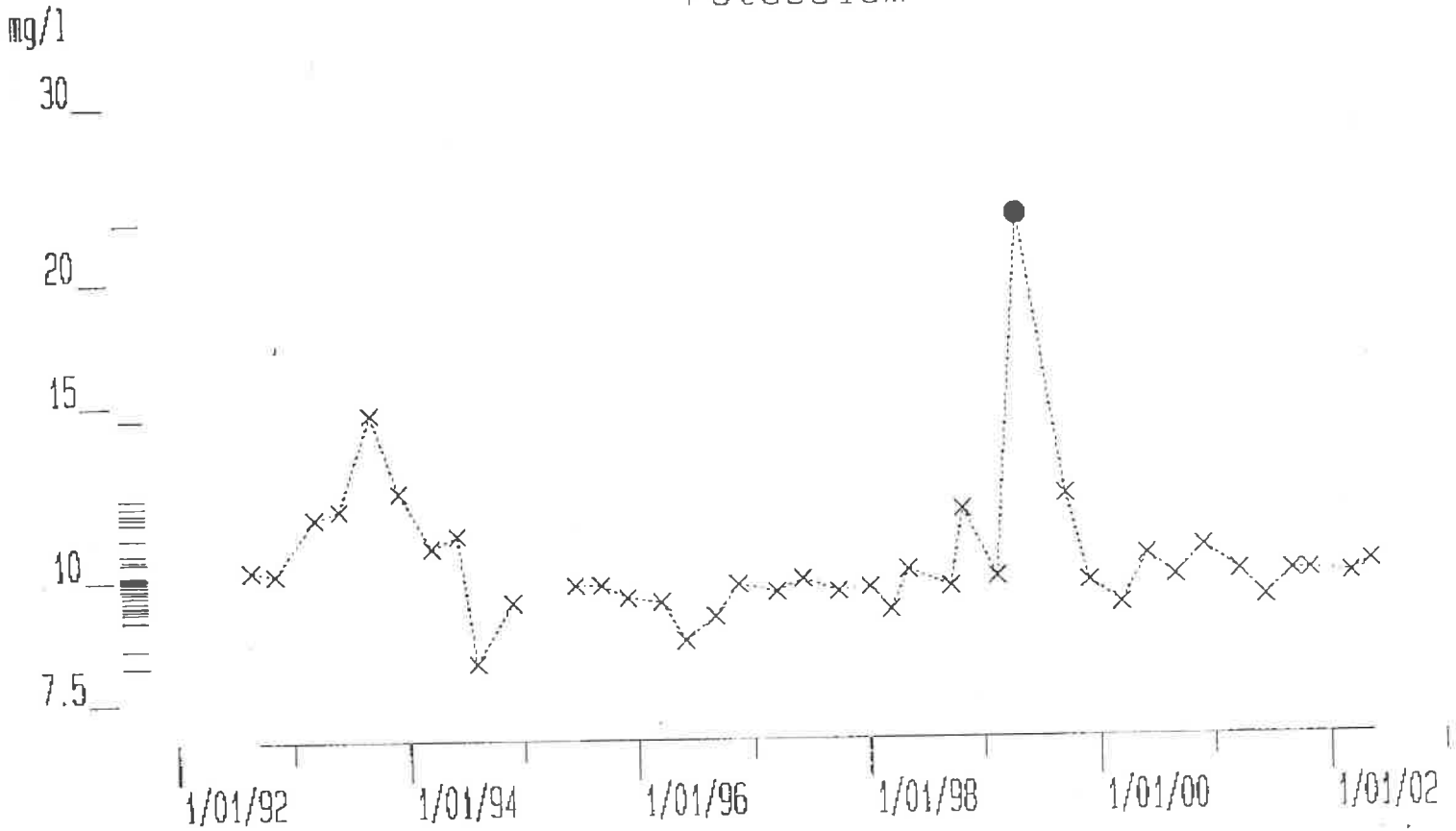
Slope of regression line is -0.2074 mg/l per year.

Warning: High serial correlation.


Well WMMW-14
Potassium
mg/l
20
16
12
8
4
0
1/01/92
1/01/94
1/01/96
1/01/98
1/01/00
1/01/02
Combined Shewhart-CUSUM control charts
Warning: High serial correlation.
(C) 'S & MOORE 1990-93
August 14 '02
White Mes Mill

Well WMMW-15

Potassium



Note: Variability does not appear Gaussian.

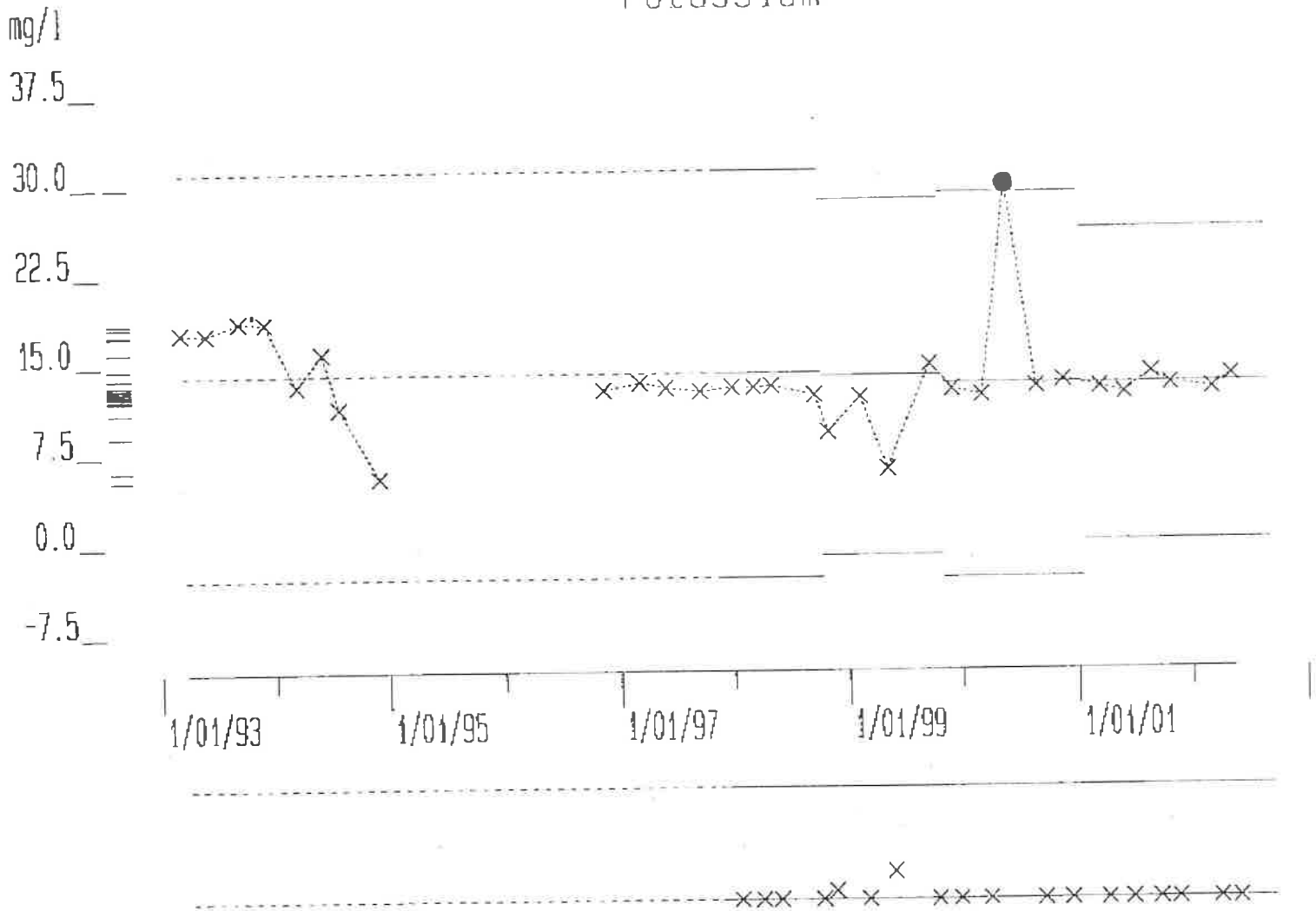
All calculations based on log(10) of actual values

Warning: High serial correlation.

(C) S & MOORE 1990-93 August 14 2002 White Mesa Mill

Well WMMW-17

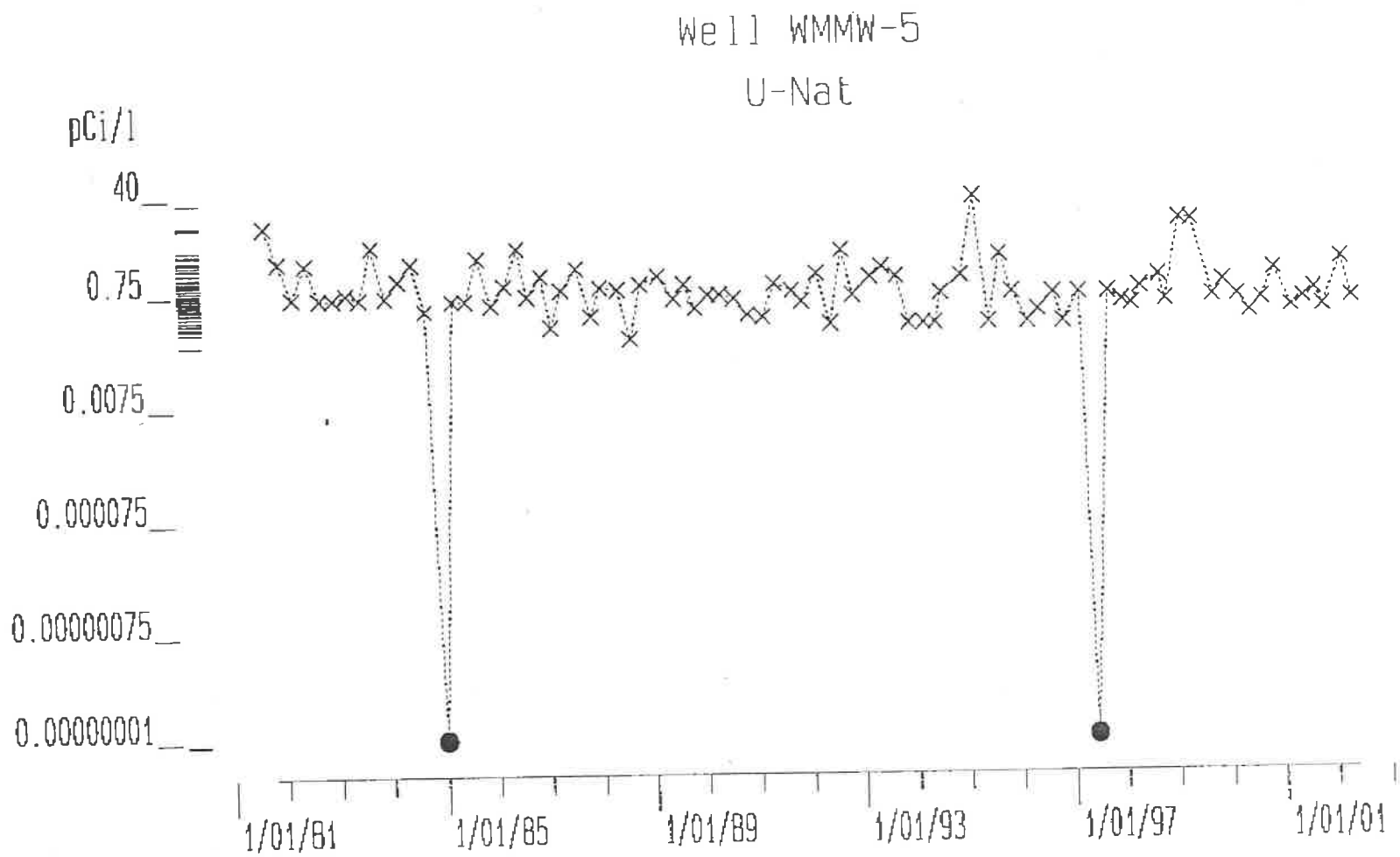
Potassium



Combined Shewhart-CUSUM control charts

Warning: High serial correlation.

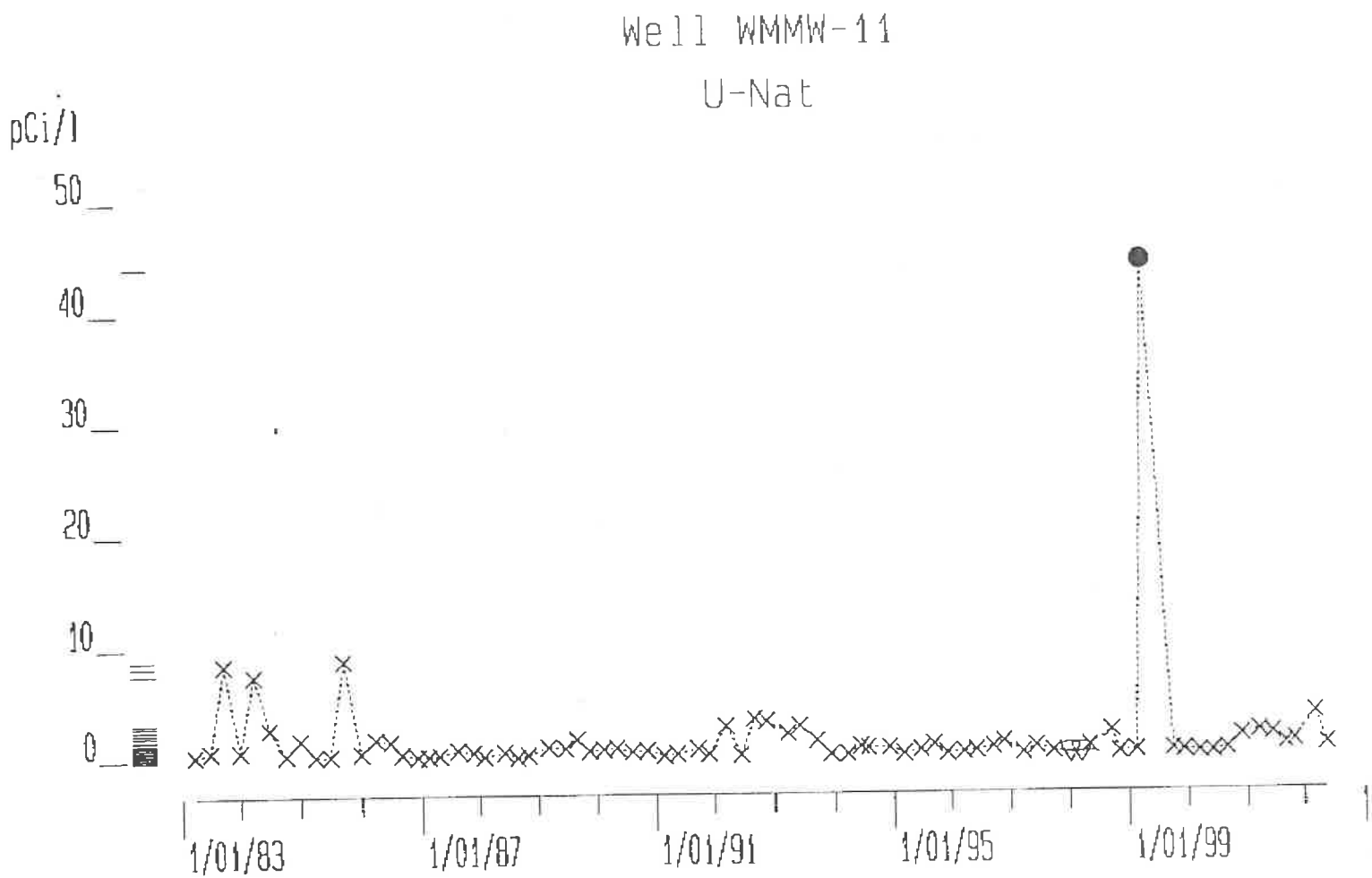
(C) S & MOORE 1990-93 August 14 2002 White Mesa Mill



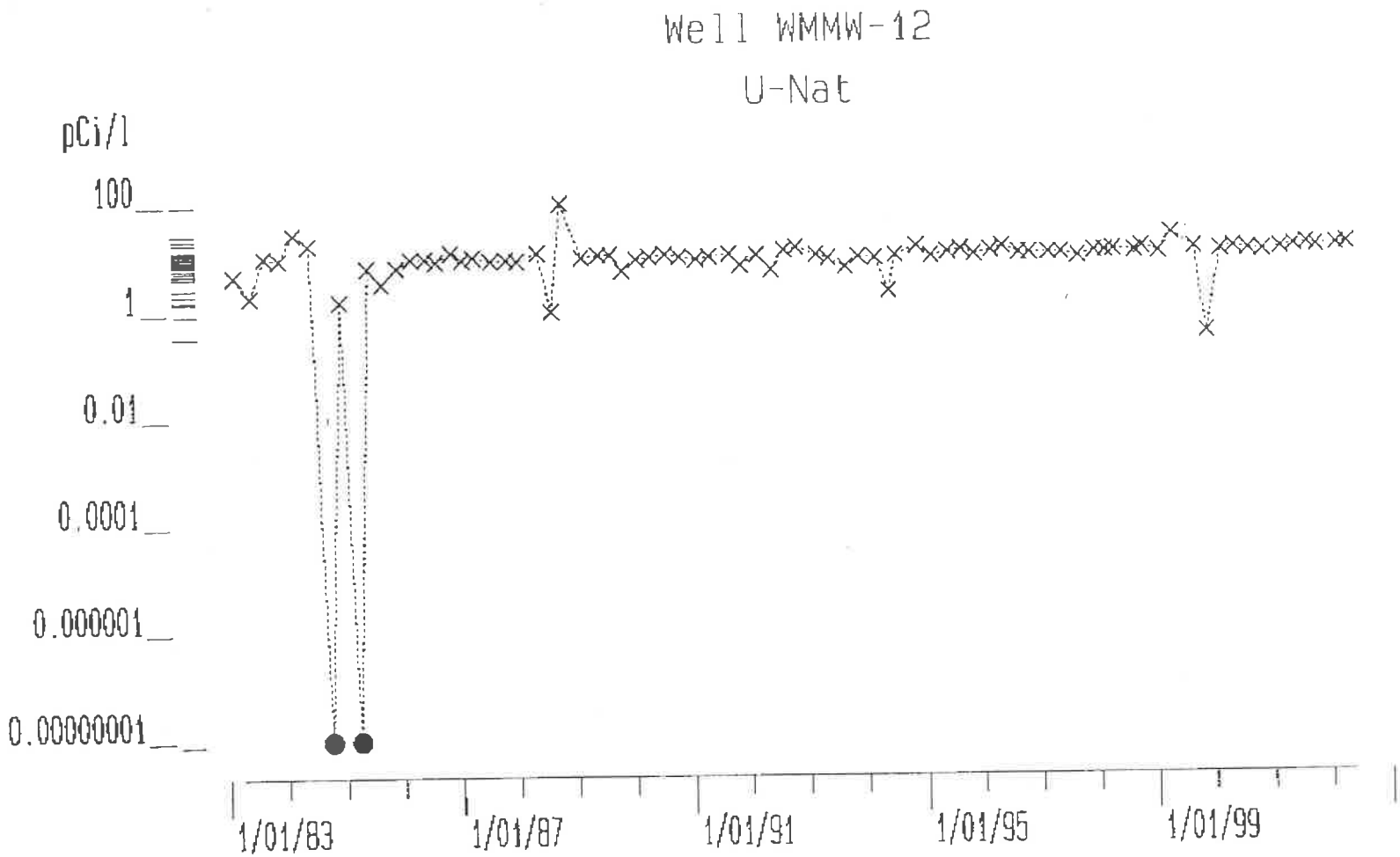
Note: Variability does not appear Gaussian.

All calculations based on log(10) of actual values

Feb-26-03 11:10am From-IUC BLANDING 801 678 2224 T-800 P.083/101 F-308



Note: Variability does not appear Gaussian.

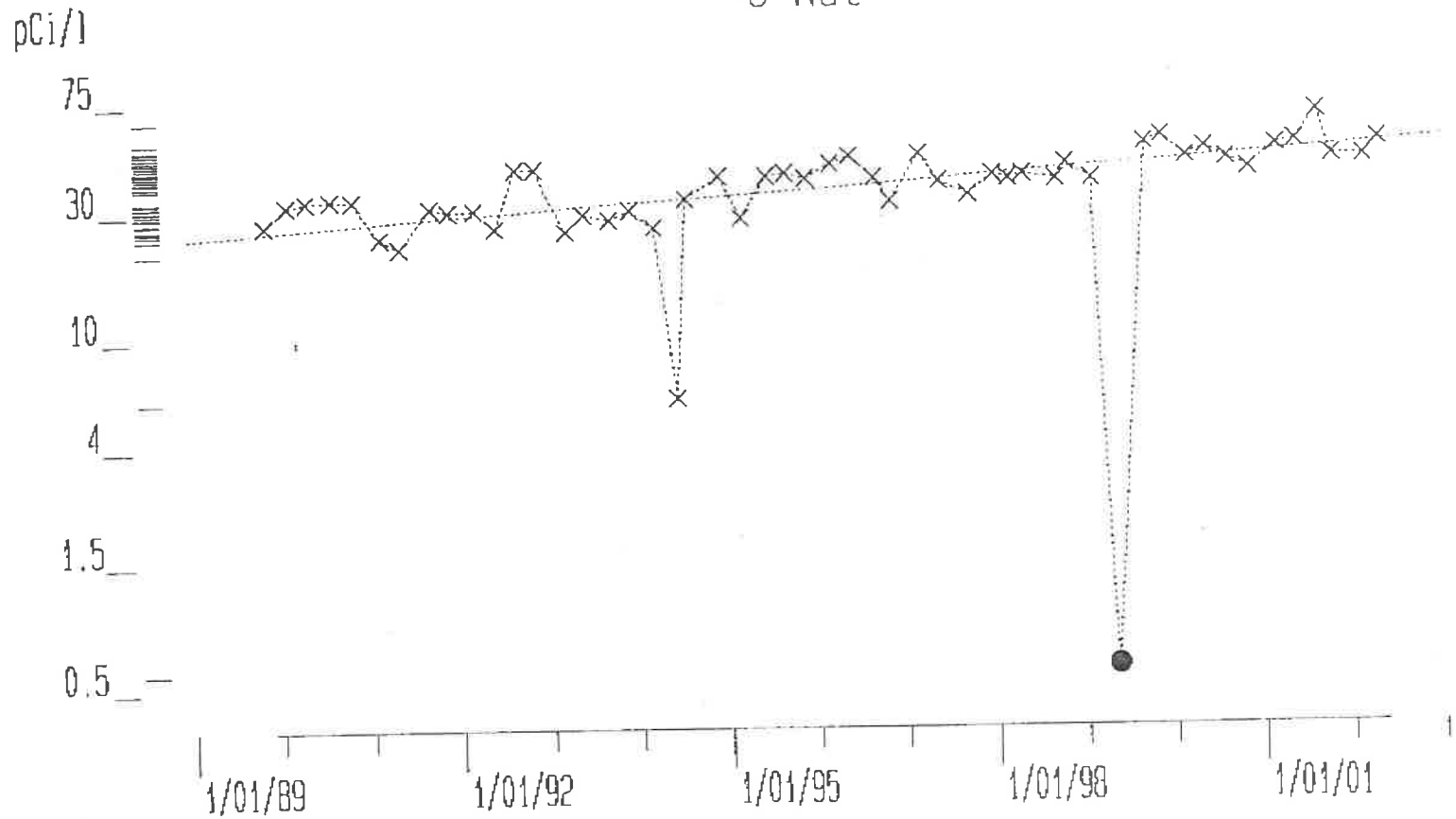


Note: Variability does not appear Gaussian.

All calculations based on log(10) of actual values

Well WMMW-14

U-Nat



Rate constant of regression line is 0.0236 pCi/l per year.

All calculations based on log(10) of actual values

Warning: High serial correlation.

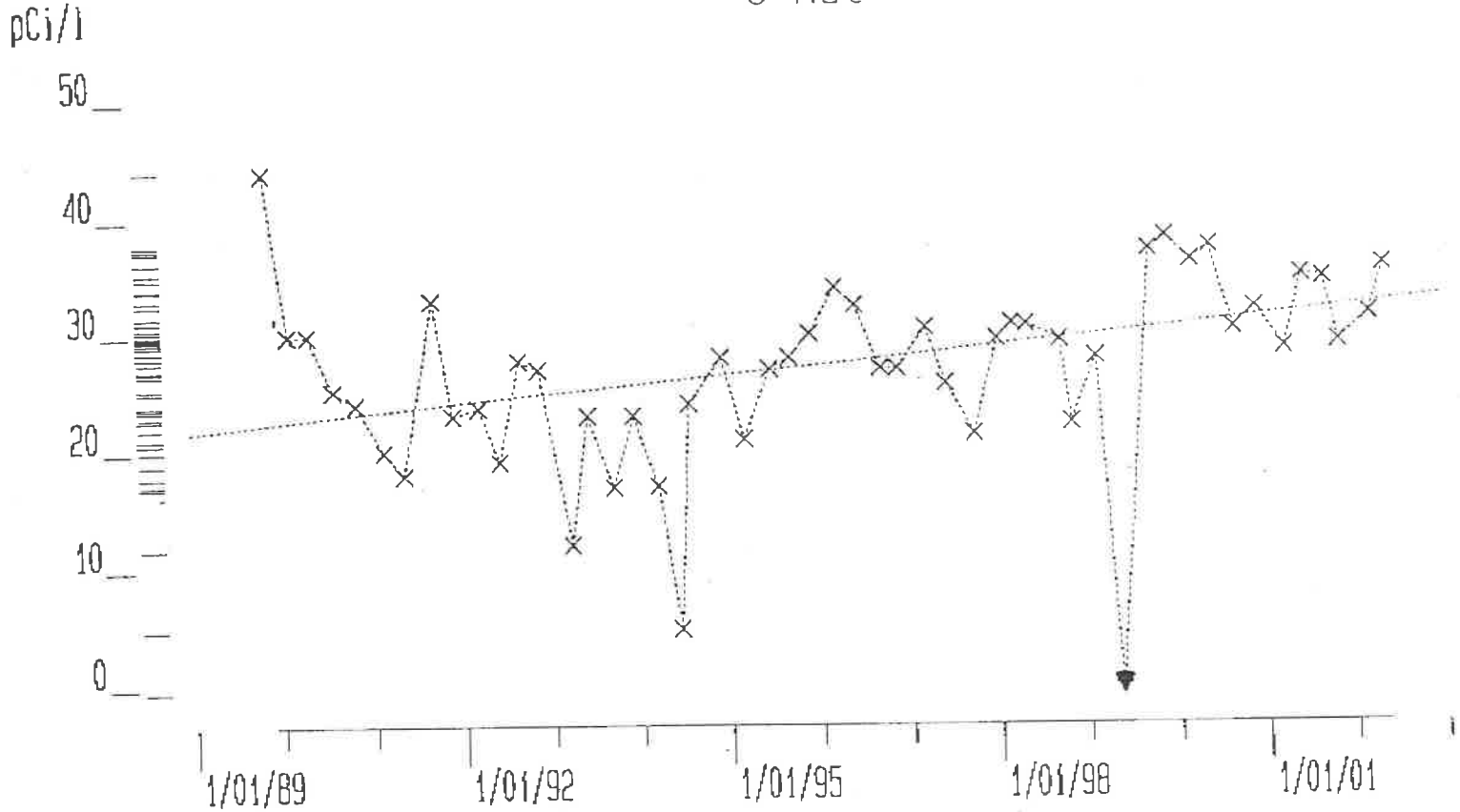
(C) ES & MOORE 1990-93

August 14 2002

White Mesa Mill

Well WMMW-15

U-Nat

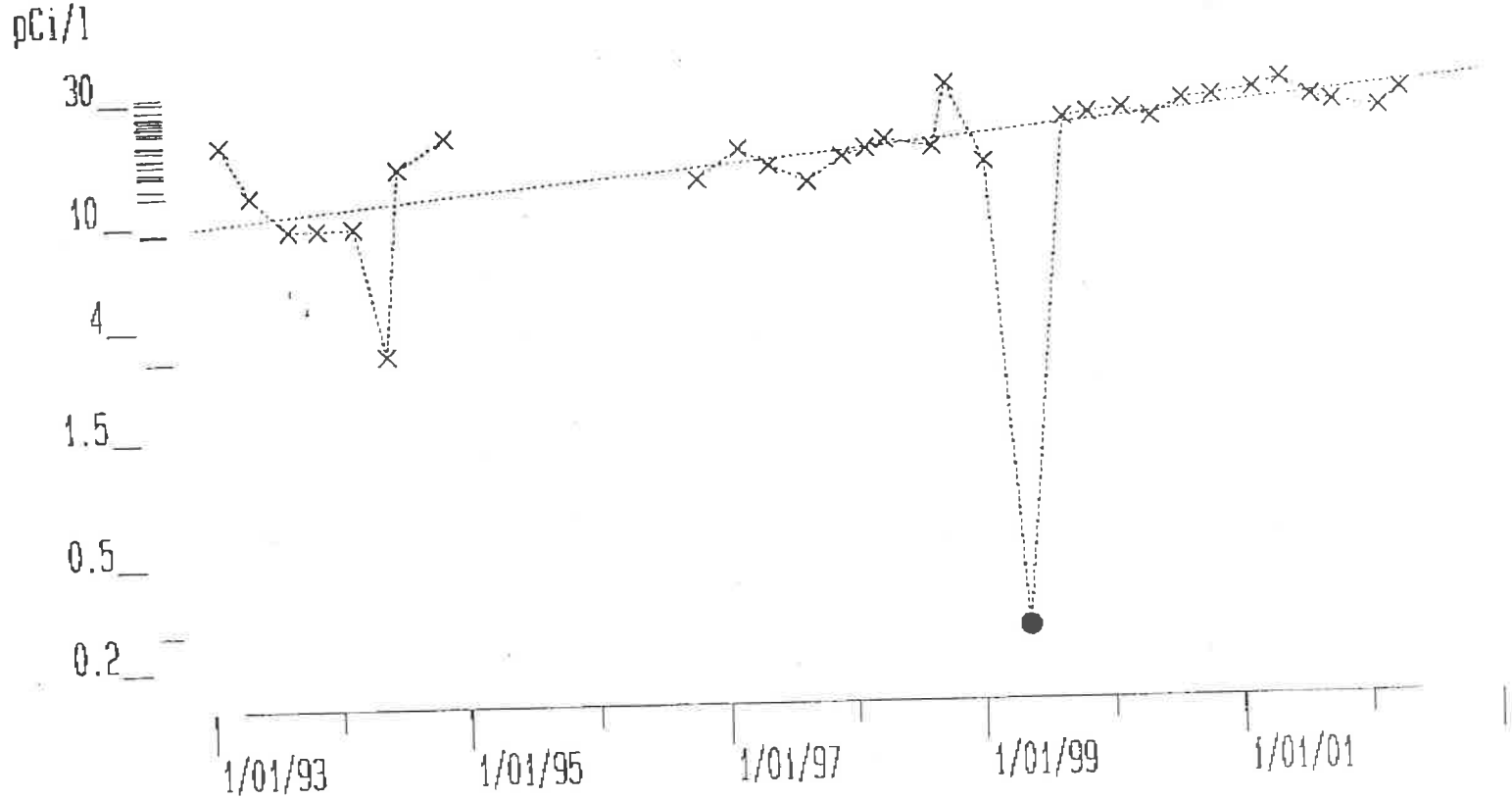


Slope of regression line is 0.7900 pCi/l per year.

Warning: High serial correlation.

Well WMMW-17

U-Nat



Rate constant of regression line is 0.0504 pCi/l per year.

All calculations based on log(10) of actual values

Warning: High serial correlation.

SURFACE-WATER ENVIRONMENTAL MONITORING RESULTS FOR THE PERIOD OF JANUARY 1, 2002 THROUGH JUNE 30, 2002

TABLE VI

INTERNATIONAL URANIUM (USA) CORPORATION
WHITE MESA MILL
SURFACE WATER ANALYSIS
SEMI-ANNUAL EFFULENT REPORT

	Cottonwood 1 1st Half 2002	Cottonwood 2 1st Half 2002
Date of Sample	15-Mar-02	24-Apr-02
TDS (mg/l)	3.76E+02	3.60E+02
Reporting Limit	3.00E+00	1.00E+01
TSS (mg/l)	3.00E+00	5.70E+01
Reporting Limit	1.00E+00	1.00E+00
Ra-226 dissolved (pCi/l)		<2.00E-01
Ra-226 Reporting Limit		<2.00E-01
Th-230 suspended (pCi/l)		<2.00E-01
Th-230 disolved (pCi/l)		4.40E+00
Th-230 Reporting Limit (pCi/l)		2.00E-01
U-nat. suspended (pCi/L)		<3.00E-04
U-nat. dissolved (pCi/L)		6.83E+00
U-nat LLD (pCi/L)		<2.03E-01
Gross Alpha Total (pCi/l)	<1.00E+00	<1.00E+00
Gross Alpha Reporting Limit (pCi/l)	1.00E+00	1.00E+00

ENERGY LABORATORIES
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LABORATORY ANALYTICAL REPORT

Lab Order: C02030448
Report Date: 04/02/02

Client: International Uranium (USA) Corp
Project: First Quarter Ground Water Sampling

Collection Date: 03/15/02 12:22
DateReceived: 03/19/02

Lab ID: C02030448-011
Client Sample ID: WMMW #17
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	25.3	mg/L		1.0		E200.7	03/28/02 15:19 / cp
Potassium	12.6	mg/L		1.0		E200.7	03/28/02 15:19 / cp
TRACE METALS - DISSOLVED							
Nickel	ND	mg/L		0.05		E200.8	03/27/02 01:12 / ts
Uranium	0.0352	mg/L		0.0003		E200.8	03/27/02 01:12 / ts
	2.38E+1 pCi/L						
	2.38E-8 uCi/L						

Collection Date: 03/13/02 07:15
DateReceived: 03/19/02

Lab ID: C02030448-012
Client Sample ID: Cottonwood
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	376	mg/L		10		A2540 C	03/19/02 16:59 / es
Solids, Total Suspended TSS @ 105 C	3	mg/L	H	1		E160.2	03/20/02 08:53 / es
RADIONUCLIDES - TOTAL							
Gross Alpha - Rn222 & Uranium	ND	pCi/L		1.0		E900.1	03/29/02 12:36 / rs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACKING NO. PAGE NO.
30448R00007

ENERGY LABORATORIES, INC. · 2393 Salt Creek Highway (82601) · P.O. B 9258 · Casper, WY 82602
Toll Free 888.235.0515 · 235.0515 · Fax 307.234.1639 · casper@energylab.com · www.energylab.com

LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: 2nd Quarter Surface Water
Lab ID: C02050063-001
Client Sample ID: Cottonwood

Report Date: 06/06/02
Collection Date: 04/24/02 08:30
Date Received: 05/01/02
Matrix: FILTER

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	360	mg/L	H	10		A2540 C	05/02/02 14:41 / es
Solids, Total Suspended TSS @ 105 C	57	mg/L	H	1		E160.2	05/02/02 15:20 / es
TRACE METALS - DISSOLVED							
Uranium	0.0101	mg/L		0.0003		E200.8	05/09/02 13:38 / ts
		6.84×10⁻⁶ µCi/ml					
TRACE METALS - SUSPENDED							
Uranium	ND	mg/L		0.00030		SW6020	06/03/02 17:24 / smd
RADIONUCLIDES - DISSOLVED							
Radium 226	ND	pCi/L		0.2		E903.0	05/16/02 15:28 / smc
Thorium 230	4.4	pCi/L		0.2		E907.0	05/09/02 10:30 / ph
Thorium 230 precision	1.3	±				E907.0	05/09/02 10:30 / ph
Gross Alpha minus Rn & U	ND	pCi/L		1.0		E900.1	05/07/02 00:00 / rs
RADIONUCLIDES - SUSPENDED							
Radium 226	ND	pCi/L		0.2		E903.0	05/16/02 15:28 / smc
Thorium 230	ND	pCi/L		0.20		E907.0	05/09/02 10:30 / ph

Entered into P:\Radiation\environmental\Environ\02 Data\SW 6/18/02 WB

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACKING NO. PAGE NO.
50063R00001

TABLE OF CONTENTS

OROLOGICAL DATA 2
INDIVIDUAL RECEPTORS & MISCELLANEOUS INPUT DATA 3
POPULATION DISTRIBUTION 4
RELATIVE DISPERSION FACTORS 5
SOURCE PARAMETERS 6
DOSE CONVERSION FACTORS 7

TIME STEP 1, &ISLEND
CONCENTRATION DATA FOR SPATIAL INTERVALS 12
ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM PER YEAR
INHALATION PATHWAY 17
GROUND PATHWAY 21
CLOUD PATHWAY 22
VEGETATION INGESTION PATHWAY 23
MEAT INGESTION PATHWAY 25
MILK INGESTION PATHWAY 27
POPULATION DOSE SUMMARY 29
INDIVIDUAL RECEPTOR PARTICULATE CONCENTRATIONS 30
INDIVIDUAL RECEPTOR RADON AND RADON DAUGHTER CONCENTRATIONS 31
INDIVIDUAL RECEPTOR ALC CHECK AND/OR ANNUAL DOSE COMMITMENTS 32

METSET: DATA: SITE3.MIL 03/18/02

JOINT FREQUENCY IN PERCENT, DIRECTION INDICATES WHERE WIND IS FROM FREQWS=0.24442,0.27614,

MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W
BILITY CLASS 1													
	0.0330	0.0280	0.0280	0.0190	0.0200	0.0440	0.0630	0.0390	0.1190	0.0630	0.1020	0.0760	0.0500
5.5	0.0370	0.0300	0.0250	0.0140	0.0250	0.0300	0.0480	0.0430	0.1030	0.0680	0.0870	0.0800	0.0530
10.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.0700	0.0580	0.0530	0.0330	0.0450	0.0740	0.1110	0.0820	0.2220	0.1310	0.1890	0.1560	0.1030
STABILITY CLASS 2													
1.5	0.1190	0.0940	0.0820	0.0630	0.0960	0.1510	0.2140	0.1970	0.3200	0.2210	0.1850	0.1490	0.1330
5.5	0.1510	0.1190	0.0960	0.0550	0.1140	0.1990	0.2310	0.2920	0.3630	0.3220	0.3110	0.2190	0.1940
10.0	0.1690	0.0890	0.0550	0.0270	0.0620	0.1690	0.1760	0.1440	0.1830	0.2080	0.1870	0.1600	0.0840
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	0.4390	0.3020	0.2330	0.1450	0.2620	0.5190	0.6210	0.6330	0.8660	0.7510	0.6830	0.5280	0.4110
STABILITY CLASS 3													
1.5	0.0740	0.0330	0.0360	0.0220	0.0660	0.1040	0.1360	0.1160	0.1290	0.1000	0.0920	0.0640	0.0650
5.5	0.1780	0.0820	0.0820	0.0530	0.1420	0.2900	0.3560	0.3200	0.3450	0.2950	0.2490	0.1640	0.1580
10.0	0.6000	0.3450	0.1190	0.1050	0.2170	0.5530	0.6260	0.4470	0.5550	0.5410	0.4250	0.3490	0.2690
15.5	0.1370	0.1210	0.0110	0.0050	0.0160	0.0550	0.0870	0.0870	0.0750	0.1070	0.0550	0.0620	0.0590
21.5	0.0050	0.0070	0.0000	0.0000	0.0000	0.0000	0.0020	0.0070	0.0020	0.0090	0.0000	0.0090	0.0050
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AL	0.9940	0.5880	0.2480	0.1850	0.4410	1.0020	1.2070	0.9770	1.1060	1.0520	0.8210	0.6480	0.5560
BILITY CLASS 4													
1.5	0.1800	0.0640	0.0880	0.0670	0.1380	0.2080	0.2730	0.1820	0.2130	0.1490	0.1110	0.0960	0.1050
5.5	0.5270	0.2310	0.2740	0.2030	0.3240	0.7080	0.9790	0.6640	0.6050	0.3880	0.3420	0.3360	0.3010
10.0	1.4500	0.6050	0.1830	0.1760	0.4540	1.7100	2.5570	1.5530	1.0210	0.7490	0.5140	0.5210	0.4840
15.5	1.9600	1.1300	0.0730	0.0660	0.2510	1.6260	2.4040	1.4380	0.7310	0.6510	0.3950	0.5660	0.5840
21.5	0.3680	0.1800	0.0070	0.0070	0.0270	0.2330	0.2920	0.1800	0.1300	0.0750	0.0460	0.1050	0.0890
28.0	0.0620	0.0300	0.0000	0.0050	0.0090	0.0640	0.0270	0.0210	0.0270	0.0180	0.0050	0.0160	0.0140
ALL	4.5470	2.2400	0.6250	0.5240	1.2030	4.5490	6.5320	4.0380	2.7270	2.0300	1.4130	1.6400	1.5770
STABILITY CLASS 5													
1.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5.5	0.4470	0.2010	0.1460	0.1300	0.3080	0.6000	0.9540	0.5530	0.5160	0.2030	0.1690	0.1140	0.1050
10.0	1.0300	0.5750	0.0910	0.0140	0.0530	0.4730	0.8840	0.5090	0.2720	0.0890	0.0750	0.1000	0.0780
15.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ALL	1.4770	0.7760	0.2370	0.1440	0.3610	1.0730	1.8380	1.0620	0.7880	0.2920	0.2440	0.2140	0.1830

INDIVIDUAL RECEPTOR LOCATION DATA, 7 LOCATIONS INPUT THIS RUN

I	LOCATION NAMES	X(KM)	Y(KM)	Z(M)	DIST(KM)	TYPE	I	LOCATION NAMES	X(KM)
	Orchard	1.30	4.59	44.00	4.77	0	5	Shirttail Junction	2.62
2	Garden	0.95	2.98	20.00	3.13	0	6	Agricultural Bldg.	1.25
3	Blanding	1.30	4.59	20.00	4.77	0	7		0.98
4	White Mesa Res.	2.10	9.66	104.00	9.89	0			

MISCELLANEOUS INPUTABLE PARAMETER VALUES

DMM	DMA	TSTART	FFORI	FHAYI	FFORP	FHAYP	FPR(1)	FPR(2
100.0	100.0	1998.00	0.50	0.50	0.50	0.50	2.00	2.0(

IPACT EQUALS

JC EQUALS 1, 0, 1, 1, 1, 1, 1, 0, 1, 1

TIME STEP DATA....	STEP NAMES	LENGTH, YRS	IFTODO
1	&ISLEND	5.00	1

XRHO EQUALS 1.5, 2.5, 3.5, 4.5, 7.5, 15.0, 25.0, 35.0, 45.0, 55.0, 65.0, 75

HDP EQUALS 50.0

METSET: DATA: SITE3.MIL 03/18/02

POPULATION DISTRIBUTION

METERS	N 0.0	NNE 22.5	NE 45.0	ENE 67.5	E 90.0	ESE 112.5	SE 135.0	SSE 157.5	S 180.0	SSW 202.5	SW 225.0	WS 247.
1.0- 2.0	0	0	0	0	0	0	0	0	0	0	0	
2.0- 3.0	0	0	0	0	0	0	0	0	0	0	0	
3.0- 4.0	3	0	0	0	0	0	0	0	0	0	0	
4.0- 5.0	0	0	0	0	0	0	0	0	0	0	0	
5.0-10.0	9	0	0	0	0	0	0	0	0	0	0	
10.0-20.0	3000	0	2	0	0	0	250	0	0	0	0	0
20.0-30.0	0	0	0	0	0	0	0	0	0	0	0	0
30.0-40.0	0	0	0	0	0	0	0	0	0	0	0	0
40.0-50.0	1000	0	0	0	0	0	0	0	500	0	0	0
50.0-60.0	0	0	0	0	0	0	0	0	0	0	0	0
60.0-70.0	0	0	0	0	0	0	0	0	0	0	0	0
0.0	0	0	0	0	0	0	0	0	0	0	0	0
1.0-80.0	4012	0	2	0	0	0	250	0	500	0	0	0

TOTAL 1-80 KM POPULATION IS 4764 PERSONS

METSET: DATA: SITE3.MIL 03/18/02

RELATIVE DISPERSION FACTORS, CHI/Q VALUES, IN PCI/M3 PER PCI/SEC (SE

IS	IR	PTSZ 1	PTSZ 2	PTSZ 3	PTSZ 4	Rn-222	Po-218	Pb-214	Bi-214

NUMBER OF SOURCES= 0

	KM	KM	M	KM2			CI/YEAR				PS
O.	X	Y	Z	AREA	U-238	Th-230	Ra-226	Pb-210	Rn-222	ID	S

INPUT TAILS ACTIVITIES, PCI/G

SET	URANIUM	THORIUM	RADIUM	LEAD
1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	0.00E+00	0.00E+00	0.00E+00	0.00E+00

AMAD AND FRACTIONAL DISTR

SET	1.5	3.0	7.7
1	0.000	1.000	0.00
2	1.000	0.000	0.00
3	0.000	0.000	0.30

PARTICULATE SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED

SOURCE	TSTEP 1	TSTEP 2	TSTEP 3	TSTEP 4	TSTEP 5	TSTEP 6	TSTEP 7	T
NUMBER	5.00YRS	5.00YRS	5.00YRS	5.00YRS	5.00YRS	5.00YRS	5.00YRS	5

RADON SOURCE STRENGTH MULTIPLIERS BY TIME STEP, 1 TIME STEP(S) USED FOR THIS RUN

SOURCE	TSTEP 1	TSTEP 2	TSTEP 3	TSTEP 4	TSTEP 5	TSTEP 6	TSTEP 7	TS
NUMBER	5.00YRS	5.00YRS	5.00YRS	5.00YRS	5.00YRS	5.00YRS	5.00YRS	5

INHALATION DOSE CONVERSION FACTORS, MREM/YR PER PCI/M3, FOR AGE GROUP OF INFA

AMAD= 1.5 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	3.42E+03	3.85E+03	4.68E+03	6.49E+02	1.74E+02
BONE	4.84E+01	5.41E+01	2.17E+04	5.92E+02	5.47E+02
AVG.LUNG	2.69E+04	3.08E+04	3.10E+04	4.17E+03	5.07E+01
LIVER	3.51E-01	3.23E-01	1.16E+02	4.42E+01	2.83E+03
KIDNEY	4.67E+01	5.23E+01	1.21E+01	1.68E+01	1.08E+03

AMAD= 3.0 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	2.08E+03	2.33E+03	3.05E+03	4.63E+02	1.90E+02
BONE	3.56E+01	3.98E+01	1.57E+04	6.64E+02	5.94E+02
AVG.LUNG	1.70E+04	1.94E+04	1.96E+04	2.63E+03	5.51E+01
LIVER	2.48E-01	2.38E-01	8.41E+01	4.95E+01	3.08E+03
KIDNEY	3.44E+01	3.86E+01	8.73E+00	1.88E+01	1.16E+03

AMAD= 7.7 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	1.11E+03	1.25E+03	1.85E+03	3.08E+02	2.28E+02
BONE	3.60E+01	4.02E+01	1.18E+04	8.37E+02	7.46E+02
AVG.LUNG	7.50E+03	8.38E+03	8.46E+03	1.14E+03	6.67E+01
LIVER	2.30E-01	2.47E-01	7.57E+01	6.37E+01	3.71E+03
KIDNEY	3.71E+01	4.20E+01	7.71E+00	2.51E+01	1.39E+03

AMAD=54.0 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	2.49E+00	2.74E+00	5.25E+02	1.45E+02	2.17E+02
BONE	2.04E+01	2.28E+01	6.11E+03	7.79E+02	7.13E+02
AVG.LUNG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.38E+01
LIVER	1.09E-01	1.40E-01	3.92E+01	5.93E+01	3.55E+03
KIDNEY	2.10E+01	2.38E+01	3.99E+00	2.34E+01	1.32E+03

AMAD= 0.3 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	6.97E+03	7.81E+03	9.06E+03	1.18E+03	1.75E+02
BONE	8.37E+01	9.35E+01	4.21E+04	5.42E+02	5.39E+02
AVG.LUNG	5.84E+04	6.67E+04	6.73E+04	9.03E+03	5.00E+01
LIVER	6.15E-01	5.35E-01	2.06E+02	3.64E+01	2.80E+03
KIDNEY	7.63E+01	8.55E+01	2.12E+01	1.43E+01	1.09E+03

INHALATION DOSE CONVERSION FACTORS, MREM/YR PER PCI/M3, FOR AGE GROUP OF CHIL

AMAD= 1.5 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	1.64E+03	1.84E+03	2.58E+03	1.62E+02	8.37E+01
BONE	3.23E+01	3.60E+01	1.91E+04	1.86E+02	4.00E+02
AVG.LUNG	1.32E+04	1.47E+04	1.49E+04	1.18E+03	2.30E+01
LIVER	1.62E-01	1.46E-01	6.50E+01	9.12E+00	1.18E+03
KIDNEY	2.04E+01	2.29E+01	7.00E+00	4.42E+00	4.98E+02

AMAD= 3.0 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	9.97E+02	1.12E+03	1.68E+03	1.16E+02	9.11E+01
BONE	2.38E+01	2.66E+01	1.38E+04	2.09E+02	4.35E+02
AVG.LUNG	8.32E+03	9.31E+03	9.39E+03	7.45E+02	2.50E+01
LIVER	1.14E-01	1.08E-01	4.70E+01	1.02E+01	1.29E+03
KIDNEY	1.51E+01	1.69E+01	5.07E+00	4.95E+00	5.37E+02

AMAD= 7.7 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	5.33E+02	5.97E+02	9.93E+02	6.72E+01	1.10E+02
BONE	1.46E+01	1.51E+01	8.90E+03	2.43E+02	4.88E+02
AVG.LUNG	3.59E+03	4.02E+03	4.05E+03	3.22E+02	2.76E+01
LIVER	7.77E-02	8.02E-02	3.31E+01	1.24E+01	1.47E+03
KIDNEY	1.14E+01	1.28E+01	3.59E+00	5.99E+00	6.14E+02

AMAD=54.0 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	1.19E+00	1.31E+00	2.81E+02	3.15E+01	1.04E+02
BONE	8.28E+00	8.54E+00	4.61E+03	2.26E+02	4.67E+02
AVG.LUNG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E+01
LIVER	3.67E-02	4.54E-02	1.71E+01	1.15E+01	1.41E+03
KIDNEY	6.46E+00	7.24E+00	1.86E+00	5.58E+00	5.82E+02

AMAD= 0.3 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	3.34E+03	3.74E+03	5.00E+03	3.06E+02	8.76E+01
BONE	6.17E+01	6.89E+01	3.71E+04	1.77E+02	4.09E+02
AVG.LUNG	2.86E+04	3.20E+04	3.22E+04	2.56E+03	2.33E+01
LIVER	3.07E-01	2.68E-01	1.26E+02	8.39E+00	1.24E+03
KIDNEY	3.91E+01	4.58E+01	1.36E+01	3.92E+00	5.12E+02

INHALATION DOSE CONVERSION FACTORS, MREM/YR PER PCI/M3, FOR AGE GROUP OF TEEN

AMAD= 1.5 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	8.55E+02	9.62E+02	1.77E+03	9.20E+01	9.06E+01
BONE	4.15E+01	4.63E+01	1.97E+04	7.02E+02	9.58E+02
AVG.LUNG	6.88E+03	7.69E+03	7.76E+03	5.21E+02	9.51E+00
LIVER	8.43E-02	7.30E-02	3.76E+01	5.30E+00	5.07E+02
KIDNEY	1.17E+01	1.31E+01	4.28E+00	5.89E+00	2.39E+02

AMAD= 3.0 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	5.20E+02	5.83E+02	1.16E+03	6.56E+01	9.87E+01
BONE	3.06E+01	3.41E+01	1.43E+04	7.87E+02	1.04E+03
AVG.LUNG	4.34E+03	4.85E+03	4.90E+03	3.29E+02	1.03E+01
LIVER	5.95E-02	5.38E-02	2.72E+01	5.94E+00	5.51E+02
KIDNEY	8.61E+00	9.64E+00	3.10E+00	6.60E+00	2.58E+02

AMAD= 7.7 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	2.78E+02	3.12E+02	6.62E+02	5.88E+01	1.10E+02
BONE	2.47E+01	2.77E+01	9.08E+03	9.49E+02	1.22E+03
AVG.LUNG	1.87E+03	2.09E+03	2.11E+03	1.42E+02	1.24E+01
LIVER	3.89E-02	3.86E-02	1.73E+01	7.11E+00	6.61E+02
KIDNEY	6.18E+00	6.92E+00	1.97E+00	8.61E+00	3.07E+02

AMAD=54.0 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	6.22E-01	6.85E-01	1.88E+02	2.76E+01	1.04E+02
BONE	1.40E+01	1.57E+01	4.70E+03	8.83E+02	1.17E+03
AVG.LUNG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.18E+01
LIVER	1.83E-02	2.19E-02	8.98E+00	6.62E+00	6.32E+02
KIDNEY	3.50E+00	3.92E+00	1.02E+00	8.02E+00	2.91E+02

AMAD= 0.3 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	1.74E+03	1.95E+03	3.44E+03	1.58E+02	8.76E+01
BONE	7.49E+01	8.37E+01	3.83E+04	6.46E+02	1.01E+03
AVG.LUNG	1.49E+04	1.67E+04	1.68E+04	1.13E+03	9.99E+00
LIVER	1.54E-01	1.28E-01	6.64E+01	4.76E+00	5.33E+02
KIDNEY	2.05E+01	2.29E+01	7.56E+00	4.76E+00	2.56E+02

INHALATION DOSE CONVERSION FACTORS, MREM/YR PER PCI/M3, FOR AGE GROUP OF ADU

AMAD= 1.5 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	7.13E+02	8.02E+02	1.61E+03	5.41E+01	6.97E+01
BONE	2.30E+01	2.57E+01	1.97E+04	2.19E+02	5.64E+02
AVG.LUNG	5.73E+03	6.41E+03	6.47E+03	3.47E+02	7.92E+00
LIVER	7.03E-02	6.09E-02	3.42E+01	2.94E+00	4.23E+02
KIDNEY	9.73E+00	1.09E+01	3.89E+00	2.94E+00	1.99E+02

AMAD= 3.0 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	4.34E+02	4.85E+02	1.05E+03	3.86E+01	7.59E+01
BONE	1.70E+01	1.90E+01	1.43E+04	2.46E+02	6.12E+02
AVG.LUNG	3.62E+03	4.05E+03	4.08E+03	2.19E+02	8.61E+00
LIVER	4.96E-02	4.48E-02	2.47E+01	3.30E+00	4.59E+02
KIDNEY	7.17E+00	8.03E+00	2.81E+00	3.30E+00	2.15E+02

AMAD= 7.7 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	2.32E+02	2.60E+02	6.62E+02	2.80E+01	8.45E+01
BONE	1.12E+01	1.26E+01	9.08E+03	2.79E+02	6.78E+02
AVG.LUNG	1.56E+03	1.75E+03	1.76E+03	9.46E+01	9.53E+00
LIVER	2.99E-02	2.97E-02	1.58E+01	3.74E+00	5.08E+02
KIDNEY	4.75E+00	5.32E+00	1.79E+00	3.74E+00	2.36E+02

AMAD=54.0 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	5.18E-01	5.71E-01	1.88E+02	1.31E+01	8.03E+01
BONE	6.37E+00	7.12E+00	4.70E+03	2.60E+02	6.48E+02
AVG.LUNG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.11E+00
LIVER	1.41E-02	1.68E-02	8.16E+00	3.49E+00	4.86E+02
KIDNEY	2.69E+00	3.01E+00	9.29E-01	3.49E+00	2.24E+02

AMAD= 0.3 µm	U-238	U-234	Th-230	Ra-226	Pb-210
EFFECTIV	1.45E+03	1.63E+03	3.12E+03	9.86E+01	7.30E+01
BONE	4.41E+01	4.92E+01	3.83E+04	2.09E+02	5.92E+02
AVG.LUNG	1.24E+04	1.39E+04	1.40E+04	7.53E+02	8.33E+00
LIVER	1.40E-01	1.16E-01	6.64E+01	2.80E+00	4.44E+02
KIDNEY	1.86E+01	2.08E+01	7.56E+00	2.80E+00	2.13E+02

EXTERNAL WHOLE BODY DOSE CONVERSION FACTORS

	U-238	Th-230	Ra-226	Pb-210	Rn-222	P
GROUND, MR/YR PER PCI/M2	3.70E-06	6.12E-07	9.47E-07	2.27E-06	5.03E-09	1.
CLOUD, MR/YR PER PCI/M3	1.23E-04	3.59E-06	4.90E-05	1.43E-05	2.83E-06	6.
WORKING LEVEL CONCENTRATION FACTORS, WL PER PCI/M3		.....	.....	.....	.....	1.

INGESTION DOSE CONVERSION FACTORS, MREM PER PCI INGESTED

GROUP	TISSUE	U-238	U-234	Th-234	Th-230	Ra-226	F
INFANT	EFFECTIV	1.61E-02	1.79E-02	8.57E-04	2.51E-02	2.11E-02	3.
INFANT	BONE	4.49E-02	5.43E-02	9.24E-07	4.39E-02	1.09E-01	1.
INFANT	LIVER	2.72E-04	3.15E-04	4.93E-07	3.74E-03	8.48E-03	3.
INFANT	KIDNEY	4.93E-02	5.71E-02	4.38E-07	3.53E-04	3.32E-03	1.
CHILD	EFFECTIV	9.95E-04	1.14E-03	5.30E-05	1.53E-03	2.38E-03	8.
CHILD	BONE	4.86E-03	5.43E-03	1.00E-07	3.32E-03	2.50E-02	7.
CHILD	LIVER	3.74E-05	4.20E-05	6.78E-08	1.45E-04	1.32E-03	8.
CHILD	KIDNEY	6.01E-03	6.75E-03	5.34E-08	1.54E-05	6.44E-04	3.
TEENAGE	EFFECTIV	7.90E-04	8.80E-04	4.22E-05	1.20E-03	4.22E-03	1.
TEENAGE	BONE	1.83E-02	2.05E-02	3.77E-07	3.32E-03	1.09E-01	2.
TEENAGE	LIVER	2.13E-05	2.39E-05	3.85E-08	5.94E-05	8.14E-04	4.
TEENAGE	KIDNEY	3.85E-03	4.33E-03	3.43E-08	6.80E-06	1.02E-03	2.
ADULT	EFFECTIV	2.55E-04	2.84E-04	1.36E-05	5.46E-04	1.32E-03	5.
ADULT	BONE	3.74E-03	4.18E-03	7.70E-08	1.33E-03	2.53E-02	8.
ADULT	LIVER	8.51E-06	9.55E-06	1.54E-08	2.20E-05	3.39E-04	2.
ADULT	KIDNEY	1.54E-03	1.73E-03	1.37E-08	2.52E-06	3.39E-04	1.

ENVIRONMENTAL CONCENTRATION FACTORS

CONCENTRATION FACTOR	FOOD TYPE	U-238	Th-230	Ra-
BIV, DIMENSIONLESS	ED.ABG.	2.50E-03	4.20E-03	1.40E-
BIV, DIMENSIONLESS	POTATO	2.50E-03	4.20E-03	3.00E-
BIV, DIMENSIONLESS	BELOW G.	2.50E-03	4.20E-03	1.40E-
BIV, DIMENSIONLESS	FORAGE	2.50E-03	4.20E-03	1.80E-
BIV, DIMENSIONLESS	ST. FEED	2.50E-03	4.20E-03	8.20E-
FBI, PCI/KG PER PCI/DAY	MEAT	3.40E-04	2.00E-04	5.10E-
FMI, PCI/L PER PCI/DAY	MILK	6.10E-04	5.00E-06	5.90E-
FRACTION IN ED PORTION	ED.ABG.	1.00E+00	1.00E+00	1.00E+
FRACTION IN ED PORTION	POTATO	1.00E-01	1.00E-01	1.00E-
FRACTION IN ED PORTION	BELOW G.	1.00E-01	1.00E-01	1.00E-
FRACTION IN ED PORTION	FORAGE	1.00E+00	1.00E+00	1.00E+
FRACTION IN ED PORTION	ST. FEED	1.00E+00	1.00E+00	1.00E+

TIME STEP DEPENDENT VARIABLES

NO.	TIME STEP NAME	PAJUST	GFACT U-238	GFACT Th-230	GFACT Ra-226	GFACT Pb-210	TFACT U-238	TF Th-
1	&ISLEND	1.000E+00	1.525E+08	1.525E+08	1.523E+08	1.413E+08	1.622E+00	1.62

XPFACT=2.640E+02 GPFACT(4)=1.707E+09 1.707E+09 1.679E+09 6.943E+08 TPFACT(4)=1.638E+00 1

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS 1.

CONCENTRATION DATA FOR THE N DIRECTION, THETA EQUALS 0.0 DEG

TOTAL AIR CONCENTRATIONS, PCI/M3, AND WL

XRHO, KM	U-238	Th-230	Ra-226	Pb-210	Rn-222	Po-218	Pb-214
1.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
15.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
35.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
45.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
55.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
65.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
75.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

GROUND SURFACE CONCENTRATIONS, PCI/M2

XRHO, KM	U-238	Th-230	Ra-226	Pb-210	Rn-222	Po-218	Pb-2
1.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
2.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
3.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
4.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
7.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
15.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
25.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
35.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
45.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
55.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
65.0	0.000E+00	0.000E-00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
75.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E

TOTAL DEPOSITION RATES, PCI/M2-SEC

XRHO, KM	U-238	Th-230	Ra-226	Pb-210
1.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
15.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
35.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
45.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
55.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
65.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
75.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00

REGION: WHITE MESA MILL MILDOS CODE: MILDOS-AREA (02/97) PAGE 14
METSET: DATA: SITE3.MIL 03/18/02

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

CONCENTRATION DATA FOR THE E DIRECTION, THETA EQUALS 90.0 DEG

TOTAL AIR CONCENTRATIONS, PCI/M3, AND WL

XRHO, KM	U-238	Th-230	Ra-226	Pb-210	Rn-222	Po-218	Pb-214
1.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
15.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
35.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
45.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
55.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
65.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
75.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

GROUND SURFACE CONCENTRATIONS, PCI/M2

XRHO, KM	U-238	Th-230	Ra-226	Pb-210	Rn-222	Po-218	Pb-2
1.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
2.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
3.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
4.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
7.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
15.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
25.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
35.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
45.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
55.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
65.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
75.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E

TOTAL DEPOSITION RATES, PCI/M2-SEC

XRHO, KM	U-238	Th-230	Ra-226	Pb-210
1.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
15.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
35.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
45.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
55.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
65.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
75.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

CONCENTRATION DATA FOR THE S DIRECTION, THETA EQUALS 180.0 DEG

TOTAL AIR CONCENTRATIONS, PCI/M3, AND WL

XRHO, KM	U-238	Th-230	Ra-226	Pb-210	Rn-222	Po-218	Pb-214
1.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
15.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
35.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
45.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
55.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
65.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
75.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

GROUND SURFACE CONCENTRATIONS, PCI/M2

XRHO, KM	U-238	Th-230	Ra-226	Pb-210	Rn-222	Po-218	Pb-2
1.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
2.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
3.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
4.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
7.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
15.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
25.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
35.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
45.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
55.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
65.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
75.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E

TOTAL DEPOSITION RATES, PCI/M2-SEC

XRHO, KM	U-238	Th-230	Ra-226	Pb-210
1.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
15.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
35.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
45.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
55.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
65.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
75.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

CONCENTRATION DATA FOR THE W DIRECTION, THETA EQUALS 270.0 DEG

TOTAL AIR CONCENTRATIONS, PCI/M3, AND WL

XRHO, KM	U-238	Th-230	Ra-226	Pb-210	Rn-222	Po-218	Pb-214
1.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
15.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
35.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
45.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
55.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
65.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
75.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

GROUND SURFACE CONCENTRATIONS, PCI/M2

XRHO, KM	U-238	Th-230	Ra-226	Pb-210	Rn-222	Po-218	Pb-2
1.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
2.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
3.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
4.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
7.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
15.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
25.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
35.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
45.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
55.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
65.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
75.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E

TOTAL DEPOSITION RATES, PCI/M2-SEC

XRHO, KM	U-238	Th-230	Ra-226	Pb-210
1.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
15.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
35.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
45.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
55.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
65.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
75.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00

METSET: DATA: SITE3.MIL 03/18/02

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

CONCENTRATION DATA FOR THE NNW DIRECTION, THETA EQUALS 337.5 DEG

TOTAL AIR CONCENTRATIONS, PCI/M3, AND WL

XRHO, KM	U-238	Th-230	Ra-226	Pb-210	Rn-222	Po-218	Pb-214
1.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
15.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
35.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
45.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
55.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
65.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
75.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

GROUND SURFACE CONCENTRATIONS, PCI/M2

XRHO, KM	U-238	Th-230	Ra-226	Pb-210	Rn-222	Po-218	Pb-2
1.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
2.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
3.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
4.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
7.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
15.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
25.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
35.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
45.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
55.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
65.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
75.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E

TOTAL DEPOSITION RATES, PCI/M2-SEC

XRHO, KM	U-238	Th-230	Ra-226	Pb-210
1.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7.5	0.000E+00	0.000E+00	0.000E+00	0.000E+00
15.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
35.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
45.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
55.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
65.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00
75.0	0.000E+00	0.000E+00	0.000E+00	0.000E+00

REGION: White Mesa Mill MILDOS CODE: MILDOS-AREA (02/97) PAGE 19
METSET: DATA: SITE3.MIL 03/18/02

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

EXPOSURE PATHWAY IS INHAL. EXPOSED ORGAN IS EFFECTI

DOSES SHOWN BELOW ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM P

DIRECTION	XRHO 1.5	XRHO 2.5	XRHO 3.5	XRHO 4.5	XRHO 7.5	XRHO 15.0	XRHO 25.0	XRHO 35.0	XR 45
N	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ENE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
E	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ESE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
S	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
W	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00

TOTAL DOSE COMMITMENT IS 0.000E+00 PERSON-REM/YR

REGION: WHITE MESA MILL MILLOS CODE: MILLOS-AREA (07/97) PAGE 10
METSET: DATA: SITE3.MIL 03/18/02

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

EXPOSURE PATHWAY IS INHAL. EXPOSED ORGAN IS BONE

DOSES SHOWN BELOW ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM P

DIRECTION	XRHO 1.5	XRHO 2.5	XRHO 3.5	XRHO 4.5	XRHO 7.5	XRHO 15.0	XRHO 25.0	XRHO 35.0	XP 45
N	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ENE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
E	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ESE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
S	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
W	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00

TOTAL DOSE COMMITMENT IS 0.000E+00 PERSON-REM/YR

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

EXPOSURE PATHWAY IS INHAL. EXPOSED ORGAN IS AVG.LUN

DOSES SHOWN BELOW ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM E

DIRECTION	XRHO 1.5	XRHO 2.5	XRHO 3.5	XRHO 4.5	XRHO 7.5	XRHO 15.0	XRHO 25.0	XRHO 35.0	XF 45
N	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0C
NNE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0C
NE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0C
ENE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0C
E	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0C
ESE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0C
SE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0C
SSE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
S	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
W	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00

TOTAL DOSE COMMITMENT IS 0.000E+00 PERSON-REM/YR

REGION: White Mesa Mill MILDOS CODE: MILDOS-AREA (12/94) PAGE 26
METSET: DATA: SITE3.MIL 03/18/02

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS 1

EXPOSURE PATHWAY IS INHAL. EXPOSED ORGAN IS BRONCH

DOSES SHOWN BELOW ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM

DIRECTION	XRHO 1.5	XRHO 2.5	XRHO 3.5	XRHO 4.5	XRHO 7.5	XRHO 15.0	XRHO 25.0	XRHO 35.0	Xi 4:
N	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(
NNE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(
NE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(
ENE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(
E	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(
ESE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(
SE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(
SSE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(
S	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(
SSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(
SW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(
WSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(
W	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(
WNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(
NW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(
NNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0(

TOTAL DOSE COMMITMENT IS 0.000E+00 PERSON-REM/YR

REGION: White Mesa Mill MILDOS CODE: MILDOS-AREA (02/97) PAGE 21
METSET: DATA: SITE3.MIL 03/18/02

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS 1.

EXPOSURE PATHWAY IS GROUND EXPOSED ORGAN IS EFFECT

DOSES SHOWN BELOW ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM

DIRECTION	XRHO 1.5	XRHO 2.5	XRHO 3.5	XRHO 4.5	XRHO 7.5	XRHO 15.0	XRHO 25.0	XRHO 35.0	XI 4
N	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
NNE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
NE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
ENE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
E	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
ESE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
SE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
SSE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
S	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
SSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
SW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
WSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
W	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
WNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
NW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
NNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

TOTAL DOSE COMMITMENT IS 0.000E+00 PERSON-REM/YR

REGION: White Mesa Mill MILDOS
METSET:

CODE: MILDOS-AREA (02/97)
DATA: SITE3.MIL

TIME STEP NUMBER 1, &ISLEND

DURATION IN YRS IS

EXPOSURE PATHWAY IS CLOUD

EXPOSED ORGAN IS EFFECTI

DOSES SHOWN BELOW ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM E

DIRECTION	XRHO 1.5	XRHO 2.5	XRHO 3.5	XRHO 4.5	XRHO 7.5	XRHO 15.0	XRHO 25.0	XRHO 35.0	XR 45
N	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ENE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
E	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ESE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
S	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
W	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00

TOTAL DOSE COMMITMENT IS 0.000E+00 PERSON-REM/YR

REGION: White Mesa Mill MILDOS CODE: MILDOS-AREA (02/97) PAGE 23
METSET: DATA: SITE3.MIL 03/18/02

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

EXPOSURE PATHWAY IS VEG. ING EXPOSED ORGAN IS EFFECTI

DOSES SHOWN BELOW ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM P

DIRECTION	XRHO 1.5	XRHO 2.5	XRHO 3.5	XRHO 4.5	XRHO 7.5	XRHO 15.0	XRHO 25.0	XRHO 35.0	XR 45
N	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ENE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
E	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ESE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
S	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
W	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00

TOTAL DOSE COMMITMENT IS 0.000E+00 PERSON-REM/YR

WARNING--POPULATION FOOD INGESTION DOSES SHOWN ABOVE HAVE NOT BEEN CORRECTED TO REFLECT POTENTIAL FOOD EXPORT AND MAY EXCEED DOSES ACTUALLY RECEIVED BY THE POPULATION OF THIS REGION. SEE SUMMARY TABLE FOR THIS INFORMATION.

REGION: White Mesa Mill MILDOS
METSET:

CODE: MILDOS AREA (02797)
DATA: SITE3.MIL

PAGE 21
03/18/02

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

EXPOSURE PATHWAY IS VEG. ING EXPOSED ORGAN IS BONE

DOSES SHOWN BELOW ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM P

DIRECTION	XRHO 1.5	XRHO 2.5	XRHO 3.5	XRHO 4.5	XRHO 7.5	XRHO 15.0	XRHO 25.0	XRHO 35.0	XR 45
N	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ENE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
E	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ESE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
S	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
W	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00

TOTAL DOSE COMMITMENT IS 0.000E+00 PERSON-REM/YR

WARNING--POPULATION FOOD INGESTION DOSES SHOWN ABOVE HAVE NOT BEEN CORRECTED TO REFLECT POTENTIAL FOOD EXPORT AND MAY EXCEED DOSES ACTUALLY RECEIVED BY THE POPULATION OF THIS REGION. SEE SUMMARY TABLE FOR THIS INFORMATION.

REGION: White Mesa Mill MILDOS
METSET:

CODE: MILDOS-AREA (02/97)
DATA: SITE3.MIL

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

EXPOSURE PATHWAY IS MEAT ING EXPOSED ORGAN IS EFFECTI

DOSES SHOWN BELOW ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM P

DIRECTION	XRHO 1.5	XRHO 2.5	XRHO 3.5	XRHO 4.5	XRHO 7.5	XRHO 15.0	XRHO 25.0	XRHO 35.0	XR 45
N	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ENE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
E	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ESE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
S	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
W	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00

TOTAL DOSE COMMITMENT IS 0.000E+00 PERSON-REM/YR

WARNING--POPULATION FOOD INGESTION DOSES SHOWN ABOVE HAVE NOT BEEN CORRECTED TO REFLECT POTENTIAL FOOD EXPORT AND MAY EXCEED DOSES ACTUALLY RECEIVED BY THE POPULATION OF THIS REGION. SEE SUMMARY TABLE FOR THIS INFORMATION.

SECTION: WHITE MESA MILL MILDOS
METSET:

DATA: SITE3.MIL

05/18/02

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

EXPOSURE PATHWAY IS MEAT ING EXPOSED ORGAN IS BONE

DOSES SHOWN BELOW ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM P

DIRECTION	XRHO 1.5	XRHO 2.5	XRHO 3.5	XRHO 4.5	XRHO 7.5	XRHO 15.0	XRHO 25.0	XRHO 35.0	XR 45
N	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ENE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
E	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ESE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
S	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
W	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00

TOTAL DOSE COMMITMENT IS 0.000E+00 PERSON-REM/YR

WARNING--POPULATION FOOD INGESTION DOSES SHOWN ABOVE HAVE NOT BEEN CORRECTED TO REFLECT POTENTIAL FOOD EXPORT AND MAY EXCEED DOSES ACTUALLY RECEIVED BY THE POPULATION OF THIS REGION. SEE SUMMARY TABLE FOR THIS INFORMATION.

REGION: White Mesa Mill MILDOS
METSET:

CODE: MILDOS-AREA (02/97)
DATA: SITE3.MIL

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

EXPOSURE PATHWAY IS MILK ING EXPOSED ORGAN IS EFFECTI

DOSES SHOWN BELOW ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM P

DIRECTION	XRHO 1.5	XRHO 2.5	XRHO 3.5	XRHO 4.5	XRHO 7.5	XRHO 15.0	XRHO 25.0	XRHO 35.0	XR 45
N	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ENE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
E	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ESE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
S	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
W	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00

TOTAL DOSE COMMITMENT IS 0.000E+00 PERSON-REM/YR

WARNING--POPULATION FOOD INGESTION DOSES SHOWN ABOVE HAVE NOT BEEN CORRECTED TO REFLECT POTENTIAL FOOD EXPORT AND MAY EXCEED DOSES ACTUALLY RECEIVED BY THE POPULATION OF THIS REGION. SEE SUMMARY TABLE FOR THIS INFORMATION.

REGION: White Mesa Mill MILDOS CODE: MILDOS-AREA (02/97) PAGE 28
METSET: DATA: SITE3.MIL 03/18/02

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

EXPOSURE PATHWAY IS MILK ING EXPOSED ORGAN IS BONE

DOSES SHOWN BELOW ARE ANNUAL POPULATION DOSE COMMITMENTS, PERSON-REM P

DIRECTION	XRHO 1.5	XRHO 2.5	XRHO 3.5	XRHO 4.5	XRHO 7.5	XRHO 15.0	XRHO 25.0	XRHO 35.0	XR 45
N	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ENE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
E	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
ESE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSE	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
S	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
SW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WSW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
W	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
WNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00
NNW	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00

TOTAL DOSE COMMITMENT IS 0.000E+00 PERSON-REM/YR

WARNING--POPULATION FOOD INGESTION DOSES SHOWN ABOVE HAVE NOT BEEN CORRECTED TO REFLECT POTENTIAL FOOD EXPORT AND MAY EXCEED DOSES ACTUALLY RECEIVED BY THE POPULATION OF THIS REGION. SEE SUMMARY TABLE FOR THIS INFORMATION.

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

ARY PRINT OF POPULATION DOSES COMPUTED FOR TSTEP 1--DOSES SHOWN ARE ANNUAL POPULATION DOSE C

DOSES RECEIVED BY PEOPLE WITHIN 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNE
INHAL.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
GROUND	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
CLOUD	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
VEG. ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
MEAT ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
TOTALS	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E

DOSES RECEIVED BY PEOPLE BEYOND 80 KILOMETERS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNE
INHAL.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
GROUND	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
CLOUD	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
VEG. ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
MEAT ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
TOTALS	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E

TOTAL DOSES COMPUTED OVER ALL POPULATIONS

PATHWAY	EFFECTIV	BONE	AVG.LUNG	LIVER	KIDNE
INHAL.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
GROUND	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
CLOUD	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
VEG. ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
MEAT ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
MILK ING	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
RNPLUS50	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E
TOTALS	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E

REGION: White Mesa Mill MILDOS CODE: MILDOS-AREA (02/97) PAGE 36
METSET: DATA: SITE3.MIL 03/18/02
TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

INDIVIDUAL RECEPTOR PARTICULATE CONCENTRATIONS
AIRBORNE CONCENTRATIONS, PCI/M3

NO.	NAME	PTSZ	U-238	Th-230	Ra-226	Pb-210	GROU U-238
1	Orchard	1	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1	Orchard	2	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1	Orchard	3	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1	Orchard	4	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	CONCENTRATION TOTALS		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2	Garden	1	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2	Garden	2	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2	Garden	3	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2	Garden	4	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	CONCENTRATION TOTALS		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3	Blanding	1	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3	Blanding	2	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3	Blanding	3	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3	Blanding	4	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	CONCENTRATION TOTALS		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4	White Mesa Res.	1	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4	White Mesa Res.	2	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4	White Mesa Res.	3	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4	White Mesa Res.	4	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	NCENTRATION TOTALS		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
5	Shirttail Junction	1	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
5	Shirttail Junction	2	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
5	Shirttail Junction	3	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
5	Shirttail Junction	4	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	CONCENTRATION TOTALS		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
6	Agricultural Bldg.	1	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
6	Agricultural Bldg.	2	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
6	Agricultural Bldg.	3	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
6	Agricultural Bldg.	4	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	CONCENTRATION TOTALS		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7		1	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7		2	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7		3	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7		4	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	CONCENTRATION TOTALS		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

INDIVIDUAL RECEPTOR RADON AND RADON DAUGHTER CONCENTRATIONS

AIRBORNE CONCENTRATIONS, PCI/M3

NO.	Rn-222	Po-218	Pb-214	Bi-214	Pb-210	Bi-210	Po-210	WL	GR Po-218
1	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+0
2	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+0
3	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+0
4	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+0
5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+0
6	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+0
7	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+0

REGION: White Mesa Mill MILDOS CODE: MILDOS-AREA (02/97) PAGE 32
METSET: DATA: SITE3.MIL 03/18/02
TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

R 1 NAME=Orchard X= 1.3KM, Y= 4.6KM, Z= 44.0M, DIST= 4.8KM, IRTYPE= (

RESULTS OF ALC CHECK AT THIS LOCATION

	U-238	U-234	Th-230	Ra-226	Rn-222(WL)	Pb-21(
CONC., PCI/M3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+(
ALC, PCI/M3	6.00E-02	5.00E-02	3.00E-02	9.00E-01	1.10E-03	6.00E-(
FRACTION OF ALC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+(

SUM OF FRACTIONS EQUALS 0.00E+00

NUMBER 2 NAME=Garden X= 0.9KM, Y= 3.0KM, Z= 20.0M, DIST= 3.1KM, IRTYPE= (

RESULTS OF ALC CHECK AT THIS LOCATION

	U-238	U-234	Th-230	Ra-226	Rn-222(WL)	Pb-21(
CONC., PCI/M3	0.00E+00	0.00E+00	0.00E+00	0.00E-00	0.00E+00	0.00E+(
ALC, PCI/M3	6.00E-02	5.00E-02	3.00E-02	9.00E-01	1.10E-03	6.00E-(
FRACTION OF ALC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+(

SUM OF FRACTIONS EQUALS 0.00E+00

REGION: WHITE MESA MILL
METSET:
DATA: SITE3.MIL
03/18/02
TIME STEP NUMBER 1, &ISLEND
DURATION IN YRS IS

NUMBER 3 NAME=Blanding X= 1.3KM, Y= 4.6KM, Z= 20.0M, DIST= 4.8KM, IRTYPE=

RESULTS OF ALC CHECK AT THIS LOCATION

	U-238	U-234	Th-230	Ra-226	Rn-222(WL)	Pb-21
CONC., PCI/M3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+
ALC, PCI/M3	6.00E-02	5.00E-02	3.00E-02	9.00E-01	1.10E-03	6.00E-
FRACTION OF ALC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+

SUM OF FRACTIONS EQUALS 0.00E+00

NUMBER 4 NAME=White Mesa Res. X= 2.1KM, Y= 9.7KM, Z= 104.0M, DIST= 9.9KM, IRTYPE=

RESULTS OF ALC CHECK AT THIS LOCATION

	U-238	U-234	Th-230	Ra-226	Rn-222(WL)	Pb-21
CONC., PCI/M3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+
ALC, PCI/M3	6.00E-02	5.00E-02	3.00E-02	9.00E-01	1.10E-03	6.00E-
FRACTION OF ALC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+

SUM OF FRACTIONS EQUALS 0.00E+00

REGION: White Mesa Mill MILLOS CODE: MILLOS-AREA (02/[illegible]) PAGE [illegible]
METSET: DATA: SITE3.MIL 03/18/02
TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

R 5 NAME=Shirttail Junction X= 2.6KM, Y= -7.4KM, Z=-210.0M, DIST= 7.9KM, IRTYPE=

RESULTS OF ALC CHECK AT THIS LOCATION

	U-238	U-234	Th-230	Ra-226	Rn-222(WL)	Pb-21
CONC., PCI/M3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+
ALC, PCI/M3	6.00E-02	5.00E-02	3.00E-02	9.00E-01	1.10E-03	6.00E-
FRACTION OF ALC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+

SUM OF FRACTIONS EQUALS 0.00E+00

NUMBER 6 NAME=Agricultural Bldg. X= 1.3KM, Y= 4.2KM, Z= 43.5M, DIST= 4.4KM, IRTYPE=

RESULTS OF ALC CHECK AT THIS LOCATION

	U-238	U-234	Th-230	Ra-226	Rn-222(WL)	Pb-21
CONC., PCI/M3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+
ALC, PCI/M3	6.00E-02	5.00E-02	3.00E-02	9.00E-01	1.10E-03	6.00E-
FRACTION OF ALC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+

SUM OF FRACTIONS EQUALS 0.00E+00

METSET: DATA: SITE3.MIL 03/18/02

TIME STEP NUMBER 1, &ISLEND DURATION IN YRS IS

NUMBER 7 NAME= X= 1.0KM, Y= 3.8KM, Z= 42.7M, DIST= 4.0KM, IRTYPE= (

RESULTS OF ALC CHECK AT THIS LOCATION

	U-238	U-234	Th-230	Ra-226	Rn-222(WL)	Pb-21(
CONC., PCI/M3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+(
ALC, PCI/M3	6.00E-02	5.00E-02	3.00E-02	9.00E-01	1.10E-03	6.00E-0
FRACTION OF ALC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0

SUM OF FRACTIONS EQUALS 0.00E+00

Program execution time = 0.28 seconds

International Uranium (USA)
Corporation
White Mesa Mill
SUA-1358 Docket No. 40-8681
Semi-Annual Effluent Report
July 1, through December 31, 2002

Copy to
International Uranium (USA)
Corporation's
Denver Office Central Files

INTERNATIONAL
URANIUM (USA)
CORPORATION

6425 S. Hwy. 191 • P.O. Box 809 • Blanding, UT 84511 • 435-678-2221 (phone) • 435-678-2224 (fax)

February 21, 2003

United States Nuclear Regulatory Commission
Region IV, Arlington Field Office
611 Ryan Plaza Drive
Suite 1000
Arlington, TX 76011

Re: INTERNATIONAL URANIUM (USA) CORPORATION
SOURCE MATERIAL LICENSE No. SUA-1358
WHITE MESA MILL, BLANDING, UTAH
Semi-Annual Effluent Monitoring Report for Period
July 1, 2002 through December 31, 2002

Dear Sir/Madame:

As required by the Code of Federal Regulations, Title 10, Part 40.65, and License Condition 11.3 A of NRC Materials License No. SUA-1358, enclosed is the semi-annual effluent monitoring report for the White Mesa Mill for the period July 1, 2002 through December 31, 2002.

If you have any questions regarding this report, please contact Mr. Ron Berg or Mr. Kenneth Miyoshi at telephone number (435) 678-2221.

Sincerely,

R. E. Berg

Ron E. Berg,
Radiation Safety Officer

Copies to: Mr. Dan Gillen, Branch Chief
Fuel Cycle Licensing Branch
Mail Stop T-8A33
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U. S. Nuclear Regulatory Commission
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Senior Health Physicist
Division of Reactor Safeguards and Emergency Preparedness
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Mr. T. Kenneth Miyoshi, White Mesa Mill Manager, International Uranium (USA) Corporation
William J. Sinclair, Utah Department of Environmental Quality
Ms. Michelle R. Rehmann, Environmental Manager, International Uranium (USA) Corporation
Mr. Tom Rice – Ute Mountain Ute Tribe
IUSA Denver Central Files
IUSA White Mesa Mill Central Files

U. S. Mail - Express Mail, Return Receipt – EU392488903US

1.0 Gas Stack Sampling

While the Mill was in operation from July 1, 2002 through December 31, 2002, no processing during this period required the use of any equipment involving gas control systems at the Mill. Therefore no stack could be sampled, and no data collected during this period. For periods when the Mill stacks are operational, gas stack sampling information would normally be reported in Table I of this report.

2.0 Environmental Radiological and Effluent Monitoring Data

2.1 Environmental Radon

Radon 222 flux is not directly measured, IUSA's license does not require direct radon monitoring by the use of TLD chips and, which in any event are no longer an effective means for measuring radon to the limits specified in 10 CFR 20.1302 (September, 1995). Rather, IUSA demonstrates conformance to the revised limits and requirements of 10 CFR 20.1302 (b) (1) by use of computational methods.

2.2 Direct Radiation

Gamma exposure rates were determined for the third and fourth quarters of 2002 utilizing passive integrating devices. Thermoluminescent (TLD) dosimeters were located at each high volume air sampling station: BHV-1, BHV-2, BHV-3, BHV-4 and BHV-5. Gamma data from location BHV-3 are used as background for direct radiation because of its remoteness to the plant mill site (approximately 3.5 miles distant). The gamma exposure radiation results from this location are subtracted from results of other sample locations. Table II lists gamma exposure rate measurements for the third and fourth quarters of 2002 before and after a background correction has been applied to locations BHV-1, BHV-2, BHV-4 and BHV-5. There is no gamma reading for the dosimeter placed at Station BHV-5 during the fourth quarter of 2002. The laboratory reported that this dosimeter was "received damaged" and no reading was obtained for the fourth quarter of 2002. During collection of fourth quarter 2002 TLD's, Mill personnel did not note or observe any apparent physical damage to the dosimeter in the field. Damage to this style of dosimeter ("ruggedized spherical ball") can only be identified in the field in the event damage is severe enough as to be visible in nature. Therefore, Mill personnel can only assume that the dosimeter was damaged during shipping to the laboratory for counting or that the TLD chip was damaged in the field without any indication of external visible damage. Station BHV-5 is the high volume air sampling station located east of the ore storage area (see Figure 1). It is noted, however, that a comparison of these data to the average gamma exposure rate value in mRem/quarter at each location since 1988, indicates no increased trend in direct radiation at any location.

2.3 Vegetation

Vegetation samples are collected at three (3) locations around the mill periphery. The sampling locations are northeast, northwest and southwest of the mill facility. Vegetation samples are collected during early spring, late spring and fall (growth seasons). Vegetation sample results are presented in Table III. A review of these data compared with results of several previous years indicate no increased concentration of Ra-226 or Pb-210 in vegetation growth. Laboratory results are included in the attachments.

Graphical representations of the vegetation sampling data for the White Mesa Mill vegetation sampling locations since inception are included with this report. Note that all values that are reported below LLD values are not plotted on these graphs. Values reported below LLD are by definition not quantifiable.

2.4 Environmental Air Monitoring

The environmental air particulate monitoring program is conducted at the White Mesa Mill utilizing four high volume continuous air sampling stations located as indicated in Figure 1 attached. With U.S. NRC approval, high volume air sample station BHV-3 is no longer utilized to collect air particulate data, for background correctional application to other sampling locations, because sufficient data have been accumulated at BHV-3 to apply conservative background corrections to the other sample location data. The results of radionuclide concentrations for air sampling locations BHV-1, BHV-2 (nearest residence) BHV-4, BHV-5, and BHV-6 are presented in Table IV. A review of the information, comparing results to those from previous years indicate no potential upward trends in radionuclide concentrations at any location. Laboratory results are included in the attachments.

In addition to the environmental air sampling locations, BHV-1, BHV-2, BHV-4, and BHV-5, which are required by the Mill's U.S. NRC license, environmental air sampling monitor (BHV-6) was installed at a location near the boundary of the White Mesa Ute Community. This air monitoring station began operation on July 1, 1999 and provides additional environmental air sample collection data in that area. Environmental air monitoring data for BHV-6 is also included in this report.

Graphical representations of the air sampling data for the White Mesa Mill since inception of the air sampling locations are included with this report. Note that all values that are reported below LLD values are not plotted on these graphs. Values reported below LLD are by definition not quantifiable.

2.5 Ground Water Monitoring

The ground water monitoring program sample results for the third and fourth quarters of 2002 are presented in Table V. Quality Control samples and Quality Assurance

samples are indicated on the respective quarterly results. Analysis and discussion of this information are included in Attachment I, Table V.

2.6 Surface Water Monitoring

Surface water samples were collected for Cottonwood Creek and are presented in Table VI. During the year 2002, there was no water present in Westwater Creek at the Mill's sampling location. Therefore, a sediment sample was collected from this location and results are presented in Table VII of this report. No obvious analyte trend is evident from comparison of previous data with Cottonwood surface water samples collected for the current reporting period. The third and fourth quarter sampling data laboratory results for Cottonwood and Westwater Creeks' are attached.

Graphical representations of the surface water sampling data for the White Mesa Mill surface water locations since inception are included with this report. Note that all values that are reported below LLD values are not plotted on these graphs. Values reported below LLD are by definition not quantifiable.

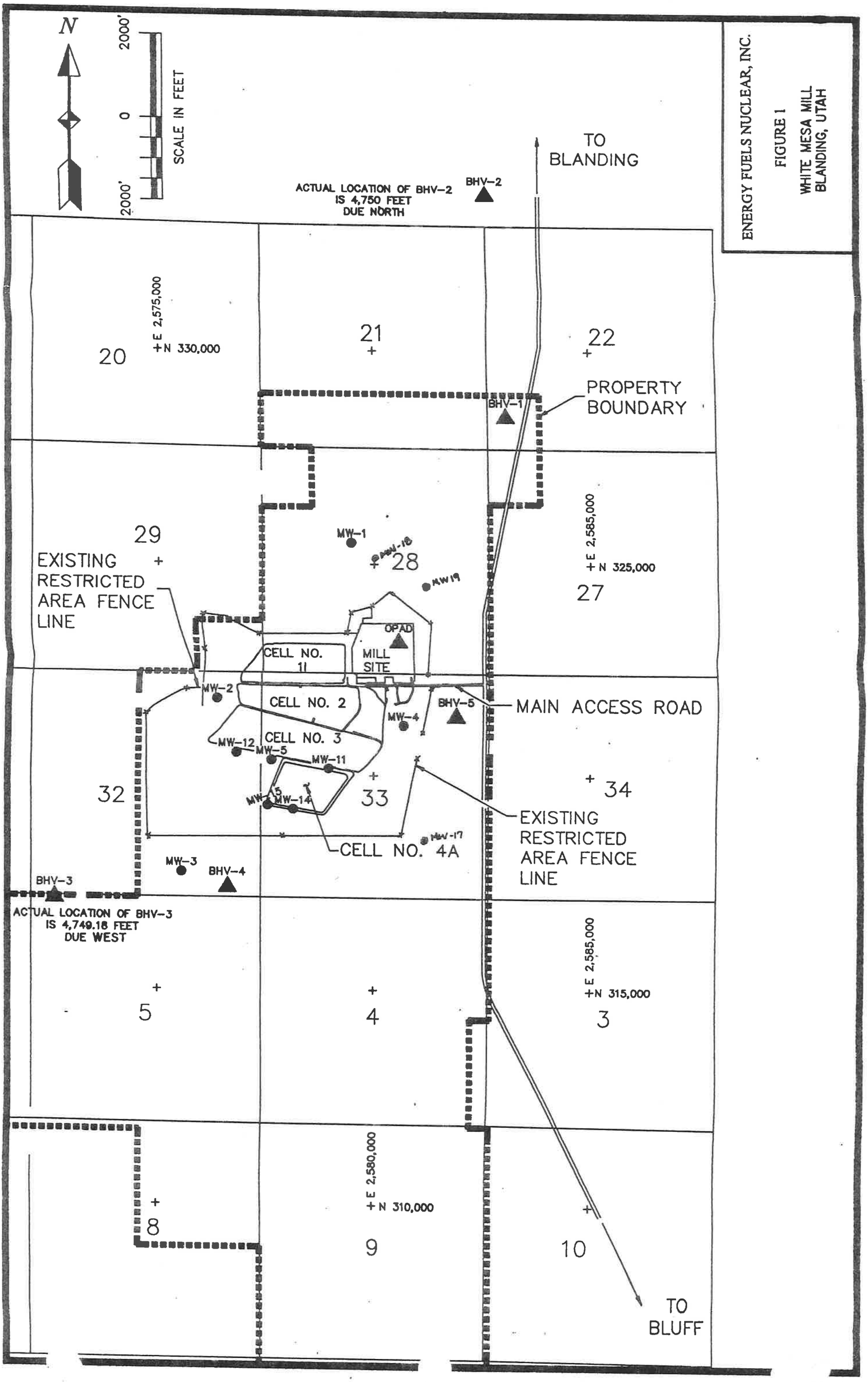
2.7 Soil Sampling

Annual soil samples were collected in August 2002. Results of the laboratory analysis are presented in Table VIII of this report. Soil sampling data, since the Mill's inception of this program, are contained in Table VIII. No obvious analyte trend is evident from comparison of previous data with soil samples collected for the present reporting period. Laboratory results of the 2002 soil samples are attached to this report.

Graphical representations of the soil sampling data of the program since inception are included with this report. Note that all values that are reported below LLD values are not plotted on these graphs. Values reported below LLD are by definition not quantifiable.

3.0 Meteorological Data

As in prior reporting periods, an independent contractor, will prepare the White Mesa Mill Semi-annual Meteorological Monitoring Report for the period of July 1, 2002 through December 31, 2002. This information will be retained at the Mill site for review and inspection.


N
2000'
0
2000'
SCALE IN FEET
TO BLANDING
ACTUAL LOCATION OF BHV-2 IS 4,750 FEET DUE NORTH
BHV-2
20
+E 2,575,000
+N 330,000
21
22
PROPERTY BOUNDARY
BHV-1
29
EXISTING RESTRICTED AREA FENCE LINE
MW-1
28
+E 2,585,000
+N 325,000
27
OPAD
CELL NO. 1I
MILL SITE
MW-2
CELL NO. 2
BHV-5
MAIN ACCESS ROAD
MW-4
MW-12
CELL NO. 3
MW-5
MW-11
32
33
34
MW-14
EXISTING RESTRICTED AREA FENCE LINE
CELL NO. 4A
MW-3
BHV-4
BHV-3
ACTUAL LOCATION OF BHV-3 IS 4,749.18 FEET DUE WEST
+E 2,585,000
+N 315,000
5
4
3
+E 2,580,000
+N 310,000
8
9
10
TO BLUFF
ENERGY FUELS NUCLEAR, INC.
FIGURE 1
WHITE MESA MILL
BLANDING, UTAH

STACK SAMPLING

MONITORING

RESULTS

FOR

THE

PERIOD OF

JULY 1, 2002

THROUGH

DECEMBER 31, 2002

IUC – White Mesa Mill
Table I – Gas Stack Effluent Release
For the Period of July 1, through December 31, 2002

Constituent	3rd Quarter 2002 Date Sampled: NA Mill circuits and equipment involving gas collection systems in abeyant operation	4th Quarter 2002 Date Sampled: NA Mill circuits and equipment involving gas collection systems in abeyant operation
U-nat conc. U-Nat Release Rate U-nat LLD Ra-226 conc. Ra-226 Release Rate Ra-226 LLD Th-230 conc. Th-230 Release Rate Th-230 LLD Pb-210 conc. Pb-210 Release Rage Pb-210 LLD	No effluent; Not measured. Mill was in operation for the period of July 1, 2002 through January 31, 2002. From July 1, 2002 through December 31, 2002, no Mill circuits or equipment involving gas collection systems were utilized, therefore no data were collected during this period[1].	No effluent; Not measured. Mill was in operation for the period of July 1, 2002 through January 31, 2002. From July 1, 2002 through December 31, 2002, no Mill circuits or equipment involving gas collection systems were utilized, therefore no data were collected during this period[1].

1 The gas stack samples will be obtained during those periods in which the circuits or equipment involving gas collection systems are in operation, in accordance with Mill license condition No. 24.

ENVIRONMENTAL

GAMMA RADIATION

MONITORING RESULTS

FOR

THE

PERIOD

OF

JULY 1, 2002

THROUGH

DECEMBER 31, 2002

IUC – White Mesa Mill
Table II – Gamma Exposure Rate Above Background (mRem/Qtr.)
For the Period of July 1, 2002 through December 31, 2002

Location	3rd Quarter 2002	4th Quarter 2002
BHV-1	0.00 mRem/Qtr. ± 0.00	0.00 mRem/Qtr. ± 0.00
BHV-2	1.00 mRem/Qtr. ± 1.60	2.00 mRem/Qtr. ± 0.80
BHV-4	0.00 mRem/Qtr. ± 0.00	0.00 mRem/Qtr. ± 0.00
BHV-5	2.00 mRem/Qtr. ± 1.50	Badge was damaged and no results were obtained for this quarter.

Notes: (1) Third Quarter results are determined by subtracting measured background data collected from Location BHV-3, 28 mRem/Qtr. ± 0.90 mRem/Qtr.

(2) Fourth Quarter results are determined by subtracting measured background data collected from Location BHV-3, 29 mRem/Qtr. ± 1.50 mRem/Qtr.

INTERNATIONAL URANIUM (USA) CORP.
WHITE MESA MILL
DIRECT RADIATION
MR/QTR
Location: BHV-1, Meterological Station

Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate*	Net Error	Total Rate Mr/week	Counting Error Mr/week
30-Sep-81	23.66	0.00	3.90	0.00	1.82	
31-Dec-81	25.87	0.00	-2.21	0.00	1.99	
31-Mar-82	26.00	0.00	1.69	0.00	2.00	
30-Jun-82	24.05	0.00	-3.64	0.00	1.85	
01-Oct-82	25.35	0.00	3.12	0.00	1.95	
03-Jan-83	30.55	0.00	4.94	0.00	2.35	
04-Apr-83	22.49	0.00	-1.82	0.00	1.73	
05-Jul-83	32.11	0.00	7.54	0.00	2.47	
03-Oct-83	20.54	0.00	-1.43	0.00	1.58	
03-Jan-84	22.75	0.00	-0.91	0.00	1.75	
03-Apr-84	24.70	0.00	1.56	0.00	1.90	
02-Jul-84	22.49	0.00	1.69	0.00	1.73	
02-Oct-84	19.89	2.21	1.82	4.37	1.53	0.17
02-Jan-85	21.58	3.12	1.30	4.89	1.66	0.24
04-Apr-85	23.40	10.01	1.04	10.70	1.80	0.77
08-Jul-85	16.90	6.50	4.55	7.58	1.30	0.50
07-Oct-85	20.28	1.58	1.56	2.49	1.56	0.12
17-Jan-86	23.79	5.89	1.43	6.32	1.83	0.45
22-Apr-86	23.92	-0.70	0.91	0.92	1.84	-0.05
21-Jul-86	17.94	26.40	-6.37	30.31	1.38	2.03
03-Nov-86	19.63	0.09	-2.99	4.59	1.51	0.01
03-Feb-87	20.67	0.05	1.30	1.55	1.59	0.00
01-Apr-87	22.75	1.92	-8.19	2.09	1.75	0.15
01-Jul-87	Sample lost in the field					
09-Oct-87	17.94	0.03	1.95	1.07	1.38	0.00
14-Jan-88	20.80	1.58	-0.13	1.63	1.6	0.12
19-Apr-88	25.61	2.32	1.43	3.43	1.97	0.18
15-Jul-88	26.52	7.37	1.69	8.28	2.04	0.57
11-Oct-88	20.02	5.81	-0.39	5.81	1.54	0.45
19-Jan-89	23.14	2.61	-1.17	5.30	1.78	0.20
08-May-89	30.42	5.61	0.26	7.14	2.34	0.43
21-Jul-89	27.43	6.73	1.17	6.95	2.11	0.52
30-Oct-89	25.09	12.58	2.34	15.12	1.93	0.97
18-Jan-90	23.27	9.23	0.78	10.97	1.79	0.71
19-Apr-90	26.26	4.12	2.86	5.11	2.02	0.32
16-Jul-90	22.75	2.05	-1.56	3.12	1.75	0.16
01-Oct-90	22.10	1.95	-0.13	1.95	1.70	0.15
02-Jan-91	25.61	2.24	-6.76	9.60	1.97	0.17
01-Apr-91	22.49	2.35	-1.30	4.94	1.73	0.18
01-Jul-91	23.92	5.62	-7.67	5.83	1.84	0.43
30-Sep-91	23.27	0.97	-0.39	0.98	1.79	0.07
13-Jan-91	34.97	0.97	-2.47	6.47	2.69	0.07
10-Apr-92	22.10	1.62	-4.94	6.52	1.70	0.12
15-Jul-92	23.14	1.26	-2.47	2.50	1.78	0.10
01-Oct-92	21.97	5.50	-0.52	6.98	1.69	0.42
04-Jan-93	27.04	1.53	-2.60	2.26	2.08	0.12
08-Apr-93	21.45	3.13	-2.21	3.13	1.65	0.24
13-Jul-93	24.05	7.89	1.17	8.19	1.85	0.61
08-Oct-93	26.65	1.57	1.82	3.01	2.05	0.12
13-Jan-94	31.85	4.50	0.91	5.41	2.45	0.35
11-Apr-94	31.20	1.03	-0.26	5.04	2.4	0.08
11-Jul-94	23.01	3.02	-1.04	3.22	1.77	0.23
11-Oct-94	22.62	6.08	0.65	6.64	1.74	0.47
11-Jan-95	19.11	15.77	-6.76	21.61	1.47	1.21
11-Apr-95	21.97	2.04	-1.04	2.88	1.69	0.16
11-Jul-95	23.79	6.61	1.04	7.07	1.83	0.51
16-Oct-95	25.48	7.62	-0.78	7.70	1.96	0.59
16-Jan-96	16.64	4.06	-2.34	4.51	1.28	0.31
11-Apr-96	21.71	2.15	-4.29	4.32	1.67	0.17
16-Jul-96	18.33	2.07	-1.30	5.66	1.41	0.16
10-Oct-96	22.62	3.23	0.91	7.20	1.74	0.25
07-Jan-97	21.45	3.79	-1.56	5.29	1.65	0.29
07-Apr-97	21.58	4.26	0.39	6.77	1.66	0.33
08-Jul-97	20.93	1.88	0.78	3.68	1.61	0.14
10-Nov-97	21.45	0.36	-5.59	11.47	1.65	0.03
21-Jan-98	20.93	1.42	-4.68	3.46	1.61	0.11
09-Apr-98	22.49	0.23	0.00	2.00	1.73	0.02
23-Jul-98	24.31	3.53	0.26	3.59	1.87	0.27
12-Oct-98	19.76	9.01	1.30	12.85	1.52	0.69
22-Jan-99	22.49	3.79	0.26	6.33	1.73	0.29
13-Apr-99	20.41	5.76	0.39	8.30	1.57	0.44
15-Jul-99	19.63	5.72	-0.39	7.51	1.51	0.44
12-Oct-99	21.06	7.05	2.73	12.80	1.62	0.54
31-Dec-99	24.57	0.64	0.00	1.01	1.89	0.05
07-Apr-00	18.33	1.69	-1.30	6.21	1.41	0.13
21-Jul-00	17.68	2.23	2.21	2.68	1.36	0.17
07-Nov-00	21.19	0.80	-0.13	3.19	1.63	0.06
20-Feb-01	22.10	2.83	-2.08	2.86	1.70	0.22
30-Apr-01	43.29	4.33	13.78	4.61	3.33	0.33
19-Jul-01	27.82	1.49	0.13	4.91	2.14	0.11
24-Oct-01	24.31	0.75	-0.13	0.78	1.87	0.06
28-Jan-02	26.00	1.60	0.00	1.89	2.00	0.12
15-Apr-02	34.06	1.30	-0.91	2.30	2.62	0.10
15-Jul-02	27.82	0.70	1.04	1.48	2.14	0.05
15-Oct-02	26.65	0.40	26.65	0.40	2.05	0.03
17-Jan-03	28.08	1.50	4.58	3.49	2.16	0.12

Mean	23.44	3.28	0.18	4.86	1.82	0.29
Std. Dev.	4.93	3.98	4.27	4.74	0.33	0.31

* " - " means exposure is less than the background site

INTERNATIONAL URANIUM (USA) CORP.
WHITE MESA MILL
DIRECT RADIATION
MR/QTR
Location: BHV-2, Nearest Residence

Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate*	Net Error	Total Rate Mr/week	Counting Error Mr/week
30-Sep-81	19.11	0.00	-0.65	0.00	1.47	
31-Dec-81	24.57	0.00	-3.51	0.00	1.89	
31-Mar-82	27.04	0.00	2.73	0.00	2.08	
30-Jun-82	23.66	0.00	-4.03	0.00	1.82	
01-Oct-82	22.88	0.00	0.65	0.00	1.76	
03-Jan-83	25.61	0.00	0.00	0.00	1.97	
04-Apr-83	22.88	0.00	-1.43	0.00	1.76	
05-Jul-83	23.66	0.00	-0.91	0.00	1.82	
03-Oct-83	22.75	0.00	0.78	0.00	1.75	
03-Jan-84	29.38	0.00	5.72	0.00	2.26	
03-Apr-84	23.92	0.00	0.78	0.00	1.84	
02-Jul-84	20.02	0.00	-0.78	0.00	1.54	
02-Oct-84	23.92	3.12	5.85	4.89	1.84	0.24
02-Jan-85	22.23	3.38	1.95	5.06	1.71	0.26
04-Apr-85	9.10	3.77	-13.26	5.33	0.70	0.29
07-Jul-85	15.47	5.72	3.12	6.92	1.19	0.44
07-Oct-85	21.32	-0.12	2.60	1.93	1.64	-0.01
17-Jan-86	21.97	8.89	-0.39	9.18	1.69	0.68
22-Apr-86	29.51	9.90	6.50	9.92	2.27	0.76
21-Jul-86	25.35	7.30	1.04	16.59	1.95	0.56
03-Nov-86	22.88	0.09	0.26	4.59	1.76	0.01
03-Feb-87	29.25	-0.75	9.68	1.72	2.25	-0.06
01-Apr-87	22.88	0.82	-8.06	1.16	1.76	0.06
01-Jul-87	30.29	4.61	5.20	8.65	2.33	0.35
09-Oct-87	17.81	3.73	1.82	3.88	1.37	0.29
14-Jan-88	21.19	4.08	0.26	4.10	1.63	0.31
19-Apr-88	27.82	4.72	3.64	5.35	2.14	0.36
15-Jul-88	25.48	6.67	0.65	7.66	1.96	0.51
11-Oct-88	25.35	8.51	4.94	8.51	1.95	0.65
19-Jan-89	24.44	5.21	0.13	6.96	1.88	0.40
08-May-89	32.37	2.61	2.21	5.12	2.49	0.20
21-Jul-89	27.95	2.33	1.69	2.90	2.15	0.18
30-Oct-89	22.88	2.58	0.13	8.77	1.76	0.20
18-Jan-90	24.05	2.43	1.56	6.41	1.85	0.19
19-Apr-90	24.83	0.42	1.43	3.05	1.91	0.03
16-Jul-90	23.14	0.65	-1.17	2.44	1.78	0.05
01-Oct-90	23.14	7.55	0.91	7.55	1.78	0.58
02-Jan-91	30.42	5.34	-1.95	10.76	2.34	0.41
01-Apr-91	25.61	9.95	1.82	10.86	1.97	0.77
01-Jul-91	24.70	4.12	-6.89	4.41	1.9	0.32
30-Sep-91	25.74	6.77	2.08	6.77	1.98	0.52
13-Jan-92	38.61	8.70	1.17	10.80	2.97	0.67
10-Apr-92	23.66	1.22	-3.38	6.44	1.82	0.09
15-Jul-92	26.13	4.56	0.52	5.05	2.01	0.35
01-Oct-92	23.01	6.40	0.52	7.71	1.77	0.49
04-Jan-93	26.65	-0.67	-2.99	1.80	2.05	-0.05
08-Apr-93	22.88	4.53	-0.78	4.53	1.76	0.35
13-Jul-93	17.42	3.79	-5.46	4.38	1.34	0.29
08-Oct-93	26.91	4.27	2.08	4.98	2.07	0.33
13-Jan-94	30.42	4.30	-0.52	5.24	2.34	0.33
11-Apr-94	19.89	7.53	-11.57	9.00	1.53	0.58
11-Jul-94	26.13	6.32	2.08	8.42	2.01	0.49
11-Oct-94	25.09	10.18	3.12	10.53	1.93	0.78
12-Jan-95	28.08	-0.03	2.21	14.77	2.16	0.00
11-Apr-95	24.18	4.34	1.17	4.80	1.86	0.33
11-Jul-95	24.18	3.81	1.43	4.56	1.86	0.29
16-Oct-95	27.17	7.52	0.91	7.60	2.09	0.58
16-Jan-96	17.81	5.06	-1.17	5.43	1.37	0.39
11-Apr-96	24.44	1.15	-1.56	3.92	1.88	0.09
16-Jul-96	19.76	2.57	0.13	5.86	1.52	0.20
10-Oct-96	21.06	6.03	-0.65	8.82	1.62	0.46
07-Jan-97	20.54	5.19	-2.47	6.37	1.58	0.40
07-Apr-97	21.06	2.46	-0.13	5.81	1.62	0.19
08-Jul-97	20.67	3.48	0.52	4.70	1.59	0.27
10-Nov-97	21.97	7.94	-5.07	13.94	1.69	0.61
21-Jan-98	18.07	6.72	-7.54	7.43	1.39	0.52
09-Apr-98	23.14	1.69	0.65	2.61	1.78	0.13
23-Jul-98	25.22	2.43	1.17	2.52	1.94	0.19
12-Oct-98	18.07	5.71	-0.39	10.79	1.39	0.44
22-Jan-99	21.32	6.89	-0.91	8.55	1.64	0.53
13-Apr-99	23.27	10.76	3.25	12.31	1.79	0.83
15-Jul-99	20.02	7.22	0.00	8.71	1.54	0.56
12-Oct-99	18.20	4.05	-0.13	11.42	1.4	0.31
31-Dec-99	28.99	6.74	4.42	6.78	2.23	0.52
07-Apr-00	19.63	5.19	0.00	7.92	1.51	0.40
21-Jul-00	17.03	6.43	1.56	6.60	1.31	0.49
07-Nov-00	21.45	2.00	0.13	3.68	1.65	0.15
20-Feb-01	25.61	4.03	1.43	4.05	1.97	0.31
30-Apr-01	30.29	2.53	0.78	2.99	2.33	0.19
19-Jul-01	29.64	0.70	1.95	4.73	2.28	0.05
24-Oct-01	25.35	0.45	0.91	0.50	1.95	0.03
28-Jan-02	26.00	0.20	0.00	1.02	2.00	0.02
15-Apr-02	30.94	2.30	-4.03	2.98	2.38	0.18
15-Jul-02	27.82	1.10	1.04	1.70	2.14	0.08
15-Oct-02	28.73	1.60	28.73	1.60	2.21	0.12
17-Jan-03	30.03	0.80	6.53	3.25	2.31	0.06
Mean	23.80	3.85	0.17	5.58	1.83	0.35
Std. Dev.	4.28	3.05	3.53	3.76	0.33	0.22

* " - " means exposure is less than the background site

INTERNATIONAL URANIUM (USA) CORP.
WHITE MESA MILL
DIRECT RADIATION
MR/QTR
Location: BHV-3, Black Mesa (Background)

Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate	Net Error	Total Rate Mr/week	Counting Error Mr/week
30-Sep-81	19.76	0.00	0.00	0.00	1.52	
31-Dec-81	28.08	0.00	0.00	0.00	2.16	
31-Mar-82	24.31	0.00	0.00	0.00	1.87	
30-Jun-82	27.69	0.00	0.00	0.00	2.13	
01-Oct-82	22.23	0.00	0.00	0.00	1.71	
03-Jan-83	25.61	0.00	0.00	0.00	1.97	
04-Apr-83	24.31	0.00	0.00	0.00	1.87	
05-Jul-83	24.57	0.00	0.00	0.00	1.89	
03-Oct-83	21.97	0.00	0.00	0.00	1.69	
03-Jan-84	23.66	0.00	0.00	0.00	1.82	
03-Apr-84	23.14	0.00	0.00	0.00	1.78	
02-Jul-84	20.80	0.00	0.00	0.00	1.60	
02-Oct-84	18.07	3.77	0.00	5.33	1.39	0.29
02-Jan-85	20.28	3.77	0.00	5.33	1.56	0.29
04-Apr-85	22.36	3.77	0.00	5.33	1.72	0.29
07-Jul-85	12.35	3.90	0.00	5.52	0.95	0.30
07-Oct-85	18.72	1.93	0.00	2.73	1.44	0.15
17-Jan-86	22.36	2.29	0.00	3.24	1.72	0.18
22-Apr-86	23.01	0.60	0.00	0.85	1.77	0.05
21-Jul-86	24.31	14.90	0.00	21.07	1.87	1.15
03-Nov-86	22.62	4.59	0.00	6.49	1.74	0.35
03-Feb-87	19.37	1.55	0.00	2.19	1.49	0.12
01-Apr-87	30.94	0.82	0.00	1.16	2.38	0.06
01-Jul-87	25.09	7.32	0.00	10.35	1.93	0.56
09-Oct-87	15.99	-1.07	0.00	1.51	1.23	-0.08
14-Jan-88	20.93	-0.42	0.00	0.59	1.61	-0.03
19-Apr-88	24.18	2.52	0.00	3.56	1.86	0.19
15-Jul-88	24.83	3.77	0.00	5.33	1.91	0.29
11-Oct-88	20.41	0.21	0.00	0.30	1.57	0.02
19-Jan-89	24.31	4.61	0.00	6.52	1.87	0.35
08-May-89	30.16	4.41	0.00	6.24	2.32	0.34
21-Jul-89	26.28	1.73	0.00	2.45	2.02	0.13
30-Oct-89	22.75	8.38	0.00	11.85	1.75	0.64
18-Jan-90	22.49	5.93	0.00	8.39	1.73	0.46
19-Apr-90	23.40	3.02	0.00	4.27	1.8	0.23
16-Jul-90	24.31	2.35	0.00	3.32	1.87	0.18
01-Oct-90	22.23	0.00	0.00	0.00	1.71	0.00
02-Jan-91	32.37	9.34	0.00	13.21	2.49	0.72
01-Apr-91	23.79	4.35	0.00	6.15	1.83	0.33
01-Jul-91	31.59	-1.56	0.00	2.21	2.43	-0.12
30-Sep-91	23.66	0.17	0.00	0.24	1.82	0.01
13-Jan-92	37.44	6.40	0.00	9.05	2.88	0.49
10-Apr-92	27.04	6.32	0.00	8.94	2.08	0.49
15-Jul-92	25.61	2.16	0.00	3.05	1.97	0.17
01-Oct-92	22.49	4.30	0.00	6.08	1.73	0.33
04-Jan-93	29.64	-1.67	0.00	2.36	2.28	-0.13
08-Apr-93	23.66	-0.17	0.00	0.24	1.82	-0.01
13-Jul-93	22.88	2.19	0.00	3.10	1.76	0.17
08-Oct-93	24.83	2.57	0.00	3.63	1.91	0.20
12-Jan-94	30.94	3.00	0.00	4.24	2.38	0.23
11-Apr-94	31.46	4.93	0.00	6.97	2.42	0.38
11-Jul-94	24.05	1.12	0.00	1.58	1.85	0.09
11-Oct-94	21.97	2.68	0.00	3.79	1.69	0.21
12-Jan-95	25.87	14.77	0.00	20.89	1.99	1.14
11-Apr-95	23.01	2.04	0.00	2.88	1.77	0.16
11-Jul-95	22.75	2.51	0.00	3.55	1.75	0.19
16-Oct-95	26.26	1.12	0.00	1.58	2.02	0.09
16-Jan-96	18.98	1.96	0.00	2.77	1.46	0.15
11-Apr-96	26.00	3.75	0.00	5.30	2	0.29
16-Jul-96	19.63	5.27	0.00	7.45	1.51	0.41
10-Oct-96	21.71	6.43	0.00	9.09	1.67	0.49
07-Jan-97	23.01	3.69	0.00	5.22	1.77	0.28
07-Apr-97	21.19	5.26	0.00	7.44	1.63	0.40
08-Jul-97	20.15	3.16	0.00	4.47	1.55	0.24
10-Nov-97	27.04	11.46	0.00	16.21	2.08	0.88
21-Jan-98	25.61	3.16	0.00	4.47	1.97	0.24
09-Apr-98	22.49	1.99	0.00	2.81	1.73	0.15
23-Jul-98	24.05	0.68	0.00	0.96	1.85	0.05
12-Oct-98	18.46	9.16	0.00	12.95	1.42	0.70
22-Jan-99	22.23	5.07	0.00	7.17	1.71	0.39
13-Apr-99	20.02	5.97	0.00	8.44	1.54	0.46
15-Jul-99	20.02	4.87	0.00	6.89	1.54	0.37
12-Oct-99	18.33	10.68	0.00	15.10	1.41	0.82
31-Dec-99	24.57	0.78	0.00	1.10	1.89	0.06
07-Apr-00	19.63	5.98	0.00	8.46	1.51	0.46
21-Jul-00	15.47	1.49	0.00	2.11	1.19	0.11
07-Nov-00	21.32	3.09	0.00	4.37	1.64	0.24
20-Feb-01	24.18	0.39	0.00	0.55	1.86	0.03
30-Apr-01	29.51	1.59	0.00	2.25	2.27	0.12
19-Jul-01	27.69	4.68	0.00	6.62	2.13	0.36
24-Oct-01	24.44	0.22	0.00	0.31	1.88	0.02
28-Jan-02	26.00	1.00	0.00	1.41	2.00	0.08
15-Apr-02	34.97	1.90	0.00	2.69	2.69	0.15
15-Jul-02	26.78	1.30	0.00	1.84	2.06	0.10
15-Oct-02	27.69	0.90	0.00	1.27	2.13	0.07
17-Jan-03	28.08	1.50	0.00	2.12	2.16	0.12
Mean	23.50	3.15	0.00	4.63	1.82	0.29
Std. Dev.	3.99	3.38	0.00	4.62	0.31	0.26

INTERNATIONAL URANIUM (USA) CORP.
WHITE MESA MILL
DIRECT RADIATION
MR/QTR
Location: BHV-4, South Tailings Area

Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate*	Net Error	Total Rate Mr/week	Counting Error Mr/week
30-Sep-81	18.33	0.00	-1.43	0.00	1.41	
31-Dec-81	25.61	0.00	-2.47	0.00	1.97	
31-Mar-82		0.00	-24.31	0.00	0.00	
30-Jun-82		0.00	-27.69	0.00	0.00	
01-Oct-82	27.43	0.00	5.20	0.00	2.11	
03-Jan-83	37.31	0.00	11.70	0.00	2.87	
04-Apr-83	28.08	0.00	3.77	0.00	2.16	
05-Jul-83	25.09	0.00	0.52	0.00	1.93	
03-Oct-83	26.65	0.00	4.68	0.00	2.05	
03-Jan-84	31.46	0.00	7.80	0.00	2.42	
03-Apr-84	26.65	0.00	3.51	0.00	2.05	
02-Jul-84	26.39	0.00	5.59	0.00	2.03	
02-Oct-84	18.98	4.94	0.91	6.21	1.46	0.38
02-Jan-85	21.45	1.56	1.17	4.08	1.65	0.12
04-Apr-85	24.31	1.69	1.95	4.13	1.87	0.13
07-Jul-85	13.52	4.42	1.17	5.89	1.04	0.34
07-Oct-85	21.45	0.68	2.73	2.04	1.65	0.05
17-Jan-86	24.05	6.69	1.69	7.07	1.85	0.51
22-Apr-86	28.21	23.40	5.20	23.41	2.17	1.80
21-Jul-86	25.61	3.60	1.30	15.33	1.97	0.28
03-Nov-86	24.18	2.69	1.56	5.32	1.86	0.21
03-Feb-87	23.27	2.55	3.90	2.98	1.79	0.20
01-Apr-87	22.36	2.12	-8.58	2.27	1.72	0.16
01-Jul-87	26.26	14.71	1.17	16.43	2.02	1.13
09-Oct-87	20.15	-0.67	4.16	1.38	1.55	-0.07
14-Jan-88	22.36	2.68	1.43	2.71	1.72	0.21
19-Apr-88	26.13	-1.68	1.95	3.03	2.01	-0.13
15-Jul-88	27.69	1.77	2.86	4.16	2.13	0.14
11-Oct-88	23.40	2.81	2.99	2.82	1.80	0.22
19-Jan-89	24.18	3.91	-0.13	6.04	1.86	0.30
08-May-89	32.50	0.61	2.34	4.45	2.5	0.05
21-Jul-89	29.64	-0.57	3.38	1.82	2.28	-0.04
30-Oct-89	21.97	-1.32	-0.78	8.48	1.69	-0.10
18-Jan-90	23.92	9.23	1.43	10.97	1.84	0.71
19-Apr-90	25.61	2.62	2.21	4.00	1.97	0.20
16-Jul-90	21.58	2.75	-2.73	3.62	1.66	0.21
01-Oct-90	23.66	0.25	1.43	0.25	1.82	0.02
02-Jan-91	24.83	1.74	-7.54	9.50	1.91	0.13
01-Apr-91	24.05	0.45	0.26	4.37	1.85	0.03
01-Jul-91	26.00	5.62	-5.59	5.83	2	0.43
30-Sep-91	23.40	2.37	-0.26	2.38	1.8	0.18
13-Jan-92	34.58	10.80	-2.86	12.56	2.66	0.83
10-Apr-92	25.74	1.02	-1.30	6.40	1.98	0.08
15-Jul-92	23.92	-0.64	-1.69	2.25	1.84	-0.05
01-Oct-92	29.64	6.90	7.15	8.13	2.28	0.53
04-Jan-93	28.73	8.73	-0.91	8.89	2.21	0.67
08-Apr-93	25.61	3.83	1.95	3.83	1.97	0.29
13-Jul-93	23.40	4.49	0.52	5.00	1.8	0.35
08-Oct-93	22.36	6.17	-2.47	6.68	1.72	0.47
13-Jan-94	29.51	5.80	-1.43	6.53	2.27	0.45
11-Apr-94	29.64	3.73	-1.82	6.18	2.28	0.29
11-Jul-94	27.17	6.82	3.12	6.91	2.09	0.52
11-Oct-94	23.53	3.98	1.56	4.80	1.81	0.31
12-Jan-95	23.14	10.37	-2.73	18.05	1.78	0.80
11-Apr-95	23.66	2.84	0.65	3.50	1.82	0.22
11-Jul-95	24.31	3.31	1.56	4.15	1.87	0.25
16-Oct-95	27.17	5.82	0.91	5.93	2.09	0.45
16-Jan-96	27.56	1.56	6.58	2.51	2.12	0.12
11-Apr-96	24.44	10.75	-1.56	11.39	1.88	0.83
16-Jul-96	18.98	1.57	-0.65	5.50	1.46	0.12
10-Oct-96	20.41	3.13	-1.30	7.15	1.57	0.24
07-Jan-97	23.79	1.79	0.78	4.10	1.83	0.14
07-Apr-97	24.31	4.46	3.12	6.90	1.87	0.34
08-Jul-97	20.41	0.28	0.26	3.17	1.57	0.02
10-Nov-97	22.10	0.24	-4.94	11.46	1.7	0.02
21-Jan-98	19.11	9.22	-6.50	9.75	1.47	0.71
09-Apr-98	22.75	2.19	0.26	2.96	1.75	0.17
23-Jul-98	26.52	3.42	2.47	3.49	2.04	0.26
12-Oct-98	21.58	8.21	3.12	12.30	1.66	0.63
22-Jan-99	22.49	1.59	0.26	5.31	1.73	0.12
13-Apr-99	23.66	13.06	3.64	14.36	1.82	1.00
15-Jul-99	20.02	7.02	0.00	8.54	1.54	0.54
12-Oct-99	20.54	7.55	2.21	13.06	1.58	0.58
31-Dec-99	25.09	0.84	0.52	1.15	1.93	0.06
07-Apr-00	21.06	1.99	1.43	6.30	1.62	0.15
21-Jul-00	17.29	2.43	1.82	2.85	1.33	0.19
07-Nov-00	20.41	2.80	-0.91	4.17	1.57	0.22
20-Feb-01	25.61	0.43	1.43	0.58	1.97	0.03
30-Apr-01	32.11	0.47	2.60	1.66	2.47	0.04
19-Jul-01	29.64	0.09	1.95	4.68	2.28	0.01
24-Oct-01	23.40	0.35	-1.04	0.41	1.80	0.03
28-Jan-02	26.00	0.60	0.00	1.17	2.00	0.05
15-Apr-02	39.00	2.50	4.03	3.14	3.00	0.19
15-Jul-02	28.86	0.90	2.08	1.58	2.22	0.07
15-Oct-02	26.65	0.40	-1.04	0.98	2.05	0.03
17-Jan-03	28.08	1.00	0.00	1.80	2.16	0.08
Mean	24.61	3.38	0.37	5.30	1.85	0.31
Std. Dev.	3.90	4.12	5.33	4.63	0.42	0.32

* " - " means exposure is less than background site

INTERNATIONAL URANIUM (USA) CORP.
WHITE MESA MILL
DIRECT RADIATION
MR/QTR
Location: BHV-5, East Tailings Area

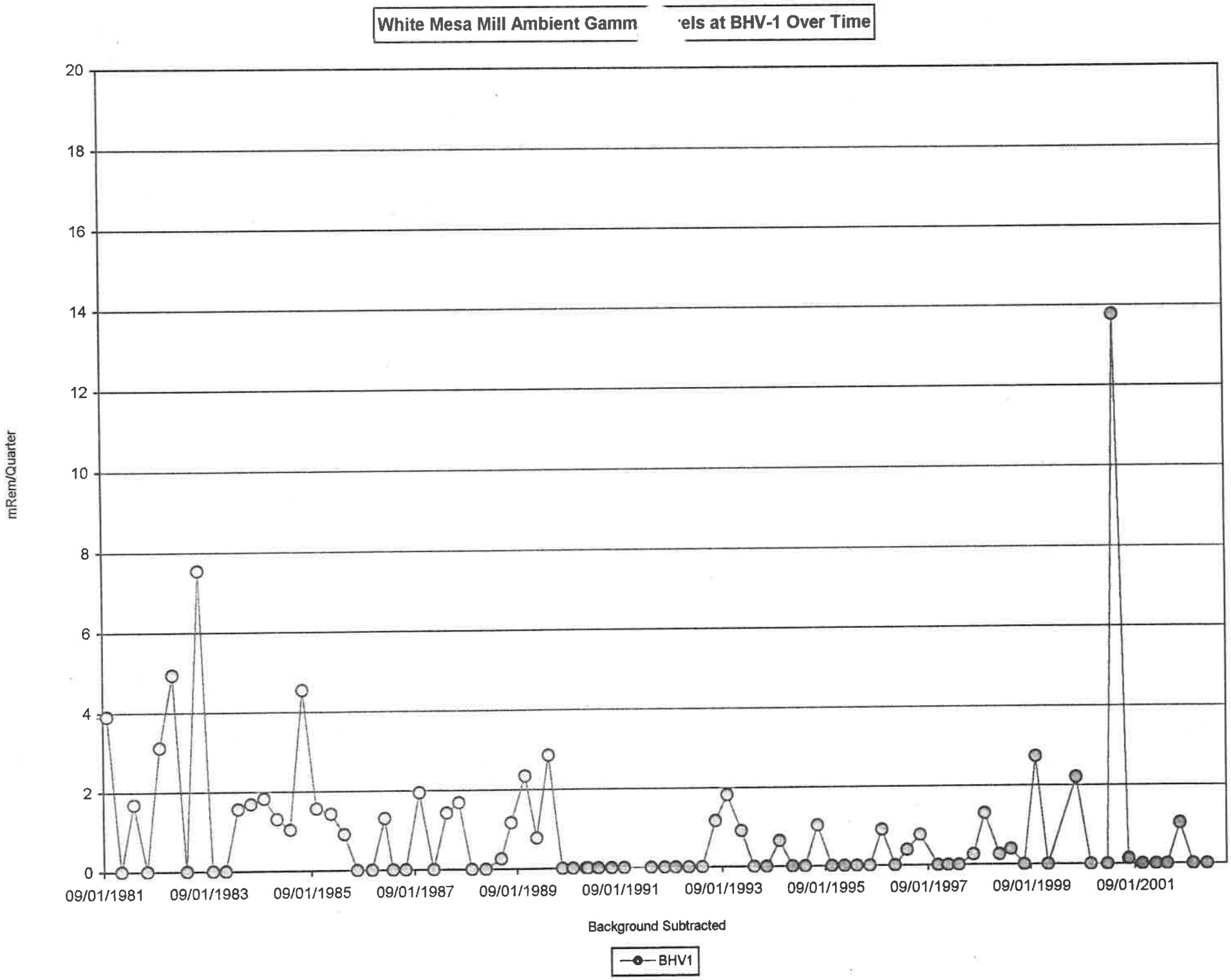
Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate*	Net Error	Total Rate Mr/week	Counting Error Mr/week
30-Sep-81	20.28	0.00	0.52	0.00	1.56	
31-Dec-81		0.00	-28.08	0.00	0.00	
31-Mar-82	27.95	0.00	3.64	0.00	2.15	
30-Jun-82	26.52	0.00	-1.17	0.00	2.04	
01-Oct-82	24.96	0.00	2.73	0.00	1.92	
03-Jan-83	31.59	0.00	5.98	0.00	2.43	
04-Apr-83	31.46	0.00	7.15	0.00	2.42	
05-Jul-83	25.22	0.00	0.85	0.00	1.94	
03-Oct-83	23.66	0.00	1.69	0.00	1.82	
03-Jan-84	30.16	0.00	6.50	0.00	2.32	
03-Apr-84	28.21	0.00	5.07	0.00	2.17	
02-Jul-84	23.79	0.00	2.99	0.00	1.83	
02-Oct-84	20.80	1.56	2.73	4.08	1.60	0.12
02-Jan-85	23.66	4.03	3.38	5.52	1.82	0.31
04-Apr-85	24.31	6.50	1.95	7.51	1.87	0.50
07-Jul-85	13.52	2.99	1.17	4.91	1.04	0.23
07-Oct-85	23.53	-0.92	4.81	2.14	1.81	-0.07
17-Jan-86	26.78	9.09	4.42	9.37	2.06	0.70
22-Apr-86	24.83	8.40	1.82	8.42	1.91	0.65
21-Jul-86	25.09	1.80	0.78	15.01	1.93	0.14
03-Nov-86	21.97	0.29	-0.65	4.60	1.69	0.02
03-Feb-87	21.19	1.65	1.82	2.26	1.63	0.13
01-Apr-87	23.14	9.52	-7.80	9.56	1.78	0.73
01-Jul-87	31.33	13.11	6.24	15.02	2.41	1.01
09-Oct-87	20.54	2.23	4.55	2.47	1.58	0.17
14-Jan-88	26.13	-1.22	5.20	1.29	2.01	-0.09
19-Apr-88	27.30	3.82	3.12	4.58	2.10	0.29
15-Jul-88	29.64	2.07	4.81	4.30	2.28	0.16
11-Oct-88	23.53	1.51	3.12	1.52	1.81	0.12
19-Jan-89	25.74	6.21	1.43	7.73	1.98	0.48
08-May-89	32.11	4.91	1.95	6.60	2.47	0.38
21-Jul-89	31.98	0.93	5.72	1.96	2.46	0.07
30-Oct-89	27.04	6.88	4.29	10.84	2.08	0.53
18-Jan-90	28.08	4.03	5.59	7.17	2.16	0.31
19-Apr-90	27.69	2.62	4.29	4.00	2.13	0.20
16-Jul-90	25.35	2.35	1.04	3.32	1.95	0.18
01-Oct-90	25.87	1.85	3.64	1.85	1.99	0.14
02-Jan-91	27.69	9.94	-4.68	13.64	2.13	0.76
01-Apr-91	26.13	1.15	2.34	4.50	2.01	0.09
01-Jul-91	27.04	0.42	-4.55	1.82	2.08	0.03
30-Sep-91	28.00	2.97	2.34	2.97	2.00	0.23
13-Jan-92	37.18	9.20	-0.26	11.21	2.86	0.71
10-Apr-92	29.90	10.52	2.85	12.27	2.30	0.81
15-Jul-92	27.04	3.56	1.43	4.16	2.08	0.27
01-Oct-92	28.99	3.60	6.50	5.61	2.23	0.28
04-Jan-93	34.32	8.93	4.68	9.08	2.64	0.69
08-Apr-93	25.09	2.23	1.43	2.24	1.93	0.17
13-Jul-93	28.47	5.29	5.59	5.73	2.19	0.41
08-Oct-93	29.25	7.87	4.42	8.28	2.25	0.61
13-Jan-94	35.75	7.60	4.81	8.17	2.75	0.58
11-Apr-94	30.42	13.13	-1.04	14.03	2.34	1.01
11-Jul-94	30.42	1.12	6.37	1.58	2.34	0.09
11-Oct-94	28.34	4.58	6.37	5.31	2.18	0.35
12-Jan-95	20.02	14.87	-5.85	20.96	1.54	1.14
11-Apr-95	26.78	3.74	3.77	4.26	2.06	0.29
11-Jul-95	25.35	11.21	2.60	11.39	1.95	0.86
16-Oct-95	28.86	7.92	2.60	8.00	2.22	0.61
16-Jan-96	23.66	10.46	4.68	10.64	1.82	0.80
11-Apr-96	28.99	6.45	2.99	7.46	2.23	0.50
16-Jul-96	22.62	0.01	2.99	5.27	1.74	0.00
10-Oct-96	24.70	7.03	2.99	9.53	1.90	0.54
07-Jan-97	20.80	4.29	-2.21	5.66	1.60	0.33
07-Apr-97	24.31	4.46	3.12	6.90	1.87	0.34
08-Jul-97	23.01	6.68	2.86	7.39	1.77	0.51
10-Nov-97	23.92	0.64	-3.12	11.48	1.84	0.05
21-Jan-98	23.66	2.32	-1.95	3.92	1.82	0.18
09-Apr-98	20.28	0.71	-2.21	2.11	1.56	0.05
23-Jul-98	26.52	3.62	2.47	3.68	2.04	0.28
12-Oct-98	19.89	20.11	1.43	22.10	1.53	1.55
22-Jan-99	25.22	0.99	2.99	5.17	1.94	0.08
13-Apr-99	21.71	12.96	1.69	14.27	1.67	1.00
15-Jul-99	24.44	0.42	4.42	4.69	1.88	0.03
12-Oct-99	21.58	2.05	3.25	10.87	1.66	0.16
31-Dec-99	29.12	9.34	4.55	9.37	2.24	0.72
07-Apr-00	21.19	3.19	1.56	3.21	1.63	0.25
21-Jul-00	18.46	7.53	2.99	7.70	1.42	0.58
07-Nov-00	31.46	6.10	10.14	7.69	2.42	0.47
20-Feb-01	24.18	5.23	0.00	5.23	1.86	0.40
30-Apr-01	32.89	0.33	3.38	3.16	2.53	0.03
19-Jul-01	31.59	0.91	3.90	3.51	2.43	0.07
24-Oct-01	27.04	0.05	2.60	0.05	2.08	0.00
28-Jan-02	30.29	1.30	4.29	1.30	2.33	0.10
15-Apr-02	43.94	1.10	8.97	1.10	3.38	0.08
15-Jul-02	30.03	1.10	3.25	1.10	2.31	0.08
15-Oct-02	29.64	1.50	1.95	1.50	2.28	0.12
17-Jan-03						
Mean	26.38	4.15	2.26	5.72	2.01	0.37
Std. Dev.	4.53	4.28	4.52	4.78	0.41	0.33

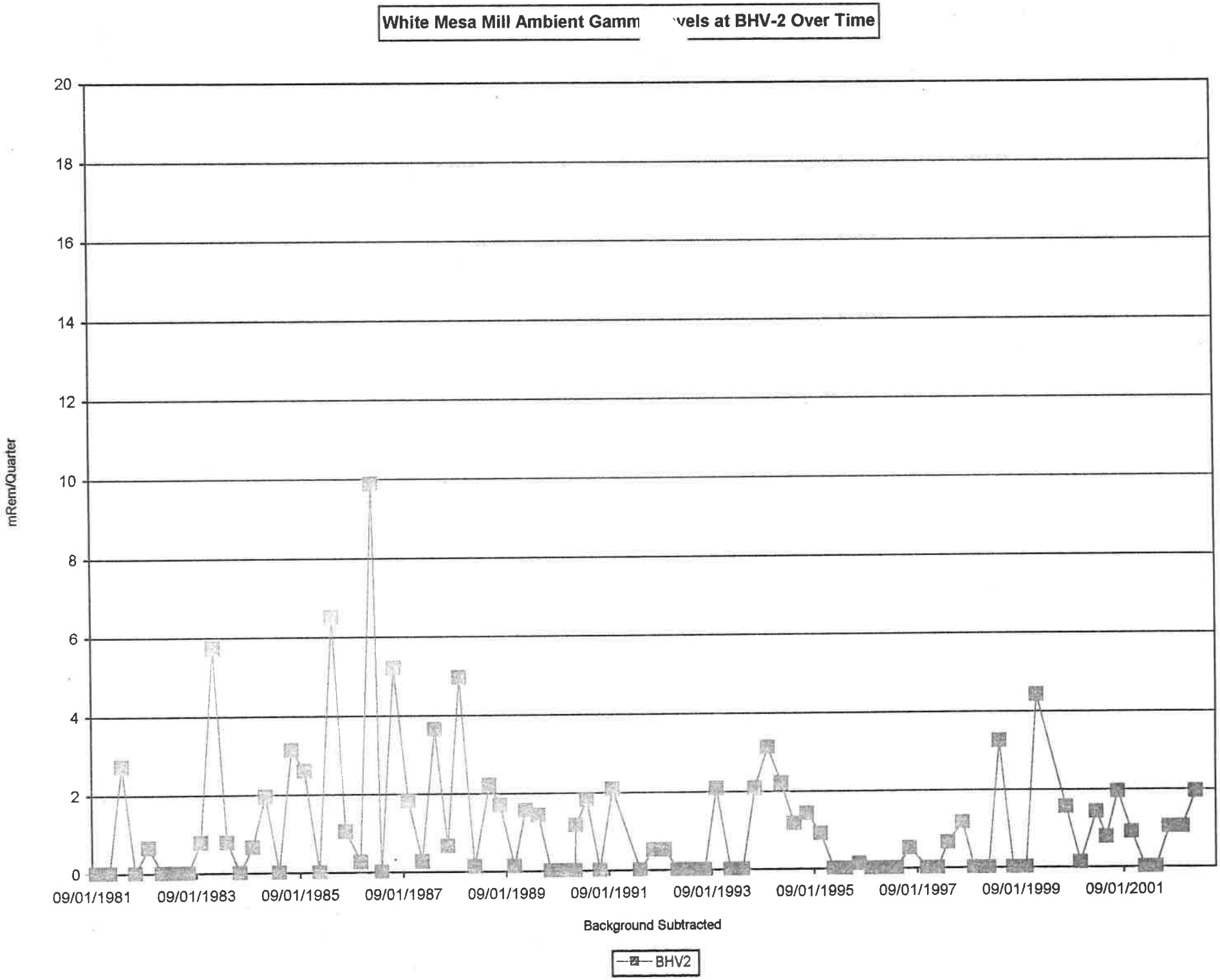
* " - " means exposure is less than background site

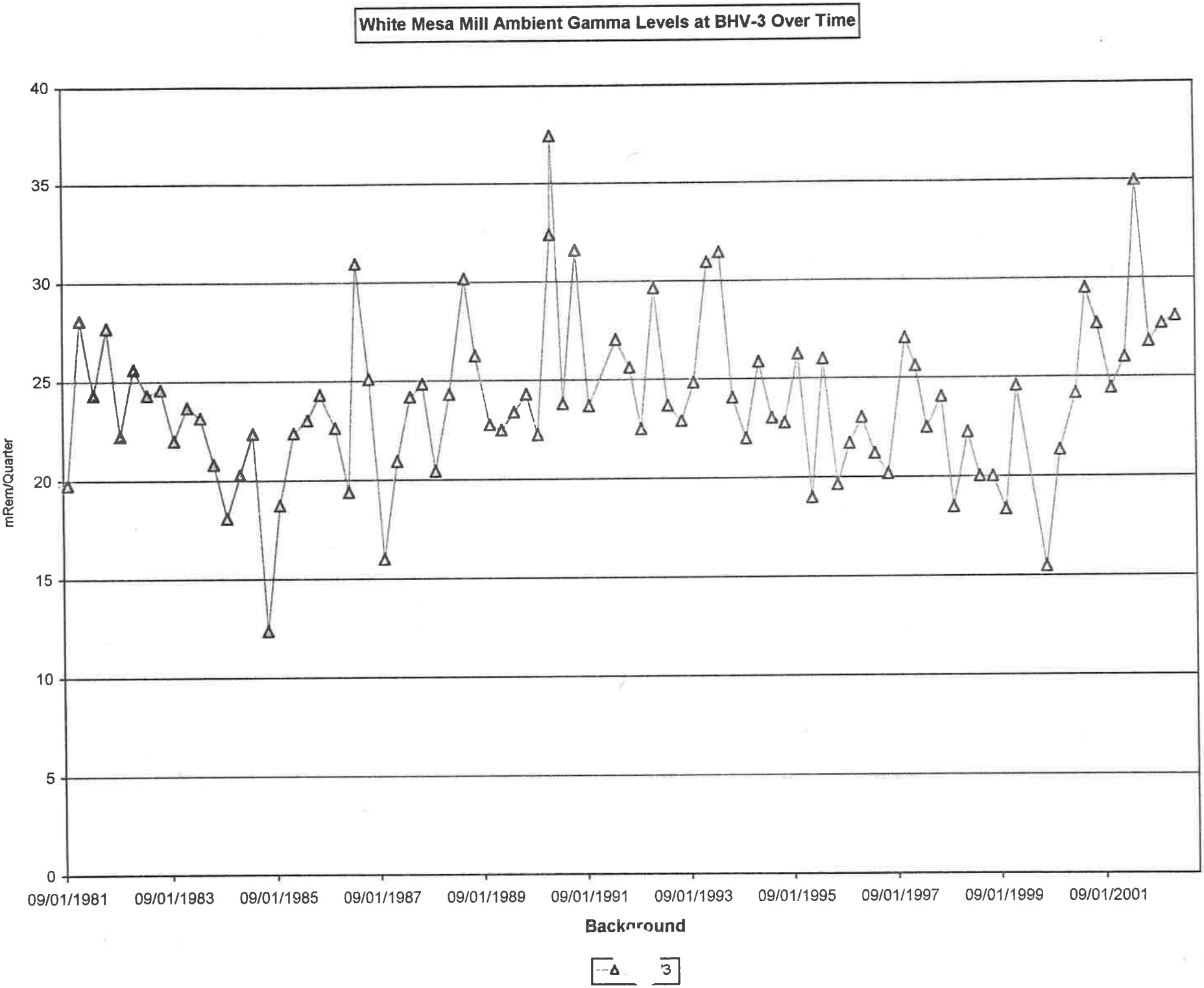
INTERNATIONAL URANIUM (USA) CORP.
WHITE MESA MILL
DIRECT RADIATION
MR/QTR
Location: BHV-2 VERSUS BHV-6, DUPLICATION

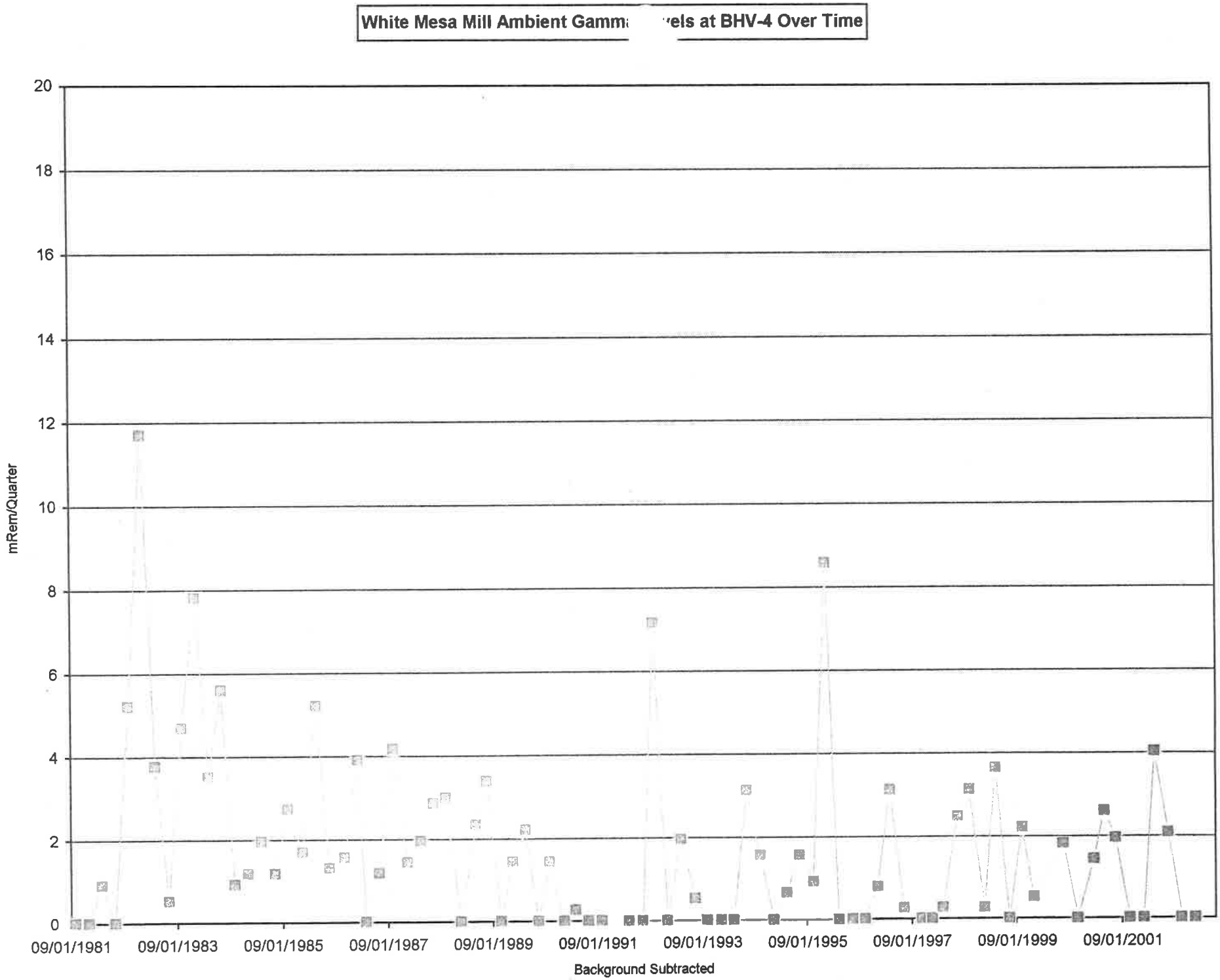
Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate*	Net Error	Total Rate Mr/week	Counting Error Mr/week
16-Jul-90	24.83	0.55	0.52	2.41	1.91	0.04
01-Oct-90	17.68	23.75	-4.55	23.75	1.36	1.83
02-Jan-91	29.51	1.74	-2.86	9.50	2.27	0.13
01-Apr-91	25.48	6.75	1.69	8.03	1.96	0.52
01-Jul-91	26.91	4.92	-4.68	5.16	2.07	0.38
30-Sep-91	23.27	2.97	-0.39	2.97	1.79	0.23
13-Jan-92	36.14	7.50	-1.30	9.88	2.78	0.58
10-Apr-92	23.79	4.82	-3.25	7.95	1.83	0.37
15-Jul-92	24.57	3.86	-1.04	4.42	1.89	0.30
01-Oct-92	22.88	7.50	0.39	8.65	1.76	0.58
04-Jan-93	29.64	8.33	0.00	8.50	2.28	0.64
08-Apr-93	28.73	3.03	5.07	3.03	2.21	0.23
13-Jul-93	20.93	1.39	-1.95	2.59	1.61	0.11
08-Oct-93	25.48	2.77	0.65	3.78	1.96	0.21
13-Jan-94	31.46	5.90	0.52	6.62	2.42	0.45
11-Apr-94	34.58	15.63	3.12	16.39	2.66	1.20
11-Jul-94	26.13	7.82	2.08	7.90	2.01	0.60
11-Oct-94	25.09	7.68	3.12	8.13	1.93	0.59
12-Jan-95	28.08	4.77	2.21	15.52	2.16	0.37
11-Apr-95	23.66	6.94	0.65	7.23	1.82	0.53
11-Jul-95	23.66	4.91	0.91	5.51	1.82	0.38
16-Oct-95	26.13	8.22	-0.13	8.30	2.01	0.63
16-Jan-96	18.33	4.96	-0.65	5.33	1.41	0.38
11-Apr-96	24.31	10.35	-1.69	11.01	1.87	0.80
16-Jul-96	18.46	1.47	-1.17	5.47	1.42	0.11
10-Oct-96	20.54	6.93	-1.17	9.45	1.58	0.53
07-Jan-97	22.88	1.69	-0.13	4.08	1.76	0.13
07-Apr-97	20.02	2.76	-1.17	5.94	1.54	0.21
08-Jul-97	16.12	1.68	-4.03	3.58	1.24	0.13
21-Nov-97	23.79	4.74	-3.25	12.40	1.83	0.36
21-Jan-98	23.40	6.32	-2.21	7.07	1.80	0.49
09-Apr-98	23.92	3.89	1.43	4.37	1.84	0.30
23-Jul-98	28.99	5.43	4.94	5.47	2.23	0.42
12-Oct-98	19.37	5.91	0.91	10.90	1.49	0.45
22-Jan-99	22.38	2.29	0.13	5.56	1.72	0.18
13-Apr-99	21.45	9.86	1.43	11.53	1.65	0.76
15-Jul-99	20.28	2.02	0.26	5.27	1.56	0.16
12-Oct-99	20.80	0.25	2.47	10.68	1.60	0.02
31-Dec-99	26.00	16.84	1.43	16.86	2.00	1.30
07-Apr-00	20.93	3.69	1.30	7.03	1.61	0.28
21-Jul-00	17.29	1.39	1.82	2.04	1.33	0.11
28-Oct-00	23.40	5.20	2.08	6.05	1.80	0.40
24-Oct-01	26.13	1.85	1.69	1.89	2.01	0.14
28-Jan-02	37.31	3.40	11.31	3.75	2.87	0.26
15-Apr-02	31.98	0.80	-2.99	4.75	2.46	0.06
15-Jul-02	27.82	2.20	1.04	2.21	2.14	0.17
15-Oct-02	28.73	1.10	1.04	1.49	2.21	0.08
17-Jan-03	28.08	0.40	0.00	1.94	2.16	0.03

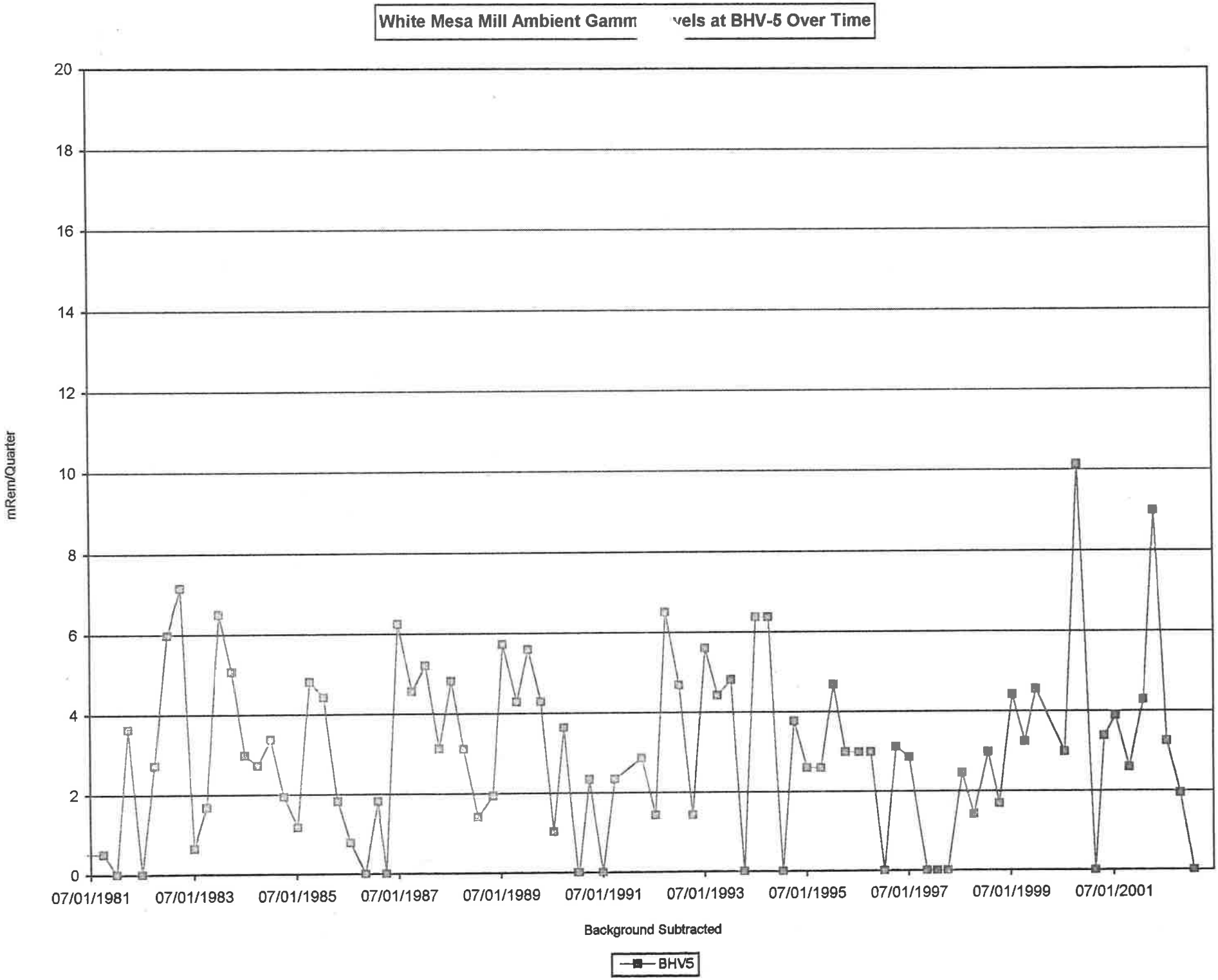
* " - " means exposure is less than background


White Mesa Mill Ambient Gamm
els at BHV-1 Over Time
mRem/Quarter
20
18
16
14
12
10
8
6
4
2
0
09/01/1981
09/01/1983
09/01/1985
09/01/1987
09/01/1989
09/01/1991
09/01/1993
09/01/1995
09/01/1997
09/01/1999
09/01/2001
Background Subtracted
BHV1


White Mesa Mill Ambient Gamm vels at BHV-2 Over Time
mRem/Quarter
20
18
16
14
12
10
8
6
4
2
0
09/01/1981
09/01/1983
09/01/1985
09/01/1987
09/01/1989
09/01/1991
09/01/1993
09/01/1995
09/01/1997
09/01/1999
09/01/2001
Background Subtracted
BHV2


White Mesa Mill Ambient Gamma Levels at BHV-3 Over Time
mRem/Quarter
40
35
30
25
20
15
10
5
0
09/01/1981
09/01/1983
09/01/1985
09/01/1987
09/01/1989
09/01/1991
09/01/1993
09/01/1995
09/01/1997
09/01/1999
09/01/2001
Background
3


White Mesa Mill Ambient Gamm
vels at BHV-4 Over Time
mRem/Quarter
20
18
16
14
12
10
8
6
4
2
0
09/01/1981
09/01/1983
09/01/1985
09/01/1987
09/01/1989
09/01/1991
09/01/1993
09/01/1995
09/01/1997
09/01/1999
09/01/2001
Background Subtracted


White Mesa Mill Ambient Gamm vels at BHV-5 Over Time
mRem/Quarter
20
18
16
14
12
10
8
6
4
2
0
07/01/1981
07/01/1983
07/01/1985
07/01/1987
07/01/1989
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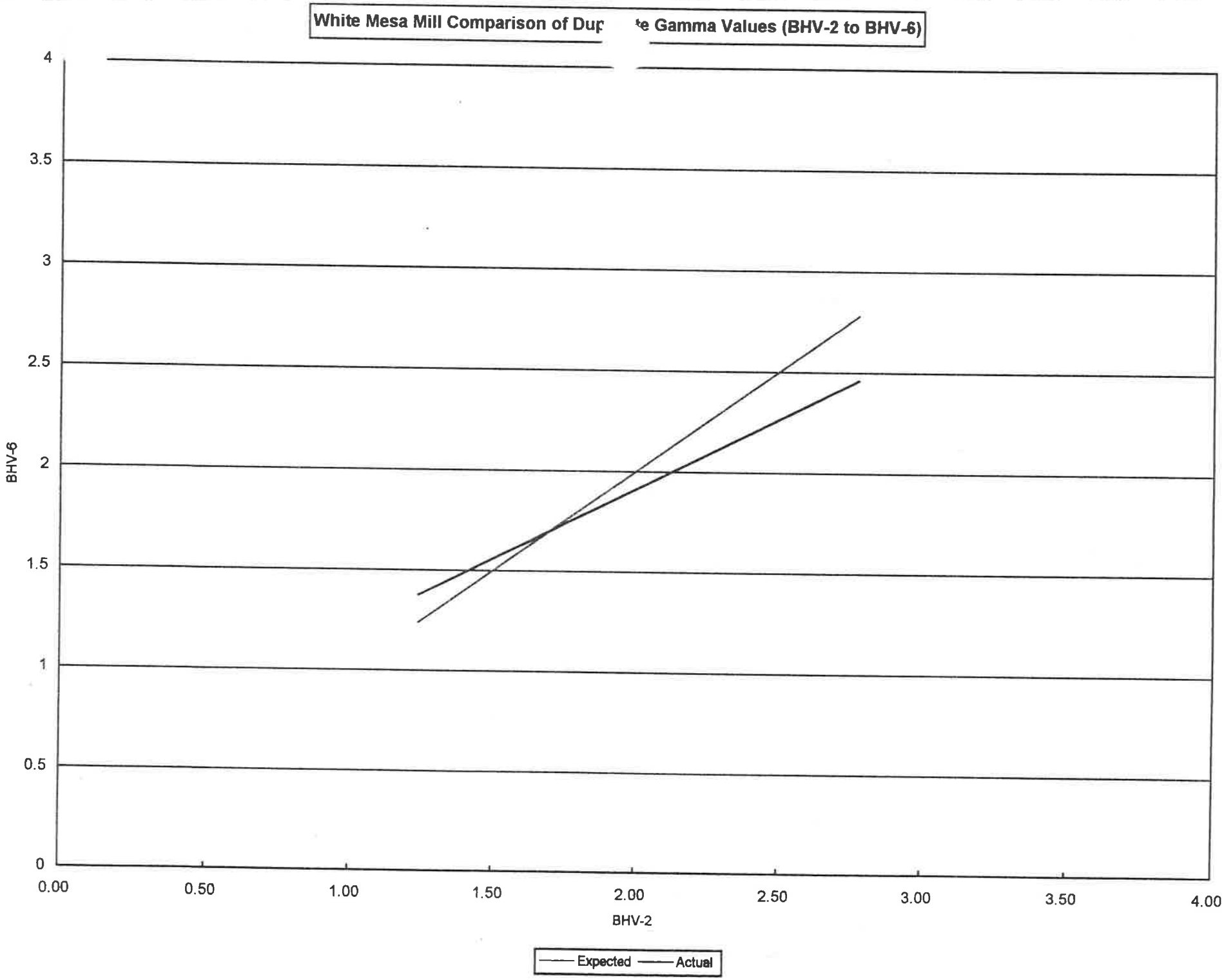
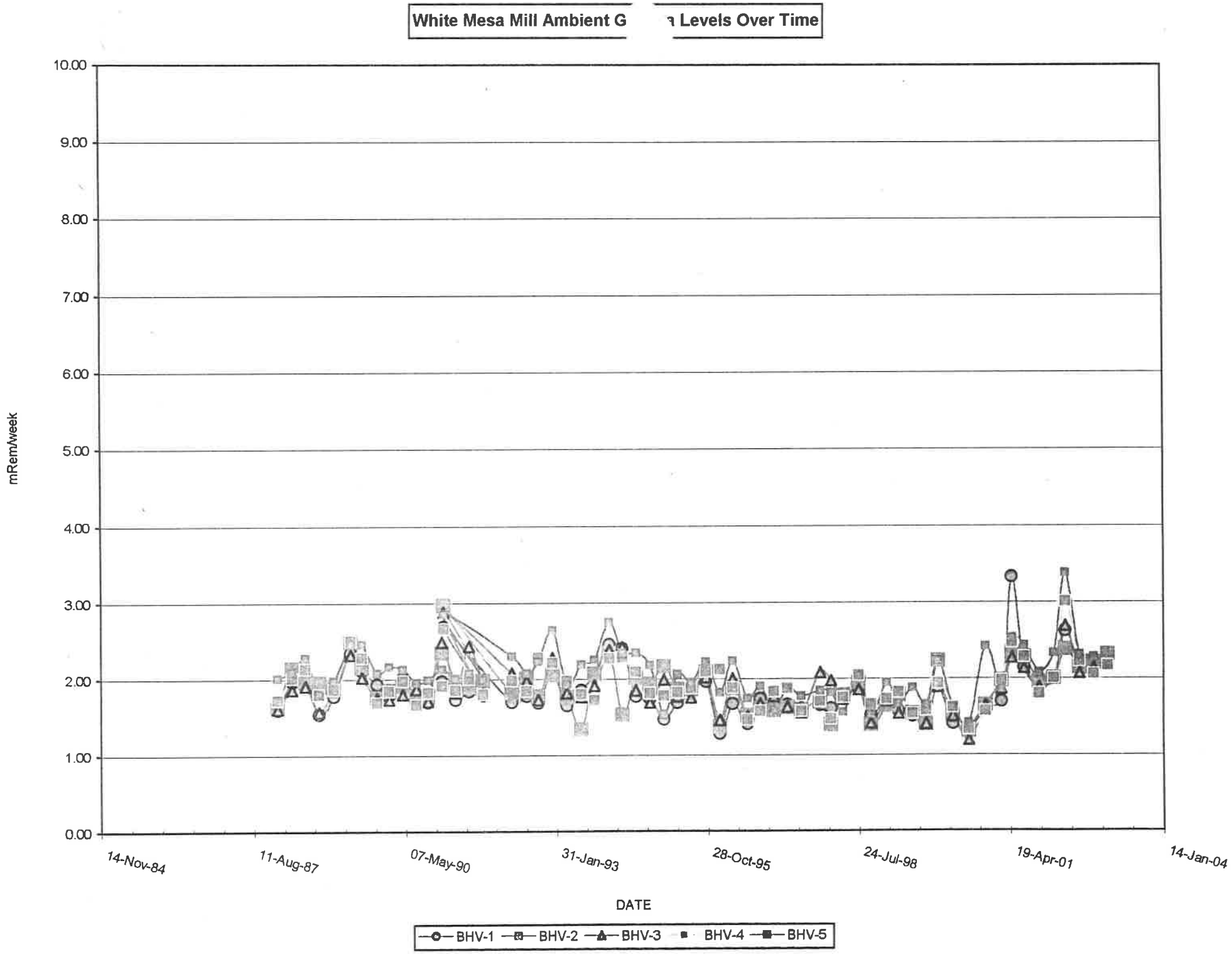
07/01/1993
07/01/1995
07/01/1997
07/01/1999
07/01/2001
Background Subtracted
BHV5


White Mesa Mill Comparison of Dup te Gamma Values (BHV-2 to BHV-6)
BHV-6
BHV-2
0
0.5
1
1.5
2
2.5
3
3.5
4
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
Expected
Actual


White Mesa Mill Ambient G n Levels Over Time
mRem/week
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
14-Nov-84
11-Aug-87
07-May-90
31-Jan-93
28-Oct-95
24-Jul-98
19-Apr-01
14-Jan-04
DATE
BHV-1
BHV-2
BHV-3
BHV-4
BHV-5

VEGETATION

ENVIRONMENTAL

MONITORING

RESULTS

FOR

THE

PERIOD

OF

JULY 1, 2002

THROUGH

DECEMBER 31, 2002

TABLE III

INTERNATIONAL URANIUM CORP.
WHITE MESA MILL
FORAGE RADIONUCLIDE DATA
NORTH EAST OF MILL

SAMPLED DATE	Ra-226 VALUE uCi/Kg	Ra-226 ERROR uCi/Kg	LLD uCi/Kg 5.0E-08	Pb-210 VALUE uCi/Kg	Pb-210 ERROR uCi/Kg	LLD uCi/Kg 1.0E-06
27-Aug-81	3.90E-04	1.0E-05	5.0E-08	1.10E-03	1.0E-04	1.0E-06
20-Oct-81	1.40E-04	1.0E-05	5.0E-08	6.80E-04	8.0E-05	1.0E-06
15-Apr-82	1.31E-04	1.3E-05	1.0E-06	4.90E-04	7.0E-05	8.0E-05
01-Jul-82	1.60E-04	1.0E-05	5.0E-08	8.00E-04	1.7E-04	1.0E-07
30-Nov-82	2.67E-06	1.1E-06	1.0E-06	1.08E-04	9.0E-06	1.0E-05
13-Apr-83	9.36E-05	6.2E-06	8.0E-09	4.97E-04	9.3E-05	1.0E-04
01-Jul-83	1.12E-04	1.2E-05	6.0E-06	1.84E-04	1.2E-05	1.0E-06
30-Jan-84	1.09E-04	8.0E-06	4.0E-06	7.80E-04	6.2E-05	6.0E-05
28-Jun-84	3.47E-04	1.2E-05	2.0E-09	3.75E-03	1.6E-04	4.0E-08
14-Nov-84	5.61E-04	2.0E-04	2.0E-07	7.82E-03	3.3E-04	7.0E-08
27-Mar-85	1.05E-03	3.0E-05	2.0E-06	3.22E-03	1.4E-04	2.0E-05
15-Jul-85	8.20E-05	7.0E-06	3.0E-06	7.70E-04	1.3E-04	2.0E-04
09-Oct-85	1.15E-04	1.0E-05	3.0E-06	5.10E-04	3.0E-05	2.0E-05
24-Mar-86	5.72E-04	2.1E-05	4.0E-06	2.49E-03	1.0E-04	1.0E-05
10-Jul-86	5.01E-04	1.3E-05	3.0E-06	1.57E-03	1.7E-03	2.0E-04
18-Dec-86	8.70E-04	5.0E-05	3.0E-06	6.80E-04	3.0E-05	3.0E-06
20-Apr-87	5.90E-04	7.0E-05	5.0E-08	1.50E-03	1.0E-04	1.0E-06
05-Jun-87	1.60E-04	3.0E-05	5.0E-08	9.50E-04	4.0E-05	1.0E-06
22-Dec-87	2.10E-04	4.0E-05	5.0E-08	1.70E-03	1.0E-04	1.0E-06
19-Apr-88	4.50E-04	7.0E-05	5.0E-08	1.40E-03	1.0E-04	1.0E-06
28-Jul-88	3.20E-05	2.2E-05	5.0E-08	1.50E-04	4.4E-04	1.0E-06
07-Apr-89	5.60E-04	4.0E-05	***	1.10E-03	1.0E-01	***
06-Jun-89	1.50E-04	2.0E-05	***	2.30E-04	2.0E-05	***
07-Nov-89	6.00E-04	5.0E-05	7.0E-06	2.04E-03	7.0E-05	1.4E-05
17-Apr-90	2.60E-04	3.0E-05	4.0E-06	3.30E-04	2.0E-05	2.2E-05
20-Jun-90	1.80E-04	2.0E-05	5.0E-08	3.20E-04	2.0E-05	1.0E-06
17-Oct-90	1.60E-04	2.0E-05	5.0E-08	3.30E-04	2.0E-05	1.0E-06
10-Apr-91	1.20E-04	2.0E-05	5.0E-06	3.00E-04	2.0E-05	1.0E-06
11-Jun-91	9.10E-05	1.6E-05	2.0E-07	1.90E-04	2.0E-05	2.0E-07
20-Nov-91	4.50E-04	4.0E-05	5.0E-08	1.09E-03	5.0E-05	1.0E-06
22-Apr-92	3.60E-05	1.0E-05	2.0E-06	1.50E-04	2.0E-05	1.0E-05
10-Jun-92	1.00E-05	7.0E-06	2.0E-07	7.50E-05	2.0E-05	1.0E-06
10-Jun-92	7.90E-05	3.5E-05	3.0E-06	7.10E-04	7.0E-05	2.0E-05
13-Apr-93	3.70E-05	2.2E-05	3.0E-06	2.80E-04	3.0E-05	2.0E-05
26-Jun-93	3.00E-05	1.5E-05	3.0E-06	4.30E-05	3.5E-05	2.0E-05
12-Oct-93	6.60E-05	2.7E-05	3.0E-06	5.30E-04	6.0E-05	2.0E-05
11-May-94	1.80E-04	4.0E-05	3.0E-05	4.40E-04	6.0E-05	2.0E-04
19-Jul-94	1.71E-05	1.2E-06	9.0E-08	3.00E-05	6.1E-06	4.5E-06
28-Nov-94	2.40E-04	1.5E-05	1.7E-07	1.70E-04	1.1E-05	8.3E-07
11-Apr-95	6.70E-05	5.4E-06	1.6E-07	1.40E-04	1.3E-05	7.9E-07
06-Jul-95	1.50E-05	1.5E-06	1.5E-07	5.10E-05	4.5E-06	7.6E-07
15-Nov-95	5.50E-05	5.0E-06	1.8E-07	6.70E-05	1.0E-05	8.8E-07
23-Apr-96	5.20E-05	2.5E-06	1.5E-07	3.20E-05	4.5E-06	1.8E-07
31-Jul-96	*	*	*	*	*	*
14-Nov-96	3.00E-05	2.5E-06	1.8E-07	1.40E-04	7.1E-06	9.3E-07
21-Apr-97	1.10E-05	4.7E-07	1.2E-07	4.10E-05	3.6E-06	6.1E-07
05-Sep-97	1.10E-05	4.3E-07	1.3E-07	2.10E-05	7.3E-07	6.7E-07
20-Nov-97	8.00E-06	1.2E-06	5.6E-07	1.40E-04	4.6E-06	1.1E-07
23-Mar-98	<9.10E-05	9.1E-05	9.1E-05	<4.50E-04	4.5E-04	4.5E-04
16-Jun-98	1.80E-05	1.2E-06	6.3E-08	4.00E-05	1.8E-06	3.2E-07
05-Nov-98	5.70E-05	1.0E-06	8.2E-08	8.70E-05	5.0E-06	4.1E-07
15-Apr-99	2.00E-04	3.0E-06	1.2E-07	3.00E-04	1.0E-05	6.0E-05
07-Jul-99	6.03E-05	1.4E-06	8.3E-08	1.40E-04	4.7E-06	4.2E-07
02-Dec-99	2.30E-05	1.0E-06	2.3E-07	2.10E-05	1.0E-06	1.1E-06
21-Apr-00	1.50E-04	3.0E-06	1.2E-07	1.60E-04	8.0E-06	5.9E-07
22-Jun-00	1.20E-06	1.0E-07	2.8E-07	1.60E-04	1.0E-05	1.4E-06
21-Dec-00	1.60E-06	1.1E-06	3.7E-07	5.10E-05	5.0E-06	1.9E-06
30-Apr-01	1.00E-06	1.0E-07	2.4E-07	<1.2E-06	1.0E-07	2.4E-07
14-Jun-01	2.30E-06	2.0E-07	9.9E-08	3.80E-06	2.0E-07	5.0E-07
17-Dec-01	9.10E-06	2.4E-06	1.2E-07	3.57E-05	3.0E-06	6.0E-07
07-May-02	3.30E-05	1.8E-06	7.6E-07	4.50E-05	2.6E-06	1.0E-05
07-Jul-02	5.55E-05	2.8E-06	7.6E-07	5.31E-05	3.9E-06	1.0E-05
15-Dec-02	7.75E-05	3.6E-06	7.6E-07	1.29E-04	6.2E-06	1.0E-05

# OBSERVED	6.30E+01	6.30E+01	6.30E+01	6.30E+01	6.30E+01	6.30E+01
MAXIMUM	1.05E-03	1.99E-04	9.10E-05	7.82E-03	1.00E-01	4.50E-04
MEAN	1.73E-04	1.91E-05	2.99E-06	6.57E-04	1.67E-03	2.54E-05
STD. DEV.	2.23E-04	2.98E-05	1.19E-05	1.18E-03	1.25E-02	7.01E-05

*2nd quarter 1996 we were declared a disaster due to drought and no samples were taken

TABLE III (Cont.)

INTERNATIONAL URANIUM CORP.
WHITE MESA MILL
FORAGE RADIONUCLIDE DATA
NORTH WEST OF MILL

SAMPLED DATE	Ra-226 VALUE uCi/Kg	Ra-226 ERROR uCi/Kg	LLD uCi/Kg 5.0E-08	Pb-210 VALUE uCi/Kg	Pb-210 ERROR uCi/Kg	LLD uCi/Kg 1.0E-06
27-Aug-81	2.73E-03	5.0E-05	5.0E-08	7.10E-03	3.0E-04	1.0E-06
20-Oct-81	2.00E-04	1.0E-05	5.0E-08	8.30E-04	5.0E-05	1.0E-06
15-Apr-82	1.04E-04	9.0E-06	7.0E-06	6.40E-04	5.0E-05	4.0E-05
01-Jul-82	2.00E-05	1.0E-05	5.0E-08	2.20E-04	9.0E-05	1.0E-07
30-Nov-82	2.36E-06	9.5E-07	1.0E-06	8.00E-05	1.0E-05	1.0E-05
13-Apr-83	8.58E-05	1.4E-05	2.0E-08	3.53E-04	1.9E-05	1.0E-05
01-Jul-83	1.19E-04	1.1E-05	5.0E-06	1.58E-04	1.3E-05	1.0E-05
30-Jan-84	9.78E-05	7.0E-06	2.0E-06	2.16E-03	3.4E-04	3.0E-04
28-Jun-84	2.08E-04	1.0E-05	3.0E-09	1.60E-03	7.0E-05	3.0E-08
14-Nov-84	6.05E-04	1.6E-04	2.0E-07	2.58E-03	1.1E-04	3.0E-08
27-Mar-85	1.10E-04	8.0E-06	3.0E-06	8.63E-04	4.2E-05	3.0E-05
15-Jul-85	6.10E-05	6.0E-06	2.0E-06	5.40E-04	5.0E-05	5.0E-05
09-Oct-85	1.07E-04	6.0E-06	2.0E-06	3.80E-04	3.0E-05	2.0E-05
24-Mar-86	8.86E-04	1.8E-05	2.0E-06	4.40E-03	1.9E-04	3.0E-05
10-Jul-86	6.66E-04	1.8E-05	3.0E-06	4.78E-03	2.1E-04	6.0E-05
18-Dec-86	5.20E-04	1.0E-04	3.0E-06	1.70E-03	1.0E-04	6.0E-05
20-Apr-87	4.10E-04	1.0E-04	5.0E-08	1.60E-03	1.0E-04	1.0E-06
05-Jun-87	1.60E-04	3.0E-05	5.0E-08	5.50E-04	4.0E-05	1.0E-06
22-Dec-87	3.60E-04	5.0E-05	5.0E-08	1.80E-03	1.0E-04	1.0E-06
19-Apr-88	2.60E-04	5.0E-05	5.0E-08	1.90E-03	1.0E-04	1.0E-06
28-Jul-88	3.10E-05	1.9E-05	5.0E-08	1.60E-04	4.0E-05	1.0E-06
07-Apr-89	6.20E-04	5.0E-05	***	1.70E-03	1.0E-04	***
06-Jun-89	3.40E-04	3.0E-05	***	7.40E-04	3.0E-05	***
07-Nov-89	5.10E-04	6.0E-05	7.0E-06	1.00E-03	7.0E-05	1.4E-05
17-Apr-90	3.60E-04	3.0E-05	4.0E-06	4.80E-04	2.0E-05	2.2E-05
20-Jun-90	1.70E-04	2.0E-05	5.0E-08	3.20E-04	2.0E-05	1.0E-06
17-Oct-90	8.80E-05	1.6E-05	5.0E-08	2.90E-04	2.0E-05	1.0E-06
10-Apr-91	3.00E-04	3.0E-05	5.0E-06	4.10E-04	2.0E-05	1.0E-06
11-Jun-91	3.10E-04	3.0E-05	2.0E-07	4.70E-04	2.0E-05	2.0E-07
20-Nov-91	5.00E-04	4.0E-05	5.0E-08	1.50E-03	1.0E-04	1.0E-06
22-Apr-92	2.00E-05	8.0E-06	2.0E-06	9.60E-05	1.4E-05	1.0E-05
10-Jun-92	6.50E-06	6.0E-06	2.0E-06	1.20E-04	2.0E-05	1.0E-06
10-Jun-92	1.20E-04	4.0E-05	3.0E-06	1.21E-03	8.0E-05	2.0E-05
13-Apr-93	1.80E-05	1.7E-05	3.0E-06	2.10E-04	3.0E-05	2.0E-05
26-Jun-93	5.20E-05	1.9E-05	3.0E-06	1.70E-05	3.6E-05	2.0E-05
12-Oct-93	5.10E-05	2.3E-05	3.0E-06	7.10E-04	6.0E-05	2.0E-05
11-May-94	1.20E-04	1.0E-05	3.0E-05	9.80E-04	1.6E-04	2.0E-04
19-Jul-94	3.73E-05	1.6E-06	8.4E-08	7.80E-05	7.1E-06	4.2E-07
28-Nov-94	2.40E-04	1.5E-05	1.7E-07	2.60E-04	1.3E-05	8.3E-07
11-Apr-95	8.40E-05	6.1E-06	1.5E-07	1.20E-04	1.1E-05	7.5E-05
06-Jul-95	1.90E-05	1.5E-06	1.4E-07	4.50E-05	4.3E-06	7.2E-07
15-Nov-95	1.20E-04	6.8E-06	1.4E-07	1.00E-05	5.8E-06	7.1E-07
23-Apr-96	8.30E-05	3.3E-06	1.9E-07	6.80E-05	6.3E-06	1.8E-07
31-Jul-96	*	*	*	*	*	*
14-Nov-96	3.60E-05	2.5E-06	1.6E-07	8.50E-05	5.6E-06	8.4E-07
21-Apr-97	3.30E-05	2.3E-06	1.7E-07	4.40E-05	4.8E-06	8.4E-07
05-Sep-97	5.40E-06	3.5E-07	1.6E-07	3.20E-05	9.0E-07	7.8E-07
20-Nov-97	8.90E-06	7.2E-07	5.4E-07	3.40E-04	6.7E-06	1.1E-07
23-Mar-98	<9.20E-05	9.2E-05	9.2E-05	<4.60E-04	4.6E-04	4.6E-04
16-Jun-98	< 6.50E-08	6.5E-08	6.5E-08	<3.20E-07	3.2E-07	3.2E-07
05-Nov-98	4.20E-05	1.0E-06	1.1E-07	1.70E-04	1.0E-05	5.5E-07
15-Apr-99	6.20E-05	1.0E-06	1.0E-07	1.40E-04	7.0E-06	1.0E-07
07-Jul-99	5.45E-05	1.4E-06	8.3E-08	9.20E-05	4.0E-06	4.2E-07
02-Dec-99	1.10E-04	3.0E-06	2.2E-07	2.80E-05	1.0E-06	1.1E-06
21-Apr-00	3.70E-05	1.0E-06	2.4E-07	2.70E-04	1.0E-05	1.2E-06
22-Jun-00	2.90E-05	1.0E-06	3.3E-07	2.80E-04	2.0E-05	1.7E-06
21-Dec-00	2.30E-06	1.4E-06	3.7E-07	3.30E-04	5.0E-05	1.9E-06
30-Apr-01	2.10E-05	1.0E-06	1.5E-07	<7.6E-07	N/A	7.6E-07
14-Jun-01	1.30E-06	4.0E-08	1.2E-07	1.80E-06	3.0E-08	5.9E-07
17-Dec-01	3.70E-05	7.67E-07	8.30E-08	6.72E-05	2.62E-06	6.00E-07
07-May-02	4.90E-05	2.40E-06	7.60E-07	1.28E-04	5.61E-06	1.00E-05
07-Jul-02	8.88E-05	4.32E-06	7.60E-07	8.33E-05	4.32E-06	1.00E-05
15-Dec-02	1.50E-04	6.2E-06	7.6E-07	3.16E-04	1.1E-05	1.0E-05

# OBSERVED	6.3E+01	6.3E+01	6.3E+01	6.3E+01	6.3E+01	6.3E+01
MAXIMUM	2.73E-03	1.64E-04	9.20E-05	7.10E-03	4.60E-04	4.60E-04
MEAN	2.01E-04	2.03E-05	3.03E-06	7.56E-04	5.56E-05	2.44E-05
STD. DEV.	3.75E-04	2.96E-05	1.20E-05	1.24E-03	8.47E-05	7.20E-05

*2nd quarter of 1996 we were declared a disaster area due to drought, no samples were taken

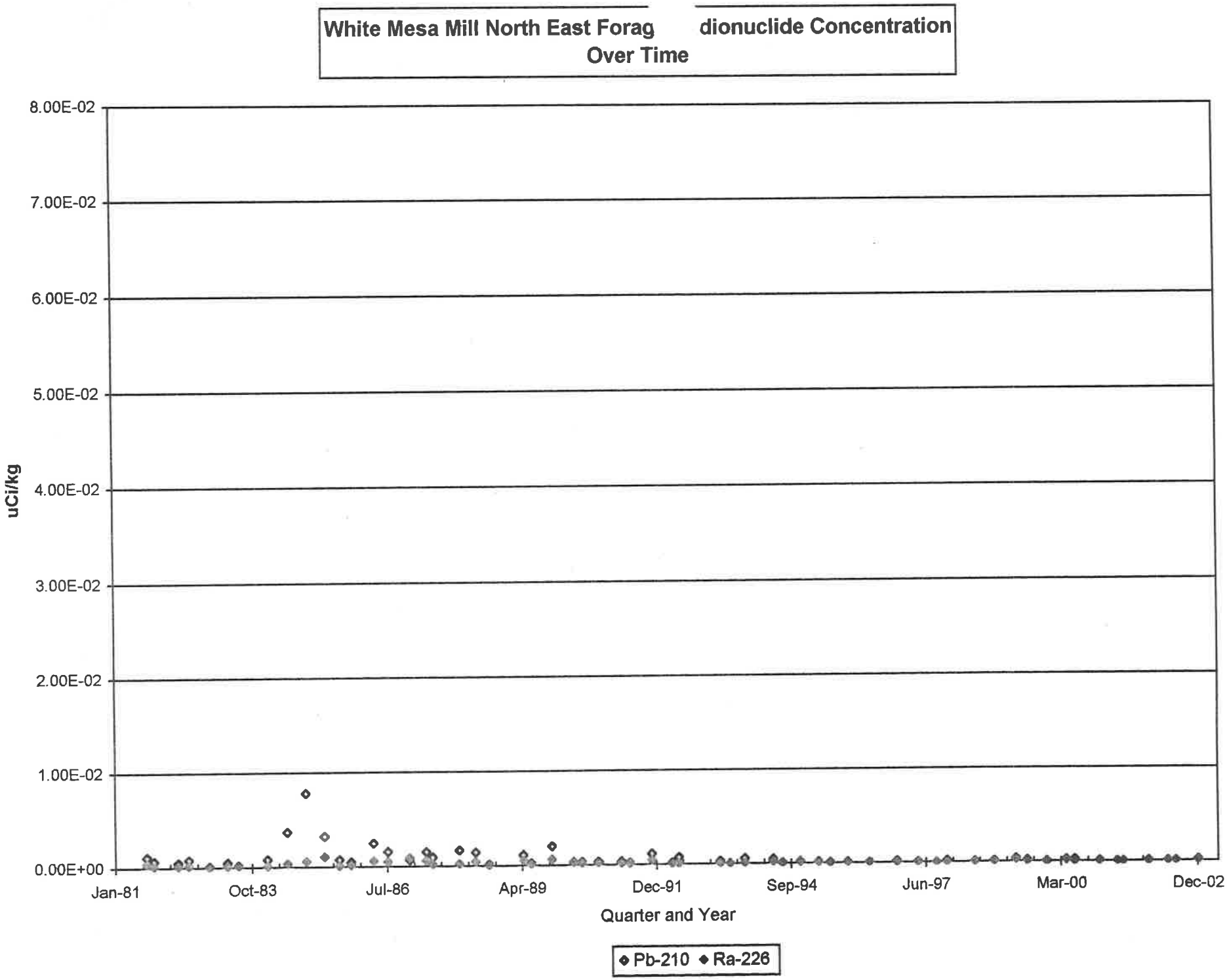
TABLE III (Cont.)

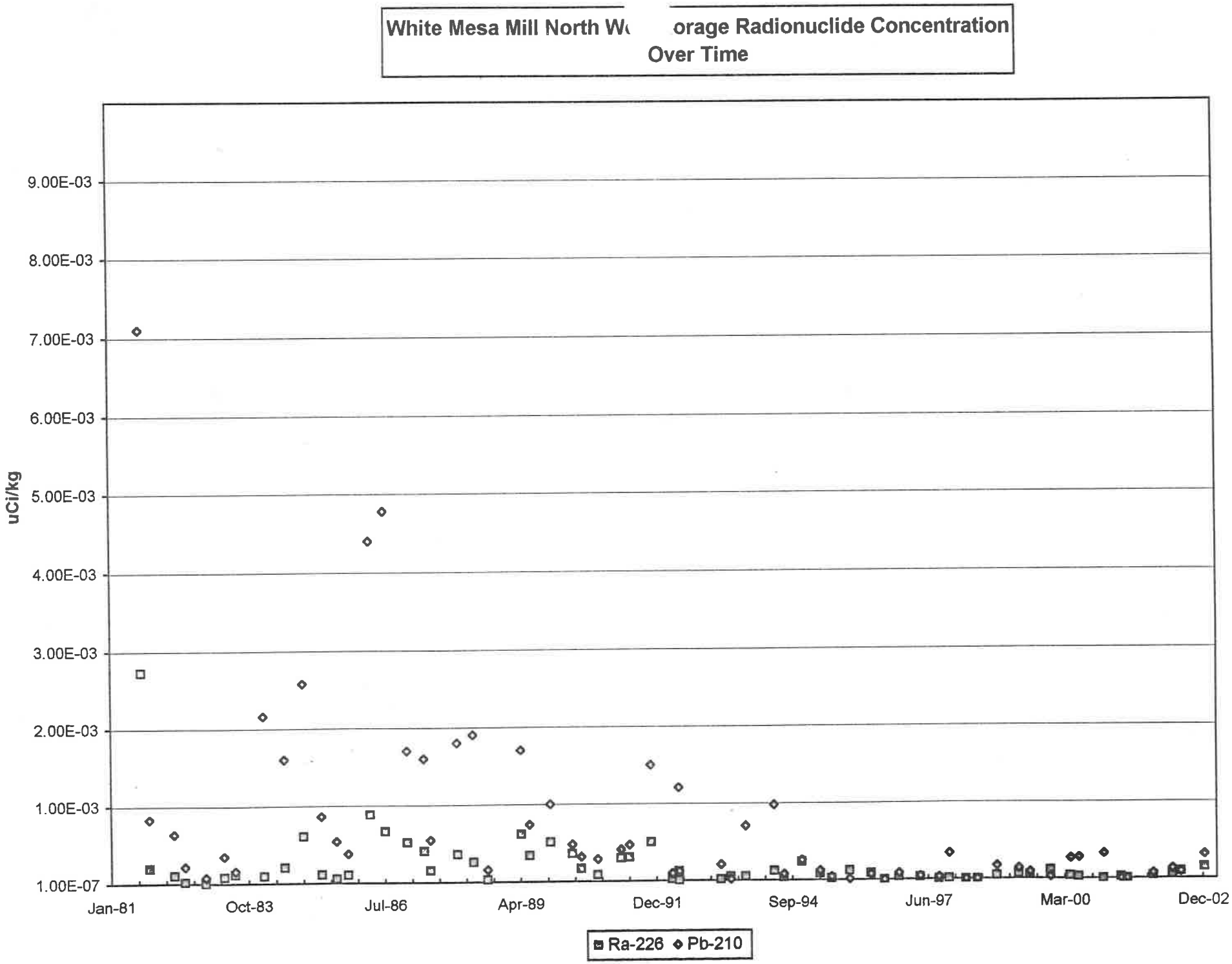
INTERNATIONAL URANIUM CORP.
WHITE MESA MILL
FORAGE RADIONUCLIDE DATA
SOUTH WEST OF MILL

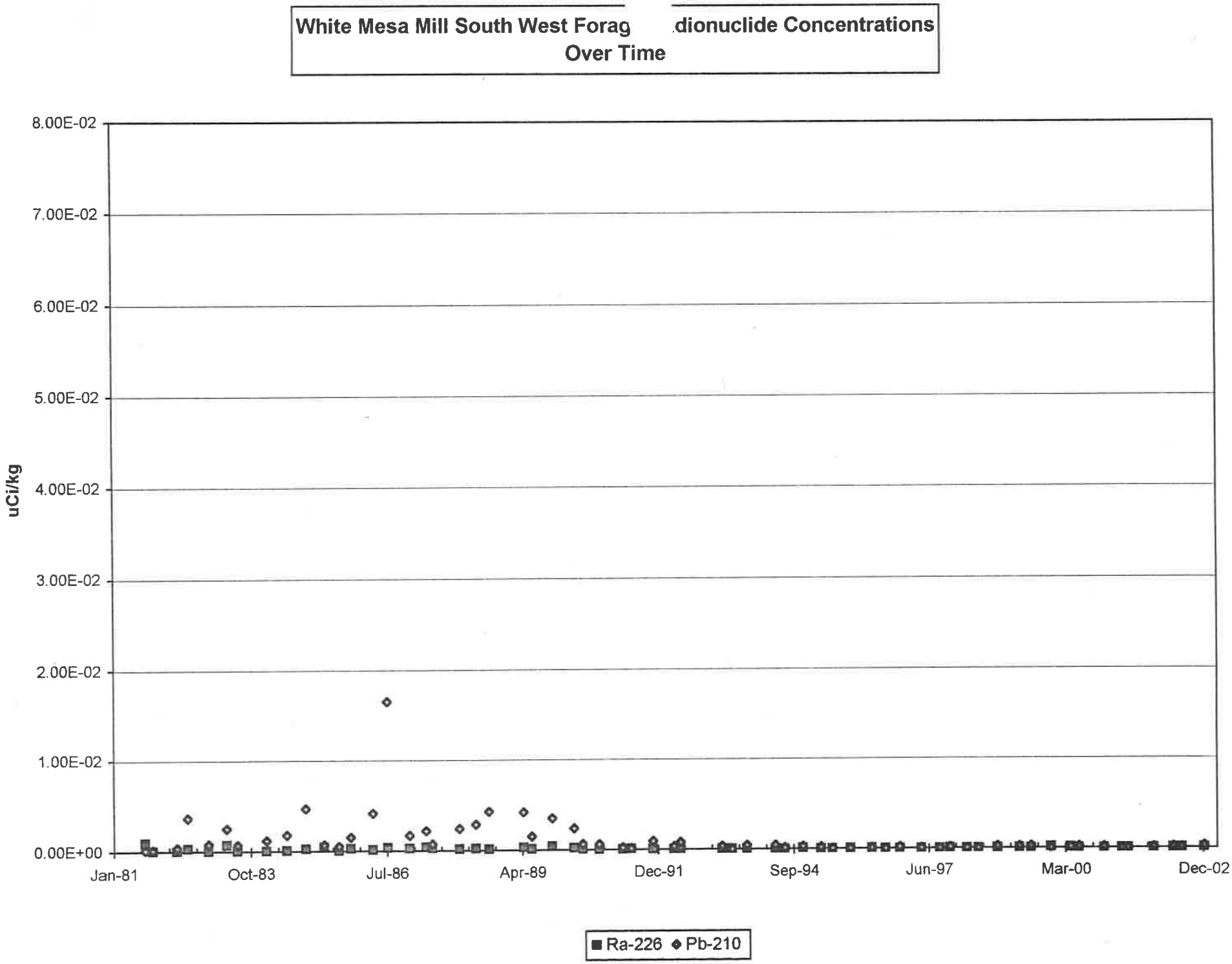
SAMPLED DATE	Ra-226 VALUE uCi/Kg	Ra-226 ERROR uCi/Kg	LLD uCi/Kg 5.0E-08	Pb-210 VALUE uCi/Kg	Pb-210 ERROR uCi/Kg	LLD uCi/Kg 1.0E-06
27-Aug-81	9.50E-04	2.0E-05	5.0E-08	1.50E-04	1.0E-05	1.0E-06
21-Oct-81	3.00E-05	3.0E-06	5.0E-08	1.50E-04	2.0E-05	1.0E-06
15-Apr-82	1.37E-05	3.0E-06	3.0E-06	3.80E-04	4.0E-05	4.0E-05
01-Jul-82	3.40E-04	2.0E-05	5.0E-08	3.68E-03	2.7E-04	1.0E-07
30-Nov-82	1.75E-05	3.0E-06	2.0E-06	7.92E-04	4.0E-06	2.0E-05
14-Apr-83	7.13E-04	7.3E-05	9.0E-08	2.51E-03	3.0E-04	3.0E-04
01-Jul-83	5.39E-05	4.5E-06	2.0E-06	6.88E-04	4.3E-05	4.0E-05
30-Jan-84	6.40E-05	7.0E-06	4.0E-06	1.20E-03	1.0E-04	4.0E-05
28-Jun-84	8.27E-05	6.3E-06	3.0E-09	1.80E-03	1.0E-04	9.0E-08
14-Nov-84	2.72E-04	1.5E-04	2.0E-07	4.70E-03	7.2E-04	3.0E-07
27-Mar-85	4.73E-04	1.6E-07	3.0E-06	7.07E-04	3.6E-05	3.0E-05
15-Jul-85	6.60E-05	7.0E-06	4.0E-06	4.90E-04	3.0E-05	3.0E-05
09-Oct-85	2.83E-04	2.0E-05	7.0E-06	1.50E-03	1.0E-04	7.0E-05
24-Mar-86	1.57E-04	1.0E-05	4.0E-06	4.14E-03	1.8E-04	3.0E-05
10-Jul-86	3.78E-04	1.0E-05	2.0E-06	1.65E-02	7.0E-04	1.0E-04
18-Dec-86	2.60E-04	2.0E-05	2.0E-06	1.70E-03	1.0E-04	1.0E-04
20-Apr-87	4.10E-04	7.0E-05	5.0E-08	2.20E-03	1.0E-04	1.0E-06
05-Jun-87	2.90E-04	4.0E-05	5.0E-08	7.50E-04	5.0E-05	1.0E-06
22-Dec-87	1.80E-04	3.0E-05	5.0E-08	2.40E-03	1.0E-04	1.0E-06
19-Apr-88	2.30E-04	5.0E-05	5.0E-08	2.90E-03	1.0E-04	1.0E-06
28-Jul-88	1.50E-04	3.0E-05	5.0E-08	4.30E-03	2.0E-04	1.0E-06
07-Apr-89	3.10E-04	4.0E-05	***	4.20E-03	1.0E-04	***
06-Jun-89	1.30E-04	2.0E-05	***	1.50E-03	1.0E-04	***
07-Nov-89	4.30E-04	5.0E-05	1.4E-05	3.50E-03	1.4E-04	2.7E-05
28-Mar-90	2.50E-04	3.0E-05	5.0E-06	2.39E-03	5.0E-05	2.5E-05
13-Jun-90	1.10E-04	2.0E-05	5.0E-08	6.60E-04	3.0E-05	1.0E-06
23-Oct-90	6.10E-05	1.4E-05	5.0E-08	6.10E-04	3.0E-05	1.0E-06
10-Apr-91	3.40E-05	1.1E-05	5.0E-06	2.20E-04	1.0E-05	1.0E-06
11-Jun-91	8.00E-05	6.0E-06	2.0E-07	1.20E-04	1.0E-05	2.0E-07
20-Nov-91	6.50E-05	1.4E-05	5.0E-08	9.10E-04	5.0E-05	1.0E-06
22-Apr-92	1.60E-05	7.0E-06	2.0E-06	3.20E-04	2.0E-05	1.0E-05
10-Jun-92	1.90E-05	1.0E-05	2.0E-07	2.20E-04	2.0E-05	1.0E-06
08-Dec-92	1.60E-05	1.8E-05	3.0E-06	7.60E-04	6.0E-05	2.0E-05
13-Apr-93	2.60E-05	2.0E-05	3.0E-06	3.40E-04	3.0E-05	2.0E-05
27-Jun-93	3.00E-05	1.4E-05	3.0E-06	0.00E+00	3.0E-05	2.0E-05
27-Oct-93	3.10E-05	1.6E-05	3.0E-06	4.20E-04	6.0E-05	2.0E-05
01-May-94	2.00E-05	5.0E-06	3.0E-05	3.90E-04	8.0E-05	2.0E-04
19-Jul-94	1.75E-05	1.7E-06	7.6E-08	1.30E-04	7.8E-06	3.8E-07
16-Nov-94	1.00E-04	9.0E-06	1.5E-07	2.60E-04	1.2E-05	7.4E-07
05-Apr-95	1.70E-05	1.5E-06	1.6E-07	1.60E-04	1.5E-05	8.1E-07
07-Jul-95	6.40E-06	6.0E-07	1.4E-07	4.40E-05	4.2E-06	7.0E-07
09-Nov-95	2.30E-05	2.2E-06	1.7E-07	6.60E-05	9.6E-06	8.3E-07
24-Apr-96	4.20E-05	2.2E-06	1.7E-07	1.00E-04	6.7E-06	1.8E-07
31-Jul-96	*	*	*	*	*	*
14-Nov-96	2.10E-05	2.0E-06	1.6E-07	1.90E-04	7.3E-06	8.2E-07
21-Apr-97	5.50E-06	4.2E-07	1.4E-07	3.30E-05	3.9E-06	7.0E-07
05-Sep-97	5.30E-06	3.2E-07	1.3E-07	1.90E-05	6.9E-07	6.3E-07
20-Nov-97	2.50E-05	9.5E-07	5.9E-07	1.30E-04	4.7E-06	1.2E-07
26-Mar-98	<7.90E-05	7.9E-05	7.9E-05	<3.90E-04	3.9E-04	3.9E-04
16-Jun-98	3.60E-07	1.4E-07	3.3E-08	<1.7E-07	1.7E-07	1.7E-07
09-Nov-98	4.30E-05	1.0E-06	7.6E-08	2.50E-04	1.0E-05	3.8E-07
15-Apr-99	2.40E-05	1.0E-06	1.2E-07	1.70E-04	8.0E-06	6.2E-07
07-Jul-99	2.23E-05	8.6E-07	1.2E-07	2.30E-04	7.0E-06	5.9E-07
07-Dec-99	1.50E-04	3.0E-06	2.0E-07	1.70E-05	1.0E-06	1.0E-06
21-Apr-00	1.00E-04	2.0E-06	1.2E-07	1.10E-04	7.0E-06	6.1E-07
22-Jun-00	1.30E-06	1.0E-07	2.4E-07	2.00E-04	1.0E-05	1.2E-06
21-Dec-00	1.20E-06	9.0E-07	2.4E-07	1.20E-04	3.0E-05	1.2E-06
30-Apr-01	1.80E-06	1.0E-07	1.7E-07	<8.3E-07	N/A	8.3E-07
14-Jun-01	2.60E-06	2.0E-07	9.9E-08	1.10E-06	2.0E-08	5.0E-07
17-Dec-01	2.63E-06	4.6E-05	1.2E-07	9.40E-05	3.7E-06	6.0E-07
07-May-02	3.50E-05	2.2E-06	7.6E-07	1.36E-04	5.6E-06	1.0E-05
07-Jul-02	4.02E-05	2.3E-06	7.6E-07	7.04E-05	4.1E-06	1.0E-05
15-Dec-02	8.10E-05	3.9E-06	7.6E-07	2.87E-04	8.5E-06	1.0E-05

# OBSERVED	6.3E+01	6.3E+01	6.3E+01	6.3E+01	6.3E+01	6.3E+01
MAXIMUM	9.50E-04	1.48E-04	7.90E-05	1.65E-02	7.20E-04	3.90E-04
MEAN	1.24E-04	1.64E-05	2.97E-06	1.16E-03	7.43E-05	2.52E-05
STD. DEV.	1.78E-04	2.50E-05	1.05E-05	2.32E-03	1.38E-04	6.65E-05

*2nd quarter of 1998 San Juan County, Utah, was declared a disaster area due to drought, no samples were collected during this period.


White Mesa Mill North East Forag dionuclide Concentration
Over Time
8.00E-02
7.00E-02
6.00E-02
5.00E-02
4.00E-02
3.00E-02
2.00E-02
1.00E-02
0.00E+00
uCi/kg
Jan-81
Oct-83
Jul-86
Apr-89
Dec-91
Sep-94
Jun-97
Mar-00
Dec-02
Quarter and Year
Pb-210
Ra-226


White Mesa Mill North W orage Radionuclide Concentration Over Time
uCi/kg
9.00E-03
8.00E-03
7.00E-03
6.00E-03
5.00E-03
4.00E-03
3.00E-03
2.00E-03
1.00E-03
1.00E-07
Jan-81
Oct-83
Jul-86
Apr-89
Dec-91
Sep-94
Jun-97
Mar-00
Dec-02
Ra-226
Pb-210


White Mesa Mill South West Forag .dionuclide Concentrations
Over Time
8.00E-02
7.00E-02
6.00E-02
5.00E-02
4.00E-02
3.00E-02
2.00E-02
1.00E-02
0.00E+00
uCi/kg
Jan-81
Oct-83
Jul-86
Apr-89
Dec-91
Sep-94
Jun-97
Mar-00
Dec-02
Ra-226
Pb-210

LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
ıject: Late Fall Vegetation

Lab Order: C02120640
Report Date: 01/28/03

Lab ID: C02120640-001
Client Sample ID: Northwest Area (3.305 kg)
Matrix: VEGETATION

Collection Date: 12/15/02 07:10
DateReceived: 12/18/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	3.16E-04	uCi/kg		1.1E-06		NERHL-65-4	01/15/03 17:07 / ph
Lead 210 precision	1.07E-05	uCi/kg				NERHL-65-4	01/15/03 17:07 / ph
Radium 226	1.5E-04	uCi/kg		2.3E-07		E903.0	01/20/03 10:05 / es
Radium 226 precision	6.2E-06	uCi/kg				E903.0	01/20/03 10:05 / es

Lab ID: C02120640-002
Client Sample ID: Northeast Area (3.097 kg)
Matrix: VEGETATION

Collection Date: 12/15/02 06:30
DateReceived: 12/18/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	1.29E-04	uCi/kg		1.2E-06		NERHL-65-4	01/15/03 17:07 / ph
Lead 210 precision	6.15E-06	uCi/kg				NERHL-65-4	01/15/03 17:07 / ph
Radium 226	7.7E-05	uCi/kg		2.4E-07		E903.0	01/20/03 11:05 / es
·lium 226 precision	3.6E-06	uCi/kg				E903.0	01/20/03 11:05 / es

Lab ID: C02120640-003
Client Sample ID: Southwest Area (3.091 kg)
Matrix: VEGETATION

Collection Date: 12/15/02 07:40
DateReceived: 12/18/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Lead 210	2.87E-04	uCi/kg		1.2E-06		NERHL-65-4	01/15/03 17:07 / ph
Lead 210 precision	8.54E-06	uCi/kg				NERHL-65-4	01/15/03 17:07 / ph
Radium 226	8.1E-05	uCi/kg		2.4E-07		E903.0	01/20/03 12:05 / es
Radium 226 precision	3.9E-06	uCi/kg				E903.0	01/20/03 12:05 / es

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACKING NO. PAGE NO.
120640R0001

ANALYTICAL SUMMARY REPORT

uary 24, 2003

avid Turk
International Uranium (USA) Corp
6425 S Hwy 191
PO Box 809
Blanding, UT 84511

Workorder No.: C02120640

Project Name: Late Fall Vegetation

Energy Laboratories Inc. received the following 3 samples from International Uranium (USA) Corp on 12/18/2002 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C02120640-001	Northwest Area (3.305 kg)	12/15/02 07:10	12/18/02	Vegetation	Digestion, Total Metals Lead 210 Radium 226
C02120640-002	Northeast Area (3.097 kg)	12/15/02 06:30	12/18/02	Vegetation	Same As Above
C02120640-003	Southwest Area (3.091 kg)	12/15/02 07:40	12/18/02	Vegetation	Same As Above

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative or Report.

If you have any questions regarding these tests results, please call.

Report Approved By:

TRACKING NO. PAGE NO.
12064OR0004

Date: *24-Jan-03*

CLIENT: International Uranium (USA) Corp
Project: Late Fall Vegetation
Sample Delivery Group: C02120640

CASE NARRATIVE

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL REPORT

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-cs - Energy Laboratories, Inc. - College Station, TX

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by NELAC. Some client specific reporting requirements may not require NELAC reporting protocol.

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

The total number of pages of this report are indicated by the last four digits of the tracking number located in the lower right corner.

Chain of Custody an[illegible] Analytical Request Record

1 of 1

PLEASE PRINT, provi[illegible]s much information as possible.
Refer to corresponding notes on reverse side.

Company Name: International Uranium Corporation	Project Name, PWS #, Permit #, Etc.: Late Fall Vegetation
Report Address: P.O. Box 809, Blanding, Utah 84511	Contact Name, Phone, Fax, E-mail: David Turk (435) 678-2221 / (435) 678-2224 — Sampler Name if other than Contact:
Invoice Address: — Same —	Invoice Contact & Phone #: Ron Berg (435) 678-2221 — Purchase Order #: — ELI Quote #:

Report Required For: POTW/WWTP ☐ DW ☐ Other _____

Special Report Formats – ELI must be notified prior to sample submittal for the following:
NELAC ☐ A2LA ☐ Level IV ☐
Other _____
EDD/EDT ☐ Format _____

Number of Containers
Sample Type: A W S V U O
Air Water Soils/Solids Vegetation Urine Other

ANALYSIS REQUESTED

Notify ELI prior to RUSH sample submittal for additional charges and scheduling

Receipt Temp n/a °C
Cooler ID(s) Box
Custody Seal (Y) N
Intact (Y) N
Signature Match (Y) N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Ra 226 (pCi/kg)	Pb-210 (pCi/kg)	SEE ATTACHED	Normal Turnaround (TAT)	RUSH Turnaround (TAT)	Comments:	Lab ID
1	Northwest Area (3.305 kg)	12/15/02	0710	1-V	✓	✓					6 lbs.
2	Northeast Area (3.097 kg)	12/15/02	0630	1-V	✓	✓					9 lbs
3	Southwest Area (3.091 kg)	12/15/02	0740	1-V	✓	✓					8 lbs
4											
5											
6											
7											
8											
9											
10											

LABORATORY USE ONLY

TRACKING NO. 120640R0002

PAGE NO.

Custody Record MUST be Signed

Relinquished by: [signature]	Date/Time: 12/16/02 0900	Shipped by: UPS	Received by: Labitha Edwards Date/Time: 12/18/02 10:[illegible]
Relinquished by:	Date/Time:	Shipped by:	Received by: Date/Time:

Sample Disposal: Return to client: _____ Lab Disposal: _____

LABORATORY USE ONLY
Sample Type: _____ # of fractions _____

Visit our web site at ***www.energylab.com*** for additional information, downloadable fee schedule, forms, & links.

Energy Laboratories Inc.

Sample Receipt Checklist

:nt Name: INTRNTNL-URNM-(S)-CRP

Date and Time Received: 12/18/2002 10:00:00

Work Order Number C02120640

Received by: tae

Checklist completed by Tabitha Edwards 12/19/02 (Signature / Date)

Reviewed by _____ (Initials / Date)

Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
'ainer/Temp Blank temperature in compliance?	Yes ☑	No ☐	N/A °C
..er - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Adjusted? Checked by

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted: Date contacted: _____ Person contacted _____

Contacted by: Regarding:

Comments:

Corrective Action

TRACKING NO. PAGE NO.

120640R0003

ENERGY LABORATORIES
Toll Free 888.235.0515 · 235.0515 · Fax 307.234.1639 · casper@energy[illegible]m · www.energylab.com

LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: Late Spring Vegetation

Lab Order: C02070297
Report Date: 08/21/02

Lab ID: C02070297-001
Client Sample ID: Northwest Area
Matrix: VEGETATION

Collection Date: 07/07/02 13:30
DateReceived: 07/10/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Lead 210	8.33E-02	pCi/g		1.0E-05		NERHL-65-4	07/26/02 17:04 / ph
Lead 210 precision	4.32E-03	±				NERHL-65-4	07/26/02 17:04 / ph
Radium 226	8.88E-02	pCi/g		7.6E-07		E903.0	07/31/02 17:39 / rs
Radium 226 precision	4.32E-03	±				E903.0	07/31/02 17:39 / rs

Lab ID: C02070297-002
Client Sample ID: Southwest Area
Matrix: VEGETATION

Collection Date: 07/07/02 14:15
DateReceived: 07/10/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Lead 210	7.04E-02	pCi/g		1.0E-05		NERHL-65-4	07/26/02 17:04 / ph
Lead 210 precision	4.11E-03	±				NERHL-65-4	07/26/02 17:04 / ph
Radium 226	4.02E-02	pCi/g		7.6E-07		E903.0	08/01/02 10:17 / rs
um 226 precision	2.34E-03	±				E903.0	08/01/02 10:17 / rs

Lab ID: C02070297-003
Client Sample ID: Northeast Area
Matrix: VEGETATION

Collection Date: 07/08/02 07:30
DateReceived: 07/10/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Lead 210	5.31E-02	pCi/g		1.0E-05		NERHL-65-4	07/26/02 17:04 / ph
Lead 210 precision	3.90E-03	±				NERHL-65-4	07/26/02 17:04 / ph
Radium 226	5.55E-02	pCi/g		7.6E-07		E903.0	08/01/02 10:17 / rs
Radium 226 precision	2.81E-03	±				E903.0	08/01/02 10:17 / rs

Entered into
wmveg.xls
9/16/02
KT

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACKING NO. PAGE NO.
70297R00001

Energy Laboratories Inc.

Sample Receipt Checklist

Client Name: INTRNTNL-URNM-(S)-CRP

Date and Time Received: 07/10/2002 10:00:00

Work Order Number: C02070297

Received by: sh

Checklist completed by: Signature | Date 7/10/02

Reviewed by: Initials | Date

Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
iner/Temp Blank temperature in compliance?	Yes ☑	No ☐	NA °C Vegetation
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Adjusted? Checked by:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted: Date contacted: Person contacted:

Contacted by: Regarding:

Comments:

Corrective Action:

TRACKING NO. PAGE NO.

70297R00003

ENERGY LABORATORIES

ANALYTICAL SUMMARY REPORT

ust 20, 2002

David Turk
International Uranium (USA) Corp
6425 S Hwy 191
PO Box 809
Blanding, UT 84511

Workorder No.: C02070297

Project Name: Late Spring Vegetation

Energy Laboratories Inc. received the following 3 samples from International Uranium (USA) Corp on 7/10/2002 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C02070297-001	Northwest Area	07/07/02 13:30	07/10/02	Vegetation	Digestion, Total Metals Lead 210 Radium 226
C02070297-002	Southwest Area	07/07/02 14:15	07/10/02	Vegetation	Same As Above
C02070297-003	Northeast Area	07/08/02 7:30	07/10/02	Vegetation	Same As Above

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative or Report.

If you have any questions regarding these tests results, please call

Report Approved By: R. A. Garling
ROGER GARLING
LABORATORY SUPERVISOR

TRACKING NO. PAGE NO.
70297R00004

ENERGY LABORATORIES

Date: *20-Aug-02*

CLIENT: International Uranium (USA) Corp
Project: Late Spring Vegetation
Sample Delivery Group: C02070297

CASE NARRATIVE

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL REPORT

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by NELAC. Some client specific reporting requirements may not require NELAC reporting protocol.

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

The total number of pages of this report are indicated by the last four digits of the tracking number located in the lower right corner.

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70297R00005

ENVIRONMENTAL AIR MONITORING RESULTS FOR THE PERIOD OF JULY 1, 2002 THROUGH DECEMBER 31, 2002

INTERNATIONAL URANIUM CORPORATION
WHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
Location: BHV-1

Current Quarter	1st	2nd	3rd	4th
% time operated	96.7%	99.7%	99.8%	99.8%
Air Volume, SCF x 1e6	4.66	4.80	4.81	4.81

	URANIUM NAT			THORIUM- 230				RADIUM- 226				LEAD -210			
PERIOD ENDING	GROSS CONC. µCi/cc	LLD (1E-16)	% MPC*	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC*	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC*	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC*
28-Sep-81	2.35E-15	5E-17	4.70E-02	7.82E-16	2.75E-16	1E-16	2.61E-01	1.06E-15	1.24E-16	1E-16	5.30E-02	2.57E-14	1.52E-15	2E-15	3.21E-01
14-Dec-81	1.56E-15	5E-17	3.12E-02	1.49E-15	2.10E-16	1E-16	4.97E-01	1.93E-15	3.34E-16	1E-16	9.65E-02	2.64E-14	2.28E-15	2E-15	3.30E-01
29-Mar-82	2.16E-15	9E-16	4.32E-02	2.93E-15	1.15E-15	3E-15	9.77E-01	1.16E-15	5.78E-16	4E-15	5.80E-02	2.09E-14	2.76E-15	2E-14	2.61E-01
30-Jun-82	4.69E-15	1E-16	9.38E-02	3.46E-15	3.28E-16	1E-16	1.15E+00	2.38E-15	4.77E-16	5E-16	1.19E-01	2.14E-14	3.70E-15	5E-15	2.68E-01
27-Sep-82	4.45E-15	1E-16	8.90E-02	3.29E-15	4.76E-16	1E-16	1.10E+00	3.23E-15	4.02E-16	1E-16	1.62E-01	1.99E-14	3.60E-15	2E-15	2.49E-01
3-Jan-83	4.39E-15	5E-17	8.78E-02	5.91E-16	1.34E-16	7E-17	1.97E-01	9.14E-16	1.03E-16	6E-17	4.57E-02	4.87E-14	2.70E-15	2E-15	6.09E-01
4-Apr-83	7.51E-16	5E-17	1.50E-02	2.13E-16	3.05E-17	2E-17	7.10E-02	3.20E-16	7.63E-17	5E-17	1.60E-02	1.88E-14	1.00E-15	9E-16	2.35E-01
30-Jun-83	2.68E-16	5E-17	5.36E-03	6.92E-16	1.32E-16	9E-17	2.31E-01	7.92E-16	1.32E-16	1E-16	3.96E-02	2.00E-14	2.00E-15	1E-15	2.50E-01
3-Oct-83	Sample Lost														
3-Jan-84	2.87E-15	1E-16	5.74E-02	1.14E-16	4.98E-17	8E-17	3.80E-02	1.79E-16	7.69E-17	1E-16	8.95E-03	1.06E-14	1.99E-15	2E-15	1.33E-01
2-Apr-84	1.59E-15	5E-17	3.18E-02	3.40E-16	1.01E-16	3E-17	1.13E-01	3.71E-16	7.80E-17	7E-17	1.86E-02	3.34E-14	1.69E-15	1E-15	4.18E-01
2-Jul-84	3.10E-15	6E-17	6.20E-02	1.00E-15	3.59E-16	3E-16	3.33E-01	2.09E-15	2.29E-16	1E-16	1.05E-01	1.88E-14	1.10E-15	9E-16	2.35E-01
1-Oct-84	6.42E-16	5E-17	1.28E-02	1.39E-16	1.17E-16	7E-17	4.63E-02	1.94E-16	1.11E-16	9E-17	9.70E-03	1.85E-14	1.39E-15	1E-15	2.31E-01
2-Jan-85	5.06E-16	5E-16	1.01E-02	4.56E-16	2.26E-16	2E-16	1.52E-01	3.49E-16	1.32E-16	1E-16	1.75E-02	3.03E-14	1.17E-15	7E-16	3.79E-01
1-Apr-85	0.00E+00	5E-17	0.00E+00	1.23E-15	2.52E-16	4E-17	4.10E-01	4.88E-16	1.09E-16	9E-17	2.44E-02	8.06E-15	8.99E-16	8E-16	1.01E-01
1-Jul-85	7.17E-16	5E-17	1.43E-02	0.00E+00	4.76E-14	1E-16	0.00E+00	1.05E-15	1.50E-16	7E-17	5.25E-02	2.15E-14	1.32E-15	8E-18	2.69E-01
30-Sep-85	6.13E-16	5E-16	1.23E-02	1.18E-16	1.18E-16	1E-16	3.95E-02	3.71E-16	8.56E-17	7E-17	1.85E-02	3.64E-15	6.61E-16	9E-16	4.55E-02
2-Jan-86	3.42E-15	9E-16	6.84E-02	4.74E-16	1.32E-16	2E-16	1.58E-01	1.22E-16	2.15E-15	2E-16	6.11E-03	5.00E-16	3.22E-16	2E-15	6.25E-03
1-Apr-86	3.98E-15	2E-18	7.96E-02	9.74E-16	2.05E-16	5E-18	3.25E-01	1.50E-15	2.07E-16	4E-18	7.51E-02	1.41E-14	4.06E-16	1E-16	1.76E-01
30-Jun-86	5.51E-17	1E-17	1.10E-03	3.52E-16	3.13E-17	2E-18	1.17E-01	1.37E-15	3.01E-17	4E-18	6.87E-02	1.23E-14	6.01E-16	5E-16	1.54E-01
27-Oct-86	1.99E-15	2E-18	3.98E-02	3.06E-16	8.00E-17	3E-18	1.02E-01	1.25E-15	1.00E-16	2E-18	6.25E-02	1.08E-14	2.00E-16	4E-18	1.35E-01
15-Dec-86	1.67E-15	3E-18	3.34E-02	1.16E-16	4.00E-17	2E-17	3.87E-02	5.98E-16	1.00E-16	4E-17	2.99E-02	1.37E-14	2.00E-16	3E-17	1.71E-01
16-Mar-87	2.33E-15	3E-18	4.66E-02	4.30E-16	9.00E-17	6E-18	1.43E-01	1.92E-16	5.00E-17	5E-18	9.60E-03	5.59E-14	1.00E-15	8E-18	6.99E-01
11-May-87	2.36E-15	5E-18	4.72E-02	7.69E-16	1.60E-16	5E-18	2.56E-01	8.76E-16	1.00E-16	5E-18	4.38E-02	1.45E-14	3.00E-16	3E-17	1.81E-01
9-Sep-87	2.27E-15	1E-19	4.54E-02	2.44E-15	2.00E-18	6E-18	8.13E-01	8.51E-16	1.40E-16	4E-18	4.26E-02	3.14E-14	5.00E-16	8E-18	3.93E-01
2-Nov-87	2.75E-15	1E-17	5.50E-02	2.46E-15	3.00E-16	1E-17	8.20E-01	1.34E-15	2.00E-16	1E-17	6.70E-02	2.79E-14	1.00E-15	5E-17	3.49E-01
16-Feb-88	1.07E-15	5E-18	2.14E-02	1.47E-16	5.00E-17	2E-17	4.90E-02	4.44E-16	5.00E-17	3E-17	2.22E-02	4.01E-14	2.00E-16	5E-17	5.01E-01
18-May-88	1.98E-15	3E-18	3.96E-02	1.25E-15	1.00E-16	2E-17	4.17E-01	6.40E-16	7.00E-17	1E-17	3.20E-02	1.07E-14	1.00E-16	3E-17	1.34E-01
15-Aug-88	2.06E-15	3E-18	4.12E-02	3.41E-15	2.00E-16	1E-17	1.14E+00	5.08E-16	6.00E-17	2E-17	2.54E-02	1.62E-14	3.00E-16	2E-17	2.03E-01
14-Nov-88	3.94E-15	3E-18	7.88E-02	2.12E-15	1.00E-16	1E-17	7.07E-01	1.01E-15	5.00E-17	1E-17	5.05E-02	2.47E-14	1.00E-16	3E-17	3.09E-01
13-Feb-89	1.99E-15	4E-17	3.98E-02	5.73E-16	7.88E-17	1E-16	1.91E-01	5.99E-16	3.49E-17	2E-16	3.00E-02	3.23E-14	2.38E-16	5E-18	4.04E-01
15-May-89	1.70E-15	7E-18	3.40E-02	6.32E-16	7.00E-17	7E-18	2.11E-01	5.86E-16	5.00E-17	7E-18	2.93E-02	6.16E-15	1.00E-16	3E-17	7.70E-02
14-Aug-89	2.31E-15	2E-18	4.62E-02	2.31E-16	3.00E-17	8E-18	7.70E-02	1.77E-16	5.00E-17	8E-18	8.85E-03	7.65E-15	1.00E-16	4E-17	9.56E-02
13-Nov-89	4.72E-15	2E-17	9.44E-02	1.71E-15	2.00E-16	3E-18	5.70E-01	1.52E-15	2.00E-16	8E-18	7.61E-02	1.89E-14	3.00E-16	2E-17	2.37E-01
12-Feb-90	3.44E-16	3E-18	6.88E-03	8.39E-16	1.00E-16	6E-18	2.80E-01	8.31E-16	8.00E-17	2E-17	4.16E-02	2.57E-14	3.00E-16	5E-17	3.21E-01
14-May-90	3.03E-15	1E-16	6.06E-02	1.47E-15	2.00E-16	1E-16	4.90E-01	1.04E-15	1.00E-15	1E-16	5.20E-02	1.79E-14	3.00E-16	2E-16	2.24E-01
13-Aug-90	1.64E-15	1E-16	3.28E-02	1.49E-15	7.00E-17	1E-16	4.97E-01	3.34E-16	5.00E-17	1E-16	1.67E-02	8.27E-15	2.00E-16	2E-16	1.03E-01
12-Nov-90	1.48E-15	1E-16	2.96E-02	7.50E-16	1.10E-16	1E-16	2.50E-01	5.80E-16	7.00E-17	1E-16	2.90E-02	2.16E-14	4.00E-16	2E-16	2.70E-01
11-Feb-91	1.90E-16	1E-16	3.80E-03	3.48E-17	2.10E-17	1E-16	1.16E-02	7.91E-17	2.30E-17	1E-16	3.96E-03	3.79E-14	1.00E-15	2E-16	4.74E-01
13-May-91	3.42E-16	1E-16	6.84E-03	1.34E-15	1.00E-16	1E-16	4.47E-01	7.39E-16	9.00E-17	1E-16	3.70E-02	1.46E-14	1.00E-15	2E-15	1.83E-01
[illegible]-91	2.77E-16	1E-16	5.54E-03	4.17E-17	8.00E-18	1E-16	1.39E-02	1.45E-16	7.00E-17	1E-16	7.25E-03	1.80E-14	3.00E-16	2E-15	2.25E-01
91	6.65E-17	1E-16	1.33E-03	9.13E-17	3.00E-17	2E-17	3.04E-02	2.77E-17	2.00E-17	2E-17	1.39E-03	1.06E-14	2.00E-16	1E-16	1.33E-01
/2	1.94E-16	1E-16	3.88E-03	4.28E-17	3.00E-17	2E-17	1.43E-02	4.08E-17	2.20E-17	2E-17	2.04E-03	3.51E-14	6.00E-17	1E-16	4.39E-01
-92	2.54E-16	1E-16	5.08E-03	6.49E-16	5.00E-17	2E-19	2.16E-01	6.66E-17	4.00E-17	2E-19	3.43E-03	1.38E-14	2.00E-16	1E-18	1.73E-01
10-Aug-92	1.73E-16	2E-18	3.46E-03	1.55E-16	4.00E-17	4E-18	5.17E-02	1.20E-16	6.00E-17	2E-18	6.00E-03	1.53E-14	2.00E-16	2E-17	1.91E-01
09-Nov-92	1.56E-16	3E-18	3.12E-03	3.19E-17	2.10E-17	4E-18	1.06E-02	4.90E-18	2.20E-17	3E-18	2.45E-04	1.86E-14	2.00E-16	2E-17	2.33E-01
09-Feb-93	2.10E-16	1E-18	4.20E-03	0.00E+00	4.60E-17	4E-18	0.00E+00	3.89E-17	7.30E-17	3E-18	1.95E-03	2.52E-14	4.00E-16	2E-17	3.15E-01
10-May-93	0.00E+00	3E-18	0.00E+00	4.11E-17	3.60E-17	4E-18	1.37E-02	6.43E-17	4.00E-17	3E-18	3.22E-03	1.26E-14	2.00E-16	2E-17	1.58E-01
10-Aug-93	2.30E-16	2E-18	4.60E-03	6.00E-17	5.00E-17	4E-18	2.00E-02	6.43E-17	8.10E-17	3E-18	3.22E-03	1.60E-14	2.00E-18	2E-17	2.00E-01
08-Nov-93	0.00E+00	2E-18	0.00E+00	0.00E+00	5.60E-17	4E-18	0.00E+00	0.00E+00	1.00E-16	3E-18	0.00E+00	1.57E-14	3.00E-16	2E-17	1.96E-01
07-Feb-94	1.82E-16	3E-21	3.03E-01	5.00E-18	6.00E-17	4E-18	1.67E-02	4.30E-17	1.60E-16	3E-18	4.78E-03	2.59E-14	5.00E-16	2E-17	4.32E+00
09-May-94	3.60E-16	2E-17	6.00E-01	2.70E-16	1.10E-16	4E-17	9.00E-01	2.87E-16	1.00E-16	3E-17	3.19E-02	1.60E-14	3.00E-16	2E-16	2.67E+00
09-Aug-94	4.04E-16	1E-16	6.73E-01	2.70E-16	8.71E-17	1E-16	9.00E-01	2.94E-16	2.90E-17	1E-16	3.27E-02	2.00E-15	1.90E-16	2E-15	3.33E-01
07-Nov-94	9.18E-17	1E-16	1.53E-01	3.60E-16	4.42E-17	1E-16	1.20E+00	2.91E-16	2.45E-17	1E-16	3.23E-02	2.00E-15	7.61E-17	2E-15	3.33E-01
07-Feb-95	1.77E-16	1E-16	2.95E-01	9.70E-17	1.00E-16	1E-16	3.23E-01	9.70E-17	1.00E-16	1E-16	1.08E-02	8.60E-15	3.76E-16	1E-16	1.43E+00
09-May-95	9.40E-17	1E-22	1.57E-01	5.36E-16	4.39E-17	1E-16	1.79E+00	1.60E-15	7.17E-17	1E-16	1.78E-01	3.84E-15	2.05E-16	1E-16	6.40E-01
09-Aug-95	2.70E-16	1E-16	4.50E-01	1.60E-16	1.50E-17	1E-16	5.33E-01	2.76E-16	4.68E-17	1E-16	3.07E-02	3.76E-15	2.68E-16	2E-15	6.27E-01
11-Nov-95	4.80E-15	1E-16	8.00E+00	6.41E-16	5.75E-17	2E-16	2.14E+00	8.93E-16	4.24E-16	2E-16	9.92E-02	5.20E-15	2.40E-16	1E-15	8.67E-01
05-Feb-96	5.34E-15	1E-16	8.90E+00	2.30E-15	1.30E-16	1E-16	7.67E+00	1.30E-15	7.80E-17	1E-16	1.44E-01	4.20E-15	3.04E-16	1E-16	7.00E-01
06-May-96	5.11E-16	1E-16	8.52E-01	3.06E-16	2.90E-17	1E-16	1.02E+00	1.40E-16	9.67E-18	1E-16	1.56E-02	7.03E-15	5.54E-16	1E-16	1.17E+00
05-Aug-96	5.99E-18	1E-18	9.98E-01	1.55E-15	7.65E-17	1E-16	5.17E+00	2.03E-16	2.63E-17	1E-16	2.26E-02	5.94E-15	3.05E-16	1E-16	9.90E-01
06-Nov-96	3.38E-16	1E-16	5.63E-01	5.45E-16	4.65E-17	1E-16	1.82E+00	1.00E-16	NA	1E-16	1.11E-02	1.22E-14	4.53E-16	1E-16	2.03E+00
06-Feb-97	1.00E-16	1E-16	1.67E-01	1.25E-16	2.47E-17	1E-16	4.17E-01	1.28E-16	1.54E-17	1E-16	1.42E-02	5.68E-15	2.85E-16	1E-16	9.47E-01
05-May-97	1.09E-16	1E-16	1.82E-01	1.00E-16	NA	1E-16	3.33E-01	1.00E-16	NA	1E-16	1.11E-02	4.39E-15	2.96E-16	1E-16	7.32E-01
11-Aug-97	2.88E-16	1E-16	4.80E-01	3.83E-16	4.14E-17	1E-16	1.28E+00	1.82E-16	1.49E-17	1E-16	2.02E-02	5.29E-15	2.84E-16	1E-16	8.82E-01
05-Jan-98	3.24E-16	1E-16	5.40E-01	3.47E-16	N/A	1E-16	1.16E+00	1.19E-16	N/A	1E-16	1.33E-02	4.73E-15	N/A	1E-16	7.88E-01
28-Apr-98	4.75E-16	1E-16	7.92E-01	6.73E-16	3.18E-17	1E-16	2.24E+00	5.69E-16	4.08E-17	1E-16	6.32E-02	5.94E-15	2.92E-16	1E-16	9.90E-01
31-Jul-98	8.84E-16	1E-16	9.82E-01	1.93E-15	N/A	1E-16	6.43E+00	1.43E-15	6.65E-17	1E-16	1.59E-01	5.22E-15	3.33E-16	1E-16	8.70E-01
28-Sep-98	2.81E-16	1E-16	3.12E-01	2.89E-16	2.57E-17	1E-16	9.64E-01	1.80E-16	9.07E-18	1E-16	2.00E-02	4.64E-15	2.24E-16	1E-16	7.73E-01
28-Dec-98	8.08E-16	1E-16	8.97E-01	4.93E-16	2.42E-17	1E-16	1.64E+00	5.01E-16	3.63E-17	1E-16	5.57E-02	1.06E-14	2.66E-16	1E-16	1.76E+00
29-Mar-99	2.06E-16	1E-16	2.29E-01	2.06E-16	1.68E-17	1E-16	6.86E-01	1.42E-16	7.62E-18	1E-16	1.58E-02	6.69E-15	2.99E-16	1E-16	1.12E+00
03-Jul-99	5.31E-16	1E-16	5.90E-01	2.47E-16	1.68E-17	1E-16	8.24E-01	2.23E-16	2.29E-17	1E-16	2.48E-02	6.44E-15	3.06E-16	1E-16	1.07E+00
27-Sep-99	8.98E-16	1E-16	9.97E-01	3.90E-16	2.74E-17	1E-16	1.30E+00	2.96E-16	2.90E-17	1E-16	3.29E-02	7.29E-15	3.19E-16	1E-16	1.22E+00
28-Dec-99	1.48E-15	1E-16	1.64E+00	6.00E-16	5.18E-17	1E-16	2.00E+00	5.57E-16	4.57E-17	1E-16	6.19E-02	6.19E-15	3.09E-16	1E-16	1.03E+00
27-Mar-00	<1.00E-16	1E-16	<1.11E-01	1.06E-16	1.12E-17	1E-16	3.55E-01	<1.00E-16	NA	1E-16	1.11E-02	6.23E-15	2.90E-16	1E-16	1.04E+00
26-Jun-00	3.47E-16	1E-16	5.78E-01	3.46E-16	3.53E-17	1E-16	1.15E+00	3.62E-16	3.99E-17	1E-16	4.02E-02	4.50E-15	3.53E-17	1E-16	7.50E-01
26-Sep-00	2.51E-16	1E-16	2.79E-01	1.78E-16	8.40E-18	1E-16	5.93E-01	3.25E-16	8.40E-18	1E-16	3.61E-02	8.55E-15	2.06E-16	1E-16	1.43E+00
26-Dec-00	<1.00E-16	1E-16	0.00E+00	1.42E-16	9.80E-18	1E-16	4.73E-01	1.31E-16	4.20E-18	1E-16	1.46E-02	7.77E-15	2.28E-16	1E-16	1.30E+00
26-Mar-01	3.10E-16	1E-16	3.45E-01	<1.00E-15		1E-16	<3.33E-00	<1.00E-15		1E-16	<1.11E-0	7.19E-15	3.77E-16	1E-16	1.20E+00
29-Jul-01	1.52E-16	1E-16	1.69E-01	1.44E-16	7.16E-18	1E-16	4.79E-01	1.77E-16	N/A	1E-16	1.97E-02	7.21E-15	1.27E-16	1E-16	1.20E+00
24-Sep-01	1.03E-16	1E-16	1.15E-01	<1.00E-16	NA	1E-16	<3.33E-01	<1.00E-16	NA	1E-16	<1.11E-02	8.09E-15	1.68E-16	1E-16	1.35E+00
31-Dec-01	<1.00E-16	1E-16	<1.11E-01	<1.00E-16	NA	1E-16	<3.33E-01	<1.00E-16	NA	1E-16	<1.11E-02	1.39E-15	1.59E-16	1E-16	2.32E-01
01-Apr-02	2.05E-16	1E-16	2.28E-01	2.44E-16	3.03E-17	1E-16	8.13E-01	2.29E-16	2.45E-17	1E-16	2.55E-02	8.15E-15	1.64E-16	1E-16	1.36E+00
01-Jul-02	3.55E-16	1E-16	3.94E-01	4.85E-16	3.75E-17	1E-16	1.62E+00	1.06E-16	-2.98E-18	1E-16	1.17E-02	7.65E-15	1.79E-16	1E-16	1.26E+00
30-Sep-02	1.17E-16	1E-16	1.30E-01	1.61E-16	1.15E-17	1E-16	5.37E-01	<1.00e-16	N/A	1E-16	<0.0111	3.68E-15	9.52E-17	1E-16	6.13E-01
30-Dec-02	<1.00E-16	1E-16	<1.11E-01	1.03E-16	8.66E-18	1E-16	3.43E-01	<1.00e-16	N/A	1E-16	<0.0111	9.46E-15	1.69E-16	1E-16	1.58E+00

*1/1/94 Derived air concentrations were implemented as per 10 CFR 20

INTERNATIONAL URANIUM CORPORATION
WHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
LOCATION: BHV-2

Current Quarter	1st	2nd	3rd	4th
% time operated	100.2%	96.6%	99.8%	99.9%
Air Volume, SCF x 1e6	4.83	4.66	4.81	4.82

	URANIUM NAT.			THORIUM- 230				RADIUM- 226				LEAD -210			
...OD ...UING	GROSS CONC. µCi/cc	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC
26-Sep-81	1.39E-15	1E-16	2.78E-02	3.69E-16	2.00E-16	1E-16	1.23E-01	5.92E-16	1.35E-16	1E-16	2.96E-02	1.67E-14	1.21E-15	2E-15	2.09E-01
14-Dec-81	4.62E-16	1E-16	9.24E-03	8.03E-16	3.02E-16	1E-16	2.68E-01	3.62E-16	1.72E-16	1E-16	1.81E-02	1.33E-14	2.28E-15	2E-15	1.66E-01
29-Mar-82	7.07E-16	9E-16	1.41E-02	1.10E-15	6.49E-16	3E-15	3.67E-01	7.27E-16	3.96E-16	4E-15	3.64E-02	1.52E-14	3.63E-15	2E-14	1.90E-01
30-Jun-82	8.84E-16	7E-17	1.77E-02	7.73E-16	2.39E-16	8E-17	2.58E-01	4.78E-16	1.69E-16	3E-16	2.39E-02	1.98E-14	1.79E-15	2E-15	2.48E-01
27-Sep-82	1.23E-15	1E-16	2.46E-02	3.60E-16	1.35E-16	1E-16	1.20E-01	8.73E-16	2.71E-16	1E-16	4.37E-02	2.35E-14	5.43E-15	2E-15	2.94E-01
3-Jan-83	2.64E-15	5E-17	5.28E-02	2.55E-16	1.03E-16	5E-17	8.50E-02	1.98E-16	5.66E-17	5E-17	9.90E-03	2.85E-14	2.50E-15	2E-15	3.56E-01
4-Apr-83	2.14E-16	5E-17	4.28E-03	1.02E-16	3.96E-17	5E-17	3.40E-02	1.57E-16	7.63E-17	5E-17	7.85E-03	2.48E-14	1.19E-15	8E-16	3.10E-01
30-Jun-83	2.85E-16	5E-17	5.70E-03	2.06E-16	5.05E-17	8E-17	6.87E-02	2.24E-16	8.68E-17	1E-16	1.12E-02	1.79E-14	9.94E-16	8E-16	2.24E-01
3-Oct-83	2.70E-16	5E-17	5.40E-03	3.36E-16	6.49E-17	4E-17	1.12E-01	4.37E-16	9.81E-17	5E-17	2.19E-02	1.78E-14	1.09E-15	4E-16	2.23E-01
3-Jan-84	2.78E-15	1E-16	5.56E-02	1.20E-16	1.11E-16	1E-16	4.00E-02	6.64E-17	4.52E-16	6E-17	3.32E-03	9.14E-15	1.46E-15	2E-15	1.14E-01
2-Apr-84	4.28E-16	5E-17	8.56E-03	1.75E-16	5.18E-17	5E-17	5.83E-02	4.57E-17	5.03E-17	8E-17	2.29E-03	3.55E-14	1.79E-15	2E-15	4.44E-01
2-Jul-84	2.78E-15	5E-17	5.56E-02	8.12E-16	3.35E-16	0E+00	2.71E-01	1.98E-16	1.00E-16	1E-16	9.90E-03	1.68E-14	1.20E-01	1E-15	2.10E-01
1-Oct-84	2.69E-16	5E-17	5.38E-03	2.66E-17	8.02E-17	1E-16	8.87E-03	0.00E+00	1.17E-16	1E-16	0.00E+00	1.77E-14	1.22E-15	9E-16	2.21E-01
2-Jan-85	2.15E-16	5E-16	4.30E-03	7.55E-16	2.03E-16	9E-17	2.52E-01	2.87E-16	1.14E-16	1E-16	1.44E-02	3.19E-14	1.55E+00	1E-15	3.99E-01
1-Apr-85	0.00E+00	5E-17	0.00E+00	1.67E-16	1.75E-16	3E-17	5.57E-02	6.75E-17	7.69E-17	8E-17	3.38E-03	7.56E-15	8.83E-16	8E-16	9.45E-02
1-Jul-85	3.70E-17	5E-17	7.40E-04	9.00E-16	4.76E-14	3E-16	3.00E-01	4.90E-17	1.05E-16	9E-17	2.45E-03	1.31E-14	1.32E-15	1E-15	1.84E-01
30-Sep-85	9.32E-17	5E-16	1.86E-03	2.18E-16	4.63E-17	3E-16	7.26E-02	3.71E-16	4.64E-17	7E-17	1.86E-02	3.64E-15	2.85E-16	2E-15	4.55E-02
2-Jan-86	1.56E-15	1E-15	3.12E-02	2.16E-16	1.12E-15	7E-16	7.20E-02	2.15E-17	2.31E-16	2E-16	1.08E-03	3.04E-16	1.71E-15	2E-15	3.80E-03
1-Apr-86	1.31E-15	2E-18	2.61E-02	1.50E-16	7.18E-17	5E-18	5.00E-02	3.71E-16	8.45E-17	4E-18	1.85E-02	2.90E-15	2.10E-16	9E-17	3.63E-02
30-Jun-86	2.23E-16	1E-17	4.47E-03	1.32E-16	4.32E-17	2E-17	4.39E-02	7.09E-17	8.61E-18	4E-18	3.55E-03	2.53E-14	2.60E-15	3E-15	3.16E-01
27-Oct-86	6.41E-16	1E-18	1.28E-02	1.74E-16	4.00E-17	2E-18	5.80E-02	3.67E-16	1.00E-16	1E-18	1.84E-02	1.04E-14	2.00E-16	3E-18	1.30E-01
15-Dec-86	3.56E-16	3E-18	7.12E-03	0.00E+00	2.00E-17	2E-17	0.00E+00	1.05E-16	5.00E-17	3E-17	5.25E-03	7.81E-15	1.00E-16	3E-17	9.76E-02
16-Mar-87	5.31E-16	3E-18	1.06E-02	1.30E-16	4.00E-17	5E-18	4.33E-02	7.74E-17	3.00E-17	4E-18	3.87E-03	3.80E-14	1.00E-15	6E-18	4.75E-01
11-May-87	4.06E-16	4E-18	8.12E-03	6.63E-17	7.00E-17	4E-18	2.21E-02	1.34E-16	4.00E-17	4E-18	6.70E-03	1.10E-14	3.00E-16	2E-17	1.38E-01
9-Sep-87	2.74E-16	8E-18	5.48E-03	2.38E-16	5.00E-17	6E-17	7.93E-02	1.38E-16	6.00E-17	2E-17	6.90E-03	1.04E-14	3.00E-16	1E-16	1.30E-01
2-Nov-87	3.73E-16	1E-17	7.46E-03	3.11E-16	8.00E-17	6E-18	1.04E-01	1.83E-16	7.00E-17	6E-17	9.15E-03	1.17E-14	3.00E-16	3E-17	1.46E-01
16-Feb-88	2.78E-15	5E-18	5.56E-02	2.31E-17	5.00E-17	2E-17	7.70E-03	1.20E-16	3.00E-17	3E-17	6.00E-03	3.55E-14	2.00E-16	5E-17	4.44E-01
18-May-88	4.63E-16	3E-18	9.26E-03	1.49E-16	5.00E-17	2E-17	4.97E-02	2.30E-16	6.00E-17	2E-17	1.15E-02	1.18E-14	2.00E-16	4E-17	1.48E-01
15-Aug-88	8.06E-16	3E-18	1.61E-02	8.69E-16	1.50E-16	1E-17	2.90E-01	1.80E-16	4.00E-17	2E-17	9.00E-03	1.42E-14	2.00E-16	2E-17	1.78E-01
14-Nov-88	4.34E-16	3E-18	8.68E-03	6.76E-16	6.00E-17	1E-17	2.25E-01	1.57E-16	3.00E-17	1E-17	7.85E-03	2.25E-14	2.00E-16	3E-17	2.81E-01
13-Feb-89	5.80E-16	4E-17	1.16E-02	2.85E-16	3.09E-17	4E-17	9.50E-02	1.55E-16	2.32E-17	2E-16	7.75E-03	2.80E-14	2.32E-16	5E-16	3.50E-01
15-May-89	5.06E-16	7E-18	1.01E-02	2.28E-16	7.00E-17	7E-18	7.60E-02	1.63E-16	3.00E-17	7E-18	8.15E-03	6.05E-15	1.00E-16	4E-17	7.56E-02
14-Aug-89	4.71E-16	2E-18	9.42E-03	9.60E-16	8.00E-17	8E-18	3.20E-01	1.26E-15	1.00E-16	8E-18	6.30E-02	6.65E-15	1.00E-16	4E-17	8.31E-02
13-Nov-89	1.14E-15	2E-17	2.27E-02	4.08E-16	6.00E-17	3E-18	1.36E-01	4.18E-16	6.00E-17	7E-18	2.09E-02	1.59E-14	3.00E-16	2E-17	1.99E-01
12-Feb-90	1.09E-15	4E-18	2.18E-02	3.25E-16	7.00E-17	7E-18	1.08E-01	3.74E-16	9.00E-17	3E-17	1.87E-02	1.98E-14	3.00E-16	5E-17	2.48E-01
14-May-90	9.32E-16	1E-16	1.86E-02	5.27E-16	1.00E-16	1E-16	1.76E-01	3.97E-16	1.00E-16	1E-16	1.99E-02	1.69E-14	3.00E-16	2E-18	2.11E-01
13-Aug-90	1.66E-16	1E-16	3.32E-03	5.49E-16	3.00E-17	1E-16	1.83E-01	4.75E-17	2.00E-17	1E-16	2.38E-03	1.27E-15	2.00E-16	2E-16	1.59E-02
12-Nov-90	6.05E-16	1E-16	1.21E-02	2.64E-16	6.00E-17	1E-16	8.80E-02	1.93E-16	4.00E-17	1E-16	9.65E-03	2.25E-14	3.00E-16	2E-16	2.81E-01
11-Feb-91	8.72E-17	1E-16	1.74E-03	7.00E-18	1.60E-17	1E-16	2.33E-03	3.33E-17	1.80E-17	1E-16	1.67E-03	3.49E-14	1.00E-15	2E-16	4.36E-01
13-May-91	1.16E-16	1E-16	2.32E-03	3.86E-16	9.00E-17	1E-16	1.29E-01	2.80E-16	7.00E-17	1E-16	1.40E-02	1.50E-14	1.00E-15	2E-15	1.88E-01
12-Aug-91	9.02E-17	1E-16	1.80E-03	6.82E-17	5.00E-17	1E-16	2.94E-02	7.65E-17	6.00E-17	1E-16	3.83E-03	1.58E-14	3.00E-16	2E-15	1.98E-01
...-Nov-91	4.81E-17	1E-16	9.62E-04	3.82E-17	2.00E-17	2E-17	1.27E-02	2.54E-17	2.00E-17	2E-17	1.27E-03	1.45E-14	4.00E-16	1E-16	1.81E-01
92	1.54E-16	1E-16	3.08E-03	6.82E-17	4.00E-17	2E-17	2.27E-02	1.40E-17	2.40E-17	2E-17	7.00E-04	3.41E-14	6.00E-17	1E-16	4.26E-01
92	2.38E-16	1E-16	4.76E-03	7.63E-17	4.00E-17	2E-19	2.54E-02	3.07E-17	3.00E-17	2E-19	1.54E-03	1.27E-14	2.00E-16	1E-18	1.59E-01
-92	1.01E-16	2E-18	2.02E-03	7.07E-17	2.60E-17	4E-18	2.36E-02	2.80E-17	4.20E-17	2E-18	1.40E-03	1.41E-14	2.00E-16	2E-17	1.76E-01
05-Nov-92	5.20E-17	3E-21	1.04E-03	3.65E-17	2.40E-17	4E-18	1.22E-02	1.78E-17	2.80E-17	3E-18	8.90E-04	1.71E-14	2.00E-16	2E-17	2.14E-01
09-Feb-93	2.39E-16	1E-22	4.78E-03	2.97E-17	6.30E-17	4E-18	9.90E-03	6.31E-17	5.00E-17	3E-18	3.16E-03	3.41E-14	5.00E-16	2E-17	4.26E-01
10-May-93	0.00E+00	3E-18	0.00E+00	7.11E-17	5.00E-17	4E-18	2.37E-02	3.19E-17	3.20E-17	3E-18	1.60E-03	1.34E-14	2.00E-16	2E-17	1.68E-01
10-Aug-93	1.90E-16	2E-18	3.80E-03	0.00E+00	3.70E-17	4E-18	0.00E+00	0.00E+00	8.10E-17	3E-18	0.00E+00	1.80E-14	4.00E-16	2E-17	2.25E-01
08-Nov-93	0.00E+00	2E-18	0.00E+00	0.00E+00	5.90E-17	4E-18	0.00E+00	0.00E+00	1.90E-16	3E-18	0.00E+00	1.49E-14	2.00E-16	2E-17	1.86E-01
07-Feb-94	2.23E-16	2E-18	3.72E-01	0.00E+00	6.00E-17	4E-18	0.00E+00	1.84E-16	2.00E-16	3E-18	2.04E-02	2.19E-14	5.00E-15	2E-16	3.65E+00
09-May-94	2.16E-16	2E-17	3.60E-01	7.20E-17	8.00E-17	4E-18	2.40E-01	9.89E-17	7.00E-17	3E-17	1.10E-02	1.37E-14	3.00E-16	2E-16	2.28E+00
09-Aug-94	9.29E-17	1E-16	1.55E-01	2.96E-16	2.23E-16	4E-18	9.87E-01	3.04E-16	3.04E-17	1E-16	3.38E-02	0.00E+00	2.14E-16	1E-16	0.00E+00
07-Nov-94	9.21E-17	1E-16	1.54E-01	2.35E-16	3.16E-17	4E-18	7.83E-01	1.00E-16	1.26E-17	1E-18	1.11E-02	0.00E+00	5.29E-17	1E-15	0.00E+00
07-Feb-95	1.18E-16	1E-16	1.97E-01	9.70E-17	1.00E-16	4E-18	3.23E-01	9.70E-17	1.00E-16	1E-16	1.08E-02	7.42E-15	3.59E-16	1E-15	1.24E+00
09-May-95	9.40E-17	1E-16	1.57E-01	1.20E-16	1.00E-16	4E-18	4.00E-01	3.50E-16	3.25E-17	1E-16	3.89E-02	3.90E-15	1.90E-17	1E-16	6.50E-01
09-Aug-95	8.90E-17	1E-16	1.48E-01	9.67E-17		1E-16	3.22E-01	1.35E-16	3.94E-17	1E-16	1.50E-02	2.38E-16	2.00E-15	2E-15	3.97E-02
11-Nov-95	2.83E-15	1E-16	4.72E+00	4.09E-16	3.45E-17	2E-16	1.36E+00	5.23E-16	7.34E-17	2E-16	5.81E-02	6.77E-15	6.35E-16	1E-15	1.13E+00
05-Feb-96	1.75E-15	1E-16	2.92E+00	8.66E-16	4.90E-17	1E-16	2.89E+00	4.86E-16	5.80E-17	1E-16	5.40E-02	3.50E-15	2.76E-16	1E-16	5.83E-01
06-May-96	1.40E-16	1E-16	2.33E-01	1.15E-16	1.90E-17	1E-16	3.83E-01	1.00E-16	NA	1E-16	1.11E-02	6.85E-15	5.44E-16	1E-16	1.14E+00
05-Aug-96	1.43E-16	1E-16	2.38E-01	2.78E-16	3.07E-17	1E-16	9.27E-01	1.00E-16	NA	1E-16	1.11E-02	5.83E-15	3.07E-16	1E-16	9.72E-01
06-Nov-96	1.45E-16	1E-16	2.42E-01	1.57E-16	2.97E-17	1E-16	5.23E-01	1.00E-16	NA	1E-16	1.11E-02	1.19E-14	4.51E-16	1E-16	1.98E+00
06-Feb-97	1.00E-16	1E-16	1.67E-01	1.00E-16	NA	1E-16	3.33E-01	1.00E-16	NA	1E-16	1.11E-02	5.84E-16	3.56E-17	1E-16	9.73E-02
05-May-97	1.00E-16	1E-16	1.67E-01	1.00E-16	NA	1E-16	3.33E-01	1.00E-16	NA	1E-16	1.11E-02	3.89E-15	2.87E-16	1E-16	6.48E-01
11-Aug-97	<1.0E-16	1E-16	0.00E+00	1.09E-16	2.29E-17	1E-16	3.63E-01	<1.0E-16	NA	1E-16	0.00E+00	5.69E-15	3.17E-16	1E-16	9.48E-01
05-Jan-98	2.55E-16	1E-16	4.25E-01	1.07E-16	NA	1E-16	3.57E-01	5.00E-17	NA	1E-16	5.56E-03	5.11E-15	N/A	1E-16	8.52E-01
26-Apr-98	1.20E-16	1E-16	2.00E-01	1.71E-16	1.23E-17	1E-16	5.70E-01	1.28E-16	7.68E-18	1E-16	1.42E-02	6.40E-15	3.04E-16	1E-16	1.07E+00
31-Jul-98	1.47E-16	1E-16	1.63E-01	4.24E-16	2.77E-17	1E-16	1.41E+00	3.39E-16	3.21E-16	1E-16	3.77E-02	4.80E-15	3.21E-16	1E-16	8.00E-01
28-Sep-98	<1.0E-16	1E-16	<1.11E-1	<1.0E-16	NA	1E-16	<3.33E-01	<1.0E-16	NA	1E-16	<1.11E-02	4.26E-15	2.14E-16	1E-16	7.11E-01
28-Dec-98	2.54E-16	1E-16	2.83E-01	2.15E-16	1.54E-17	1E-16	7.17E-01	1.38E-16	6.15E-18	1E-16	1.54E-02	6.88E-15	2.23E-16	1E-16	1.15E+00
29-Mar-99	1.07E-16	1E-16	1.19E-01	<1.0E-16	<1.0E-16	1E-16	<3.33E-01	<1.0E-16	<1.0E-16	1E-16	<1.11E-02	7.61E-15	3.00E-16	1E-16	1.27E+00
03-Jul-99	2.46E-16	1E-16	2.74E-01	<1.0E-16	<1.0E-16	1E-16	<3.33E-01	<1.0E-16	<1.0E-16	1E-16	<1.11E-02	6.95E-15	3.28E-16	1E-16	1.16E+00
27-Sep-99	2.81E-16	1E-16	3.12E-01	1.41E-16	1.37E-17	1E-16	4.70E-01	<1.0E-16	<1.0E-16	1E-16	<1.11E-02	7.35E-15	3.09E-16	1E-16	1.23E+00
28-Dec-99	5.20E-16	1E-16	5.78E-01	2.60E-16	3.05E-17	1E-16	8.68E-01	2.01E-18	2.44E-17	1E-18	2.33E-02	7.00E-15	3.26E-16	1E-16	1.17E+00
27-Mar-00	<1.0E-16	1E-16	<1.11 E-01	<1.0E-16	NA	1E-16	<3.33 E-01	<1.0E-16	NA	1E-16	<1.11 E-02	7.12E-15	3.05 E-16	1E-16	1.19 E+00
26-Jun-00	1.10E-16	1E-18	1.22E-01	<1.0E-16	1.87E-17	1E-16	<3.33 E-01	1.16E-18	1.42E-07	1E-16	1.29E-02	5.07E-15	2.76E-16	1E-16	8.45E-01
26-Sep-00	<1.00E-16	1E-16	0.00E+00	<1.0E-16	NA	1E-16	<3.33 E-01	<1.0E-16	NA	1E-16	<1.11E-02	5.31E-15	1.69E-16	1E-16	8.85E-01
26-Dec-00	1.26E-16	1E-16	1.40E-01	<1.0E-16	NA	1E-16	<3.33 E-01	<1.0E-16	NA	1E-16	<1.11E-02	9.45E-15	2.38E-16	1E-16	1.58E+00
26-Mar-01	<1.00E-16	1E-16	<1.11E-01	<1.00E-16	NA	1E-16	<3.33E-01	<1.0E-16	NA	1E-16	<1.11E-02	6.85E-15	3.72E-16	1E-16	1.16E+00
02-Jul-01	<1.00E-16	1E-16	<1.11E-01	<1.00E-16	NA	1E-16	<3.33E-01	<1.0E-16	NA	1E-16	<1.11E-02	6.56E-15	1.27E-16	1E-16	1.09E+00
24-Sep-01	<1.00E-16	1E-16	<1.11E-01	<1.00E-16	NA	1E-16	<3.33E-01	<1.0E-16	NA	1E-16	<1.11E-02	6.16E-15	1.50E-16	1E-16	1.03E+00
31-Dec-01	<1.00E-16	1E-16	<1.11E-01	<1.00E-16	NA	1E-16	<3.33E-01	<1.0E-16	NA	1E-16	<1.11E-02	2.20E-15	1.72E-16	1E-16	3.67E-01
01-Apr-02	<1.00E-16	1E-16	<1.11E-01	<1.00E-16	NA	1E-16	<3.33E-01	<1.0E-16	NA	1E-16	<1.11E-02	9.95E-15	1.74E-16	1E-16	1.66E+00
01-Jul-02	1.25E-16	1E-16	1.39E-01	1.43E-16	1.38E-17	1E-16	4.77E-01	<1.0E-16	NA	1E-16	<1.11E-02	8.25E-15	1.77E-16	1E-16	1.42E+00
30-Sep-02	<1.00E-16	1E-16	<1.11E-01	<1.00E-16	NA	1E-16	<3.33E-01	<1.0E-16	NA	1E-16	<1.11E-02	3.69E-15	8.97E-17	1E-16	6.15E-01
30-Dec-02	<1.00E-16	1E-16	<1.11E-01	<1.00E-16	NA	1E-16	<3.33E-01	<1.0E-16	NA	1E-16	<1.11E-02	6.91E-15	1.41E-16	1E-16	1.15E+00

*1/1/94 Derived air concentrations were implemented as per 10 CFR 20

INTERNATIONAL URANIUM CORPORATION
WHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
LOCATION: BHV-3

Current Quarter	1st	2nd	3rd	4th
% time operated				
Air Volume, SCF x 1e6				

	URANIUM NAT.			THORIUM- 230				RADIUM- 226				LEAD -210			
PERIOD ENDING	GROSS CONC. µCi/cc	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC
28-Sep-81	1.74E-15	1E-16	3.48E-02	9.02E-16	4.46E-16	1E-16	3.01E-01	2.87E-16	2.23E-16	1E-16	1.44E-02	1.54E-14	2.53E-15	2E-15	1.93E-01
14-Dec-81	1.59E-15	1E-16	3.18E-02	5.03E-16	3.09E-16	1E-16	1.68E-01	1.30E-16	1.38E-16	1E-16	6.50E-03	2.25E-14	2.13E-15	2E-15	2.81E-01
29-Mar-82	3.76E-16	9E-16	7.52E-03	5.25E-16	6.38E-16	3E-15	1.75E-01	4.08E-16	3.72E-16	4E-15	2.04E-02	1.96E-14	3.48E-15	2E-14	2.45E-01
30-Jun-82	3.83E-16	5E-17	7.66E-03	2.16E-16	2.24E-16	6E-17	7.20E-02	1.41E-15	1.03E-15	2E-16	7.05E-02	2.40E-14	2.10E-15	2E-15	3.00E-01
27-Sep-82	5.95E-16	1E-16	1.19E-02	1.44E-15	2.74E-16	1E-16	4.80E-01	5.36E-16	2.35E-16	1E-16	2.68E-02	1.43E-14	3.00E-15	2E-15	1.79E-01
3-Jan-83	2.05E-16	5E-17	4.10E-03	1.23E-16	3.11E-17	2E-17	4.10E-02	1.10E-16	5.52E-17	7E-17	5.50E-03	3.01E-14	2.10E-15	2E-15	3.76E-01
4-Apr-83	Lost In Lab			6.94E-17	2.31E-17	5E-17	2.31E-02	6.11E-17	5.95E-17	8E-17	3.06E-03	1.39E-14	1.00E-15	1E-15	1.74E-01
30-Jun-83	3.06E-16	1E-16	6.12E-03	9.59E-17	1.52E-16	2E-16	3.20E-02	2.08E-16	1.62E-16	2E-16	1.04E-02	1.70E-14	2.00E-15	2E-15	2.13E-01
3-Oct-83	1.91E-16	1E-16	3.82E-03	3.05E-16	4.98E-17	6E-18	1.02E-01	2.79E-16	5.73E-17	1E-17	1.40E-02	1.76E-14	4.83E-16	1E-16	2.20E-01
3-Jan-84	3.01E-16	1E-16	6.02E-03	9.51E-17	6.19E-17	1E-16	3.17E-02	0.00E+00	5.73E-17	1E-16	0.00E+00	9.17E-15	5.10E-16	5E-16	1.15E-01
2-Apr-84	8.22E-16	5E-17	1.64E-02	7.52E-16	1.72E-16	5E-17	2.51E-01	5.20E-17	4.89E-17	7E-17	2.60E-03	3.47E-14	1.70E-15	1E-15	4.34E-01
2-Jul-84	5.29E-16	5E-17	1.06E-02	6.18E-16	7.89E-16	8E-16	2.06E-01	1.40E-16	9.15E-17	1E-16	7.00E-03	1.32E-14	9.99E-16	1E-14	1.65E-01
1-Oct-84	1.74E-16	5E-17	3.48E-03	7.10E-17	6.16E-17	4E-17	2.37E-02	0.00E+00	9.15E-17	1E-16	0.00E+00	1.08E-14	1.22E-15	1E-15	1.35E-01
2-Jan-85	1.00E-17	5E-16	2.00E-04	7.10E-17	1.27E-16	7E-17	2.37E-02	7.80E-17	9.35E-17	7E-17	3.90E-03	2.73E-14	1.26E-15	8E-16	3.41E-01
1-Apr-85	0.00E+00	5E-17	0.00E+00	2.76E-16	2.02E-16	7E-17	9.20E-02	4.10E-17	6.82E-17	6E-17	2.05E-03	1.12E-14	9.33E-16	8E-16	1.40E-01
1-Jul-85	1.04E-16	5E-17	2.08E-03	0.00E+00	4.76E-14	4E-16	0.00E+00	0.00E+00	9.36E-17	6E-17	0.00E+00	1.64E-14	1.24E-15	8E-16	2.05E-01
30-Sep-85	0.00E+00	5E-16	0.00E+00	1.00E-15	1.31E-16	7E-17	3.34E-01	0.00E+00	4.66E-17	7E-17	0.00E+00	1.73E-14	1.01E-15	8E-16	2.16E-01
2-Jan-86	1.03E-15	1E-15	2.06E-02	3.17E-16	3.71E-15	4E-15	1.06E-01	1.25E-16	4.49E-16	3E-16	6.25E-03	1.21E-17	3.51E-15	4E-15	1.51E-04
1-Apr-86	8.04E-16	2E-18	1.61E-02	1.93E-17	6.94E-17	6E-18	6.42E-03	1.54E-16	8.33E-17	4E-18	7.71E-03	1.69E-14	4.07E-16	1E-16	2.12E-01
30-Jun-86	4.29E-16	2E-17	8.58E-03	1.77E-16	2.18E-17	1E-17	5.89E-02	2.83E-16	1.72E-17	5E-18	1.42E-02	1.97E-14	1.50E-15	2E-15	2.46E-01
27-Oct-86	6.45E-16	1E-18	1.29E-02	9.89E-17	4.00E-17	2E-18	3.30E-02	4.16E-15	1.00E-16	2E-18	2.08E-01	1.64E-14	2.00E-16	4E-18	2.05E-01
15-Dec-86	1.31E-16	3E-18	2.62E-03	0.00E+00	2.00E-17	2E-17	0.00E+00	4.16E-17	4.00E-17	3E-17	2.08E-03	4.60E-15	1.00E-16	3E-17	5.75E-02
16-Mar-87	2.01E-16	3E-18	4.02E-03	1.20E-16	4.00E-17	5E-18	4.00E-02	5.73E-17	3.00E-17	4E-18	2.87E-03	1.60E-14	1.00E-15	6E-18	2.00E-01
11-May-87	2.16E-16	4E-18	4.32E-03	1.96E-16	9.00E-17	4E-18	8.53E-02	7.38E-17	3.00E-17	4E-18	3.69E-03	1.59E-14	2.00E-16	2E-17	1.99E-01
9-Sep-87	2.41E-16	2E-17	4.82E-03	2.18E-16	1.50E-16	2E-16	7.27E-02	3.52E-17	1.10E-16	7E-17	1.76E-03	1.46E-14	1.00E-15	1E-16	1.83E-01
2-Nov-87	2.44E-16	4E-17	4.88E-03	2.32E-16	6.00E-17	4E-18	7.73E-02	2.37E-17	3.00E-17	4E-17	1.19E-03	2.48E-14	5.00E-16	2E-17	3.10E-01
16-Feb-88	8.08E-16	6E-18	1.62E-02	2.55E-16	6.00E-17	2E-17	8.50E-02	3.42E-16	5.00E-17	3E-17	1.71E-02	5.61E-14	3.00E-16	6E-17	7.01E-01
18-May-88	1.14E-16	3E-18	2.28E-03	4.14E-17	1.00E-16	1E-17	1.38E-02	0.00E+00	4.00E-17	1E-17	0.00E+00	1.20E-14	1.00E-16	4E-17	1.50E-01
15-Aug-88	2.08E-16	3E-18	4.16E-03	3.06E-16	8.00E-17	1E-17	1.02E-01	3.65E-17	3.10E-17	2E-17	1.83E-03	1.36E-14	2.00E-16	2E-17	1.70E-01
14-Nov-88	4.21E-16	3E-18	8.42E-03	2.93E-16	3.00E-17	1E-17	9.77E-02	1.09E-16	2.00E-17	1E-17	5.45E-03	2.48E-14	1.00E-16	3E-17	3.10E-01
13-Feb-89	4.45E-16	4E-17	8.90E-03	4.78E-17	1.65E-17	1E-16	1.59E-02	2.47E-17	1.65E-17	2E-17	1.24E-03	3.34E-14	3.29E-16	5E-16	4.18E-01
15-May-89	1.05E-16	1E-18	2.10E-03	0.00E+00	1.60E-17	7E-18	0.00E+00	2.45E-17	1.40E-17	7E-18	1.23E-03	6.56E-15	1.00E-16	3E-17	8.20E-02
14-Aug-89	1.31E-16	2E-18	2.62E-03	5.85E-17	2.10E-17	9E-18	1.95E-02	3.97E-17	3.60E-17	9E-18	1.99E-03	6.75E-15	1.00E-16	5E-17	8.44E-02
13-Nov-89	1.67E-16	2E-17	3.35E-03	3.87E-17	4.00E-17	3E-18	1.29E-02	8.03E-17	3.00E-17	8E-18	4.02E-03	1.69E-14	3.00E-16	2E-17	2.11E-01
12-Feb-90	4.43E-16	3E-18	8.86E-03	0.00E+00	4.00E-17	7E-18	0.00E+00	3.50E-17	4.00E-17	2E-17	1.75E-03	2.37E-14	3.00E-16	4E-17	2.96E-01
14-May-90	3.84E-16	1E-16	7.68E-03	2.54E-18	1.00E-16	1E-16	8.47E-02	1.02E-16	6.00E-17	1E-16	5.10E-03	1.68E-14	3.00E-16	2E-16	2.10E-01
13-Aug-90	7.27E-17	1E-16	1.45E-03	2.87E-16	2.00E-17	1E-16	9.57E-02	1.21E-17	2.00E-17	1E-16	6.05E-04	7.86E-15	2.00E-16	2E-16	9.83E-02
12-Nov-90	1.84E-16	1E-16	3.68E-03	1.34E-16	6.00E-17	1E-16	4.47E-02	8.53E-17	4.00E-17	1E-16	4.27E-03	2.01E-14	4.00E-16	2E-16	2.51E-01
11-Feb-91	4.66E-17	1E-16	9.32E-04	8.48E-16	8.00E-17	1E-16	2.83E-01	1.94E-17	1.60E-17	1E-16	9.70E-04	3.69E-14	1.00E-15	2E-16	4.61E-01
13-May-91	5.05E-17	1E-16	1.01E-03	7.40E-17	6.00E-17	1E-16	2.47E-02	7.00E-18	4.00E-17	1E-16	3.50E-04	1.50E-14	1.00E-15	2E-15	1.88E-01
[illegible] Aug-91	7.14E-17	1E-16	1.43E-03	6.22E-17	8.00E-17	1E-16	2.07E-02	7.95E-17	8.00E-17	1E-16	3.98E-03	1.77E-14	5.00E-16	2E-15	2.21E-01
[illegible]v-91	1.41E-17	1E-16	2.82E-04	2.19E-18	3.00E-16	2E-17	7.30E-04	2.75E-17	2.00E-17	2E-17	1.38E-03	1.18E-14	2.00E-16	1E-16	1.48E-01
[illegible]-92	8.12E-17	1E-16	1.62E-03	2.35E-17	3.80E-17	2E-17	7.83E-03	2.76E-18	1.30E-17	2E-17	1.38E-04	3.57E-14	6.00E-17	1E-16	4.46E-01
[illegible]y-92	9.18E-17	1E-16	1.84E-03	5.80E-17	2.00E-16	2E-19	1.93E-02	3.36E-17	3.00E-17	2E-19	1.68E-03	1.28E-14	2.00E-16	1E-18	1.60E-01
[illegible]-Aug-92	2.00E-18	2E-18	4.00E-05	4.19E-17	2.30E-17	4E-18	1.40E-02	2.00E-18	4.30E-17	2E-18	1.00E-04	1.59E-14	2.00E-16	2E-17	1.99E-01
09-Nov-92	4.00E-17	3E-21	8.00E-04	2.68E-17	1.80E-17	4E-18	8.93E-03	1.07E-17	2.10E-17	3E-18	5.35E-04	1.81E-14	2.00E-16	2E-17	2.26E-01
09-Feb-93	7.94E-17	1E-22	1.59E-03	0.00E+00	5.30E-17	4E-18	0.00E+00	1.09E-16	9.00E-17	3E-18	5.45E-03	2.69E-14	4.00E-16	2E-17	3.36E-01
10-May-93	1.60E-17	3E-22	3.20E-04	5.07E-17	4.40E-17	4E-18	1.69E-02	7.64E-17	4.00E-17	3E-18	3.82E-03	1.26E-14	2.00E-16	2E-17	1.58E-01
10-Aug-93	6.00E-17	2E-18	1.20E-03	6.00E-18	3.40E-17	4E-18	2.00E-03	0.00E+00	4.30E-17	3E-18	0.00E+00	1.50E-14	3.00E-16	2E-17	1.88E-01
08-Nov-93	0.00E+00	2E-18	0.00E+00	0.00E+00	4.20E-17	4E-18	0.00E+00	0.00E+00	1.50E-16	3E-18	0.00E+00	2.10E-14	4.00E-16	2E-17	2.63E-01
07-Feb-94	1.61E-16	2E-16	2.68E-01	0.00E+00	6.00E-17	4E-18	0.00E+00	2.22E-16	2.20E-16	3E-18	2.47E-02	2.23E-14	4.00E-16	2E-17	3.72E+00
09-May-94	2.77E-16	2E-17	4.62E-01	2.80E-17	1.40E-16	4E-17	9.33E-02	8.37E-18	1.00E-16	3E-17	9.30E-04	1.40E-14	4.00E-16	2E-16	2.33E+00
09-Aug-94	7.39E-17	1E-16	1.23E-01	1.00E-16	1.00E-16	1E-16	3.33E-01	1.14E-16	2.02E-17	1E-16	1.27E-02	1.00E-16	1.88E-16	2E-16	1.67E-02
07-Nov-94	9.05E-17	1E-16	1.51E-01	1.00E-16	1.00E-16	1E-16	3.33E-01	1.00E-16	7.64E-18	1E-16	1.11E-02	1.00E-16	1.16E-16	2E-15	1.67E-02
07-Feb-95	7.99E-17	1E-16	1.33E-01	9.60E-17	1.00E-16	1E-16	3.20E-01	9.60E-17	1.00E-16	1E-16	1.07E-02	9.05E-15	4.73E-16	1E-16	1.51E+00
09-May-95	9.40E-17	1E-16	1.57E-01	9.80E-17	1.00E-16	1E-16	3.27E-01	8.60E-17	1.00E-16	1E-16	9.58E-03	2.88E-15	1.70E-16	1E-16	4.80E-01
09-Aug-95	7.30E-17	1E-16	1.22E-01	9.20E-17		1E-16	3.07E-01	4.40E-17		1E-16	4.89E-03	1.96E-15		1E-16	3.27E-01
11-Nov-95	3.16E-16			1.31E-16				6.58E-17				1.91E-14			
05-Feb-96	3.41E-16			2.26E-16				1.18E-16				2.69E-14			
06-May-96	1.31E-16			1.39E-16				1.82E-16				1.53E-14			
05-Aug-96	3.00E-16			3.43E-16				3.99E-16				1.31E-14			
06-Nov-96	3.16E-16			1.31E-16				6.58E-17				1.91E-14			
06-Feb-97	3.41E-16			2.26E-16				1.18E-16				2.69E-14			
05-May-97	1.31E-16			1.39E-16				1.82E-16				1.53E-14			
11-Aug-97	3.00E-16			3.43E-16				3.99E-16				1.31E-14			
05-Jan-98	3.16E-16			1.31E-16				6.58E-17				1.91E-14			
28-Apr-98	3.41E-16			2.26E-16				1.18E-16				2.69E-14			
31-Jul-98	1.31E-16			1.39E-16				1.82E-16				1.53E-14			
28-Sep-98	3.00E-16			3.43E-16				3.99E-16				1.31E-14			
28-Dec-98	3.16E-16			1.31E-16				6.58E-17				1.91E-14			
29-Mar-99	3.41E-16			2.26E-16				1.18E-16				2.69E-14			
03-Jul-99	1.31E-16			1.39E-16				1.82E-16				1.53E-14			
27-Sep-99	3.00E-16			3.43E-16				3.99E-16				1.31E-14			
28-Dec-99	3.16E-16			1.31E-16				6.58E-17				1.91E-14			
28-Mar-00	3.41E-16			2.26E-16				1.18E-16				2.69E-14			
26-Jun-00	1.31E-16			1.39E-16				1.82E-16				1.53E-14			
26-Sep-00	3.00E-16			3.43E-16				3.99E-16				1.31E-14			
26-Dec-00	3.16E-16			1.31E-16				6.58E-17				1.91E-14			
26-Mar-01	3.41E-16			2.26E-16				1.18E-16				2.69E-14			
02-Jul-01	1.31E-16			1.39E-16				1.82E-16				1.53E-14			
24-Sep-01	3.00E-16			3.43E-16				3.99E-16				1.31E-14			
31-Dec-01	3.16E-16			1.31E-16				6.58E-17				1.91E-14			
01-Apr-02	3.41E-16			2.26E-16				1.18E-16				2.69E-14			
01-Jul-02	1.31E-16			1.39E-16				1.82E-16				1.53E-14			
30-Sep-02	3.00E-16			3.43E-16				3.99E-16				1.31E-14			
30-Dec-02	3.16E-16			1.31E-16				6.58E-17				1.91E-14			

** BHV-3 was taken down due to excessive vandalisms and Quarterly averages are being used in the place of samples.

INTERNATIONAL URANIUM CORPORATION
WHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
LOCATION: BHV-4

Current Quarter	1st	2nd	3rd	4th
% time operated	93.1%	96.9%	97.9%	92.4%
Air Volume, SCF x 1e6	4.49	4.67	4.72	4.45

	URANIUM NAT.			THORIUM- 230				RADIUM- 226				LEAD -210			
ENDING	GROSS CONC. µCi/cc	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC
26-Sep-81	5.20E-15	1E-16	1.04E-01	3.21E-15	5.70E-16	1E-16	1.07E+00	2.74E-15	6.15E-16	1E-16	1.37E-01	1.84E-14	2.72E-15	2E-15	2.30E-01
14-Dec-81	4.53E-15	1E-16	9.06E-02	2.93E-15	5.09E-16	1E-16	9.77E-01	2.29E-15	3.34E-16	1E-16	1.15E-01	2.54E-14	2.13E-15	2E-15	3.18E-01
29-Mar-82	1.06E-15	9E-16	2.12E-02	1.78E-15	1.12E-15	3E-15	5.93E-01	1.07E-15	4.71E-16	4E-15	5.35E-02	2.31E-14	4.16E-15	2E-14	2.89E-01
30-Jun-82	6.03E-15	6E-17	1.21E-01	1.42E-14	1.19E-15	6E-17	4.73E+00	2.62E-15	3.09E-16	3E-16	1.31E-01	2.25E-14	3.00E-15	2E-15	2.81E-01
27-Sep-82	1.26E-14	1E-16	2.52E-01	1.57E-14	7.17E-15	1E-16	5.23E+00	5.35E-15	5.47E-16	1E-16	2.68E-01	2.68E-14	3.69E-15	2E-15	3.35E-01
3-Jan-83	4.33E-15	5E-17	8.66E-02	7.58E-16	1.16E-16	5E-17	2.53E-01	6.04E-16	9.15E-17	6E-17	3.02E-02	2.57E-14	1.90E-15	2E-15	3.21E-01
4-Apr-83	1.25E-15	5E-17	2.50E-02	6.52E-16	5.55E-17	5E-17	2.17E-01	6.76E-16	1.38E-16	1E-16	3.38E-02	2.00E-14	1.09E-15	9E-16	2.50E-01
30-Jun-83	3.73E-16	1E-16	7.46E-03	7.17E-16	2.14E-16	2E-16	2.39E-01	4.13E-16	1.88E-16	2E-16	2.07E-02	1.20E-14	2.00E-15	2E-15	1.50E-01
3-Oct-83	2.54E-16	4E-17	5.08E-03	9.43E-16	1.13E-16	2E-17	3.14E-01	2.65E-16	5.73E-17	3E-17	1.33E-02	2.50E-14	1.14E-15	4E-16	3.13E-01
3-Jan-84	2.76E-15	1E-16	5.52E-02	1.51E-16	3.92E-17	4E-17	5.03E-02	1.05E-16	6.79E-17	9E-17	5.25E-03	1.59E-16	8.00E-16	6E-16	1.99E-03
2-Apr-84	4.27E-16	5E-17	8.54E-03	1.60E-16	9.05E-17	1E-16	5.33E-02	6.28E-16	9.83E-17	8E-17	3.14E-02	3.67E-14	1.79E-05	1E-15	4.59E-01
2-Jul-84	2.57E-15	5E-17	5.14E-02	2.33E-16	1.03E-16	8E-17	7.77E-02	1.11E-16	7.93E-17	1E-16	5.55E-03	1.58E-14	1.09E-15	1E-15	1.98E-01
1-Oct-84	4.18E-16	5E-17	8.36E-03	1.36E-16	6.57E-17	4E-17	4.53E-02	1.10E-17	9.55E-17	8E-17	5.50E-04	9.83E-15	1.43E-15	2E-15	1.23E-01
2-Jan-85	5.30E-17	5E-16	1.06E-03	3.54E-16	1.60E-16	5E-17	1.18E-01	7.00E-18	8.98E-17	7E-17	3.50E-04	2.57E-14	1.46E-15	1E-15	3.21E-01
1-Apr-85	0.00E+00	5E-17	0.00E+00	3.55E-17	1.97E-16	1E-16	1.18E-02	4.35E-17	6.66E-17	5E-17	2.18E-03	5.02E-15	8.76E+00	9E-16	6.26E-02
1-Jul-85	9.36E-16	5E-17	1.87E-02	6.00E-16	4.76E-14	6E-16	2.00E-01	2.36E-16	1.14E-16	7E-17	1.18E-02	7.48E-15	1.08E-15	9E-16	9.35E-02
30-Sep-85	1.46E-15	6E-16	2.91E-02	2.33E-16	8.01E-17	7E-17	7.78E-02	5.38E-16	1.09E-16	9E-17	2.69E-02	7.86E-15	7.50E-16	8E-16	9.83E-02
2-Jan-86	8.40E-15	2E-15	1.68E-01	7.69E-16	1.80E-15	1E-15	2.56E-01	2.99E-16	8.13E-16	3E-16	1.50E-02	2.12E-14	2.60E-14	5E-15	2.65E-01
1-Apr-86	5.79E-15	2E-18	1.16E-01	7.60E-16	9.96E-17	5E-18	2.53E-01	1.34E-15	5.50E-17	4E-18	6.71E-02	1.33E-14	3.08E-16	1E-16	1.66E-01
30-Jun-86	5.19E-15	1E-17	1.04E-01	5.80E-16	3.73E-17	4E-18	1.93E-01	2.20E-15	4.00E-17	5E-18	1.10E-01	7.14E-16	7.89E-16	1E-15	8.93E-03
27-Oct-86	4.60E-15	1E-18	9.20E-02	7.83E-16	1.10E-16	2E-18	2.61E-01	2.37E-15	1.00E-16	1E-16	1.19E-01	1.13E-14	2.00E-16	3E-18	1.41E-01
15-Dec-86	2.75E-15	3E-18	5.50E-02	4.67E-16	9.00E-17	2E-17	1.56E-01	9.39E-16	1.00E-16	4E-17	4.70E-02	1.20E-14	2.00E-16	4E-17	1.50E-01
16-Mar-87	4.64E-15	3E-18	9.28E-02	5.90E-16	1.20E-16	8E-18	1.97E-01	4.97E-16	1.00E-16	6E-18	2.49E-02	5.89E-14	1.00E-15	1E-17	7.36E-01
11-May-87	4.35E-15	6E-18	8.70E-02	1.18E-15	2.00E-18	6E-18	3.93E-01	1.13E-15	1.00E-16	6E-17	5.65E-02	2.21E-14	6.00E-16	3E-17	2.76E-01
9-Sep-87	6.39E-15	8E-18	1.28E-01	1.23E-14	1.00E-15	1E-16	4.10E+00	2.26E-15	2.00E-16	4E-17	1.13E-01	1.57E-14	1.00E-15	1E-16	1.96E-01
2-Nov-87	6.72E-15	6E-18	1.34E-01	1.50E-14	1.00E-15	4E-18	5.00E+00	2.20E-15	2.00E-16	6E-18	1.10E-01	2.55E-14	1.00E-15	3E-17	3.19E-01
16-Feb-88	1.91E-15	5E-18	3.82E-02	4.53E-16	7.00E-17	2E-17	1.51E-01	4.42E-16	6.00E-17	2E-17	2.21E-02	4.44E-14	2.00E-16	5E-17	5.55E-01
18-May-88	1.78E-14	3E-18	3.56E-01	1.35E-14	3.00E-16	2E-17	4.50E+00	4.92E-16	8.00E-17	2E-17	2.46E-02	1.38E-14	2.00E-16	4E-17	1.73E-01
15-Aug-88	7.56E-15	4E-18	1.51E-01	4.39E-14	1.00E-15	1E-17	1.46E+01	1.51E-15	1.00E-16	2E-17	7.55E-02	1.97E-14	2.00E-16	2E-17	2.46E-01
14-Nov-88	1.47E-14	4E-18	2.94E-01	3.31E-14	3.00E-16	1E-17	1.10E+01	2.57E-15	1.00E-16	1E-17	1.29E-01	2.12E-14	2.00E-16	3E-17	2.65E-01
13-Feb-89	2.47E-15	4E-17	4.94E-02	1.56E-15	1.02E-16	1E-16	5.20E-01	6.94E-16	5.10E-17	2E-16	3.47E-02	2.12E-14	3.06E-16	5E-16	2.65E-01
15-May-89	2.50E-16	1E-18	5.00E-03	3.14E-15	1.00E-16	7E-18	1.05E+00	9.03E-16	7.00E-17	7E-18	4.52E-02	8.05E-15	1.00E-16	4E-17	1.01E-01
14-Aug-89	6.50E-15	5E-17	1.30E-01	7.68E-15	2.00E-16	9E-18	2.56E+00	2.35E-15	2.00E-16	9E-18	1.18E-01	9.95E-15	1.00E-16	5E-17	1.24E-01
13-Nov-89	9.63E-15	2E-17	1.93E-01	4.72E-15	2.00E-16	3E-18	1.57E+00	4.03E-15	2.00E-16	8E-18	2.01E-01	1.99E-14	3.00E-16	2E-17	2.49E-01
12-Feb-90	8.92E-15	3E-18	1.78E-01	4.05E-15	2.00E-16	6E-18	1.35E+00	2.89E-15	2.00E-16	2E-17	1.45E-01	2.69E-14	2.00E-16	4E-17	3.36E-01
14-May-90	8.90E-15	1E-16	1.78E-01	3.56E-15	3.00E-16	1E-16	1.19E+00	2.33E-15	2.00E-16	1E-16	1.17E-01	2.09E-14	4.00E-16	2E-18	2.61E-01
13-Aug-90	1.92E-15	1E-16	3.84E-02	3.58E-15	8.00E-17	1E-16	1.19E+00	5.06E-16	6.00E-17	1E-16	2.53E-02	8.86E-15	2.00E-16	2E-16	1.11E-01
12-Nov-90	2.91E-15	1E-16	5.82E-02	1.87E-15	2.00E-16	1E-16	6.23E-01	1.08E-15	1.00E-16	1E-16	5.40E-02	2.19E-14	4.00E-16	2E-16	2.74E-01
11-Feb-91	1.67E-16	1E-16	3.34E-03	2.25E-17	2.10E-17	1E-16	7.50E-03	6.38E-17	2.50E-17	1E-16	3.19E-03	4.19E-14	1.00E-15	2E-16	5.24E-01
13-May-91	1.87E-16	1E-16	3.74E-03	7.89E-16	1.00E-16	1E-16	2.63E-01	3.54E-16	9.00E-17	1E-16	1.77E-02	1.40E-14	1.00E-15	2E-15	1.75E-01
12-Aug-91	4.85E-16	1E-16	9.70E-03	2.61E-15	2.00E-16	1E-16	8.70E-01	1.27E-16	8.00E-17	1E-16	6.35E-03	2.20E-14	5.00E-16	2E-15	2.75E-01
[illegible]-91	1.77E-16	1E-16	3.54E-03	4.38E-16	7.00E-17	2E-17	1.46E-01	3.76E-17	3.00E-17	2E-17	1.88E-03	1.15E-14	2.00E-16	1E-16	1.44E-01
[illegible]92	1.83E-16	1E-16	3.66E-03	1.46E-16	6.00E-17	2E-17	4.87E-02	1.33E-16	4.00E-17	2E-17	6.65E-03	3.35E-14	6.00E-17	1E-16	4.19E-01
[illegible]92	4.40E-16	1E-16	8.80E-03	1.95E-15	1.00E-16	2E-19	6.50E-01	4.04E-16	8.00E-17	2E-19	2.02E-02	1.41E-14	2.00E-16	1E-18	1.76E-01
[illegible]-92	9.09E-17	2E-18	1.82E-03	2.56E-16	4.00E-17	4E-18	8.53E-02	4.50E-17	4.60E-17	2E-18	2.25E-03	1.57E-14	2.00E-16	2E-17	1.96E-01
09-Nov-92	2.07E-16	3E-21	4.14E-03	1.15E-16	3.00E-17	4E-18	3.83E-02	3.62E-17	2.80E-17	3E-18	1.81E-03	2.24E-14	3.00E-16	2E-17	2.80E-01
09-Feb-93	1.73E-16	1E-22	3.46E-03	0.00E+00	8.00E-17	4E-18	0.00E+00	2.89E-17	4.30E-17	3E-18	1.45E-03	3.08E-14	5.00E-16	2E-17	3.85E-01
10-May-93	2.70E-17	3E-22	5.40E-04	2.76E-17	3.20E-17	4E-18	9.20E-03	8.74E-17	5.00E-17	3E-18	4.37E-03	1.25E-14	2.00E-16	2E-17	1.56E-01
10-Aug-93	9.00E-17	2E-18	1.80E-03	2.50E-17	3.90E-17	4E-18	8.33E-03	0.00E+00	3.70E-17	3E-18	0.00E+00	1.50E-14	3.00E-16	2E-17	1.88E-01
08-Nov-93	0.00E+00	2E-18	0.00E+00	1.76E-16	9.00E-17	4E-18	5.87E-02	6.00E-17	1.80E-16	3E-18	3.00E-03	1.75E-14	4.00E-16	2E-17	2.19E-01
07-Feb-94	1.10E-16	2E-16	1.83E-01	0.00E+00	1.58E-16	4E-18	0.00E+00	2.21E-16	2.30E-16	3E-18	2.46E-02	3.08E-14	6.00E-16	2E-17	5.13E+00
09-May-94	3.80E-16	2E-17	6.33E-01	3.38E-16	1.20E-16	4E-17	1.13E+00	3.46E-16	1.00E-16	3E-17	3.84E-02	1.73E-14	2.00E-16	2E-16	2.88E+00
09-Aug-94	3.85E-16	1E-16	6.42E-01	2.82E-16	9.81E-17	1E-16	9.40E-01	1.00E-16	1.73E-17	1E-16	1.11E-02	1.00E-16	1.00E-16	2E-15	1.67E-02
07-Nov-94	6.21E-17	1E-16	1.04E-01	3.53E-16	4.21E-17	1E-16	1.18E+00	1.96E-16	2.06E-17	1E-16	2.18E-02	1.00E-16	1.00E-16	2E-15	1.67E-02
07-Feb-95	3.70E-16	1E-16	6.17E-01	9.70E-17	1.00E-16	1E-16	3.23E-01	9.70E-17	3.02E-17	1E-16	1.08E-02	8.84E-15	3.89E-16	2E-15	1.47E+00
09-May-95	9.40E-17	1E-16	1.57E-01	9.80E-17	1.00E-16	1E-16	3.27E-01	1.90E-16	2.48E-17	1E-16	2.11E-02	2.90E-15	1.70E-16	2E-15	4.83E-01
09-Aug-95	1.45E-16	1E-16	2.42E-01	2.86E-16	3.78E-17	1E-16	9.53E-01	7.10E-17	3.62E-17	1E-16	7.89E-03	2.70E-15	2.17E-16	2E-15	4.50E-01
11-Nov-95	1.43E-14	1E-16	2.38E+01	2.31E-15	1.24E-16	2E-16	7.70E+00	2.61E-15	7.51E-17	2E-13	2.90E-01	5.60E-15	2.48E-16	1E-15	9.33E-01
05-Feb-96	1.19E-14	1E-16	1.98E+01	5.70E-15	1.95E-16	1E-16	1.90E+01	6.10E-15	1.80E-16	1E-16	6.78E-01	6.48E-15	3.78E-16	1E-16	1.08E+00
06-May-96	4.55E-16	1E-16	7.58E-01	3.80E-16	3.10E-17	1E-16	1.27E+00	2.84E-16	1.47E-17	1E-16	3.16E-02	7.68E-15	5.74E-16	1E-16	1.28E+00
05-Aug-96	7.78E-16	1E-16	1.30E+00	3.57E-15	2.42E-16	1E-16	1.19E+01	1.69E-16	1.42E-17	1E-16	1.88E-02	4.90E-15	2.92E-16	1E-16	8.17E-01
06-Nov-96	1.36E-15	1E-16	2.27E+00	3.51E-15	1.66E-16	1E-16	1.17E+01	4.21E-16	3.98E-17	1E-16	4.68E-02	1.10E-14	4.35E-16	1E-16	1.83E+00
06-Feb-97	1.00E-16	1E-16	1.67E-01	1.00E-16	NA	1E-16	3.33E-01	1.03E-16	1.55E-17	1E-16	1.14E-02	6.76E-15	3.27E-16	1E-16	1.13E+00
05-May-97	1.00E-16	1E-16	1.67E-01	1.40E-16	2.51E-17	1E-16	4.67E-01	2.24E-16	1.67E-17	1E-16	2.49E-02	4.55E-15	2.84E-16	1E-16	7.58E-01
11-Aug-97	4.74E-16	N/A	7.90E-01	4.00E-16	3.98E-17	1E-16	1.33E+00	<1.0E-16	N/A	1E-16	0.00E+00	5.55E-15	2.90E-16	1E-16	9.25E-01
05-Jan-98	8.31E-16	1E-16	1.39E+00	9.07E-16	N/A	1E-16	3.02E+00	1.77E-16	N/A	1E-16	1.97E-02	5.28E-15	N/A	1E-16	8.80E-01
28-Apr-98	3.32E-16	1E-16	5.53E-01	4.82E-16	2.61E-17	1E-16	1.61E+00	1.21E-16	7.68E-18	1E-16	1.34E-02	7.43E-15	3.24E-16	1E-16	1.24E+00
31-Jul-98	4.60E-16	1E-16	5.11E-01	4.43E-15	1.29E-16	1E-16	1.48E+01	3.54E-16	1.23E-17	1E-16	3.93E-02	6.91E-15	3.66E-16	1E-16	1.15E+00
28-Sep-98	4.08E-16	1E-16	4.53E-01	9.02E-16	5.22E-17	1E-16	3.01E+00	2.53E-16	1.08E-17	1E-16	2.81E-02	4.52E-15	2.09E-16	1E-16	7.53E-01
28-Dec-98	7.72E-16	1E-16	8.58E-01	4.93E-16	2.61E-17	1E-16	1.64E+00	3.43E-16	3.07E-17	1E-16	3.81E-02	6.73E-15	2.20E-16	1E-16	1.12E+00
29-Mar-99	5.11E-16	1E-16	5.68E-01	3.75E-16	2.19E-17	1E-16	1.25E+00	3.70E-16	1.52E-17	1E-16	4.11E-02	8.96E-15	3.58E-16	1E-16	1.49E+00
03-Jul-99	5.90E-16	1E-16	6.56E-01	4.70E-16	3.04E-17	1E-16	1.57E+00	1.28E-16	8.75E-18	1E-16	1.42E+00	6.40E-15	3.51E-16	1E-16	1.07E+00
27-Sep-99	1.70E-15	1E-16	1.89E+00	9.89E-16	5.91E-17	1E-16	3.30E+00	4.61E-16	3.71E-17	1E-16	5.13E-02	7.86E-15	3.49E-16	1E-16	1.31E+00
28-Dec-99	1.03E-15	1E-16	1.15E+00	7.50E-16	6.92E-17	1E-16	2.50E+00	2.43E-16	2.87E-17	1E-16	2.70E-02	6.42E-15	3.46E-16	1E-16	1.07E+00
27-Mar-00	<1.00E-16	1E-16	<1.11E-01	7.50E-16	1.93E-17	1E-16	00-Jan-00	2.20E-16	8.93E-18	1E-16	2.45E-02	5.61E-15	2.86E-16	1E-16	9.34E-01
26-Jun-00	1.75E-16	1E-16	2.92E-01	2.13E-16	1.89E-17	1E-16	7.10E-01	1.11E-16	1.29E-17	1E-16	1.23E-02	3.92E-15	2.51E-16	1E-16	6.53E-01
26-Sep-00	3.65E-16	1E-16	3.95E-01	3.08E-16	1.34E-17	1E-16	1.03E+00	2.24E-16	7.44E-18	1E-16	2.49E-02	7.79E-15	2.19E-16	1E-16	1.30E+00
26-Dec-00	2.27E-16	1E-16	2.52E-01	2.01E-16	1.04E-17	1E-16	6.70E-01	4.35E-16	1.04E-17	1E-16	4.83E-02	8.45E-15	2.25E-16	1E-16	1.41E+00
26-Mar-01	1.45E-16	1E-16	1.61E-01	<1.00E-16	NA	1E-16	<3.33E-01	<1.00E-16	NA	1E-16	<1.11E-02	6.37E-15	3.58E-16	1E-16	1.06E+00
02-Jul-01	<1.00E-16	1E-16	N/A	<1.00E-16	N/A	1E-16	3.33E-01	<1.00E-16	N/A	1E-16	<1.11E-02	6.99E-15	1.30E-16	1E-16	1.17E+00
24-Sep-01	1.91E-16	1E-16	2.12E-01	1.05E-16	2.82E-18	1E-16	3.51E-01	2.01E-18	2.45E-17	1E-16	2.32E-02	8.04E-15	1.64E-16	1E-16	1.34E+00
31-Dec-01	1.38E-16	1E-16	1.54E-01	<1.00E-16	N/A	1E-16	<3.33E-01	<1.00E-16	N/A	1E-16	<1.11E-02	1.83E-15	1.64E-16	1E-16	3.08E-01
01-Apr-02	2.20E-16	1E-16	2.44E-01	2.05E-16	2.68E-17	1E-16	6.85E-01	1.26E-16	7.44E-18	1E-16	1.41E-02	7.48E-15	1.62E-16	1E-16	1.25E+00
01-Jul-02	1.97E-16	1E-16	2.19E-01	3.38E-16	3.27E-16	1E-16	1.13E+00	<1.00E-16	N/A	1E-16	<1.11E-02	7.40E-15	1.80E-16	1E-16	1.13E+00
30-Sep-02	2.30E-16	1E-16	2.56E-01	4.10E-16	3.13E-17	1E-16	1.37E+00	1.56E-16	5.95E-18	1E-16	1.73E-02	4.21E-15	1.03E-18	1E-16	7.01E-01
30-Dec-02	<1.00E-16	1E-16	<1.11E-01	2.42W-16	1.79W-17	1W-16	8.05E-01	<1.00E-16	N/A	1E-16	<1.11E-02	9.42E-15	4.68E-15	1E-16	1.57E+00

*1/1/94 Derived air concentrations were implemented as per 10 CFR 20

INTERNATIONAL URANIUM CORPORATION
WHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
LOCATION: BHV-3

Current Quarter	1st	2nd	3rd	4th
% time operated	100.4%	96.9%	91.3%	99.5%
Air Volume, SCF x 1E6	4.84	4.67	4.40	4.80

	URANIUM NAT.			THORIUM- 230				RADIUM- 226				LEAD -210			
PERIOD ENDING	GROSS CONC. µCi/cc	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC
28-Sep-81	2.44E-15	1E-16	4.88E-02	1.53E-15	4.11E-16	1E-16	5.10E-01	7.54E-16	4.31E-16	1E-16	3.77E-02	1.69E-14	2.57E-15	2E-15	2.11E-01
14-Dec-81	4.84E-15	1E-16	9.68E-02	2.78E-15	3.56E-16	1E-16	9.27E-01	1.84E-15	2.84E-16	1E-16	9.20E-02	1.53E-14	2.28E-15	2E-15	1.91E-01
29-Mar-82	1.04E-15	9E-16	2.08E-02	2.62E-15	9.49E-16	3E-15	8.73E-01	1.11E-15	4.82E-16	4E-15	5.55E-02	2.98E-14	8.16E-15	2E-14	3.73E-01
30-Jun-82	3.61E-15	5E-17	7.22E-02	7.61E-15	9.40E-16	7E-17	2.54E+00	1.39E-15	2.19E-16	2E-16	6.95E-02	1.80E-15	1.89E-15	2E-15	2.25E-02
27-Sep-82	1.71E-14	1E-16	3.42E-01	9.46E-15	6.02E-16	1E-16	3.15E+00	3.80E-15	4.68E-16	1E-16	1.90E-01	2.35E-14	4.65E-15	2E-15	2.94E-01
3-Jan-83	1.90E-14	5E-17	3.80E-01	5.77E-15	1.99E-16	3E-17	1.92E+00	9.34E-17	3.10E-16	6E-17	4.67E-03	4.32E-14	2.80E-15	2E-15	5.40E-01
4-Apr-83	Lost in Lab			2.33E-15	1.00E-16	2E-17	7.77E-01	5.93E-16	1.08E-16	9E-17	2.97E-02	3.01E-14	1.40E-15	9E-16	3.76E-01
30-Jun-83	7.62E-16	5E-17	1.52E-02	3.25E-15	1.70E-16	6E-17	1.08E+00	6.28E-15	3.59E-16	1E-16	3.14E-01	2.69E-14	1.00E-15	1E-15	3.36E-01
3-Oct-83	4.86E-16	1E-16	9.72E-03	1.10E-15	3.09E-16	1E-16	3.67E-01	3.63E-16	1.08E-16	1E-16	1.82E-02	2.08E-14	1.13E-15	9E-16	2.60E-01
3-Jan-84	6.96E-15	1E-16	1.39E-01	9.69E-16	9.66E-17	5E-17	3.23E-01	9.80E-16	6.53E-17	1E-16	4.80E-02	1.83E-14	2.92E-15	2E-15	2.29E-01
2-Apr-84	1.64E-15	5E-17	3.28E-02	1.34E-15	1.20E-16	7E-17	4.47E-01	3.88E-15	2.29E-16	5E-17	1.94E-01	4.67E-14	2.10E-01	1E-15	5.84E-01
2-Jul-84	1.12E-15	5E-17	2.24E-02	1.92E-15	1.69E-16	7E-17	6.40E-01	3.31E-15	2.70E-16	1E-16	1.66E-01	2.21E-14	1.20E-15	1E-16	2.76E-01
1-Oct-84	1.11E-15	5E-17	2.22E-02	3.13E-16	1.26E-16	5E-17	1.04E-01	4.21E-16	1.34E-16	1E-16	2.11E-02	1.57E-14	1.39E-15	1E-15	1.98E-01
2-Jan-85	7.32E-16	6E-16	1.46E-02	6.71E-16	1.66E-16	5E-17	2.24E-01	4.94E-16	1.35E-16	1E-16	2.47E-02	2.42E-14	1.26E-15	9E-16	3.03E-01
1-Apr-85	2.36E-16	5E-17	4.72E-03	5.43E-16	2.18E-16	1E-16	1.81E-01	2.71E-16	9.00E-17	7E-17	1.36E-02	1.25E-14	1.02E-15	8E-16	1.56E-01
1-Jul-85	7.58E-16	5E-17	1.52E-02	4.00E-16	9.43E-16	5E-16	1.33E-01	6.90E-16	1.50E-16	9E-17	3.45E-02	2.15E-14	1.42E-15	9E-16	2.69E-01
30-Sep-85	7.47E-15	7E-16	1.49E-01	1.16E-15	1.42E-16	8E-17	3.87E-01	2.19E-15	2.21E-15	1E-16	1.10E-01	9.20E-15	1.11E-15	1E-15	1.15E-01
2-Jan-86	1.75E-14	6E-16	3.50E-01	7.24E-15	2.20E-15	1E-15	2.41E+00	3.83E-15	3.83E-15	1E-16	1.92E-01	1.13E-16	1.00E-15	1E-15	1.41E-03
1-Apr-86	2.99E-14	2E-18	5.98E-01	7.64E-15	6.30E-17	4E-18	2.55E+00	1.51E-14	5.02E-16	4E-18	7.57E-01	2.22E-14	5.04E-16	9E-17	2.78E-01
30-Jun-86	2.23E-14	1E-17	4.47E-01	5.19E-15	3.30E-16	2E-17	1.73E+00	1.05E-14	1.00E-16	4E-18	5.24E-01	2.16E-14	2.00E-15	2E-15	2.70E-01
27-Oct-86	2.33E-14	1E-18	4.66E-01	7.78E-15	3.00E-16	2E-18	2.59E+00	1.60E-14	1.00E-15	1E-18	8.00E-01	2.02E-14	2.00E-16	3E-18	2.53E-01
15-Dec-86	3.40E-14	3E-17	6.80E-01	5.35E-15	2.00E-16	2E-17	1.78E+00	1.47E-14	5.00E-16	4E-17	7.35E-01	2.82E-14	2.00E-16	3E-17	3.53E-01
16-Mar-87	2.06E-14	3E-18	4.12E-01	4.50E-15	3.00E-16	5E-18	1.50E+00	6.74E-15	2.00E-16	4E-18	3.37E-01	7.29E-14	1.00E-15	7E-18	9.11E-01
11-May-87	2.50E-14	5E-18	5.00E-01	8.54E-15	2.00E-16	5E-18	2.85E+00	8.15E-15	3.00E-16	5E-18	4.08E-01	3.28E-14	2.00E-16	2E-17	4.10E-01
9-Sep-87	2.65E-14	5E-18	5.30E-01	6.62E-15	3.00E-16	7E-17	2.21E+00	9.34E-15	3.00E-16	2E-17	4.67E-01	2.77E-14	4.00E-16	1E-16	3.46E-01
2-Nov-87	1.80E-14	4E-18	3.60E-01	7.09E-15	3.00E-16	4E-18	2.36E+00	7.20E-15	3.00E-16	4E-18	3.60E-01	1.77E-14	5.00E-16	2E-17	2.21E-01
16-Feb-88	1.01E-14	5E-18	2.02E-01	2.98E-15	1.00E-16	2E-17	9.93E-01	3.93E-15	1.00E-16	2E-17	1.97E-01	3.36E-14	2.00E-16	5E-17	4.20E-01
18-May-88	1.78E-14	3E-18	3.56E-01	8.14E-15	3.00E-16	2E-17	2.71E+00	7.43E-15	3.00E-16	2E-17	3.72E-01	2.12E-14	2.00E-16	4E-17	2.65E-01
15-Aug-88	1.79E-14	3E-18	3.58E-01	1.49E-14	1.00E-15	1E-17	4.97E+00	5.34E-15	2.00E-16	2E-17	2.67E-01	2.45E-14	3.00E-16	2E-17	3.06E-01
14-Nov-88	4.46E-14	3E-18	8.92E-01	1.39E-14	2.00E-16	1E-17	4.63E+00	1.17E-14	2.00E-16	1E-17	5.85E-01	3.43E-14	2.00E-16	3E-17	4.29E-01
13-Feb-89	1.67E-14	4E-17	3.34E-01	5.54E-15	1.02E-16	1E-16	1.85E+00	7.20E-15	1.40E-16	2E-16	3.60E-01	5.02E-14	2.10E-16	5E-16	6.28E-01
15-May-89	2.03E-14	1E-18	4.06E-01	7.05E-15	2.00E-16	6E-17	2.35E+00	9.56E-16	2.00E-16	6E-18	4.78E-02	1.43E-14	1.00E-16	3E-17	1.79E-01
14-Aug-89	2.81E-15	2E-18	5.62E-02	3.78E-15	2.00E-16	8E-18	1.26E+00	9.26E-15	3.00E-16	8E-18	4.63E-01	1.50E-14	1.00E-16	4E-17	1.88E-01
13-Nov-89	5.38E-14	2E-17	1.08E+00	8.01E-15	3.00E-16	3E-18	2.67E+00	1.81E-14	3.00E-16	7E-18	9.06E-01	4.09E-14	5.00E-16	2E-17	5.12E-01
12-Feb-90	4.48E-14	3E-18	8.96E-01	1.48E-14	1.00E-15	6E-18	4.93E+00	1.28E-14	2.00E-17	2E-17	6.40E-01	3.88E-14	3.00E-16	5E-17	4.85E-01
14-May-90	2.18E-14	1E-18	4.36E-01	1.70E-14	1.00E-15	1E-16	5.67E+00	1.59E-14	1.00E-15	1E-16	7.95E-01	3.49E-14	1.00E-15	2E-16	4.36E-01
13-Aug-90	9.53E-15	1E-16	1.91E-01	1.70E-14	1.00E-15	1E-16	5.67E+00	3.27E-15	1.10E-16	1E-16	1.64E-01	1.27E-14	2.00E-16	2E-16	1.59E-01
12-Nov-90	1.11E-14	1E-16	2.22E-01	5.27E-15	3.00E-14	1E-16	1.76E+00	5.38E-15	3.00E-16	1E-16	2.69E-01	1.56E-14	4.00E-16	2E-16	1.95E-01
11-Feb-91	6.35E-16	1E-16	1.27E-02	3.13E-16	6.00E-17	1E-16	1.04E-01	2.31E-16	4.00E-17	1E-16	1.16E-02	3.89E-14	1.00E-15	2E-16	4.86E-01
[illegible]ay-91	1.22E-15	1E-16	2.44E-02	6.14E-15	3.00E-16	1E-16	2.05E+00	4.41E-15	2.00E-16	1E-16	2.21E-01	2.50E-14	1.00E-15	2E-15	3.13E-01
[illegible]-91	7.84E-16	1E-16	1.57E-02	1.43E-15	2.00E-16	1E-16	4.77E-01	4.47E-16	1.10E-16	1E-16	2.24E-02	1.84E-14	4.00E-16	2E-15	2.30E-01
[illegible]-91	5.37E-16	1E-16	1.07E-02	4.20E-16	7.00E-17	2E-17	1.40E-01	1.37E-16	3.00E-17	2E-17	6.85E-03	1.27E-14	3.00E-16	1E-16	1.59E-01
[illegible]-92	3.54E-16	1E-16	7.08E-03	1.18E-16	6.00E-17	2E-17	3.93E-02	4.08E-17	3.00E-17	2E-17	2.04E-03	3.69E-14	6.00E-17	1E-16	4.61E-01
11-May-92	4.71E-16	1E-16	9.42E-03	9.58E-16	1.00E-16	2E-19	3.19E-01	8.31E-17	4.00E-18	2E-19	4.16E-03	1.43E-14	2.00E-16	1E-18	1.79E-01
10-Aug-92	5.32E-15	2E-18	1.06E-01	3.36E-16	6.00E-17	4E-18	1.12E-01	1.65E-16	7.00E-17	2E-18	8.25E-03	1.59E-14	2.00E-16	2E-17	1.99E-01
09-Nov-92	3.66E-16	3E-21	7.32E-03	2.25E-16	4.00E-17	4E-18	7.50E-02	1.08E-16	3.00E-17	3E-18	5.40E-03	2.24E-14	2.00E-16	2E-17	2.80E-01
09-Feb-93	2.05E-16	1E-22	4.10E-03	9.14E-17	8.00E-17	4E-18	3.05E-02	6.31E-17	5.00E-17	3E-18	3.16E-03	3.41E-14	5.00E-16	2E-17	4.26E-01
10-May-93	4.80E-16	3E-22	9.60E-03	8.25E-18	1.20E-16	4E-18	2.75E-01	1.26E-15	1.00E-16	3E-18	6.30E-02	1.83E-14	4.00E-16	2E-17	2.29E-01
10-Aug-93	8.30E-16	2E-18	1.66E-02	1.90E-16	7.00E-17	4E-18	6.33E-02	2.10E-16	9.00E-17	3E-18	1.05E-02	1.70E-14	5.00E-16	2E-17	2.13E-01
08-Nov-93	2.70E-16	2E-18	5.40E-03	8.00E-17	8.00E-17	4E-18	2.67E-02	7.00E-17	1.70E-16	3E-18	3.50E-03	2.34E-14	3.00E-16	2E-17	2.93E-01
07-Feb-94	3.18E-16	2E-16	5.30E-01	0.00E+00	5.90E-17	4E-18	0.00E+00	5.18E-16	2.80E-16	3E-18	5.76E-02	3.64E-14	7.00E-16	2E-17	6.07E+00
09-May-94	1.80E-15	2E-17	3.00E+00	9.78E-16	2.00E-16	4E-17	3.26E+00	1.10E-15	2.00E-16	3E-17	1.22E-01	8.30E-15	2.00E-16	2E-16	1.38E+00
09-Aug-94	2.67E-15	1E-16	4.45E+00	1.11E-15	1.70E-16	1E-16	3.70E+00	4.95E-16	3.87E-17	1E-16	5.50E-02	0.00E+00	2.19E-16	1E-16	0.00E+00
07-Nov-94	9.21E-17	1E-16	1.54E-01	1.59E-15	8.80E-17	1E-16	5.30E+00	1.66E-15	5.70E-17	1E-16	1.84E-01	0.00E+00	1.88E-15	1E-15	0.00E+00
07-Feb-95	1.51E-15	1E-16	2.52E+00	9.50E-16	9.29E-16	1E-16	3.17E+00	9.70E-17	6.66E-17	1E-16	1.08E-02	9.35E-15	4.00E-16	1E-15	1.56E+00
09-May-95	2.21E-16	1E-16	3.68E-01	8.56E-16	5.41E-17	1E-16	2.85E+00	3.06E-15	9.49E-17	1E-16	3.40E-01	4.34E-15	2.06E-16	1E-15	7.23E-01
09-Aug-95	1.66E-16	1E-16	2.77E-01	1.67E-15	1.29E-16	1E-16	5.57E+00	3.90E-15	1.34E-16	1E-16	4.33E-01	5.60E-15	1.29E-16	2E-15	9.33E-01
11-Nov-95	2.04E-14	1E-16	3.40E+01	6.70E-15	2.32E-16	2E-16	2.23E+01	7.65E-15	1.24E-16	2E-16	8.50E-01	4.47E-15	2.25E-16	1E-15	7.45E-01
05-Feb-96	4.50E-14	1E-16	7.50E+01	3.58E-14	9.47E-17	1E-16	1.19E+02	2.39E-14	3.38E-16	1E-16	2.66E+00	7.30E-15	3.87E-16	1E-16	1.22E+00
06-May-96	1.76E-15	1E-16	2.93E+00	3.57E-15	2.84E-16	1E-16	1.19E+01	9.55E-16	2.54E-17	1E-16	1.06E-01	7.54E-15	5.83E-16	1E-16	1.26E+00
05-Aug-96	2.37E-15	1E-16	3.95E+00	8.18E-15	4.61E-16	1E-16	2.73E+01	7.46E-16	5.12E-17	1E-16	8.29E-02	5.75E-15	3.04E-16	1E-16	9.58E-01
06-Nov-96	3.53E-15	1E-16	5.88E+00	5.31E-15	1.97E-16	1E-16	1.77E+01	9.39E-16	5.91E-17	1E-16	1.04E-01	1.21E-14	5.32E-16	1E-16	2.02E+00
06-Feb-97	1.84E-16	1E-16	3.07E-01	2.01E-16	2.87E-17	1E-16	6.70E-01	1.87E-16	1.81E-17	1E-16	2.08E-02	6.14E-15	2.92E-16	1E-16	1.02E+00
05-May-97	5.75E-16	1E-16	9.58E-01	7.24E-16	6.36E-17	1E-16	2.41E+00	6.07E-16	4.85E-17	1E-16	6.74E-02	4.75E-15	2.84E-16	1E-16	7.92E-01
11-Aug-97	1.21E-15	1E-16	2.02E+00	7.39E-16	5.50E-17	1E-16	2.46E+00	5.05E-16	4.30E-17	1E-16	5.61E-02	4.92E-15	2.80E-16	1E-16	8.20E-01
05-Jan-98	9.89E-16	1E-16	1.65E+00	1.92E-15	N/A	1E-16	6.40E+00	6.21E-16	N/A	1E-16	6.90E-02	4.68E-15	N/A	1E-16	7.80E-01
28-Apr-98	2.84E-15	1E-16	4.73E+00	2.38E-15	7.70E-17	1E-16	7.93E+00	1.72E-15	8.58E-17	1E-16	1.91E-01	7.35E-15	3.47E-16	1E-16	1.23E+00
31-Jul-98	7.49E-16	1E-16	8.32E-01	1.49E-15	7.13E-17	1E-16	4.97E+00	8.34E-16	5.97E-17	1E-16	9.27E-02	7.01E-15	4.03E-16	1E-16	1.17E+00
28-Sep-98	1.07E-15	1E-16	1.19E+00	9.20E-16	5.66E-17	1E-16	3.07E+00	6.32E-16	4.91E-17	1E-16	7.03E-02	3.95E-15	2.04E-16	1E-16	6.59E-01
28-Dec-98	8.51E-15	1E-16	9.46E+00	4.58E-15	1.14E-16	1E-16	1.53E+01	4.58E-15	1.32E-16	1E-16	5.08E-01	1.43E-14	3.19E-16	1E-16	2.39E+00
29-Mar-99	3.75E-15	1E-16	4.16E-16	2.45E-15	8.25E-17	1E-16	8.17E+00	2.39E-15	9.45E-17	1E-16	2.66E-01	8.46E-15	3.29E-16	1E-16	1.41E+00
03-Jul-99	1.53E-15	1E-16	1.70E+00	8.65E-16	4.46E-17	1E-16	2.88E+00	6.52E-16	4.61E-17	1E-16	7.24E-02	7.20E-15	3.26E-16	1E-16	1.20E+00
27-Sep-99	5.83E-15	1E-16	6.48E+00	3.52E-15	1.18E-16	1E-16	1.17E+01	2.55E-15	8.95E-17	1E-16	2.83E-01	8.22E-15	3.16E-16	1E-16	1.37E+00
28-Dec-99	9.48E-15	1E-16	1.05E+01	6.20E-15	1.96E-16	1E-16	2.07E+01	3.96E-15	1.15E-16	1E-16	4.40E-01	7.56E-15	3.12E-16	1E-16	1.26E+00
27-Mar-00	2.06E-15	1E-16	2.29E+00	1.27E-15	6.74E-17	1E-16	4.25E+00	1.09E-15	5.86E-17	1E-16	1.21E-01	7.72E-15	3.24E-16	1E-16	1.29E+00
26-Jun-00	1.50E-15	1E-16	1.67E+00	1.24E-15	6.61E-17	1E-16	4.13E+00	1.01E-15	6.29E-17	1E-16	1.12E-01	4.36E-15	2.55E-16	1E-16	7.27E-01
25-Sep-00	1.04E-15	1E-16	1.15E+00	5.45E-16	6.15E-17	1E-16	1.82E+00	6.01E-16	7.62E-17	1E-16	6.67E-02	7.67E-15	4.45E-16	1E-16	1.28E+00
26-Dec-00	1.48E-15	1E-16	1.64E+00	7.56E-16	7.78E-17	1E-16	2.52E+00	6.84E-16	7.78E-17	1E-16	7.60E-02	7.00E-15	4.28E-16	1E-16	1.17E+00
26-Mar-01	4.27E-16	1E-16	4.75E-01	2.19E-16	4.27E-17	1E-16	7.32E-01	1.89E-16	2.44E-17	1E-16	2.10E-02	6.13E-15	7.50E-16	1E-16	1.02E+00
02-Jul-01	4.52E-16	1E-16	5.02E-01	4.02E-16	5.90E-17	1E-16	1.34E+00	<1.00E-16	N/A	1E-16	<1.11E-02	7.48E-15	2.57E-16	1E-16	1.25E+00
24-Sep-01	4.65E-16	1E-16	5.16E-01	2.06E-16	1.44E-17	1E-16	6.88E-01	2.02E-16	3.75E-17	1E-16	2.42E-02	6.98E-15	1.59E-16	1E-16	1.16E+00
31-Dec-01	7.40E-16	1E-16	8.23E-01	3.51E-16	3.84E-17	1E-16	1.17E+00	3.64E-16	3.41E-17	1E-16	4.04E-02	4.72E-15	2.03E-16	1E-16	7.86E-01
01-Apr-02	1.26E-15	1E-16	1.40E+00	7.53E-16	6.07E-17	1E-16	2.51E+00	7.19E-16	5.52E-17	1E-16	7.99E-02	9.65E-15	1.72E-16	1E-16	1.61E+00
01-Jul-02	1.02E-15	1E-16	1.14E+00	1.03E-15	6.44E-17	1E-16	3.44E+00	3.39E-16	3.29E-17	1E-16	3.77E-02	7.20E+15	1.72E-16	1E-16	1.20E+00
30-Sep-02	5.82E-16	1E-16	6.46E-01	9.28E-16	5.73E-17	1E-16	3.09E+00	3.14E-16	1.58E-17	1E-16	3.48E-02	4.48E-15	1.00E-16	1E-16	7.47E-01
30-Dec-02	<1.00E-16	1E-16	<1.11E-01	7.67E-16	5.00E-17	1E-16	2.56E+00	3.48E-16	4.03E-17	1E-16	4.26E-02	9.56E-15	1.63E-16	1E-16	1.59E+00

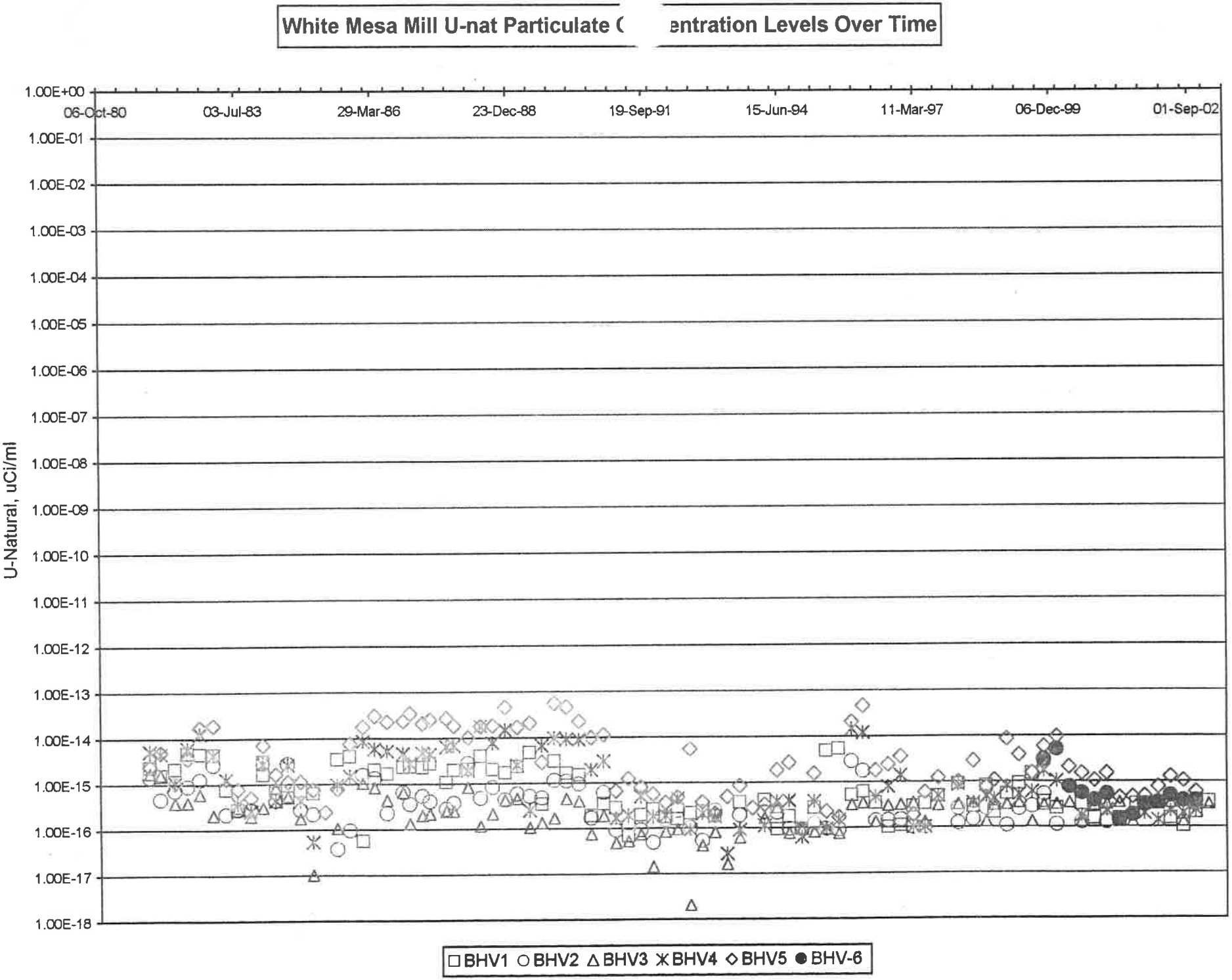
[illegible] Derived air concentrations were implemented as per 10 CFR 20

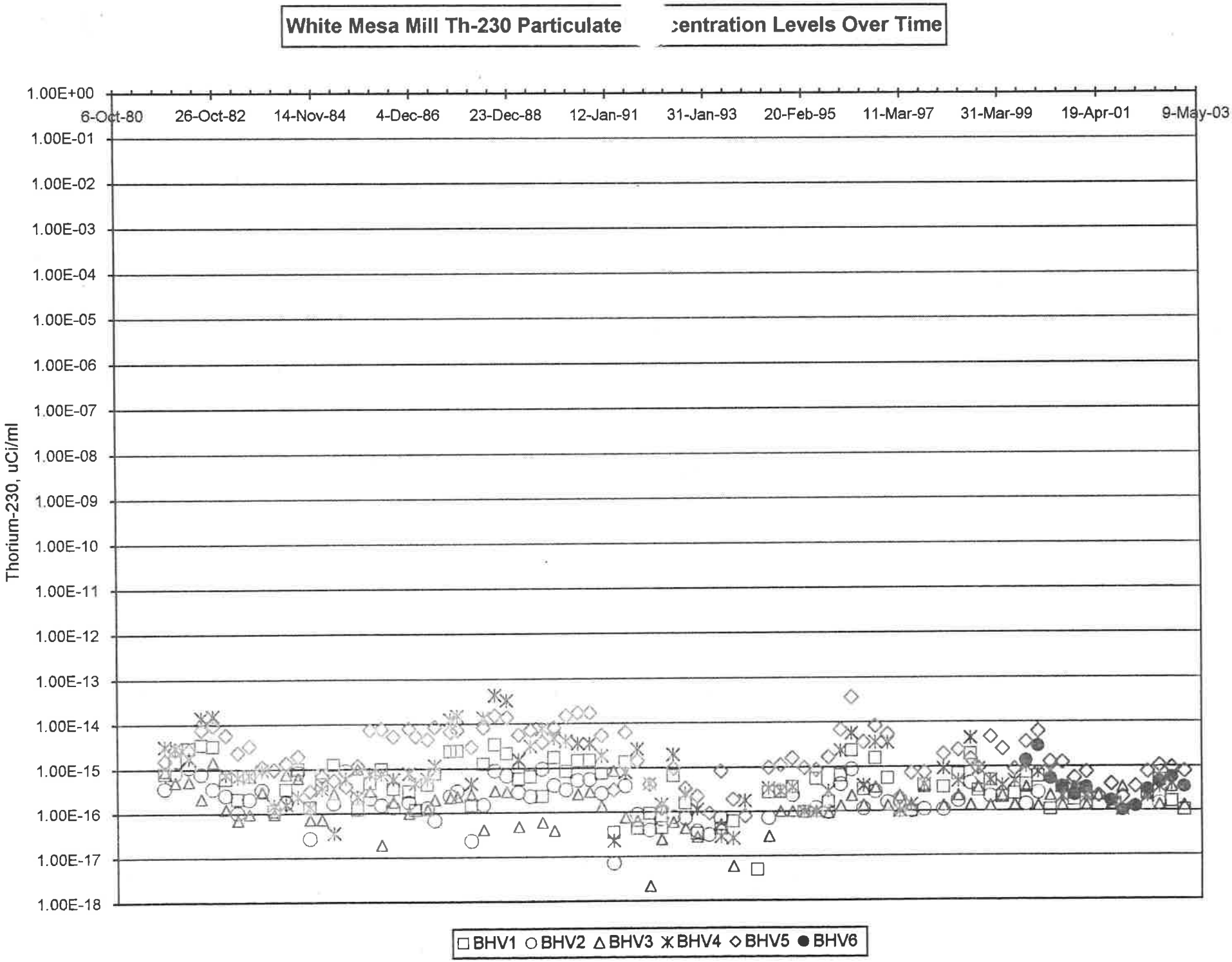
INTERNATIONAL URANIUM CORPORATION
WHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
LOCATION: BHV-6

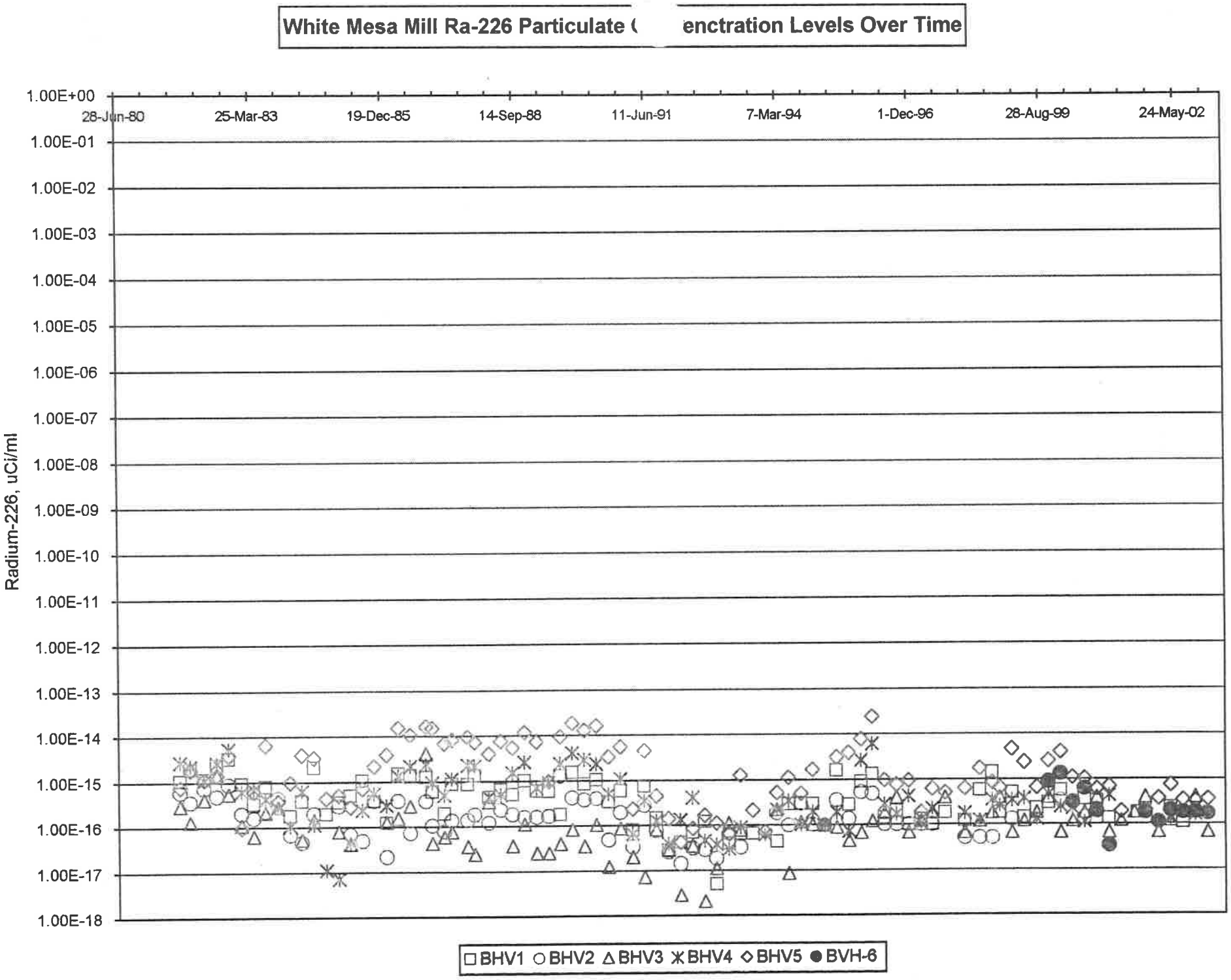
Current Quarter	1st	2nd	3rd	4th
% time operated	94.9%	96.9%	98.0%	99.5%
Air Volume, SCF x 1e6	4.57	4.67	4.72	4.79

	URANIUM NAT.			THORIUM- 230				RADIUM- 226				LEAD -210			
PERIOD ENDING	GROSS CONC. µCi/cc	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC. µCi/cc	COUNTING ERROR	LLD (1E-16)	% MPC
27-Sep-99	3.03E-15	1E-16	3.36E+00	1.37E-15	6.98E-17	1E-16	4.57E+00	8.72E-16	5.23E-17	1E-16	9.69E-02	7.55E-15	3.05E-16	1E-16	1.26E+00
28-Dec-99	5.01E-15	1E-16	5.56E+00	2.89E-15	1.25E-16	1E-16	9.63E+00	1.31E-15	6.53E-17	1E-16	1.46E-01	8.10E-15	3.17E-16	1E-16	1.35E+00
30-Mar-00	7.46E-16	1E-16	8.29 E-01	5.25E-16	5.04E-17	1E-16	1.75E+00	3.00E-16	1.68E-17	1E-16	3.33E-02	7.83E-15	3.16E-16	1E-16	1.30E+00
26-Jun-00	5.40E-16	1E-16	6.00E-01	3.53E-16	3.62E-17	1E-16	1.18E+00	6.11E-16	5.34E-17	1E-16	6.79E-02	4.83E-15	2.93E-16	1E-16	8.05E-01
25-Sep-00	3.75E-16	1E-16	4.17E-01	2.23E-16	4.23E-17	1E-16	7.44E-01	1.91E-16	2.88E-17	1E-16	2.12E-02	6.41E-15	4.61E-16	1E-16	1.02E+00
26-Dec-00	5.21E-16	1E-16	5.79E-01	3.39E-16	5.04E-17	1E-16	1.13E+00	3.28E-17	2.80E-17	1E-16	3.64E-02	8.57E-15	4.70E-16	1E-16	1.43E+00
26-Mar-01	1.42E-16	1E-16	1.58E-01	<1.00E-16	NA	1E-16	<3.33E-01	<1.00E-16	NA	1E-16	<1.11E-02	6.15E-15	7.06E-16	1E-16	1.03E+00
02-Jul-01	1.81E-16	1E-16	2.01E-01	1.66E-16	3.59E-17	1E-16	5.52E-01	<1.00E-16	N/A	1E-16	<1.11E-02	6.95E-15	2.57E-16	1E-16	1.16E+00
24-Sep-01	3.08E-16	1E-16	3.42E-01	1.01E-16	1.01E-17	1E-16	3.37E-01	1.77E-16	3.03E-17	1E-16	1.97E-02	8.59E-15	1.72E-16	1E-16	1.43E+00
31-Dec-01	3.31E-16	1E-16	3.68E-01	1.25E-16	2.72E-17	1E-16	4.15E-01	1.09E-16	1.00E-17	1E-16	1.21E-02	3.14E-15	1.85E-16	1E-16	5.24E-01
01-Apr-02	4.77E-16	1E-16	5.31E-01	2.94E-16	4.10E-17	1E-16	9.82E-01	1.96E-16	1.61E-17	1E-16	2.18E-02	8.61E-15	1.70E-16	1E-16	1.43E+00
01-Jul-02	3.68E-16	1E-16	4.09E-01	4.41E-16	4.15E-17	1E-16	1.47E+00	1.76E-16	1.29E-17	1E-16	1.96E-02	8.20E-15	1.80E-16	1E-16	1.37E+00
30-Sep-02	3.67E-16	1E-16	4.08E-01	5.60E-16	4.44E-17	1E-16	1.87E+00	1.80E-16	1.29E-17	1E-16	2.00E-02	5.55E-15	1.10E-16	1E-16	9.26E-01
30-Dec-02	<1.00E-16	1E-16	<1.11E-01	3.43E-16	3.47E-17	1E-16	1.11E+00	1.67E-16	1.53E-17	1E-16	1.85E-02	1.35E-14	1.89E-16	1E-16	2.24E+00

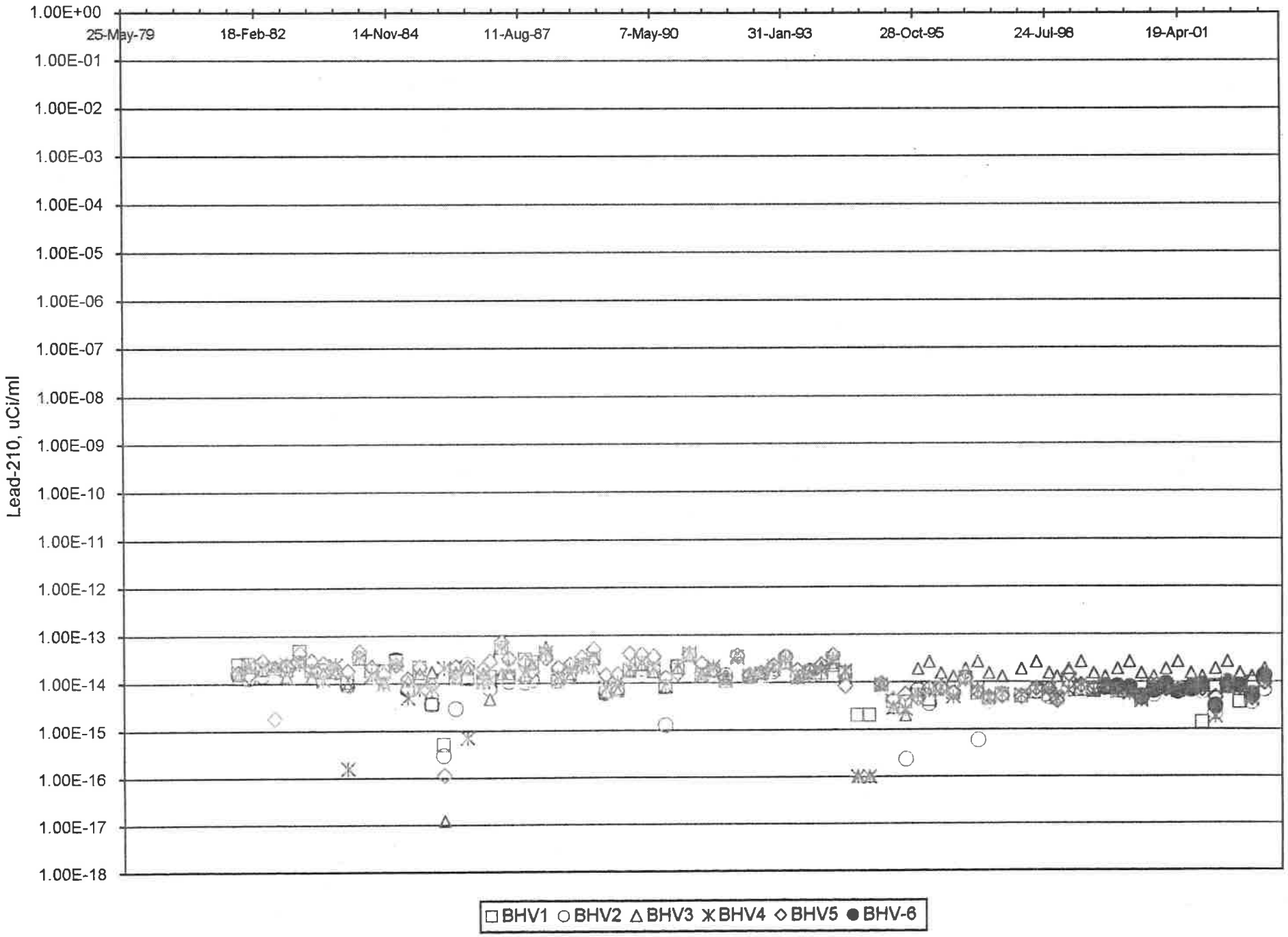
*BHV-6 was installed on 6/29/99.


White Mesa Mill U-nat Particulate (entration Levels Over Time
U-Natural, uCi/ml
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
1.00E-18
06-Oct-80
03-Jul-83
29-Mar-86
23-Dec-88
19-Sep-91
15-Jun-94
11-Mar-97
06-Dec-99
01-Sep-02
BHV1
BHV2
BHV3
BHV4
BHV5
BHV-6


White Mesa Mill Th-230 Particulate
centration Levels Over Time
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
1.00E-18
Thorium-230, uCi/ml
6-Oct-80
26-Oct-82
14-Nov-84
4-Dec-86
23-Dec-88
12-Jan-91
31-Jan-93
20-Feb-95
11-Mar-97
31-Mar-99
19-Apr-01
9-May-03
BHV1
BHV2
BHV3
BHV4
BHV5
BHV6


White Mesa Mill Ra-226 Particulate (enctration Levels Over Time
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
1.00E-18
Radium-226, uCi/ml
28-Jun-80
25-Mar-83
19-Dec-85
14-Sep-88
11-Jun-91
7-Mar-94
1-Dec-96
28-Aug-99
24-May-02
BHV1
BHV2
BHV3
BHV4
BHV5
BVH-6

White Mesa Mill Pb-210 Particulate centration Levels Over Time



Period: July 01, 2002 through September 30, 2002 (3rd Quarter 2002)

BHV-1 on stream % 99.8% **BHV-1** Total Volume: 4.81E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7196449	1-Jul-02	8-Jul-02	4.7399	4.2713	0.4686	74669.6	64605.4	10064.2	10,402,004	0.0450	99.8%	36.5
2	6443	08-Jul-02	15-Jul-02	5.3785	4.2659	1.1126	84703.3	74669.6	10033.7	10,512,542	0.1058	99.5%	37.0
	6437	15-Jul-02	22-Jul-02	4.7138	4.2861	0.4277	94870.6	84703.3	10167.3	10,652,518	0.0402	100.9%	37.0
	96431	22-Jul-02	29-Jul-02	4.6939	4.3484	0.3455	104797.9	94870.6	9927.3	10,401,064	0.0332	98.5%	37.0
5	7196425	29-Jul-02	5-Aug-02	4.6523	4.3694	0.2829	15088.4	4797.9	10290.5	10,781,597	0.0262	102.1%	37.0
6	7196419	05-Aug-02	12-Aug-02	4.6153	4.3436	0.2717	25376.2	15088.4	10287.8	10,778,768	0.0252	102.1%	37.0
7	7196413	12-Aug-02	19-Aug-02	4.7102	4.3584	0.3518	35146.1	25376.2	9769.9	10,208,487	0.0345	96.9%	36.9
8	7196407	19-Aug-02	26-Aug-02	4.7142	4.3881	0.3261	45198.3	35146.1	10052.2	10,503,460	0.0310	99.7%	36.9
9	7367700	26-Aug-02	3-Sep-02	4.6491	4.2475	0.4016	56415.8	45198.3	11217.5	11,721,072	0.0343	97.4%	36.9
10	7367694	03-Sep-02	9-Sep-02	4.3613	4.1904	0.1709	64866.7	56415.8	8450.9	8,758,484	0.0195	97.8%	36.6
11	7367688	09-Sep-02	16-Sep-02	4.2858	4.1957	0.0901	75216.8	64866.7	10350.1	10,668,192	0.0084	102.7%	36.4
12	7367682	16-Sep-02	23-Sep-02	4.2853	4.1728	0.1125	85152.1	75216.8	9935.3	10,240,644	0.0110	98.6%	36.4
13	7367676	23-Sep-02	30-Sep-02	4.4813	4.1877	0.2936	95410.2	85152.1	10258.1	10,573,365	0.0278	101.8%	36.4
	Totals	91	2184.0	4.6369923	4.2788692	0.3581			130804.8	136,202,196	0.0340	99.8%	36.8

BHV-2 on stream % 99.8% **BHV-2** Total Volume: 4.81E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7196448	01-Jul-02	08-Jul-02	4.9372	4.2804	0.6568	95496.6	85371.0	10125.6	10,465,465	0.0628	100.5%	36.5
2	7196442	08-Jul-02	15-Jul-02	5.5822	4.2560	1.3262	105527.2	95496.6	10030.6	10,509,294	0.1262	99.5%	37.0
3	7196436	15-Jul-02	22-Jul-02	4.9306	4.3434	0.5872	15672.4	5527.2	10145.2	10,629,363	0.0552	100.6%	37.0
4	7196430	22-Jul-02	29-Jul-02	4.9852	4.3754	0.6098	25624.5	15672.5	9952.0	10,426,943	0.0585	98.7%	37.0
5	7196424	29-Jul-02	05-Aug-02	4.8527	4.3417	0.5110	35971.3	25624.5	10346.8	10,840,584	0.0471	102.6%	37.0
6	7196418	05-Aug-02	12-Aug-02	4.8111	4.3461	0.4650	46236.6	35971.3	10265.3	10,755,194	0.0432	101.8%	37.0
7	7196412	12-Aug-02	19-Aug-02	4.9383	4.3794	0.5589	55980.1	46236.6	9743.5	10,180,902	0.0549	96.7%	36.9
8	7196406	19-Aug-02	26-Aug-02	4.9033	4.3838	0.5195	65914.0	55980.1	9933.9	10,379,849	0.0500	98.6%	36.9
9	7367699	26-Aug-02	03-Sep-02	4.8042	4.2488	0.5554	77243.7	65914.0	11329.7	11,838,309	0.0469	98.3%	36.9
10	7367693	03-Sep-02	09-Sep-02	4.4144	4.1975	0.2169	85726.5	77243.7	8482.8	8,791,545	0.0247	98.2%	36.6
11	7367687	09-Sep-02	16-Sep-02	4.3361	4.1875	0.1486	96031.9	85726.5	10305.4	10,622,118	0.0140	102.2%	36.4
12	7367681	16-Sep-02	23-Sep-02	4.4002	4.2150	0.1852	106020.4	96031.9	9988.5	10,295,479	0.0180	99.1%	36.4
13	7367675	23-Sep-02	30-Sep-02	4.6147	4.1951	0.4196	16199.8	6020.4	10179.4	10,492,246	0.0400	101.0%	36.4
	Totals	91	2184.0	4.808477	4.288469	0.5200			130828.7	136,227,290	0.0494	99.8%	36.8

4 on stream % 97.9% **BHV-4** Total Volume: 4.72E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7196447	01-Jul-02	08-Jul-02	4.6155	4.2733	0.3422	90085.4	81567.4	8518.0	8,803,906	0.0389	84.5%	36.5
2	7196441	08-Jul-02	15-Jul-02	5.4390	4.2781	1.1609	100041.8	90085.4	9956.4	10,431,553	0.1113	98.8%	37.0
3	7196435	15-Jul-02	22-Jul-02	4.7408	4.3567	0.3841	10264.6	41.8	10222.8	10,710,666	0.0359	101.4%	37.0
4	7196429	22-Jul-02	29-Jul-02	4.7561	4.3558	0.4003	20143.8	10264.6	9879.2	10,350,668	0.0387	98.0%	37.0
5	7196423	29-Jul-02	05-Aug-02	4.6590	4.3462	0.3128	30084.2	20143.8	9940.4	10,414,789	0.0300	98.6%	37.0
6	7196417	05-Aug-02	12-Aug-02	4.5830	4.3586	0.2244			9929.5	10,403,369	0.0216	0.0%	37.0
7	7196411	12-Aug-02	19-Aug-02	4.7052	4.3688	0.3364	39863.4	30084.2	9779.2	10,218,204	0.0329	97.0%	36.9
8	7196405	19-Aug-02	26-Aug-02	4.6473	4.3539	0.2934	49936.2	39863.4	10072.8	10,524,985	0.0279	99.9%	36.9
9	7367698	26-Aug-02	03-Sep-02	4.4889	4.1655	0.3234	61070.2	49936.2	11134.0	11,633,824	0.0278	96.6%	36.9
10	7367692	03-Sep-02	09-Sep-02	4.3719	4.1930	0.1789	69572.0	61070.2	8501.8	8,811,237	0.0203	98.4%	36.6
11	7367686	09-Sep-02	16-Sep-02	4.3113	4.2204	0.0909	79880.2	69572.0	10308.2	10,625,004	0.0086	102.3%	36.4
12	7367680	16-Sep-02	23-Sep-02	4.3204	4.2045	0.1159	89858.6	79880.2	9978.4	10,285,068	0.0113	99.0%	36.4
13	7367674	23-Sep-02	30-Sep-02	4.5363	4.2090	0.3273	99945.5	89858.6	10086.9	10,396,903	0.0315	100.1%	36.4
	Totals	91	2184.0	4.628823	4.283369	0.3455			128307.6	133,610,178	0.0336	90.4%	36.8

BHV-5 on stream % 91.3% **BHV-5** Total Volume: 4.40E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7196446	01-Jul-02	08-Jul-02	4.6781	4.2566	0.4215	10601.3	2059.6	8541.7	8,828,401	0.0477	84.7%	36.5
2	7196440	08-Jul-02	15-Jul-02	5.4962	4.3054	1.1908	20532.0	10601.3	9930.7	10,404,626	0.1144	98.5%	37.0
3	7196434	15-Jul-02	22-Jul-02	4.8212	4.3439	0.4773	30748.9	20532.0	10216.9	10,704,485	0.0446	101.4%	37.0
4	7196428	22-Jul-02	29-Jul-02	4.7054	4.3618	0.3436	40664.0	30748.9	9915.1	10,388,282	0.0331	98.4%	37.0
5	7196422	29-Jul-02	05-Aug-02	4.6656	4.3373	0.3283	50663.1	40664.0	9999.1	10,476,290	0.0313	99.2%	37.0
6	7196416	05-Aug-02	12-Aug-02	4.6970	4.3757	0.3213	60572.3	50663.1	9909.2	10,382,100	0.0309	98.3%	37.0
7	7196410	12-Aug-02	19-Aug-02	4.8091	4.4052	0.4039	70350.6	60572.3	9778.3	10,217,264	0.0395	97.0%	36.9
8	7196404	19-Aug-02	26-Aug-02	4.7518	4.3847	0.3671	80405.1	70350.6	10054.5	10,505,863	0.0349	99.7%	36.9
9	7367697	26-Aug-02	03-Sep-02	4.6227	4.2139	0.4088	90639.7	80405.1	10234.6	10,694,048	0.0382	88.8%	36.9
10	7367691	03-Sep-02	09-Sep-02	4.3060	4.2285	0.0775	91364.1	90639.7	724.4	750,766	0.1032	8.4%	36.6
1	7685	09-Sep-02	16-Sep-02	4.3463	4.2224	0.1239	101617.7	91364.1	10253.6	10,568,726	0.0117	101.7%	36.4
	679	16-Sep-02	23-Sep-02	4.3645	4.2109	0.1536	11591.6	1617.7	9973.9	10,280,430	0.0149	98.9%	36.4
13	7673	23-Sep-02	30-Sep-02	4.5995	4.2229	0.3766	21690.9	11591.6	10099.3	10,409,684	0.0362	100.2%	36.4
	Totals	91	2184.0	4.6818	4.297631	0.3842			119631.3	124,610,986	0.0447	90.4%	36.8

BHV-6 on stream % 98.0%

BHV-6 Total Volume: 4.72E+06

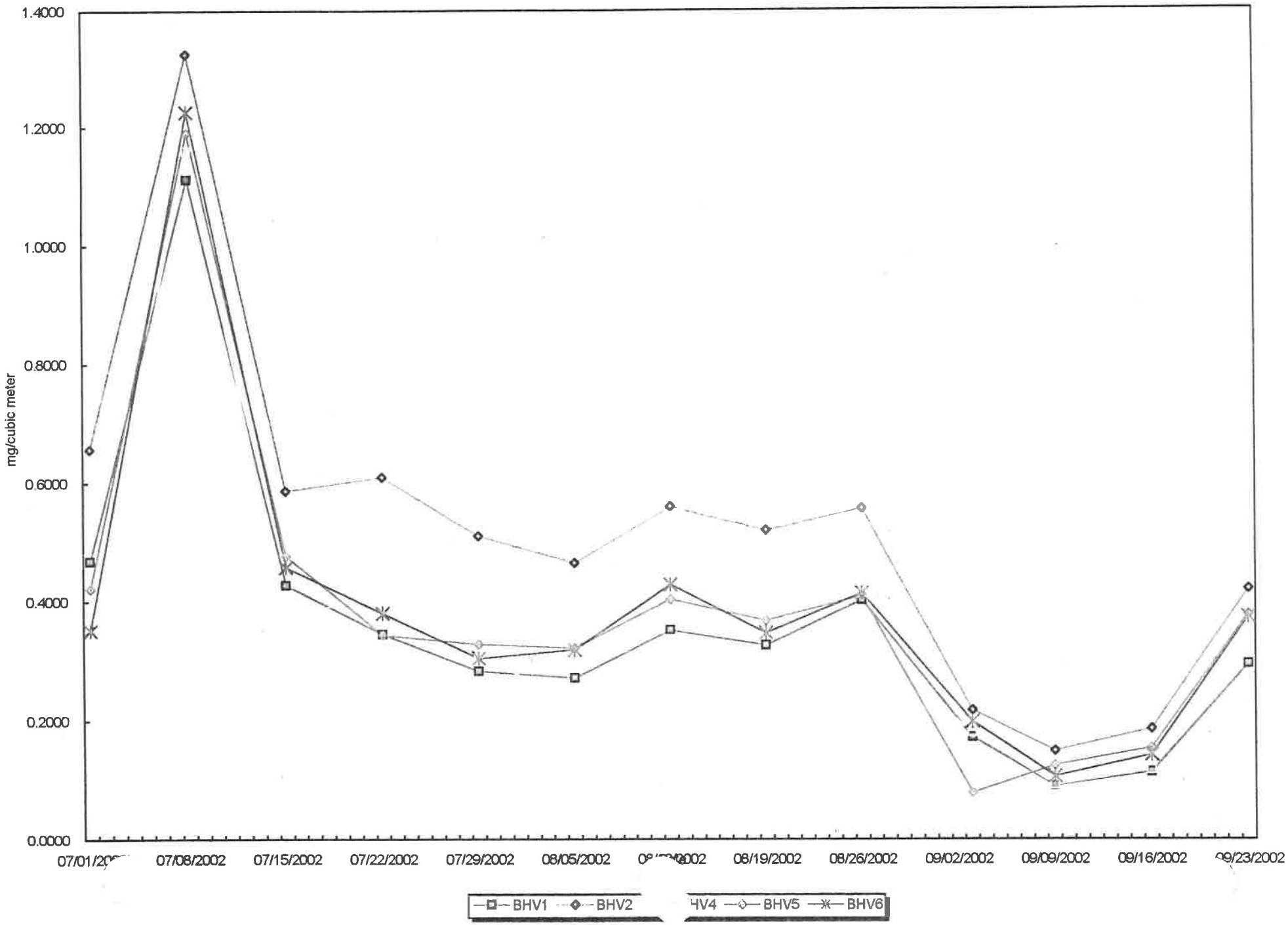
Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7196445	01-Jul-02	08-Jul-02	4.5845	4.2332	0.3513	24619.0	16130.7	8488.3	8,773,209	0.0400	84.2%	36.5
2	6439	08-Jul-02	15-Jul-02	5.5243	4.2979	1.2264	34571.8	24619.0	9952.8	10,427,781	0.1176	98.7%	37.0
3	6433	15-Jul-02	22-Jul-02	4.7673	4.3095	0.4578	44796.1	34571.8	10224.3	10,712,238	0.0427	101.4%	37.0
4	7196427	22-Jul-02	29-Jul-02	4.7565	4.3766	0.3799	54691.7	44796.1	9895.6	10,367,851	0.0366	98.2%	37.0
5	7196421	29-Jul-02	05-Aug-02	4.6542	4.3495	0.3047	64656.2	54691.7	9964.5	10,440,039	0.0292	98.9%	37.0
6	7196415	05-Aug-02	12-Aug-02	4.6946	4.3755	0.3191	74606.1	64656.2	9949.9	10,424,742	0.0306	98.7%	37.0
7	7196409	12-Aug-02	19-Aug-02	4.8009	4.3728	0.4281	84383.7	74606.1	9777.6	10,216,533	0.0419	97.0%	36.9
8	7196403	19-Aug-02	26-Aug-02	4.6528	4.3062	0.3466	94427.0	84383.7	10043.3	10,494,160	0.0330	99.6%	36.9
9	7367696	26-Aug-02	03-Sep-02	4.6529	4.2403	0.4126	105609.4	94427.0	11182.4	11,684,396	0.0353	97.1%	36.9
10	7367690	03-Sep-02	09-Sep-02	4.3845	4.1872	0.1973	14091.4	5609.4	8482.0	8,790,716	0.0224	98.2%	36.6
11	7367684	09-Sep-02	16-Sep-02	4.2740	4.1688	0.1052	24393.3	14091.4	10301.9	10,618,511	0.0099	102.2%	36.4
12	7367678	16-Sep-02	23-Sep-02	4.3247	4.1834	0.1413	34377.6	24393.3	9984.3	10,291,150	0.0137	99.1%	36.4
13	7367672	23-Sep-02	30-Sep-02	4.6143	4.2422	0.3721	44490.8	34377.6	10113.2	10,424,011	0.0357	100.3%	36.4
	Totals	91	2184.0	4.66812	4.28024	0.3879			128360.1	133,665,338	0.0376	98.0%	36.8

* BHV-6 installed 7/1/99

ALL BHV on stream % 97.4%

Week #	Blanks	Start Date	Stop Date	Net
1	7196438	01-Jul-02	08-Jul-02	4.2783
2	7196432	08-Jul-02	15-Jul-02	4.3215
3	7196426	15-Jul-02	22-Jul-02	4.3668
4	7196420	22-Jul-02	29-Jul-02	4.3737
5	7196414	29-Jul-02	05-Aug-02	4.3697
6	7196408	05-Aug-02	12-Aug-02	4.3902
7	7196402	12-Aug-02	19-Aug-02	4.2614
8	7367695	19-Aug-02	26-Aug-02	4.2347
9	7367689	26-Aug-02	03-Sep-02	4.2325
10	7367683	03-Sep-02	09-Sep-02	4.2201
11	7367677	09-Sep-02	16-Sep-02	4.1994
12	7367671	16-Sep-02	23-Sep-02	4.2675
13	7367665	23-Sep-02	30-Sep-02	4.2650
	Totals	91	2184.0	4.2908

White Mesa Mill High Volume Air Sampling Station Third Quarter 2002 Particulate Loading



BHV-1 on stream % 99.8% **BHV-1** Total Volume: 4.81E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7367670	30-Sep-02	7-Oct-02	4.4357	4.3228	0.1129	105347.2	95410.2	9937.0	10,270,535	0.0110	98.6%	36.5
2	7367664	07-Oct-02	14-Oct-02	4.4127	4.2625	0.1502	15314.3	5347.2	9967.1	10,442,763	0.0144	98.9%	37.0
	7367658	14-Oct-02	21-Oct-02	4.3928	4.2504	0.1424	25400.8	15314.3	10086.5	10,567,861	0.0135	100.1%	37.0
	7367652	21-Oct-02	28-Oct-02	4.3598	4.2559	0.1039	35740.7	25400.8	10339.9	10,833,355	0.0096	102.6%	37.0
5	7367646	28-Oct-02	4-Nov-02	4.2955	4.1911	0.1044	45699.2	35740.7	9958.5	10,433,753	0.0100	98.8%	37.0
6	7367640	04-Nov-02	11-Nov-02	4.3016	4.1956	0.1060	55795.6	45699.2	10096.4	10,578,234	0.0100	100.2%	37.0
7	7367634	11-Nov-02	18-Nov-02	4.2857	4.2108	0.0749	65939.6	55795.6	10144.0	10,599,381	0.0071	100.6%	36.9
8	7367628	18-Nov-02	25-Nov-02	4.3373	4.2285	0.1088	75879.7	65939.6	9940.1	10,386,328	0.0105	98.6%	36.9
9	7367622	25-Nov-02	2-Dec-02	4.3272	4.2289	0.0983	85963.1	75879.7	10083.4	10,536,061	0.0093	100.0%	36.9
10	7367616	02-Dec-02	9-Dec-02	4.3611	4.2318	0.1293	96171.4	85963.1	10208.3	10,579,847	0.0122	101.3%	36.6
11	7367610	09-Dec-02	16-Dec-02	4.4094	4.2853	0.1241	106058.5	96171.4	9887.1	10,190,963	0.0122	98.1%	36.4
12	7367604	16-Dec-02	23-Dec-02	4.3714	4.2767	0.0947	16158.8	6058.5	10100.3	10,410,715	0.0091	100.2%	36.4
13	7386298	23-Dec-02	30-Dec-02	4.5370	4.4875	0.0495	26248.3	16158.8	10089.5	10,399,583	0.0048	100.1%	36.4
	Totals	91	2184.0	4.3713231	4.2636769	0.1076			130838.1	136,229,377	0.0103	99.8%	36.8

BHV-2 on stream % 99.9% **BHV-2** Total Volume: 4.82E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7367669	30-Sep-02	07-Oct-02	4.4223	4.2681	0.1542	26273.7	16199.8	10073.9	10,412,030	0.0148	99.9%	36.5
2	7367663	07-Oct-02	14-Oct-02	4.5771	4.2570	0.3201	36238.2	26273.7	9964.5	10,440,039	0.0307	98.9%	37.0
3	7367657	14-Oct-02	21-Oct-02	4.6731	4.2348	0.4383	46306.5	36238.2	10068.3	10,548,793	0.0415	99.9%	37.0
4	7367651	21-Oct-02	28-Oct-02	4.4669	4.2763	0.1906	56644.4	46306.5	10337.9	10,831,259	0.0176	102.6%	37.0
5	7367645	28-Oct-02	04-Nov-02	4.3007	4.1613	0.1394	66628.2	56644.4	9983.8	10,460,260	0.0133	99.0%	37.0
6	7367639	04-Nov-02	11-Nov-02	4.3132	4.1726	0.1406	76702.6	66628.2	10074.4	10,555,184	0.0133	99.9%	37.0
7	7367633	11-Nov-02	18-Nov-02	4.3089	4.2048	0.1041	86846.2	76702.6	10143.6	10,598,963	0.0098	100.6%	36.9
8	7367627	18-Nov-02	25-Nov-02	4.5300	4.2158	0.3142	96785.0	86846.2	9938.8	10,384,969	0.0303	98.6%	36.9
9	7367621	25-Nov-02	02-Dec-02	4.5118	4.2421	0.2697	106895.8	96785.0	10110.8	10,564,691	0.0255	100.3%	36.9
10	7367615	02-Dec-02	09-Dec-02	4.5049	4.2447	0.2602	17093.6	6895.8	10197.8	10,568,965	0.0246	101.2%	36.6
11	7367609	09-Dec-02	16-Dec-02	4.6245	4.2749	0.3496	26981.3	17093.6	9887.7	10,191,581	0.0343	98.1%	36.4
12	7367603	16-Dec-02	23-Dec-02	4.4286	4.2820	0.1466	37083.1	26981.3	10101.8	10,412,261	0.0141	100.2%	36.4
13	7386297	23-Dec-02	30-Dec-02	5.4723	4.4575	1.0148	47172.1	37083.1	10089.0	10,399,068	0.0976	100.1%	36.4
	Totals	91	2184.0	4.54879	4.25322	0.2956			130972.3	136,368,063	0.0283	99.9%	36.8

-4 on stream % 92.4% **BHV-4** Total Volume: 4.45E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7367668	30-Sep-02	07-Oct-02	4.3904	4.2636	0.1268	110232.9	99945.5	10287.4	10,632,696	0.0119	102.1%	36.5
2	7367662	07-Oct-02	14-Oct-02	4.4103	4.2725	0.1378	20081.4	10232.9	9848.5	10,318,503	0.0134	97.7%	37.0
3	7367656	14-Oct-02	21-Oct-02	4.3479	4.2223	0.1256	29564.0	20081.4	9482.6	9,935,141	0.0126	94.1%	37.0
4	7367650	21-Oct-02	28-Oct-02	4.3646	4.2604	0.1042	39938.8	29564.0	10374.8	10,869,920	0.0096	102.9%	37.0
5	7367644	28-Oct-02	04-Nov-02	4.2704	4.1742	0.0962	49872.7	39938.8	9933.9	10,407,979	0.0092	98.6%	37.0
6	7367638	04-Nov-02	11-Nov-02	4.2389	4.1931	0.0458	50552.0	49872.7	679.3	711,718	0.0644	6.7%	37.0
7	7367632	11-Nov-02	18-Nov-02	4.3084	4.2368	0.0716	60661.3	50552.0	10109.3	10,563,123	0.0068	100.3%	36.9
8	7367626	18-Nov-02	25-Nov-02	4.3894	4.2504	0.1390	70621.7	60661.3	9960.4	10,407,539	0.0134	98.8%	36.9
9	7367620	25-Nov-02	02-Dec-02	4.3371	4.2322	0.1049	80690.3	70621.7	10068.6	10,520,596	0.0100	99.9%	36.9
10	7367614	02-Dec-02	09-Dec-02	4.3812	4.2555	0.1257	90930.9	80690.3	10240.6	10,613,323	0.0118	101.6%	36.6
11	7367608	09-Dec-02	16-Dec-02	4.4019	4.2857	0.1162	100815.4	90930.9	9884.5	10,188,283	0.0114	98.1%	36.4
12	7367602	16-Dec-02	23-Dec-02	4.3770	4.2727	0.1043	10911.7	815.4	10096.3	10,406,592	0.0100	100.2%	36.4
13	7386296	23-Dec-02	30-Dec-02	4.5728	4.4919	0.0809	20999.0	10911.7	10087.3	10,397,315	0.0078	100.1%	36.4
	Totals	91	2184.0	4.36848	4.26241	0.1061			121053.5	125,972,729	0.0148	92.4%	36.8

BHV-5 on stream % 99.5% **BHV-5** Total Volume: 4.80E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7367667	30-Sep-02	07-Oct-02	4.4646	4.3037	0.1609	31914.4	21690.9	10223.5	10,566,651	0.0152	101.4%	36.5
2	7367661	07-Oct-02	14-Oct-02	4.4600	4.2555	0.2045	41814.6	31914.4	9900.2	10,372,671	0.0197	98.2%	37.0
3	7367655	14-Oct-02	21-Oct-02	4.4294	4.2365	0.1929	51262.9	41814.6	9448.3	9,899,204	0.0195	93.7%	37.0
4	7367649	21-Oct-02	28-Oct-02	4.3734	4.2478	0.1256	61613.6	51262.9	10350.7	10,844,670	0.0116	102.7%	37.0
5	7367643	28-Oct-02	04-Nov-02	4.3040	4.1761	0.1279	71566.5	61613.6	9952.9	10,427,886	0.0123	98.7%	37.0
6	7367637	04-Nov-02	11-Nov-02	4.3806	4.1894	0.1912	81574.3	71566.5	10007.8	10,485,406	0.0182	99.3%	37.0
7	7367631	11-Nov-02	18-Nov-02	4.3133	4.2044	0.1089	91791.9	81574.3	10217.6	10,676,285	0.0102	101.4%	36.9
8	7367625	18-Nov-02	25-Nov-02	4.3917	4.2336	0.1581	101755.5	91791.9	9963.6	10,410,882	0.0152	98.8%	36.9
9	7367619	25-Nov-02	02-Dec-02	4.4121	4.2468	0.1653	11830.6	1755.5	10075.1	10,527,388	0.0157	100.0%	36.9
10	7367613	02-Dec-02	09-Dec-02	4.4343	4.2600	0.1743	22059.7	11830.6	10229.1	10,601,404	0.0164	101.5%	36.6
	7367607	09-Dec-02	16-Dec-02	4.4825	4.2925	0.1900	31946.7	22059.7	9887.0	10,190,859	0.0186	98.1%	36.4
	7367601	16-Dec-02	23-Dec-02	4.4173	4.2961	0.1212	42043.2	31946.7	10096.5	10,406,798	0.0116	100.2%	36.4
13	7386295	23-Dec-02	30-Dec-02	4.5846	4.4942	0.0904	52133.1	42043.2	10089.9	10,399,995	0.0087	100.1%	36.4
	Totals	91	2184.0	4.41906	4.26435	0.1547			130442.2	135,810,100	0.0148	99.5%	36.8

BHV-6 on stream % 99.5%

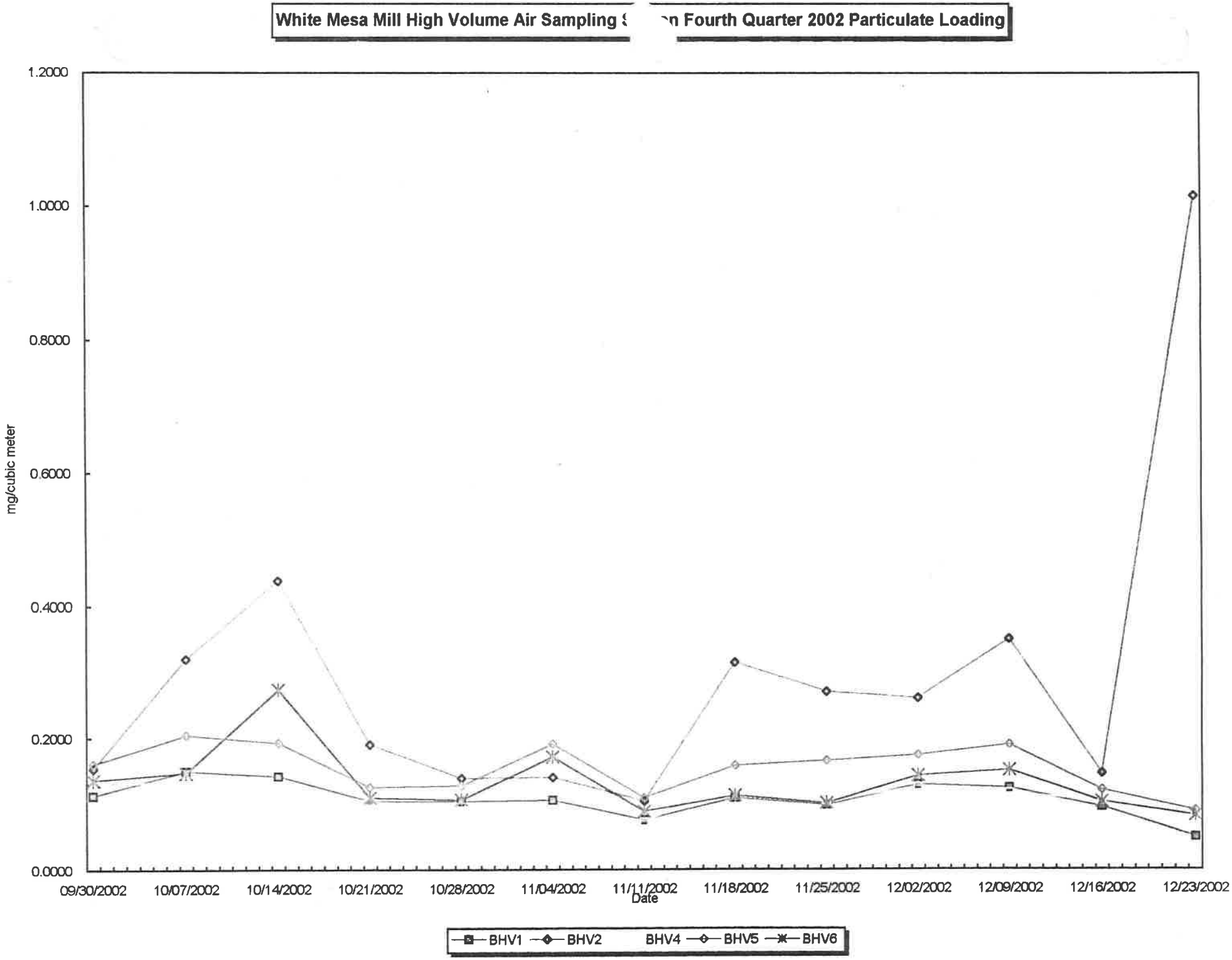
BHV-6 Total Volume: 4.79E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	7367666	30-Sep-02	07-Oct-02	4.4264	4.2901	0.1363	54685.8	44490.8	10195.0	10,537,194	0.0129	101.1%	36.5
[illegible]	7367660	07-Oct-02	14-Oct-02	4.4071	4.2593	0.1478	64598.9	54685.8	9913.1	10,386,186	0.0142	98.3%	37.0
[illegible]	7367654	14-Oct-02	21-Oct-02	4.5502	4.2767	0.2735	73955.2	64598.8	9356.4	9,802,919	0.0279	92.8%	37.0
*	7367648	21-Oct-02	28-Oct-02	4.2712	4.1615	0.1097	84306.6	73955.2	10351.4	10,845,403	0.0101	102.7%	37.0
5	7367642	28-Oct-02	04-Nov-02	4.2940	4.1874	0.1066	94268.1	84306.6	9961.5	10,436,896	0.0102	98.8%	37.0
6	7367636	04-Nov-02	11-Nov-02	4.3645	4.1927	0.1718	104265.7	94268.1	9997.6	10,474,719	0.0164	99.2%	37.0
7	7367630	11-Nov-02	18-Nov-02	4.3247	4.2364	0.0883	14483.3	4265.7	10217.6	10,676,285	0.0083	101.4%	36.9
8	7367624	18-Nov-02	25-Nov-02	4.3550	4.2424	0.1126	24447.3	14483.3	9964.0	10,411,300	0.0108	98.8%	36.9
9	7367618	25-Nov-02	02-Dec-02	4.3416	4.2406	0.1010	34532.0	24447.3	10084.7	10,537,419	0.0096	100.0%	36.9
10	7367612	02-Dec-02	09-Dec-02	4.3893	4.2463	0.1430	44750.2	34532.0	10218.2	10,590,108	0.0135	101.4%	36.6
11	7367606	09-Dec-02	16-Dec-02	4.4510	4.2994	0.1516	54637.7	44750.2	9887.5	10,191,375	0.0149	98.1%	36.4
12	7386300	16-Dec-02	23-Dec-02	4.5672	4.4636	0.1036	64734.8	54637.7	10097.1	10,407,417	0.0100	100.2%	36.4
13	7386294	23-Dec-02	30-Dec-02	4.5695	4.4875	0.0820	74825.6	64734.8	10090.8	10,400,923	0.0079	100.1%	36.4
	Totals	91	2184.0	4.40859	4.27568	0.1329			130334.9	135,698,144	0.0128	99.5%	36.8

* BHV-6 installed 7/1/99

ALL BHV on stream % 98.2%

Week #	Blanks	Start Date	Stop Date	Net
1	7367659	30-Sep-02	07-Oct-02	4.2525
2	7367653	07-Oct-02	14-Oct-02	4.2540
3	7367647	14-Oct-02	21-Oct-02	4.2114
4	7367641	21-Oct-02	28-Oct-02	4.1801
5	7367635	28-Oct-02	04-Nov-02	4.2555
6	7367629	04-Nov-02	11-Nov-02	4.1963
7	7367623	11-Nov-02	18-Nov-02	4.2071
8	7367617	18-Nov-02	25-Nov-02	4.2445
9	7367611	25-Nov-02	02-Dec-02	4.2819
10	7367605	02-Dec-02	09-Dec-02	4.2572
11	7386299	09-Dec-02	16-Dec-02	4.5087
12	7386293	16-Dec-02	23-Dec-02	4.4693
13	7386287	23-Dec-02	30-Dec-02	4.4974
	Totals	91	2184.0	4.2935


White Mesa Mill High Volume Air Sampling S n Fourth Quarter 2002 Particulate Loading
1.2000
1.0000
0.8000
0.6000
0.4000
0.2000
0.0000
mg/cubic meter
09/30/2002
10/07/2002
10/14/2002
10/21/2002
10/28/2002
11/04/2002
11/11/2002
11/18/2002
11/25/2002
12/02/2002
12/09/2002
12/16/2002
12/23/2002
Date
BHV1
BHV2
BHV4
BHV5
BHV6

HIGH VOLUME AIR ANALYSIS REPORT

CLIENT: INTERNATIONAL URANIUM CORPORATION
REPORT DATE: January 24, 2003
DATE SAMPLED: 4th Quarter 2002

EPA Method		200.8	903.0		907.0		NERHL-65-4	
Laboratory Number	Sample I.D.	Uranium pCi/filt.	Radium-226 pCi/filt.	+/-	Thorium-230 pCi/filt.	+/-	Lead-210 pCi/filt.	+/-
C02120961-001A	BHV-1	12.5	6.4	1.5	14.7	2.3	1290	22.1
C02120961-002A	BHV-2	12.5	3.2	1.3	5.9	1.3	939	19.3
C02120961-003A	BHV-4	25.1	11.9	1.7	31.2	3.4	1190	21.4
C02120961-004A	BHV-5	98.1	52.2	5.5	105	6.8	1300	22.1
C02120961-005A	BHV-6	42.5	22.7	2.1	46.1	4.7	1830	25.7
C02120961-006A	BHV-Blank	<0.4	<0.4	-	0.8	0.4	<2.0	-
LLD	pCi/filt	0.4	0.4		0.4		2.0	

final prep volume = 1.89 liters

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: INTERNATIONAL URANIUM CORPORATION
REPORT DATE: January 24, 2003

RELEASE NO. Standing Order

SAMPLE ID: BHV-1

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C02040134-001A	^{nat}U	2.05E-16	N/A	1.00E-16	9.00E-14	2.28E-01
First Quarter 2002	^{230}Th	2.44E-16	3.03E-17	1.00E-16	3.00E-14	8.13E-01
Air Volume in mLs	^{226}Ra	2.29E-16	2.45E-17	1.00E-16	9.00E-13	2.55E-02
1.31E+11	^{210}Pb	8.15E-15	1.64E-16	1.00E-16	6.00E-13	1.36E+00
C02070196-001A	^{nat}U	3.55E-16	N/A	1.00E-16	9.00E-14	3.94E-01
Second Quarter 2002	^{230}Th	4.85E-16	3.75E-17	1.00E-16	3.00E-14	1.62E+00
Air Volume in mLs	^{226}Ra	1.06E-16	-2.89E-18	1.00E-16	9.00E-13	1.17E-02
1.36E+11	^{210}Pb	7.56E-15	1.79E-16	1.00E-16	6.00E-13	1.26E+00
100183-001A	^{nat}U	1.17E-16	N/A	1.00E-16	9.00E-14	1.30E-01
3 Quarter 2002	^{230}Th	1.61E-16	1.15E-17	1.00E-16	3.00E-14	5.37E-01
Air Volume in mLs	^{226}Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
1.36E+11	^{210}Pb	3.68E-15	9.52E-17	1.00E-16	6.00E-13	6.13E-01
C02120961-001A	^{nat}U	< 1.00E-16	N/A	1.00E-16	9.00E-14	< 1.11E-01
Fourth Quarter 2002	^{230}Th	1.03E-16	8.66E-18	1.00E-16	3.00E-14	3.43E-01
Air Volume in mLs	^{226}Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
1.36E+11	^{210}Pb	9.46E-15	1.69E-16	1.00E-16	6.00E-13	1.58E+00

LLD's are from Regulatory Guide 4.14
*** Effluent Concentration provided by International Uranium Corporation**

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: INTERNATIONAL URANIUM CORPORATION
REPORT DATE: January 24, 2003

RELEASE NO. Standing Order

SAMPLE ID: BHV-2

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C02040134-002A	^{nat}U	< 1.00E-16	N/A	1.00E-16	9.00E-14	< 1.11E-01
First Quarter 2002	^{230}Th	< 1.00E-16	N/A	1.00E-16	3.00E-14	< 3.33E-01
Air Volume in mLs	^{226}Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
1.37E+11	^{210}Pb	9.95E-15	1.74E-16	1.00E-16	6.00E-13	1.66E+00
C02070196-002A	^{nat}U	1.25E-16	N/A	1.00E-16	9.00E-14	1.39E-01
Second Quarter 2002	^{230}Th	1.43E-16	1.38E-17	1.00E-16	3.00E-14	4.77E-01
Air Volume in mLs	^{226}Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
1.32E+11	^{210}Pb	8.52E-15	1.77E-16	1.00E-16	6.00E-13	1.42E+00
C03100183-002A	^{nat}U	< 1.00E-16	N/A	1.00E-16	9.00E-14	< 1.11E-01
Quarter 2002	^{230}Th	< 1.00E-16	N/A	1.00E-16	3.00E-14	< 3.33E-01
Air Volume in mLs	^{226}Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
1.32E+11	^{210}Pb	3.69E-15	8.97E-17	1.00E-16	6.00E-13	6.15E-01
C02120961-002A	^{nat}U	< 1.00E-16	N/A	1.00E-16	9.00E-14	< 1.11E-01
Fourth Quarter 2002	^{230}Th	< 1.00E-16	N/A	1.00E-16	3.00E-14	< 3.33E-01
Air Volume in mLs	^{226}Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
1.36E+11	^{210}Pb	6.91E-15	1.41E-16	1.00E-16	6.00E-13	1.15E+00

LLD's are from Regulatory Guide 4.14
* Effluent Concentration provided by International Uranium Corporation

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: INTERNATIONAL URANIUM CORPORATION
REPORT DATE: January 24, 2003

RELEASE NO. Standing Order

SAMPLE ID: BHV-4

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C02040134-003A	^{nat}U	2.20E-16	N/A	1.00E-16	9.00E-14	2.44E-01
First Quarter 2002	^{230}Th	2.05E-16	2.68E-17	1.00E-16	3.00E-14	6.85E-01
Air Volume in mLs	^{226}Ra	1.26E-16	7.44E-18	1.00E-16	9.00E-13	1.41E-02
1.27E+11	^{210}Pb	7.48E-15	1.62E-16	1.00E-16	6.00E-13	1.25E+00
C02070196-003A	^{nat}U	1.97E-16	N/A	1.00E-16	9.00E-14	2.19E-01
Second Quarter 2002	^{230}Th	3.38E-16	3.27E-17	1.00E-16	3.00E-14	1.13E+00
Air Volume in mLs	^{226}Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
1.32E+11	^{210}Pb	7.40E-15	1.80E-16	1.00E-16	6.00E-13	1.23E+00
[illegible]100183-003A	^{nat}U	2.30E-16	N/A	1.00E-16	9.00E-14	2.56E-01
[illegible] Quarter 2002	^{230}Th	4.10E-16	3.13E-17	1.00E-16	3.00E-14	1.37E+00
Air Volume in mLs	^{226}Ra	1.56E-16	5.95E-18	1.00E-16	9.00E-13	1.73E-02
1.32E+11	^{210}Pb	4.21E-15	1.03E-16	1.00E-16	6.00E-13	7.01E-01
C02120961-003A	^{nat}U	< 1.00E-16	N/A	1.00E-16	9.00E-14	< 1.11E-01
Fourth Quarter 2002	^{230}Th	2.42E-16	1.79E-17	1.00E-16	3.00E-14	8.05E-01
Air Volume in mLs	^{226}Ra	< 1.00E-16	N/A	1.00E-16	9.00E-13	< 1.11E-02
1.26E+11	^{210}Pb	9.42E-15	1.68E-16	1.00E-16	6.00E-13	1.57E+00

LLD's are from Regulatory Guide 4.14
*** Effluent Concentration provided by International Uranium Corporation**

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HIGH VOLUME AIR SAMPLING REPORT

CLIENT: INTERNATIONAL URANIUM CORPORATION
REPORT DATE: January 24, 2003

RELEASE NO. Standing Order

SAMPLE ID: BHV-5

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C02040134-004A	^{nat}U	1.26E-15	N/A	1.00E-16	9.00E-14	1.40E+00
First Quarter 2002	^{230}Th	7.53E-16	6.07E-17	1.00E-16	3.00E-14	2.51E+00
Air Volume in mLs	^{226}Ra	7.19E-16	5.52E-17	1.00E-16	9.00E-13	7.99E-02
1.37E+11	^{210}Pb	9.65E-15	1.72E-16	1.00E-16	6.00E-13	1.61E+00
C02070196-004A	^{nat}U	1.02E-15	N/A	1.00E-16	9.00E-14	1.14E+00
Second Quarter 2002	^{230}Th	1.03E-15	6.44E-17	1.00E-16	3.00E-14	3.44E+00
Air Volume in mLs	^{226}Ra	3.39E-16	3.29E-17	1.00E-16	9.00E-13	3.77E-02
1.32E+11	^{210}Pb	7.20E-15	1.72E-16	1.00E-16	6.00E-13	1.20E+00
C02100183-004A	^{nat}U	5.82E-16	N/A	1.00E-16	9.00E-14	6.46E-01
rd Quarter 2002	^{230}Th	9.28E-16	5.73E-17	1.00E-16	3.00E-14	3.09E+00
Air Volume in mLs	^{226}Ra	3.14E-16	1.58E-17	1.00E-16	9.00E-13	3.48E-02
1.32E+11	^{210}Pb	4.48E-15	1.00E-16	1.00E-16	6.00E-13	7.47E-01
C02120961-004A	^{nat}U	< 1.00E-16	N/A	1.00E-16	9.00E-14	< 1.11E-01
Fourth Quarter 2002	^{230}Th	7.67E-16	5.00E-17	1.00E-16	3.00E-14	2.56E+00
Air Volume in mLs	^{226}Ra	3.84E-16	4.03E-17	1.00E-16	9.00E-13	4.26E-02
1.36E+11	^{210}Pb	9.56E-15	1.63E-16	1.00E-16	6.00E-13	1.59E+00

LLD's are from Regulatory Guide 4.14
*** Effluent Concentration provided by International Uranium Corporation**

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120961R0006

HIGH VOLUME AIR SAMPLING REPORT

CLIENT: INTERNATIONAL URANIUM CORPORATION
REPORT DATE: January 24, 2003

RELEASE NO. Standing Order

SAMPLE ID: BHV-6

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Error Estimate µCi/mL	L.L.D. µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C02040134-005A	^{nat}U	4.77E-16	N/A	1.00E-16	9.00E-14	5.31E-01
First Quarter 2002	^{230}Th	2.94E-16	4.10E-17	1.00E-16	3.00E-14	9.82E-01
Air Volume in mLs	^{226}Ra	1.96E-16	1.61E-17	1.00E-16	9.00E-13	2.18E-02
1.29E+11	^{210}Pb	8.61E-15	1.70E-16	1.00E-16	6.00E-13	1.43E+00
C02070196-005A	^{nat}U	3.68E-16	N/A	1.00E-16	9.00E-14	4.09E-01
Second Quarter 2002	^{230}Th	4.41E-16	4.15E-17	1.00E-16	3.00E-14	1.47E+00
Air Volume in mLs	^{226}Ra	1.76E-16	1.29E-17	1.00E-16	9.00E-13	1.96E-02
1.32E+11	^{210}Pb	8.20E-15	1.80E-16	1.00E-16	6.00E-13	1.37E+00
C02100183-005A	^{nat}U	3.67E-16	N/A	1.00E-16	9.00E-14	4.08E-01
d Quarter 2002	^{230}Th	5.60E-16	4.44E-17	1.00E-16	3.00E-14	1.87E+00
Air Volume in mLs	^{226}Ra	1.80E-16	1.29E-17	1.00E-16	9.00E-13	2.00E-02
1.32E+11	^{210}Pb	5.55E-15	1.10E-16	1.00E-16	6.00E-13	9.26E-01
C02120961-004A	^{nat}U	< 1.00E-16	N/A	1.00E-16	9.00E-14	< 1.11E-01
Fourth Quarter 2002	^{230}Th	3.34E-16	3.47E-17	1.00E-16	3.00E-14	1.11E+00
Air Volume in mLs	^{226}Ra	1.67E-16	1.53E-17	1.00E-16	9.00E-13	1.85E-02
1.36E+11	^{210}Pb	1.35E-14	1.89E-16	1.00E-16	6.00E-13	2.24E+00

LLD's are from Regulatory Guide 4.14
*** Effluent Concentration provided by International Uranium Corporation**

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Energy Laboratories Inc.

Sample Receipt Checklist

Client Name: INTRNTNL-URNM-(S)-CRP

Date and Time Received: 12/31/2002 09:00:00

Work Order Number C02120961

Received by: sh

Checklist completed by Sara Hansen (Signature) 12/31/02 (Date)

Reviewed by _____ Initials _____ Date

Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
tainer/Temp Blank temperature in compliance?	Yes ☑	No ☐	NA °C Filter
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑
Adjusted?		Checked by	

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted: Date contacted: _____ Person contacted _____

Contacted by: Regarding:

Comments:

Corrective Action

TRACKING NO. PAGE NO.

120961R0009

ANALYTICAL SUMMARY REPORT

January 24, 2003

David Turk
International Uranium (USA) Corp
6425 S Hwy 191
PO Box 809
Blanding, UT 84511

Workorder No C02120961

Project Name 4th Quarter Environmental Air Sampling

Energy Laboratories Inc. received the following 6 samples from International Uranium (USA) Corp on 12/31/2002 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C02120961-001	BHV-1	12/30/02 0:00	12/31/02	Filter	Composite of two or more samples Metals by ICP-MS, Total Digestion, Total Metals Lead 210 Radium 226 Thorium, Isotopic
C02120961-002	BHV-2	12/30/02 0:00	12/31/02	Filter	Same As Above
C02120961-003	BHV-4	12/30/02 0:00	12/31/02	Filter	Same As Above
C02120961-004	BHV-5	12/30/02 0:00	12/31/02	Filter	Same As Above
2120961-005	BHV-6	12/30/02 0:00	12/31/02	Filter	Same As Above
C02120961-006	BHV-Blank	12/30/02 0:00	12/31/02	Filter	Same As Above

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative or Report.

If you have any questions regarding these tests results, please call.

Report Approved By:

TRACKING NO. PAGE NO.
120961R0010

Date: *24-Jan-03*

CLIENT: International Uranium (USA) Corp
Project: 4th Quarter Environmental Air Sampling
Sample Delivery Group: C02120961

CASE NARRATIVE

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL REPORT

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-cs - Energy Laboratories, Inc. - College Station, TX

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by NELAC. Some client specific reporting requirements may not require NELAC reporting protocol.

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

The total number of pages of this report are indicated by the last four digits of the tracking number located in the lower right corner.

GROUND WATER

ENVIRONMENTAL

MONITORING

RESULTS

FOR

THE PERIOD

OF

JULY 1, 2002

THROUGH

DECEMBER 31, 2002

TABLE V

INTERNATIONAL URANIUM (USA) CORPORATION
WHITE MESA MILL
GROUNDWATER ANALYSIS
SEMI-ANNUAL EFFLUENT REPORT
3rd QUARTER 2002
POINT OF COMPLIANCE PARAMETERS

PARAMETER	MW5	MW11	MW12	MW13*	MW13A**	MW13B***	MW14	MW15	MW15A****	MW17
DATE OF SAMPLE	09/10/02	09/10/02	09/10/02	09/06/02	09/10/02	09/06/02	09/10/02	09/10/02	09/07/01	09/10/02
CASING ELEVATION, ft.	5615.97	5617.80	5616.10	N/A	N/A	N/A	5605.14	5606.81	N/A	5582.09
PHERATIC ELEVATION, ft.	5507.07	5520.82	5502.97	N/A	N/A	N/A	5500.42	5499.65	N/A	5497.05
pH FIELD	7.24	7.54	6.63	N/A	N/A	N/A	6.30	6.52	N/A	6.57
FIELD SP. COND. (uMHOS)	2807.00	2666.00	3804.00	N/A	N/A	N/A	3719.00	4026.00	N/A	4635.00
CHLORIDE (mg/l)	51.80	37.10	60.80	<LLD	31.10	<1.0	20.80	41.40	69.30	33.30
POTASSIUM(mg/l)	7.85	7.42	12.80	<LLD	7.12	<1.0	11.60	10.40	23.50	13.70
NICKEL(mg/l)	<0.05	<0.05	<0.05	<LLD		<0.05	<0.05	<0.05	13.7	<0.05
U-NAT. (ug/l)	<,=1.00E-03	1.00E-03	1.80E-02	<LLD	1.00E-03	<1.00E-03	6.60E-02	5.00E-02	3.90E-02	4.10E-02
U-NAT (µCi/ml)	<LLD	6.77E-10	1.22E-08	0.00E+00	6.77E-10	<LLD	4.47E-08	3.39E-08	2.64E-08	2.78E-08
U-NAT. LLD. (ug/l)	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E+00	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03

MW13 is a DI Rinsate of system prior to sample collection
**MW13A is a Duplicate of MW11
MW13B is a Trip (DI) Blank
MW15A is a Spike of MW15

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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: 3rd Quarter POC Sampling
Lab ID: C02090438-001
Client Sample ID: WMMW #5

Report Date: 11/06/02
Collection Date: 09/10/02 09:40
Date Received: 09/12/02
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	51800	ug/L		1000		E200.7	09/24/02 09:55 / cp
METALS - DISSOLVED							
Nickel	ND	ug/L		50		E200.7	09/24/02 09:55 / cp
Potassium	7850	ug/L		1000		E200.7	09/24/02 09:55 / cp
Uranium	ND	ug/L		1		E200.8	09/23/02 21:24 / smd

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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090421 0030

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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: 3rd Quarter POC Sampling
Lab ID: C02090438-002
Client Sample ID: WMMW #11

Report Date: 11/06/02
Collection Date: 09/10/02 08:55
Date Received: 09/12/02
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	37100	ug/L		1000		E200.7	09/24/02 10:21 / cp
METALS - DISSOLVED							
Nickel	ND	ug/L		50		E200.7	09/24/02 10:21 / cp
Potassium	7420	ug/L		1000		E200.7	09/24/02 10:21 / cp
Uranium	1	ug/L		1		E200.8	09/23/02 21:45 / smd

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

t: International Uranium (USA) Corp
ject: 3rd Quarter POC Sampling
Lab ID: C02090438-003
Client Sample ID: WMMW #12

Report Date: 11/06/02
Collection Date: 09/10/02 10:30
Date Received: 09/12/02
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	60800	ug/L		1000		E200.7	09/24/02 10:25 / cp
METALS - DISSOLVED							
Nickel	ND	ug/L		50		E200.7	09/24/02 10:25 / cp
Potassium	12800	ug/L		1000		E200.7	09/24/02 10:25 / cp
Uranium	18	ug/L		1		E200.8	09/23/02 21:48 / smd

Report efinitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

International Uranium (USA) Corp
t: 3rd Quarter POC Sampling
Lab ID: C02090438-004
Client Sample ID: WMMW #13

Report Date: 11/06/02
Collection Date: 09/06/02 13:30
Date Received: 09/12/02
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	ND	ug/L		1000		E200.7	09/24/02 10:29 / cp
METALS - DISSOLVED							
Nickel	ND	ug/L		50		E200.7	09/24/02 10:29 / cp
Potassium	ND	ug/L		1000		E200.7	09/24/02 10:29 / cp
Uranium	ND	ug/L		1		E200.8	09/23/02 21:51 / smd

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

t: International Uranium (USA) Corp
t: 3rd Quarter POC Sampling
Lab ID: C02090438-005
Client Sample ID: WMMW #13A

Report Date: 11/06/02
Collection Date: 09/06/02 08:55
Date Received: 09/12/02
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	31100	ug/L		1000		E200.7	09/24/02 10:44 / cp
METALS - DISSOLVED							
Nickel	ND	ug/L		50		E200.7	09/24/02 10:44 / cp
Potassium	7120	ug/L		1000		E200.7	09/24/02 10:44 / cp
Uranium	1	ug/L		1		E200.8	09/23/02 21:54 / smd

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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090421 0054

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LABORATORY ANALYTICAL REPORT

t: International Uranium (USA) Corp
:t: 3rd Quarter POC Sampling
Lab ID: C02090438-006
Client Sample ID: WMMW #13B (Trip Blank)

Report Date: 11/06/02
Collection Date: 09/10/02 13:00
Date Received: 09/12/02
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	ND	ug/L		1000		E200.7	09/24/02 10:48 / cp
METALS - DISSOLVED							
Nickel	ND	ug/L		50		E200.7	09/24/02 10:48 / cp
Potassium	ND	ug/L		1000		E200.7	09/24/02 10:48 / cp
Uranium	ND	ug/L		1		E200.8	09/23/02 21:57 / smd

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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090421 0059

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LABORATORY ANALYTICAL REPORT

t: International Uranium (USA) Corp
ct: 3rd Quarter POC Sampling
Lab ID: C02090438-007
Client Sample ID: WMMW #14

Report Date: 11/06/02
Collection Date: 09/10/02 13:30
Date Received: 09/12/02
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	20800	ug/L		1000		E200.7	09/24/02 10:52 / cp
METALS - DISSOLVED							
Nickel	ND	ug/L		50		E200.7	09/24/02 10:52 / cp
Potassium	11600	ug/L		1000		E200.7	09/24/02 10:52 / cp
Uranium	66	ug/L		1		E200.8	09/23/02 22:00 / smd

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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090421 0063

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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: 3rd Quarter POC Sampling
Lab ID: C02090438-009
Client Sample ID: WMMW #15

Report Date: 11/06/02
Collection Date: 09/10/02 14:20
Date Received: 09/12/02
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	41400	ug/L		1000		E200.7	09/24/02 11:00 / cp
METALS - DISSOLVED							
Nickel	ND	ug/L		50		E200.7	09/24/02 11:00 / cp
Potassium	10400	ug/L		1000		E200.7	09/24/02 11:00 / cp
Uranium	50	ug/L		1		E200.8	09/23/02 22:06 / smd

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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090421 0072

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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: 3rd Quarter POC Sampling
Lab ID: C02090438-010
Client Sample ID: WMMW #15A

Report Date: 11/06/02
Collection Date: 09/09/02 07:00
Date Received: 09/12/02
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	69300	ug/L		1000		E200.7	09/24/02 11:03 / cp
METALS - DISSOLVED							
Nickel	13700	ug/L		50		E200.7	09/24/02 11:03 / cp
Potassium	23500	ug/L		1000		E200.7	09/24/02 11:03 / cp
Uranium	5220	ug/L		1		E200.8	09/23/02 22:18 / smd

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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090421 0077

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LABORATORY ANALYTICAL REPORT

Client: International Uranium (USA) Corp
Project: 3rd Quarter POC Sampling
Lab ID: C02090438-011
Client Sample ID: WMMW #17

Report Date: 11/06/02
Collection Date: 09/10/02 11:30
Date Received: 09/12/02
Matrix: AQUEOUS

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Chloride	33300	ug/L		1000		E200.7	09/24/02 11:07 / cp
METALS - DISSOLVED							
Nickel	ND	ug/L		50		E200.7	09/24/02 11:07 / cp
Potassium	13700	ug/L		1000		E200.7	09/24/02 11:07 / cp
Uranium	41	ug/L		1		E200.8	09/23/02 22:21 / smd

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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090421 0081

TABLE V

INTERNATIONAL URANIUM (USA) CORPORATION
WHITE MESA MILL
GROUNDWATER ANALYSIS
SEMI-ANNUAL EFFLUENT REPORT
4th QUARTER 2002
POINT OF COMPLIANCE PARAMETERS

PARAMETER	MW5	MW11	MW12	MW13	MW13A	MW13B	MW14	MW15	MW15A	MW17
DATE OF SAMPLE	11/21/02	11/21/02	11/21/02	11/20/02	11/21/02	11/20/02	11/21/02	11/21/02	11/21/02	11/21/02
CASING ELEVATION, ft.	5615.97	5617.80	5616.10	N/A	N/A	N/A	5605.14	5606.91	NA	5582.09
PHERATIC ELEVATION, ft.	107.40	5520.72	5504.73	N/A	N/A	N/A	5500.11	5499.46	NA	5497.14
pH FIELD	7.85	8.13	6.64	N/A	N/A	N/A	7.26	7.31	NA	7.30
FIELD SP. COND. (uMHOS)	2708.00	2624.00	3930.00	N/A	N/A	N/A	3672.00	4064.00	NA	4651.00
CHLORIDE (mg/l)	37.50	37.70	37.60	<1.00	21.00	<1.00	12.70	24.10	45.10	14.10
POTASSIUM (mg/l)	7.30	6.70	10.00	<1.00	6.00	<1.00	10.10	9.30	22.30	12.40
NICKEL (mg/l)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	11.10	<0.05
U-NAT. (mg/l)	4.00E-04	1.00E-03	1.99E-02	<0.0003	9.00E-04	<0.0003	6.41E-02	4.45E-02	5.47E-01	3.69E-02
U-NAT (µCi/ml)	2.71E-10	6.77E-10	1.35E-08	<LLD	6.09E-10	<LLD	4.34E-08	3.01E-08	3.70E-07	2.50E-08
U-NAT. LLD. (mg/l)	3.00E-04	3.00E-04	3.00E-04	3.0E-04	3.0E-04	3.0E-04	3.00E-04	3.00E-04	3.00E-04	3.00E-04

MW13 is a DI Rinsate of system prior to sample collection
**MW13A is a Duplicate of MW11
MW13B is a Trip (DI) Blank
MW15A is a Spike of MW15

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LABORATORY ANALYTICAL REPORT

Lab Order: C02110835
Report Date: 12/23/02

t: International Uranium (USA) Corp
Project: 4th Quarter POC Sampling

Lab ID: C02110835-001
Client Sample ID: WMMW #5
Matrix: AQUEOUS

Collection Date: 11/21/02 09:26
DateReceived: 11/26/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Chloride	37.5	mg/L		1.0		E200.7	12/18/02 10:04 / ts
Nickel	ND	mg/L		0.050		E200.7	12/18/02 10:04 / ts
Potassium	7.3	mg/L		1.0		E200.7	12/18/02 10:04 / ts
Uranium	0.0004	mg/L		0.0003		E200.8	12/05/02 17:16 / smd

0.2708 pCi/L
2.708E-10 uCi/ml

Lab ID: C02110835-002
Client Sample ID: WMMW #11
Matrix: AQUEOUS

Collection Date: 11/21/02 07:45
DateReceived: 11/26/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Chloride	37.7	mg/L		1.0		E200.7	12/18/02 10:07 / ts
Nickel	ND	mg/L		0.050		E200.7	12/18/02 10:07 / ts
ssium	6.7	mg/L		1.0		E200.7	12/18/02 10:07 / ts
nium	0.0010	mg/L		0.0003		E200.8	12/05/02 17:30 / smd

6.77E-1 pCi/L
6.77E-10 uCi/ml

Lab ID: C02110835-003
Client Sample ID: WMMW #12
Matrix: AQUEOUS

Collection Date: 11/21/02 10:02
DateReceived: 11/26/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Chloride	37.6	mg/L		1.0		E200.7	12/18/02 10:10 / ts
Nickel	ND	mg/L		0.050		E200.7	12/18/02 10:10 / ts
Potassium	10	mg/L		1.0		E200.7	12/18/02 10:10 / ts
Uranium	0.0199	mg/L		0.0003		E200.8	12/05/02 17:41 / smd

1.34723E' pCi/L
1.347E-8 uCi/ml

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACKING NO. PAGE NO.
110835R0001

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LABORATORY ANALYTICAL REPORT

:: International Uranium (USA) Corp
Project: 4th Quarter POC Sampling

Lab Order: C02110835
Report Date: 12/23/02

Lab ID: C02110835-004
Client Sample ID: WMMW #13
Matrix: AQUEOUS

Collection Date: 11/20/02 10:00
DateReceived: 11/26/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Chloride	ND	mg/L		1.0		E200.7	12/18/02 10:13 / ts
Nickel	ND	mg/L		0.050		E200.7	12/18/02 10:13 / ts
Potassium	ND	mg/L		1.0		E200.7	12/18/02 10:13 / ts
Uranium	ND	mg/L		0.0003		E200.8	12/05/02 17:44 / smd

Lab ID: C02110835-005
Client Sample ID: WMMW #13A
Matrix: AQUEOUS

Collection Date: 11/21/02 07:45
DateReceived: 11/26/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Chloride	21.0	mg/L		1.0		E200.7	12/18/02 10:16 / ts
Nickel	ND	mg/L		0.050		E200.7	12/18/02 10:16 / ts
ssium	6.0	mg/L		1.0		E200.7	12/18/02 10:16 / ts
ium	0.0009	mg/L		0.0003		E200.8	12/05/02 17:48 / smd

Lab ID: C02110835-006
Client Sample ID: WMMW #13B (Trip Blank)
Matrix: AQUEOUS

Collection Date: 11/20/02 09:00
DateReceived: 11/26/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Chloride	ND	mg/L		1.0		E200.7	12/18/02 10:19 / ts
Nickel	ND	mg/L		0.050		E200.7	12/18/02 10:19 / ts
Potassium	ND	mg/L		1.0		E200.7	12/18/02 10:19 / ts
Uranium	ND	mg/L		0.0003		E200.8	12/05/02 17:51 / smd

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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110835R0002

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LABORATORY ANALYTICAL REPORT

Lab Order: C02110835
Report Date: 12/23/02

Client: International Uranium (USA) Corp
Project: 4th Quarter POC Sampling

Lab ID: C02110835-007
Client Sample ID: WMMW #14
Matrix: AQUEOUS

Collection Date: 11/21/02 08:16
DateReceived: 11/26/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Chloride	12.7	mg/L		1.0		E200.7	12/18/02 10:22 / ts
Nickel	ND	mg/L		0.050		E200.7	12/18/02 10:22 / ts
Potassium	10.1	mg/L		1.0		E200.7	12/18/02 10:22 / ts
Uranium	0.0641	mg/L		0.0003		E200.8	12/05/02 17:55 / smd

4.34 x 10¹ pCi/L
4.34 E⁻⁸ uCi/ml

Lab ID: C02110835-008
Client Sample ID: WMMW #14A
Matrix: AQUEOUS

Collection Date: 11/21/02 11:00
DateReceived: 11/26/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Chloride	ND	mg/L		1.0		E200.7	12/17/02 13:09 / cp
Nickel	ND	mg/L		0.050		E200.7	12/17/02 13:09 / cp
[illegible]assium	ND	mg/L		1.0		E200.7	12/17/02 13:09 / cp
[illegible]anium	ND	mg/L		0.0003		E200.8	12/05/02 17:58 / smd

3.01 x 10¹ pCi/L

Lab ID: C02110835-009
Client Sample ID: WMMW #15
Matrix: AQUEOUS

Collection Date: 11/21/02 08:50
DateReceived: 11/26/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Chloride	24.1	mg/L		1.0		E200.7	12/17/02 13:17 / cp
Nickel	ND	mg/L		0.050		E200.7	12/17/02 13:17 / cp
Potassium	9.3	mg/L		1.0		E200.7	12/17/02 13:17 / cp
Uranium	0.0445	mg/L		0.0003		E200.8	12/05/02 18:12 / smd

3.01 E⁻⁸ uCi/ml
3.01 x 10¹ pCi/L

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACKING NO. PAGE NO.
110835R0003

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LABORATORY ANALYTICAL REPORT

t: International Uranium (USA) Corp
ect: 4th Quarter POC Sampling

Lab Order: C02110835
Report Date: 12/23/02

Lab ID: C02110835-010
Client Sample ID: WMMW #15A
Matrix: AQUEOUS

Collection Date: 11/21/02 10:30
DateReceived: 11/26/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Chloride	45.1	mg/L		1.0		E200.7	12/17/02 13:25 / cp
Nickel	11.1	mg/L		0.050		E200.7	12/17/02 13:25 / cp
Potassium	22.3	mg/L		1.0		E200.7	12/17/02 13:25 / cp
Uranium	0.547	mg/L		0.0003		E200.8	12/18/02 19:59 / smd

Lab ID: C02110835-011
Client Sample ID: WMMW #17
Matrix: AQUEOUS

Collection Date: 11/21/02 11:16
DateReceived: 11/26/02

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Chloride	14.1	mg/L		1.0		E200.7	12/17/02 13:32 / cp
Nickel	ND	mg/L		0.050		E200.7	12/17/02 13:32 / cp
ssium	12.4	mg/L		1.0		E200.7	12/17/02 13:32 / cp
um	0.0369	mg/L		0.0003		E200.8	12/18/02 20:03 / smd

2.498E' pCi/L
2.498E^{-8} uCi/ml

Report Definitions: RL - Analyte reporting limit. QCL - Quality control limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

TRACKING NO. PAGE NO.
110835R0004

QA/QC Summary Report

Client: International Uranium (USA) Corp
Project: 4th Quarter POC Sampling

Report Date: 12/24/02
Work Order: C02110835

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
									Analytical Run: ICP1-C_021217A
Method: E200.7									
Sample ID: Calibration Blank-07100	Initial Calibration Blank, Instrument Blank								12/17/02 10:14
Chloride	10.8	mg/L	1.00	0	0	0			
Nickel	5.57	mg/L	0.0500	0	0	0			
Potassium	8310	mg/L	1.00	0	0	0			
Sample ID: TM-ICV/CCV-070502-90	Initial Calibration Verification Standard								12/17/02 10:24
Nickel	0.995	mg/L	0.0500	99.5	90	110			
Sample ID: Cl-SO4 ICV/CCV-091102-	Initial Calibration Verification Standard								12/17/02 10:27
Chloride	45.9	mg/L	1.00	91.8	90	110			
Sample ID: Ca,Mg,Na,K ICV/CCV-09	Initial Calibration Verification Standard								12/17/02 10:29
Potassium	48.7	mg/L	1.00	97.4	90	110			
Sample ID: Calibration blank	Initial Calibration Blank, Instrument Blank								12/17/02 10:33
Chloride	-0.0429	mg/L	1.00	0	0	0			
Nickel	-0.00970	mg/L	0.0500	0	0	0			
Potassium	0.102	mg/L	1.00	0	0	0			
nple ID: Calibration blank	Continuing Calibration Blank								12/17/02 10:47
Chloride	-0.287	mg/L	1.00						
Nickel	-0.0124	mg/L	0.0500						
Potassium	0.0719	mg/L	1.00						
Sample ID: Calibration blank	Continuing Calibration Blank								12/17/02 11:48
Chloride	-0.339	mg/L	1.00						
Nickel	0.00560	mg/L	0.0500						
Potassium	0.441	mg/L	1.00						
Sample ID: Calibration blank	Continuing Calibration Blank								12/17/02 12:54
Chloride	-0.0277	mg/L	1.00						
Nickel	-0.00510	mg/L	0.0500						
Potassium	0.680	mg/L	1.00						
Sample ID: Calibration blank	Continuing Calibration Blank								12/17/02 13:48
Chloride	-0.768	mg/L	1.00						
Nickel	0.0172	mg/L	0.0500						
Potassium	0.0355	mg/L	1.00						
Sample ID: Calibration blank	Continuing Calibration Blank								12/17/02 14:46
Chloride	-0.270	mg/L	1.00						
Nickel	0.0124	mg/L	0.0500						
Potassium	0.0511	mg/L	1.00						
Sample ID: Calibration blank	Continuing Calibration Blank								12/17/02 15:36
Chloride	4.94	mg/L	1.00						

alifiers: ND - Not Detected at the Reporting Limit
R - RPD outside of recommended recovery limits
S - Spike Recovery outside of recommended recovery limits

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110835R0005

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QA/QC Summary Report

Client: International Uranium (USA) Corp
Project: 4th Quarter POC Sampling

Report Date: 12/24/02
Work Order: C02110835

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Analytical Run: ICP1-C_021217A	
Sample ID: Calibration blank	Continuing Calibration Blank							12/17/02 15:36	
Nickel	0.00400	mg/L	0.0500						
Potassium	2.02	mg/L	1.00						
Sample ID: TM-ICV/CCV-070502-90	Initial Calibration Verification Standard							12/17/02 15:52	
Nickel	0.944	mg/L	0.0500	94.4	90	110			
Sample ID: Cl-SO4 ICV/CCV-091102-	Initial Calibration Verification Standard							12/17/02 15:54	
Chloride	48.9	mg/L	1.00	97.8	90	110			
Sample ID: Ca,Mg,Na,K ICV/CCV-09	Initial Calibration Verification Standard							12/17/02 15:57	
Potassium	46.6	mg/L	1.00	93.2	90	110			
Sample ID: Calibration blank	Initial Calibration Blank, Instrument Blank							12/17/02 16:01	
Chloride	-0.966	mg/L	1.00	0	0	0			
Nickel	0.00220	mg/L	0.0500	0	0	0			
Potassium	-0.446	mg/L	1.00	0	0	0			
Sample ID: Calibration blank	Continuing Calibration Blank							12/17/02 16:30	
Chloride	-0.823	mg/L	1.00						
Nickel	-0.0153	mg/L	0.0500						
Potassium	-0.644	mg/L	1.00						
Method: E200.7								Batch: R17208	
Sample ID: LFB-050702-89	Laboratory Fortified Blank							12/17/02 10:36	
Chloride	19.5	mg/L	1.00	97.7	80	120			
Nickel	0.914	mg/L	0.0500	91.4	80	120			
Sample ID: C02120500-042AMSD1	Matrix Spike Duplicate							12/17/02 12:31	
Potassium	50.9	mg/L	1.00	98.4	80	120	0	20	
Sample ID: C02110810-001AMS1	Matrix Spike							12/17/02 14:31	
Potassium	460	mg/L	1.00	89.5	80	120			
Sample ID: C02110810-001AMSD1	Matrix Spike Duplicate							12/17/02 14:54	
Potassium	473	mg/L	1.00	92	80	120	2.7	20	

Qualifiers: ND - Not Detected at the Reporting Limit
R - RPD outside of recommended recovery limits
S - Spike Recovery outside of recommended recovery limits

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110835R0006

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QA/QC Summary Report

Client: International Uranium (USA) Corp
Project: 4th Quarter POC Sampling

Report Date: 12/24/02
Work Order: C02110835

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
								Analytical Run: ICP1-C_021218B	
Method: E200.7									
Sample ID: Calibration blank	Initial Calibration Blank, Instrument Blank							12/18/02 09:48	
Chloride	-0.558	mg/L	1.00	0	0	0			
Nickel	0.00750	mg/L	0.0500	0	0	0			
Potassium	0.395	mg/L	1.00	0	0	0			
Sample ID: Calibration blank	Initial Calibration Blank, Instrument Blank							12/18/02 10:01	
Chloride	-0.0390	mg/L	1.00	0	0	0			
Nickel	-0.00240	mg/L	0.0500	0	0	0			
Potassium	0.128	mg/L	1.00	0	0	0			
Sample ID: Calibration blank	Continuing Calibration Blank							12/18/02 10:35	
Chloride	-0.675	mg/L	1.00						
Nickel	0.0277	mg/L	0.0500						
Potassium	0.758	mg/L	1.00						
Sample ID: Calibration blank	Continuing Calibration Blank							12/18/02 11:27	
Chloride	-0.691	mg/L	1.00						
Nickel	-0.00730	mg/L	0.0500						
Potassium	0.430	mg/L	1.00						
Sample ID: Calibration blank	Continuing Calibration Blank							12/18/02 12:30	
Chloride	-0.163	mg/L	1.00						
Nickel	-0.0364	mg/L	0.0500						
Potassium	0.298	mg/L	1.00						
Sample ID: TM-ICV/CCV-070502-90	Initial Calibration Verification Standard							12/18/02 12:39	
Nickel	0.958	mg/L	0.0500	95.8	90	110			
Sample ID: Calibration blank	Continuing Calibration Blank							12/18/02 13:11	
Nickel	-0.0164	mg/L	0.0500						
Potassium	0.290	mg/L	1.00						
								Batch: R17233	
Method: E200.7									
Sample ID: C02120255-001AMS1	Matrix Spike							12/18/02 11:07	
Potassium	482	mg/L	1.00	86.8	80	120			
Sample ID: C02120255-001AMS2	Matrix Spike							12/18/02 11:10	
Nickel	8.09	mg/L	0.346	80.9	80	120			
Sample ID: C02120255-001AMSD1	Matrix Spike Duplicate							12/18/02 11:17	
Potassium	490	mg/L	1.00	88.5	80	120	1.8	20	
Sample ID: C02120255-001AMSD2	Matrix Spike Duplicate							12/18/02 11:30	
Nickel	8.69	mg/L	0.346	86.9	80	120	7.2	20	

Qualifiers: ND - Not Detected at the Reporting Limit
R - RPD outside of recommended recovery limits
S - Spike Recovery outside of recommended recovery limits

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110835R0007

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QA/QC Summary Report

Client: International Uranium (USA) Corp
Project: 4th Quarter POC Sampling

Report Date: 12/24/02
Work Order: C02110835

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS1-C_021205A
Sample ID: ICV	Initial Calibration Verification Standard								12/05/02 16:31
Uranium	0.0508	mg/L	0.00100	102	90	110			
Sample ID: CCB	Continuing Calibration Blank								12/05/02 16:38
Uranium	0.00000100	mg/L	0.00100						
Sample ID: CCV	Continuing Calibration Verification Standard								12/05/02 16:41
Uranium	0.0507	mg/L	0.00100	101	85	115			

lifiers: ND - Not Detected at the Reporting Limit
R - RPD outside of recommended recovery limits
S - Spike Recovery outside of recommended recovery limits

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QA/QC Summary Report

Client: International Uranium (USA) Corp
Project: 4th Quarter POC Sampling

Report Date: 12/24/02
Work Order: C02110835

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS1-C_021205A	
Sample ID: CCB	Continuing Calibration Blank							12/05/02 17:20	
Uranium	0.00000100	mg/L	0.00100						
Sample ID: CCV	Continuing Calibration Verification Standard							12/05/02 17:23	
Uranium	0.0500	mg/L	0.00100	99.9	85	115			
Sample ID: CCB	Continuing Calibration Blank							12/05/02 18:02	
Uranium	0.00000300	mg/L	0.00100						
Sample ID: CCV	Continuing Calibration Verification Standard							12/05/02 18:05	
Uranium	0.0472	mg/L	0.00100	94.3	85	115			
Sample ID: CCB	Continuing Calibration Blank							12/05/02 18:44	
Uranium	0.0000340	mg/L	0.00100						
Sample ID: ICV	Initial Calibration Verification Standard							12/05/02 23:11	
Uranium	0.0512	mg/L	0.00100	102	90	110			
Method: E200.8								Batch: ICPMS1-C120502b	
Sample ID: C02110835-002AMS	Matrix Spike							12/05/02 17:34	
Uranium	0.0611	mg/L	0.000300	120	70	130			
Sample ID: C02110835-002AMSD	Matrix Spike Duplicate							12/05/02 17:37	
Uranium	0.0551	mg/L	0.000300	108	70	130	10	20	
Sample ID: C02120079-003AMS	Matrix Spike							12/05/02 19:19	
Uranium	0.0484	mg/L	0.000300	92.9	70	130			
Sample ID: C02120079-003AMSD	Matrix Spike Duplicate							12/05/02 19:22	
Uranium	0.0464	mg/L	0.000300	88.8	70	130	4.3	20	
Sample ID: C02120079-013AMS	Matrix Spike							12/05/02 20:43	
Uranium	0.0419	mg/L	0.000300	83.2	70	130			
Sample ID: C02120079-013AMSD	Matrix Spike Duplicate							12/05/02 20:47	
Uranium	0.0426	mg/L	0.000300	84.6	70	130	1.7	20	
Method: E200.8								Analytical Run: ICPMS1-C_021218A	
Sample ID: ICV	Initial Calibration Verification Standard							12/18/02 13:01	
Uranium	0.0526	mg/L	0.00100	105	90	110			
Sample ID: CCB	Continuing Calibration Blank							12/18/02 13:08	
Uranium	0.0000100	mg/L	0.00100						

Qualifiers: ND - Not Detected at the Reporting Limit
R - RPD outside of recommended recovery limits
S - Spike Recovery outside of recommended recovery limits

TRACKING NO. PAGE NO.
110835R0009

QA/QC Summary Report

Client: International Uranium (USA) Corp
Project: 4th Quarter POC Sampling

Report Date: 12/24/02
Work Order: C02110835

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS1-C_021218A	
Sample ID: ICV	Initial Calibration Verification Standard							12/18/02 17:02	
Uranium	0.0506	mg/L	0.00100	101	90	110			
Sample ID: CCV	Continuing Calibration Verification Standard							12/18/02 19:31	
Uranium	0.0513	mg/L	0.00100	103	85	115			
Sample ID: CCB	Continuing Calibration Blank							12/18/02 20:10	
Uranium	0.000147	mg/L	0.00100						
Method: E200.8								Batch: ICPMS1-C121802b	
Sample ID: C02120191-006AMS	Matrix Spike							12/18/02 17:59	
Uranium	0.0814	mg/L	0.000300	110	70	130			
Sample ID: C02120191-006AMSD	Matrix Spike Duplicate							12/18/02 18:13	
Uranium	0.0736	mg/L	0.000300	94.2	70	130	10	20	
Sample ID: C02120342-001AMS	Matrix Spike							12/18/02 19:03	
Uranium	0.0468	mg/L	0.000300	93.6	70	130			
Sample ID: C02120342-001AMSD	Matrix Spike Duplicate							12/18/02 19:06	
Uranium	0.0472	mg/L	0.000300	94.4	70	130	0.9	20	
Sample ID: C02120168-005AMSD	Matrix Spike Duplicate							12/18/02 20:28	
Uranium	1.69	mg/L	0.000300	88	70	130	1.4	20	

Qualifiers: ND - Not Detected at the Reporting Limit
R - RPD outside of recommended recovery limits
S - Spike Recovery outside of recommended recovery limits

TRACKING NO. PAGE NO.
110835R0010

Energy Laboratories Inc.

Sample Receipt Checklist

Client Name: INTRNTNL-URNM-(S)-CRP

Date and Time Received: 11/26/2002 10:00:00

Work Order Number C02110835

Received by: sh

Checklist completed by Sara Hawker (Signature) 11/26/02 (Date)

Reviewed by _____ Initials _____ Date

Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
Samples received within holding time?	Yes ☑	No ☐	
Cooler/Temp Blank temperature in compliance?	Yes ☑	No ☐	-1 °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Adjusted? _____ Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments:

Corrective Action _____

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110835R0013

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ANALYTICAL SUMMARY REPORT

[illegible]ember 23, 2002

David Turk
International Uranium (USA) Corp
6425 S Hwy 191
PO Box 809
Blanding, UT 84511

Workorder No.: C02110835

Project Name: 4th Quarter POC Sampling

Energy Laboratories Inc. received the following 11 samples from International Uranium (USA) Corp on 11/26/2002 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C02110835-001	WMMW #5	11/21/02 09:26	11/26/02	Aqueous	Metals by ICP, Dissolved Uranium, Dissolved
C02110835-002	WMMW #11	11/21/02 07:45	11/26/02	Aqueous	Same As Above
C02110835-003	WMMW #12	11/21/02 10:02	11/26/02	Aqueous	Same As Above
C02110835-004	WMMW #13	11/20/02 10:00	11/26/02	Aqueous	Same As Above
C02110835-005	WMMW #13A	11/21/02 07:45	11/26/02	Aqueous	Same As Above
C02110835-006	WMMW #13B (Trip Blank)	11/20/02 09:00	11/26/02	Aqueous	Same As Above
110835-007	WMMW #14	11/21/02 08:16	11/26/02	Aqueous	Same As Above
C02110835-008	WMMW #14A	11/21/02 11:00	11/26/02	Aqueous	Same As Above
C02110835-009	WMMW #15	11/21/02 08:50	11/26/02	Aqueous	Same As Above
C02110835-010	WMMW #15A	11/21/02 10:30	11/26/02	Aqueous	Same As Above
C02110835-011	WMMW #17	11/21/02 11:16	11/26/02	Aqueous	Same As Above

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative or Report.

If you have any questions regarding these tests results, please call.

Report Approved By:

ROGER GARLING
LABORATORY SUPERVISOR

TRACKING NO. PAGE NO.
110835R0014

ENERGY LABORATORIES, INC. · 2393 Salt Creek Highway (82601) · P.O. Box 3258 · Casper, WY 82602
Toll Free 888.235.0515 · 307.235.0515 · Fax 307.234.1639 · casper@energylab.com · www.energylab.com

Date: *23-Dec-02*

CLIENT: International Uranium (USA) Corp
Project: 4th Quarter POC Sampling
Sample Delivery Group: C02110835

CASE NARRATIVE

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL REPORT

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-cs - Energy Laboratories, Inc. - College Station, TX

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by NELAC. Some client specific reporting requirements may not require NELAC reporting protocol.

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

The total number of pages of this report are indicated by the last four digits of the tracking number located in the lower right corner.

GROUNDWATER

STATISTICAL ANALYSIS

BY

SHEWHART-CUSUM METHOD

DECEMBER 31, 2002

The NRC February, 1992 Environmental Assessment states that the Mill will use the Shewhart-Cusum control chart technique for interpretation of quarterly groundwater data. Copies of each of the current control chart plots for the White Mesa Mill groundwater point of compliance quarterly monitoring data are provided in this section. These plots include data from the most recent quarterly point of compliance sampling event in November 2002.

The control chart method is a parametric test. The underlying assumption in this method is that the charts and control limits be developed based on a parameter that has a normal distribution. In some cases, the parameter that exhibits a normal distribution is the measured concentration of an analyte. In some cases, the parameter that has a normal distribution is a function of the measured concentration, such as the log, square root or other power of the concentration. The parameters used for White Mesa Mill data include measured concentration, log of concentration, or square root (0.5 power) of concentration, as appropriate, to generate either a new control chart, or a graphic output that can be compared to an existing control chart.

A summary interpretation of the control charts for this monitoring period is provided below.

Chloride

Monitoring Well 5: This parameter is in control as indicated by the control chart.

Monitoring Well 11: This parameter is in control as indicated by the control chart.

Monitoring Well 12: The analytical results are not random (high serial correlation), hence a control chart cannot be generated. The last period when the data were sufficiently random and normally distributed to generate a control chart (1/98), the upper control limit on the chart was approximately 80 mg/L. The current data is within the previously established upper control limits, hence the parameter is in control.

Monitoring Well 14: This parameter is in control as indicated by the control chart.

Monitoring Well 15: This parameter is in control as indicated by the control chart.

Monitoring Well 17: This parameter is in control as indicated by the control chart.

Nickel

Monitoring Well 5: All analytical values are below detection limits. The parameter is in control.

Monitoring Well 11: All analytical values are below detection limits. The parameter is in control.

Monitoring Well 12: All analytical values are below detection limits. The parameter is in control.

Monitoring Well 14: All analytical values are below detection limits. The parameter is in control.

Monitoring Well 15: All analytical values are below detection limits. The parameter is in control.

Monitoring Well 17: All analytical values are below detection limits. The parameter is in control.

Potassium

Monitoring Well 5: This parameter is in control as indicated by the control chart.

Monitoring Well 11: The analytical results are not sufficiently random (high serial correlation), or normally distributed (not Gaussian), to generate a control chart. The last period when the logarithmic data were sufficiently random and normally distributed to generate a control chart (1/99), the upper control limit on the chart was approximately 20 mg/L. The current logarithmic data is well within the previously established upper control limit, hence the parameter is in control.

Monitoring Well 12: The analytical results are not random (high serial correlation), hence a control chart cannot be generated. The last period when the data were sufficiently random to generate a control chart (1/99), the upper control limit on the chart was approximately 18 mg/L. The current data is well within the previously established upper control limit, hence the parameter is in control.

Monitoring Well 14: This parameter is in control as indicated by the control chart.

Monitoring Well 15: The analytical results are not sufficiently random (high serial correlation), or normally distributed (not Gaussian), to generate a control chart. The last period when the logarithmic data were sufficiently random and normally distributed to generate a control chart (2/00), the upper control limit on the chart was approximately 17 mg/L. The current logarithmic data is well within the previously established upper control limit, hence the parameter is in control.

Monitoring Well 17: This parameter is in control as indicated by the control chart.

U-nat

Monitoring Well 5: The analytical results are not sufficiently random (high serial correlation), or normally distributed (not Gaussian), to generate a control chart—they've been nearly constant. The last period when the data were sufficiently random and normally distributed to generate a control chart (1/98), the up per control limit on the chart was approximately 100 pCi/L. The current logarithmic results are well within the previously established upper control limit, hence the parameter is in control.

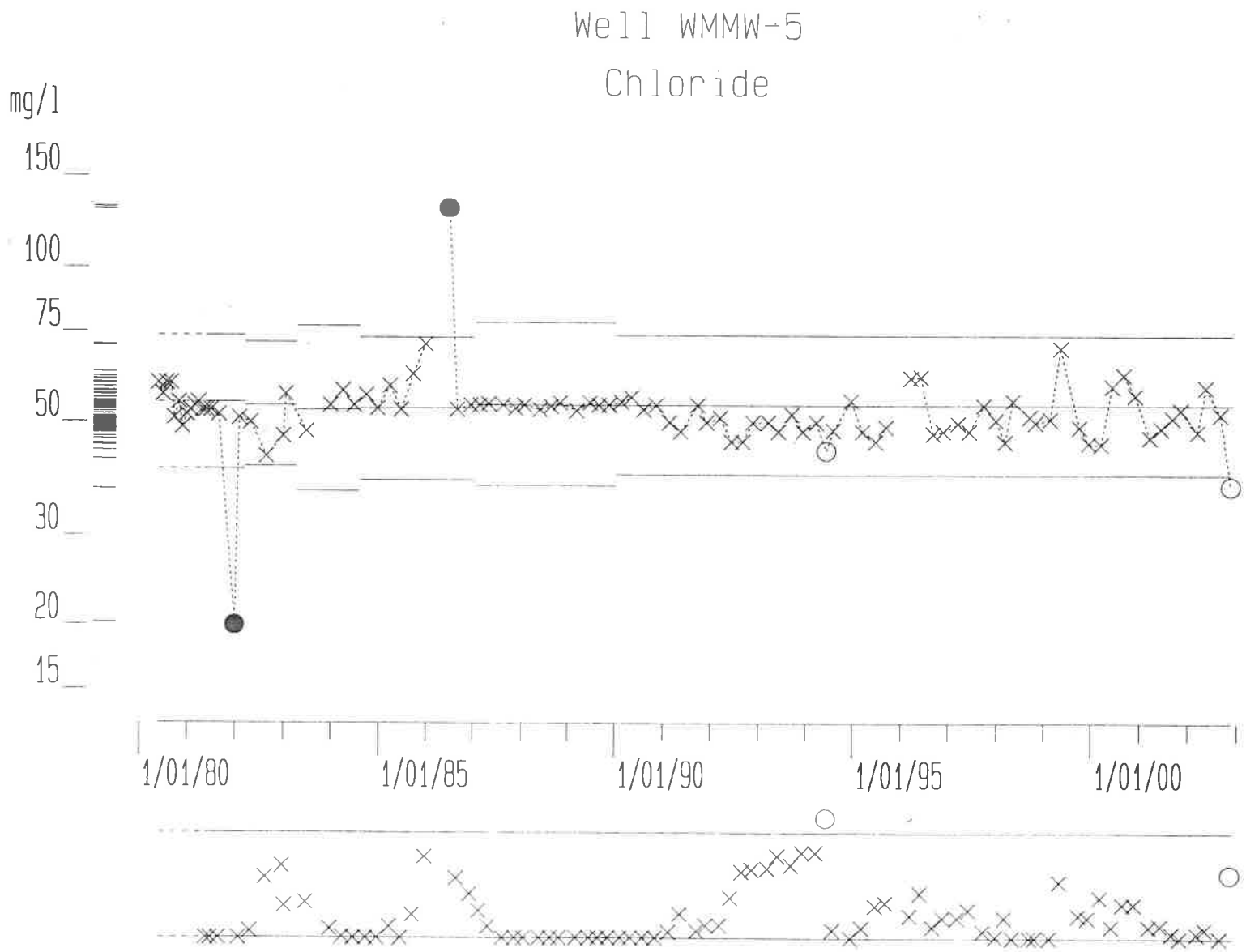
Monitoring Well 11: The analytical results are not normally distributed (not Gaussian). Hence a control chart cannot be generated. The last period when the logarithmic data were sufficiently normally distributed to generate a control chart (8/00), the upper control limit on the chart was approximately 80 pCi/L. The current data is well within the previously established upper control limit, hence the parameter is in control.

Monitoring Well 12: This parameter is in control as indicated by the control chart.

Monitoring Well 14: The analytical results are not sufficiently random (high serial correlation) to generate a control chart. The last period when the logarithmic data were sufficiently random to generate a control chart (1/98), the upper control limit on the chart was approximately 60 pCi/L. The current logarithmic results are well within the previously established upper control limit, hence the parameter is in control.

Monitoring Well 15: The analytical results are not sufficiently random (high serial correlation) to generate a control chart. The last period when the data were sufficiently random to generate a control chart (6/01), the upper control limit on the chart was approximately 55 pCi/L. The current results are well within the previously established upper control limit, hence the parameter is in control.

Monitoring Well 17: The analytical results are not sufficiently random (high serial correlation) to generate a control chart. The last period when the data were sufficiently random to generate a control chart (8/00), the upper control limit on the chart was approximately 45 pCi/L. The current logarithmic results are well within the previously established upper control limit, hence the parameter is in control.



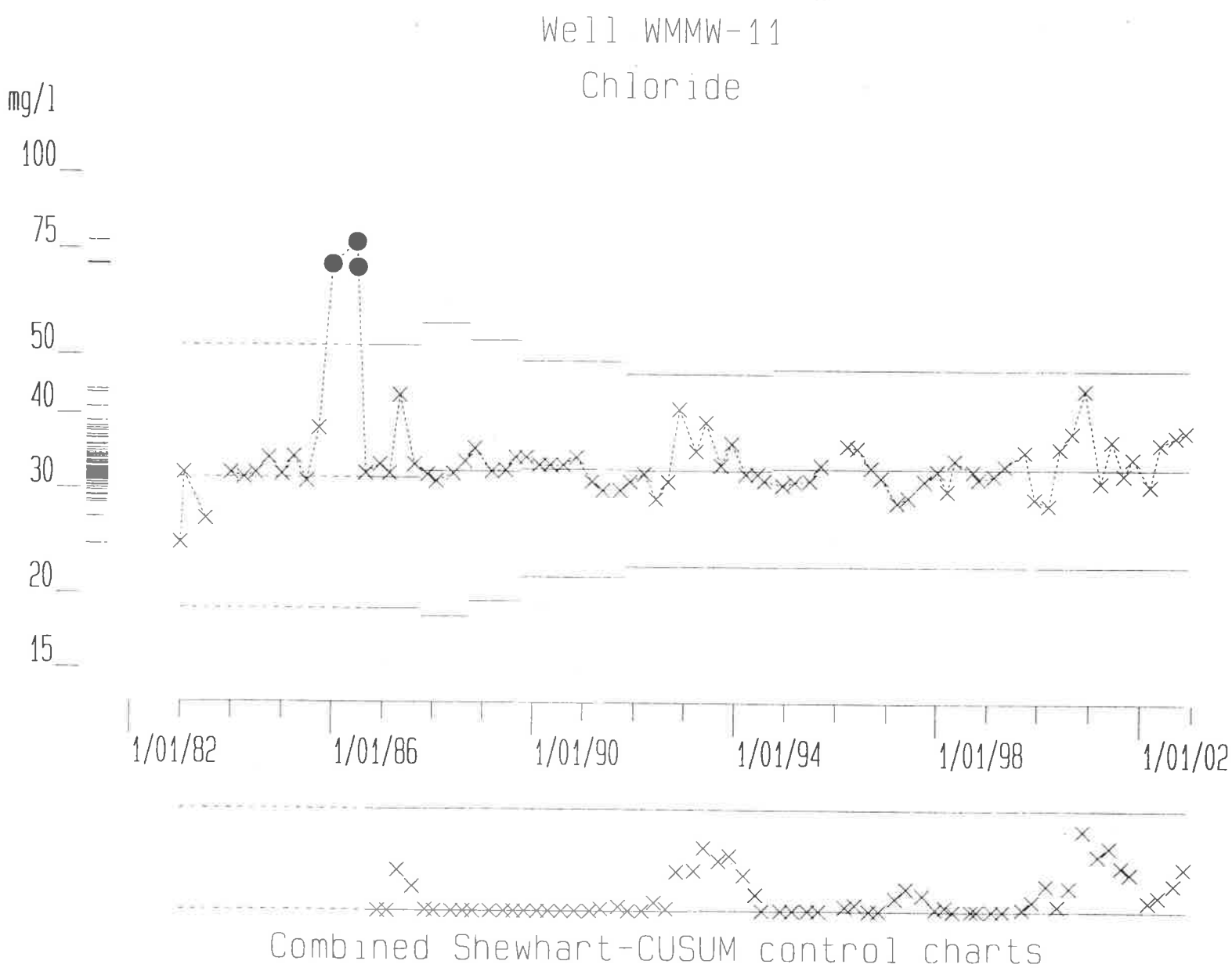
Combined Shewhart-CUSUM control charts

Warning: High serial correlation.

(C) DAMES & MOORE 1990-93

January 22, 2003

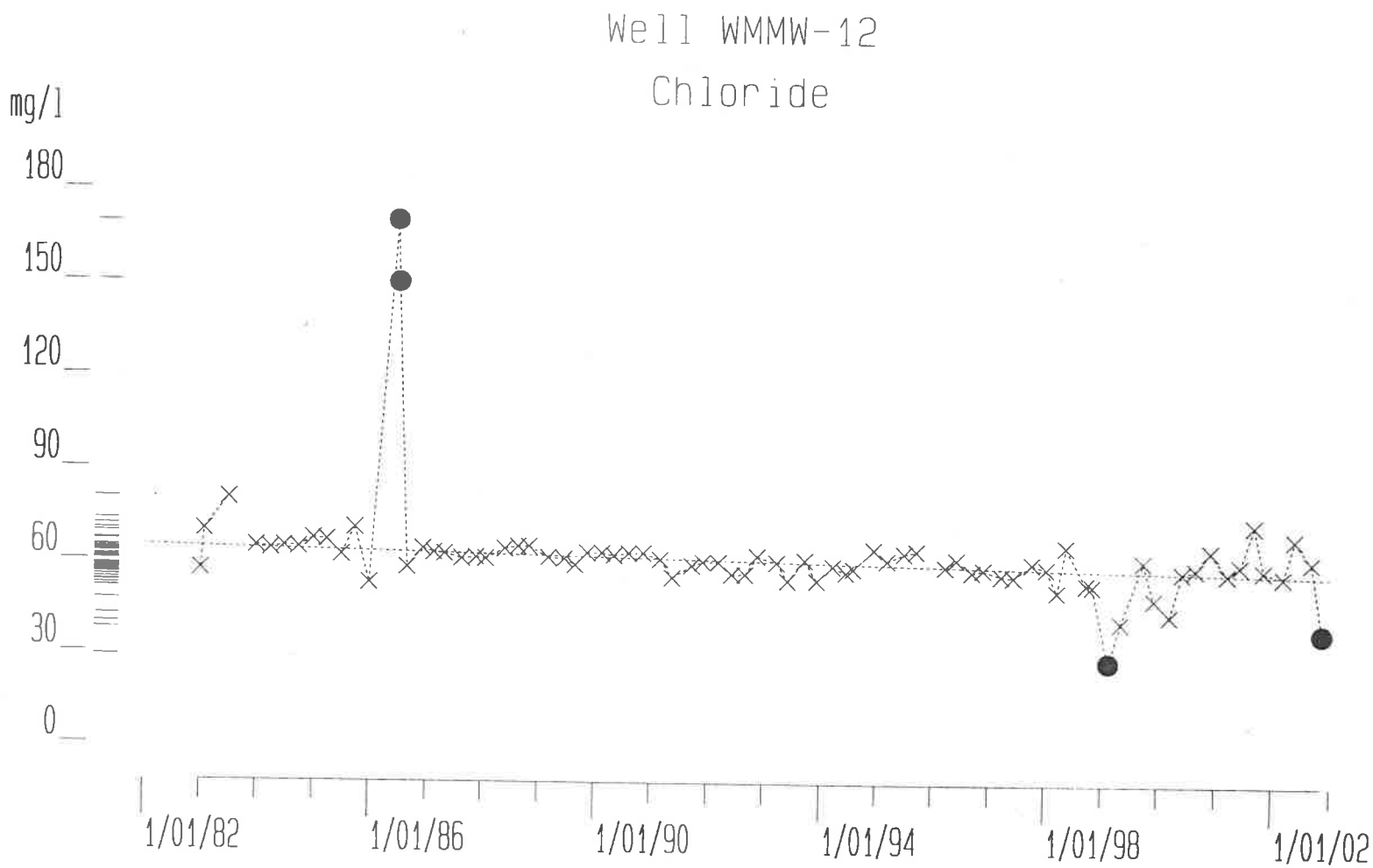
White Mesa Mill



(C) DAMES & MOORE 1990-93

January 22, 2003

White Mesa Mill



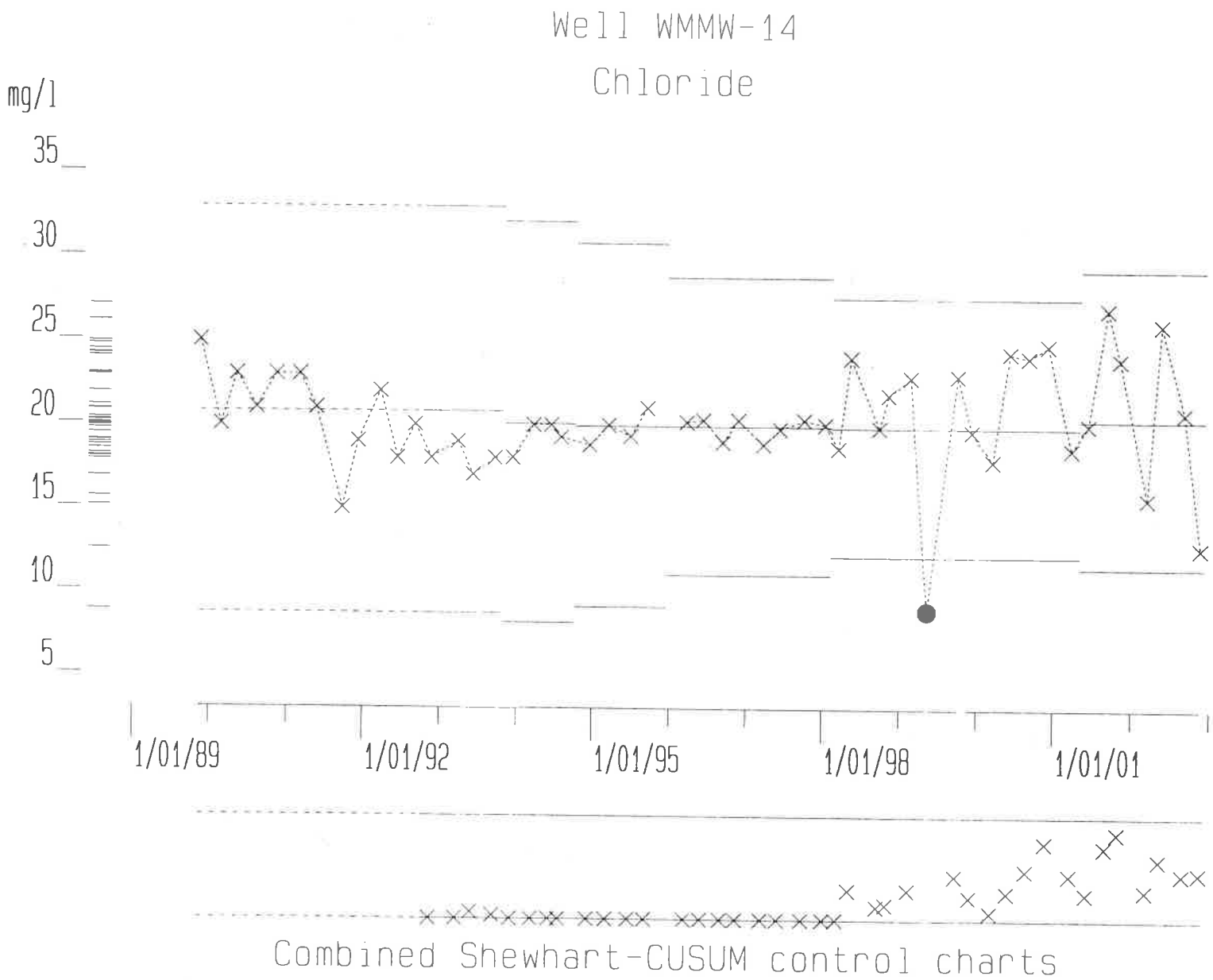
Slope of regression line is -0.4357 mg/l per year.

Warning: High serial correlation.

(C) DAMES & MOORE 1990-93

January 22, 2003

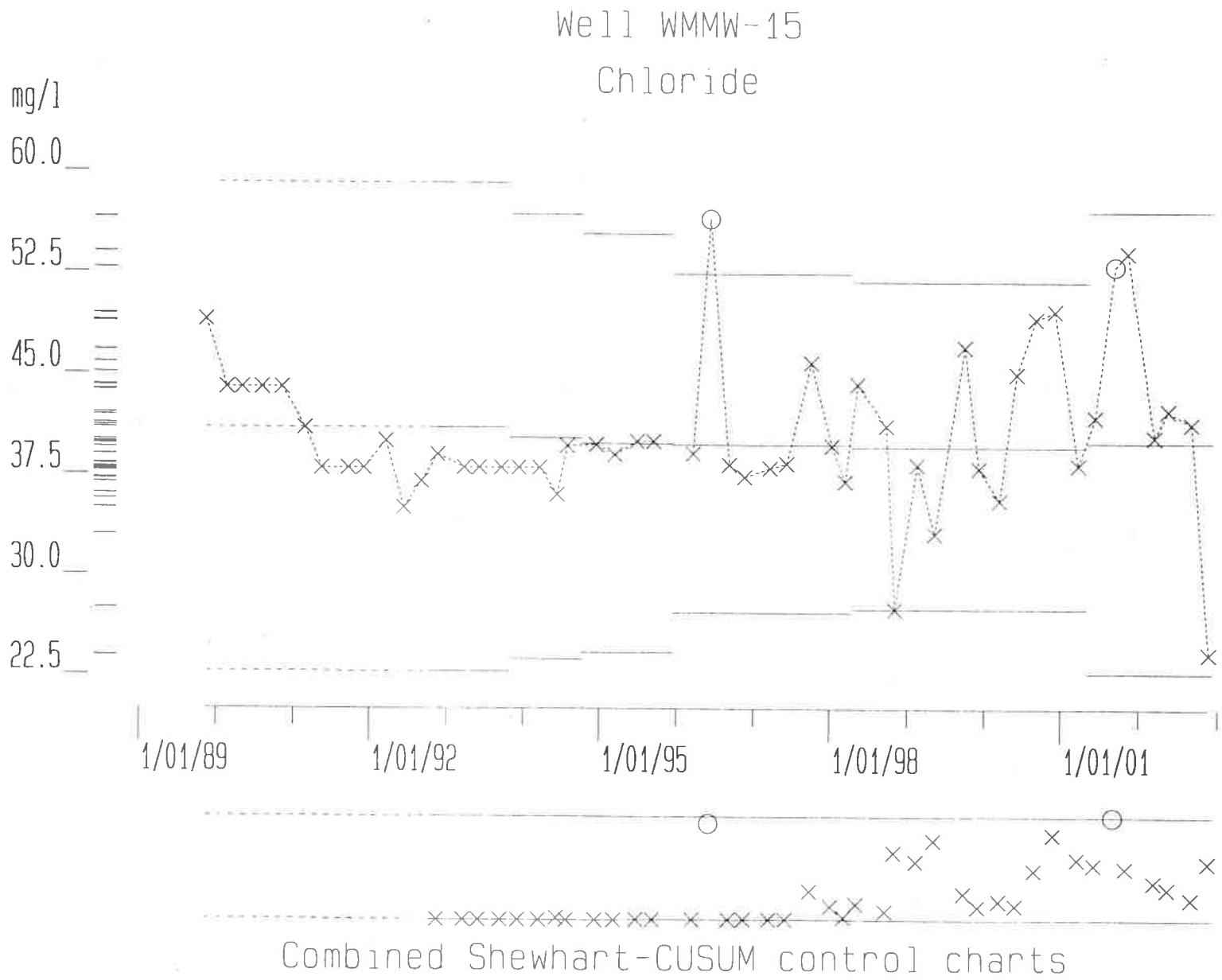
White Mesa Mill



(C) DAMES & MOORE 1990-93

January 22, 2003

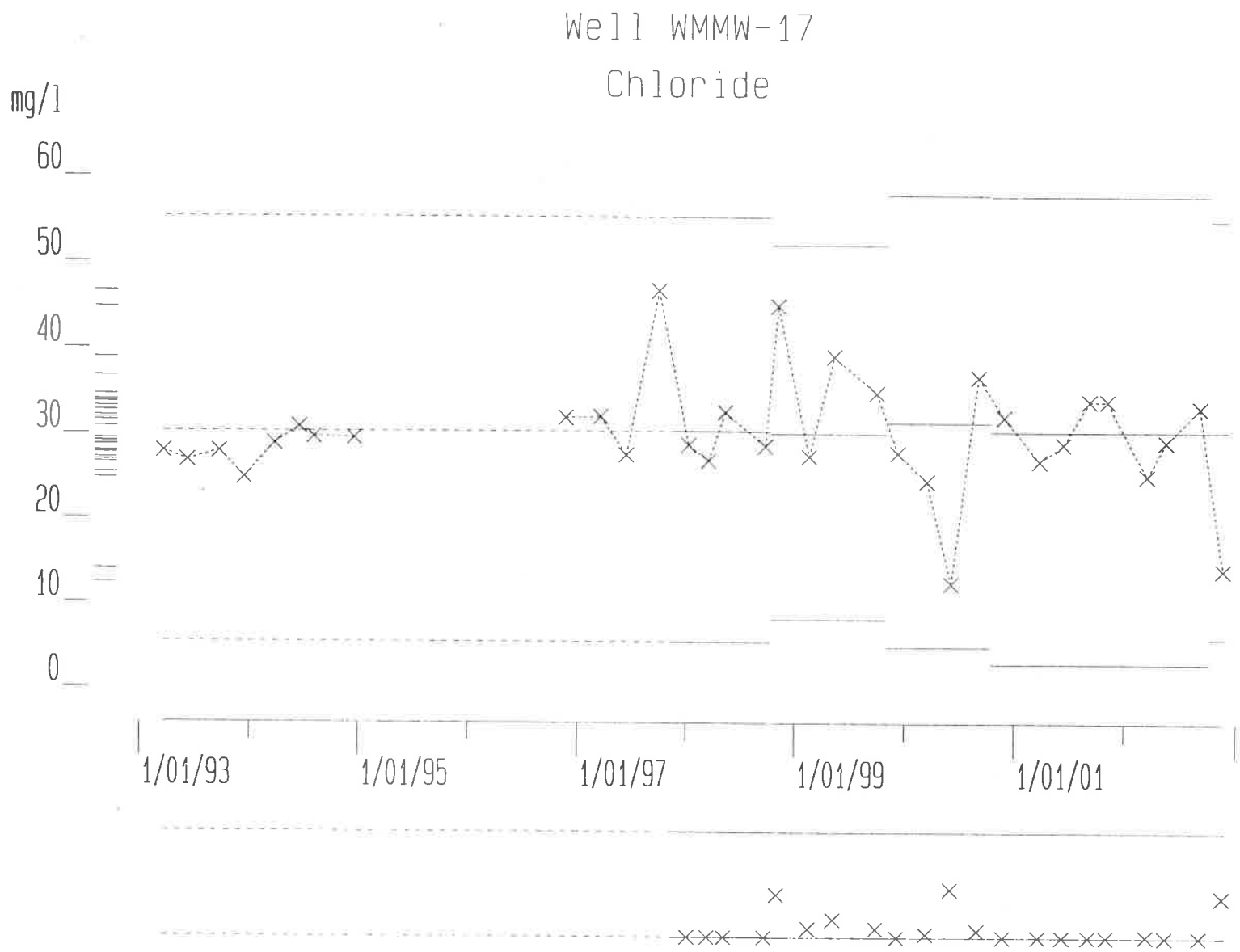
White Mesa Mill



(C) DAMES & MOORE 1990-93

January 22, 2003

White Mesa Mill

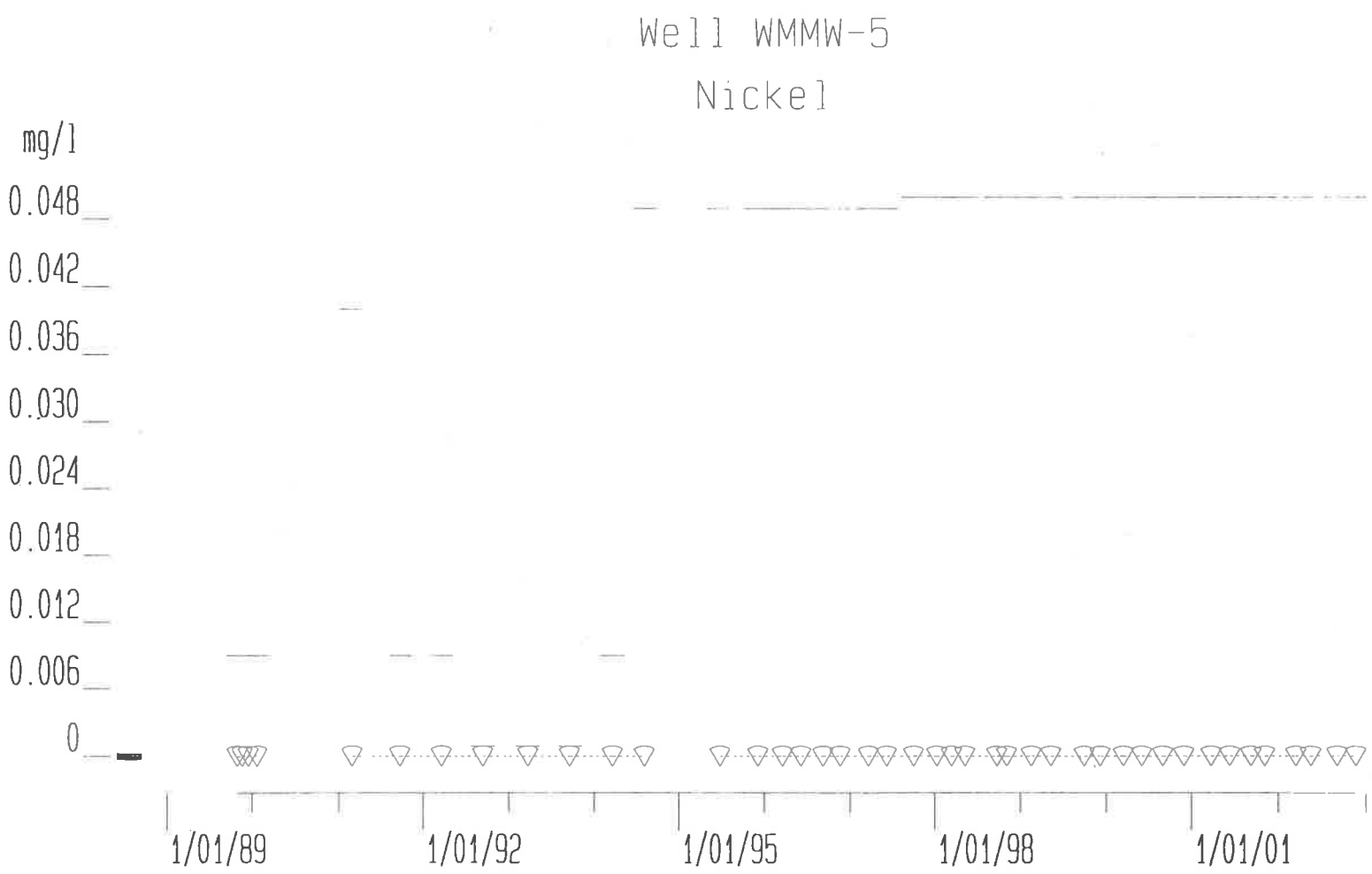


Combined Shewhart-CUSUM control charts

(C) DAMES & MOORE 1990-93

January 22, 2003

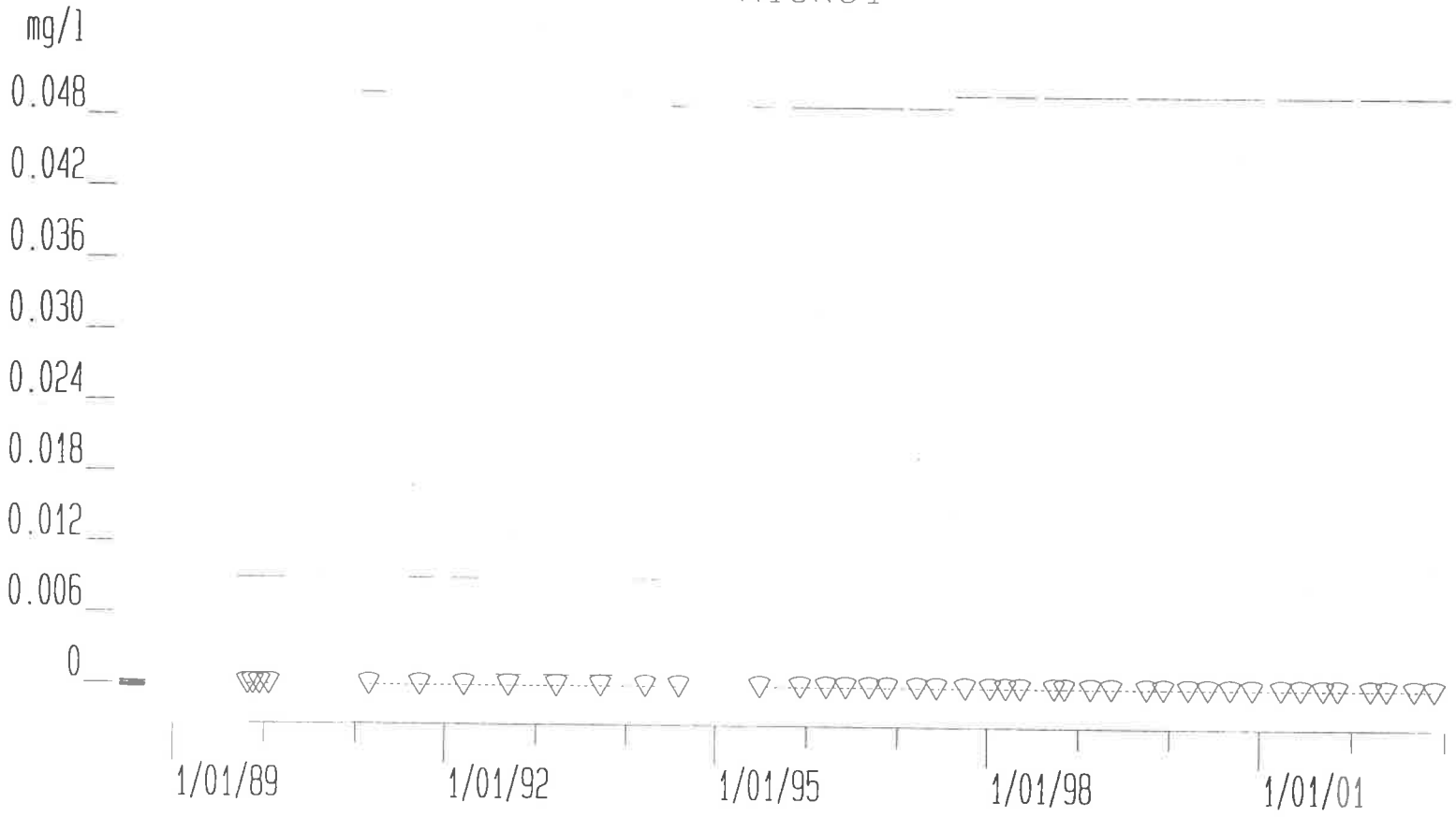
White Mesa Mill



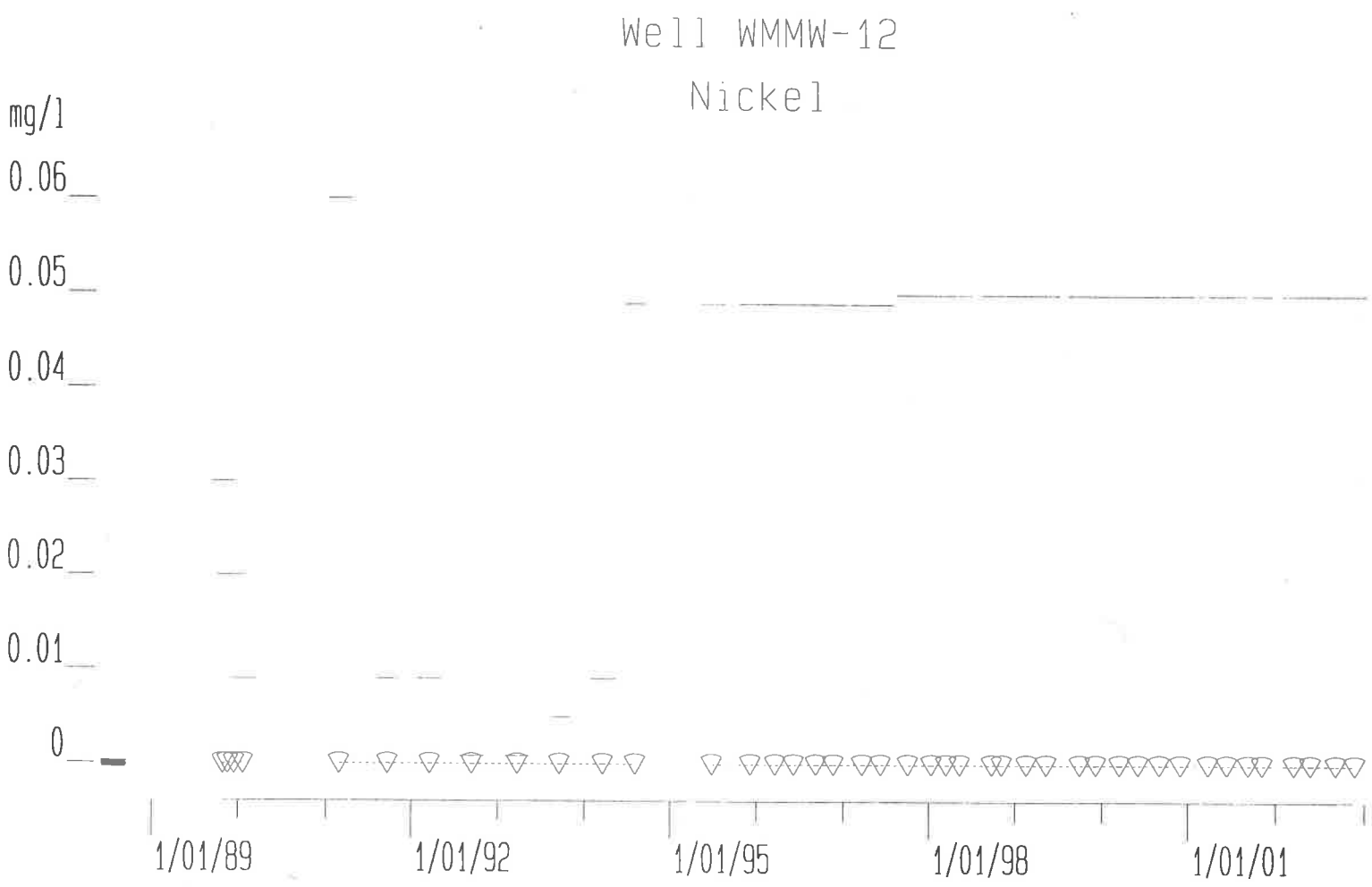
Note: Control Chart not tried, More than 25% non detects.

Well WMMW-11

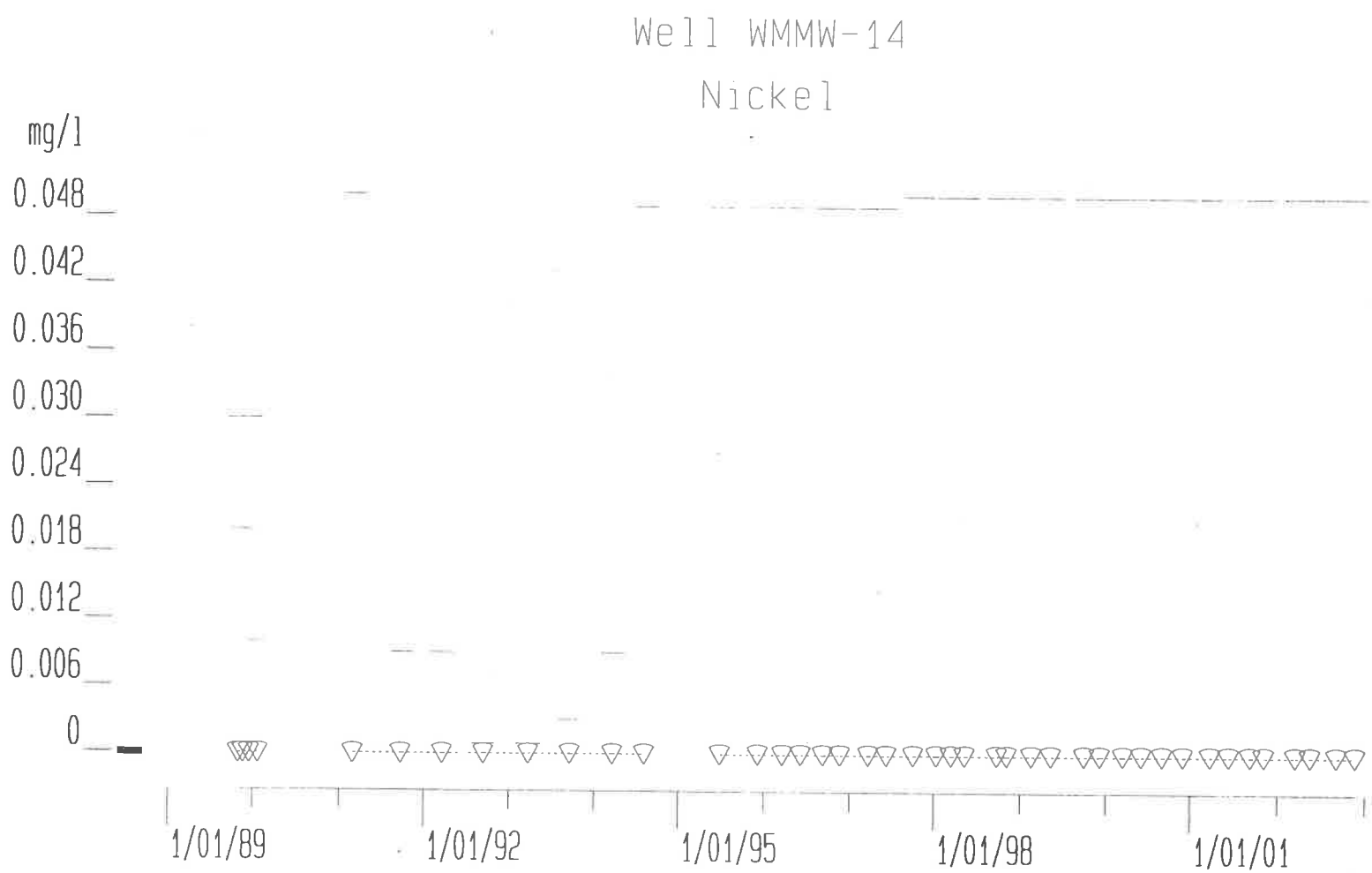
Nickel



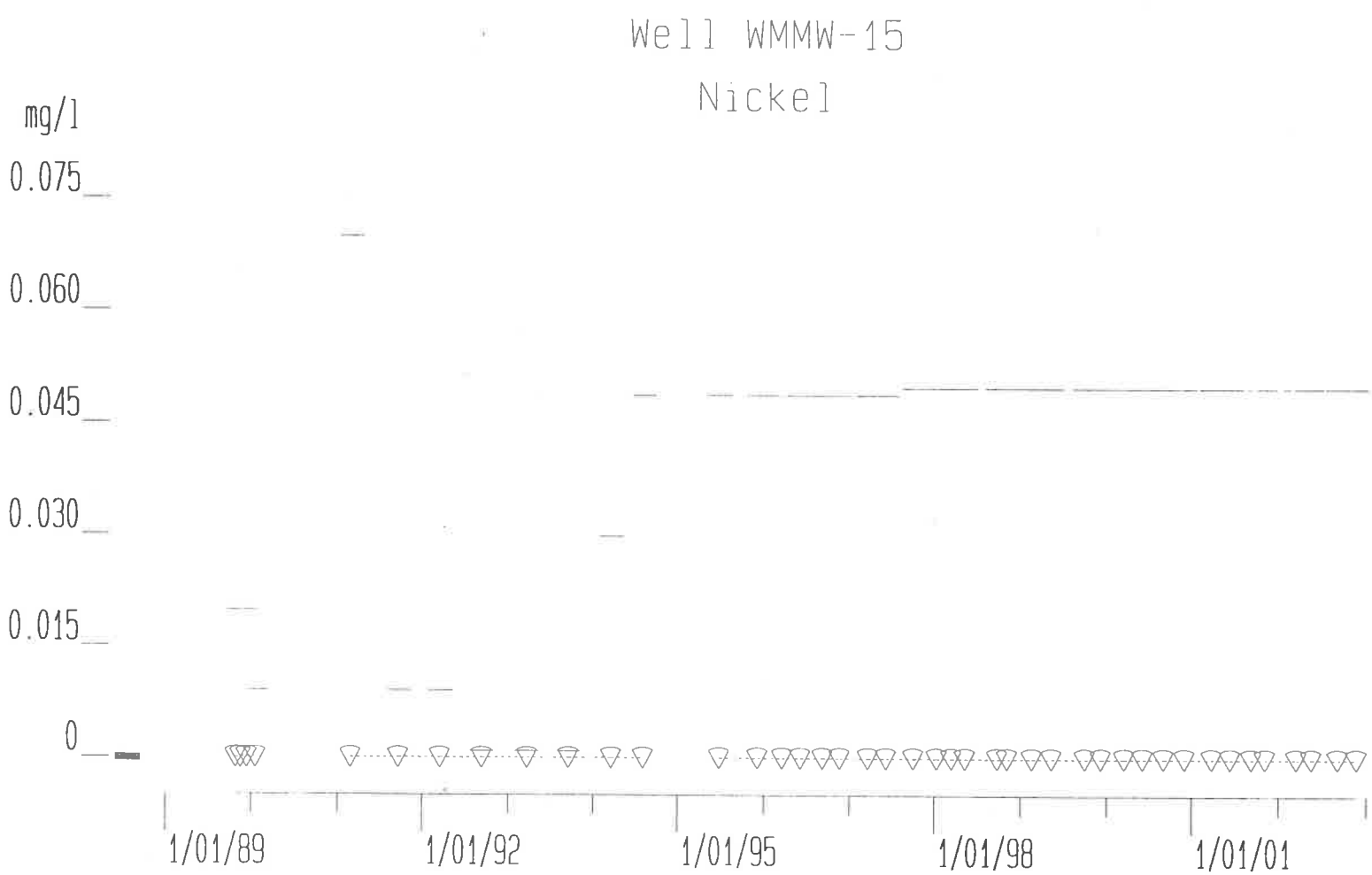
Note: Control Chart not tried, More than 25% non detects.



Note: Control Chart not tried, More than 25% non detects.



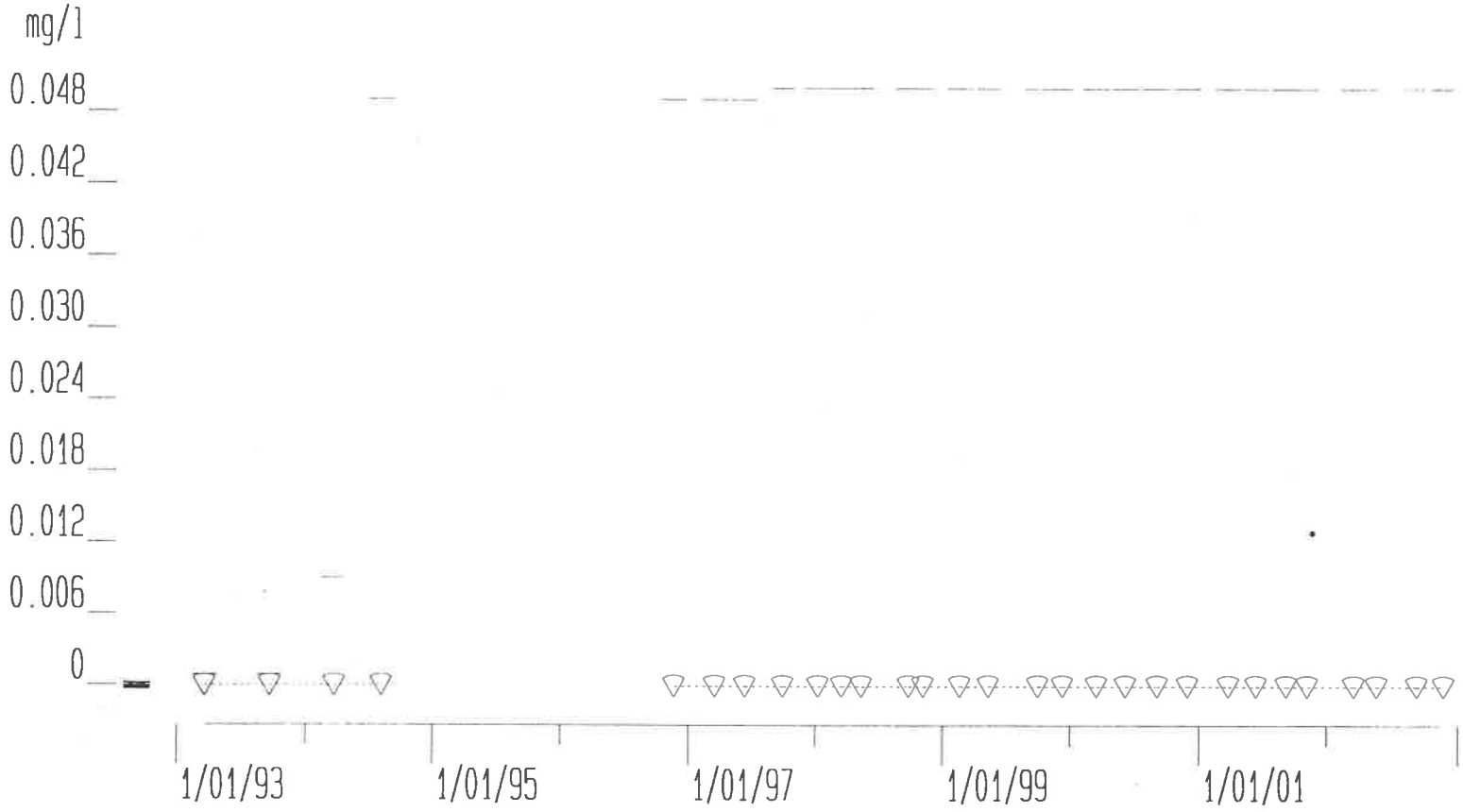
Note: Control Chart not tried, More than 25% non detects.



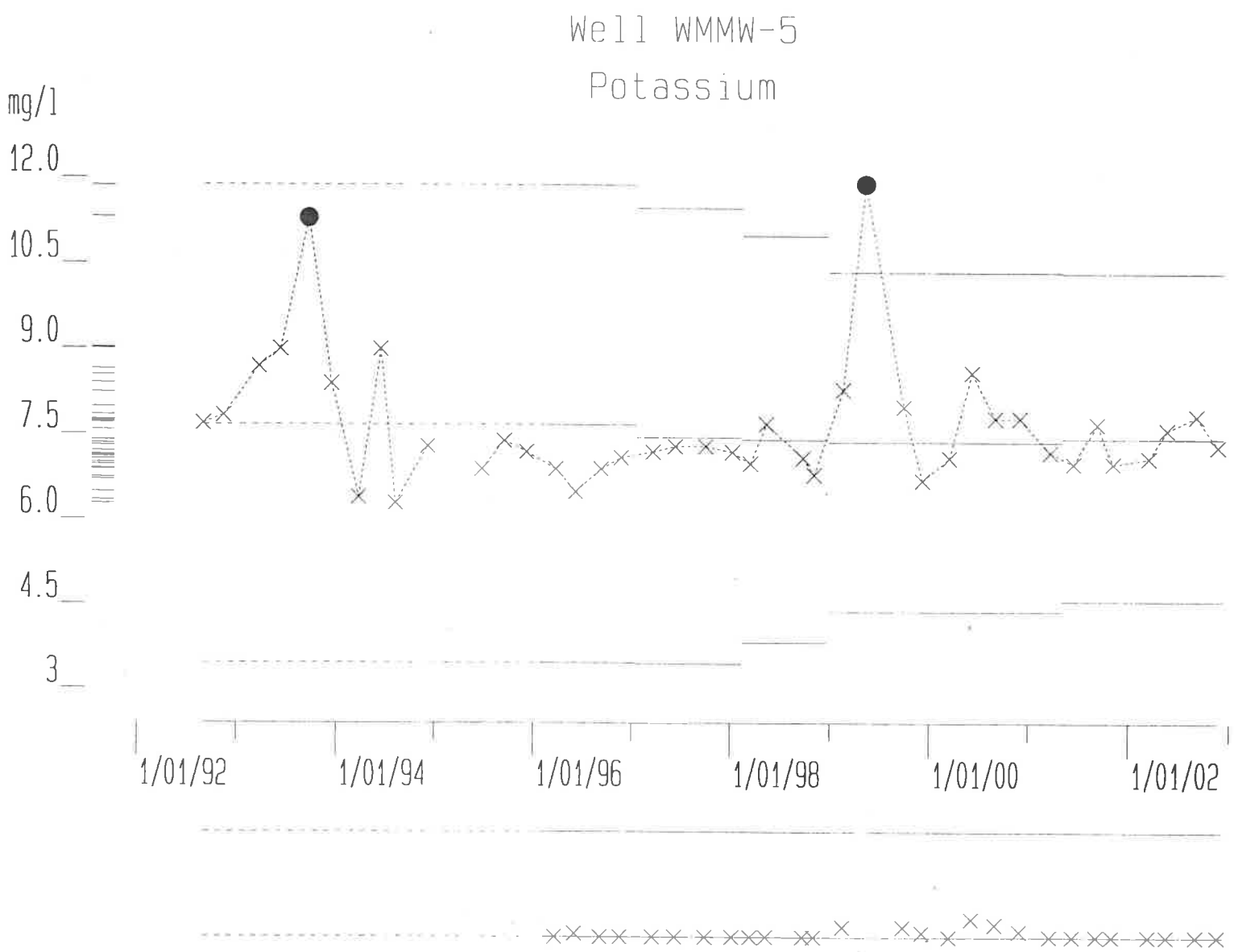
Note: Control Chart not tried, More than 25% non detects.

Well WMMW-17

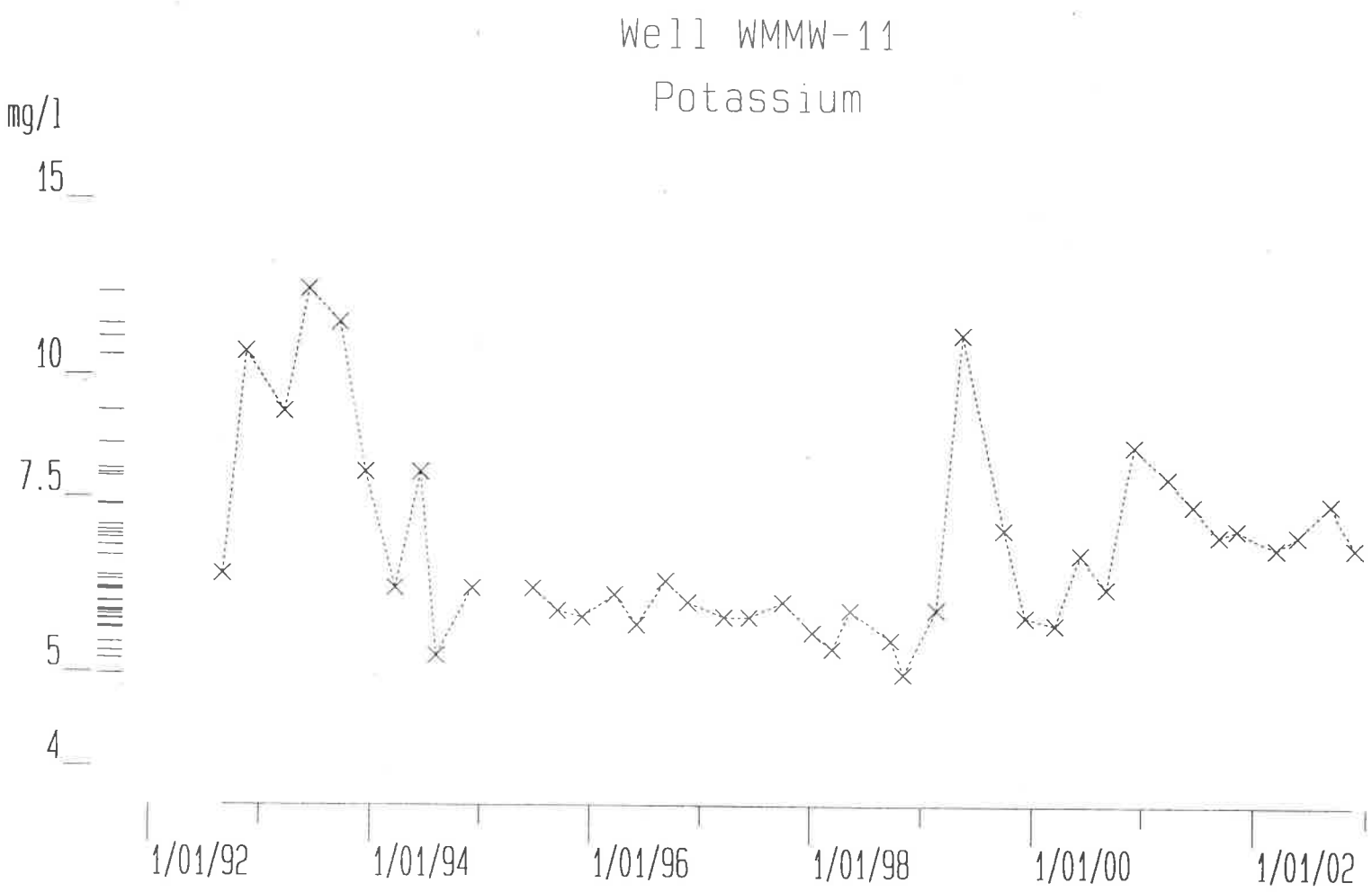
Nickel



Note: Control Chart not tried, More than 25% non detects.



Combined Shewhart-CUSUM control charts



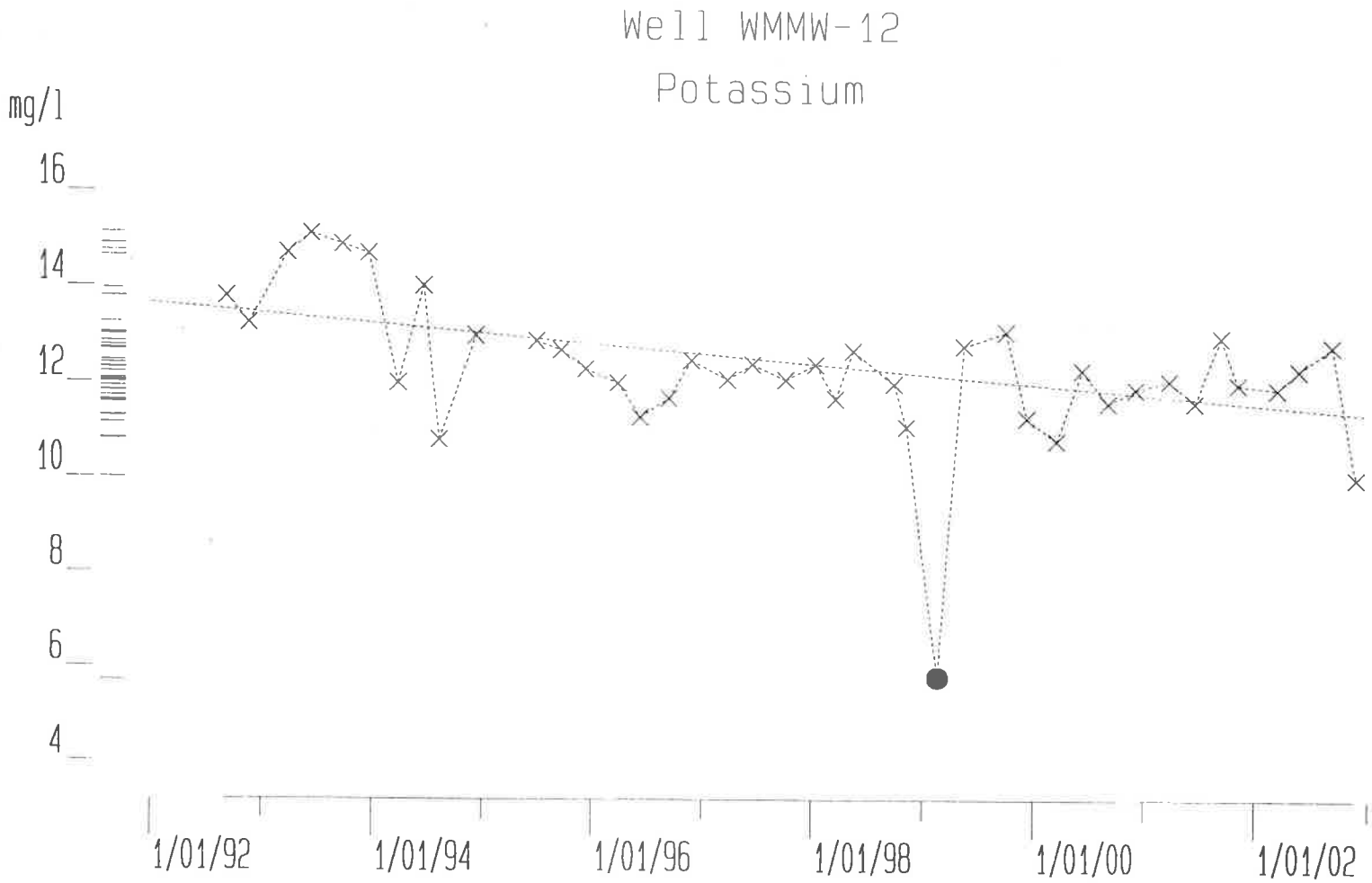
Note: Variability does not appear Gaussian.
All calculations based on log(10) of actual values

Warning: High serial correlation.

(C) DAMES & MOORE 1990-93

January 22, 2003

White Mesa Mill



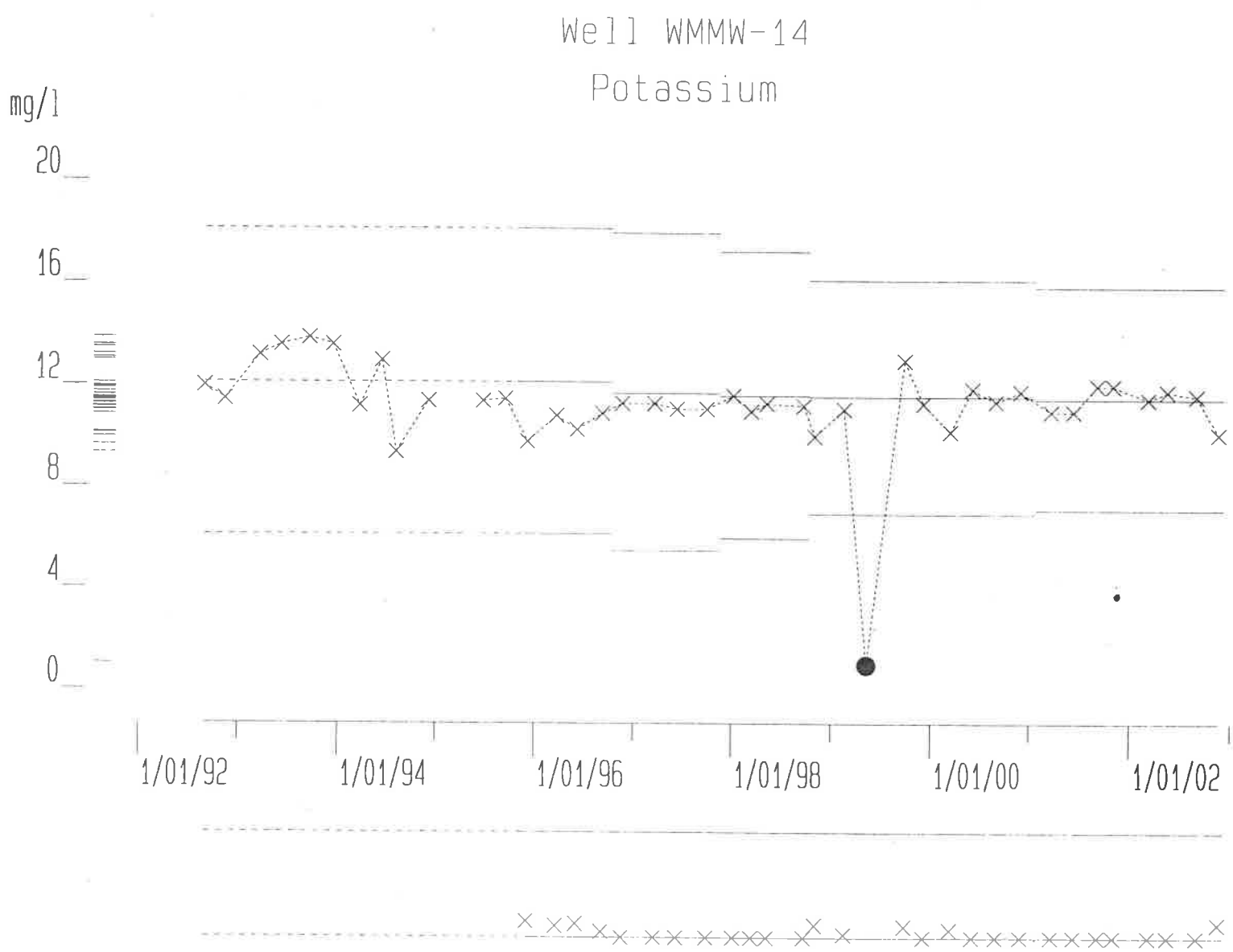
Slope of regression line is -0.2086 mg/l per year.

Warning: High serial correlation.

(C) DAMES & MOORE 1990-93

January 22, 2003

White Mesa Mill



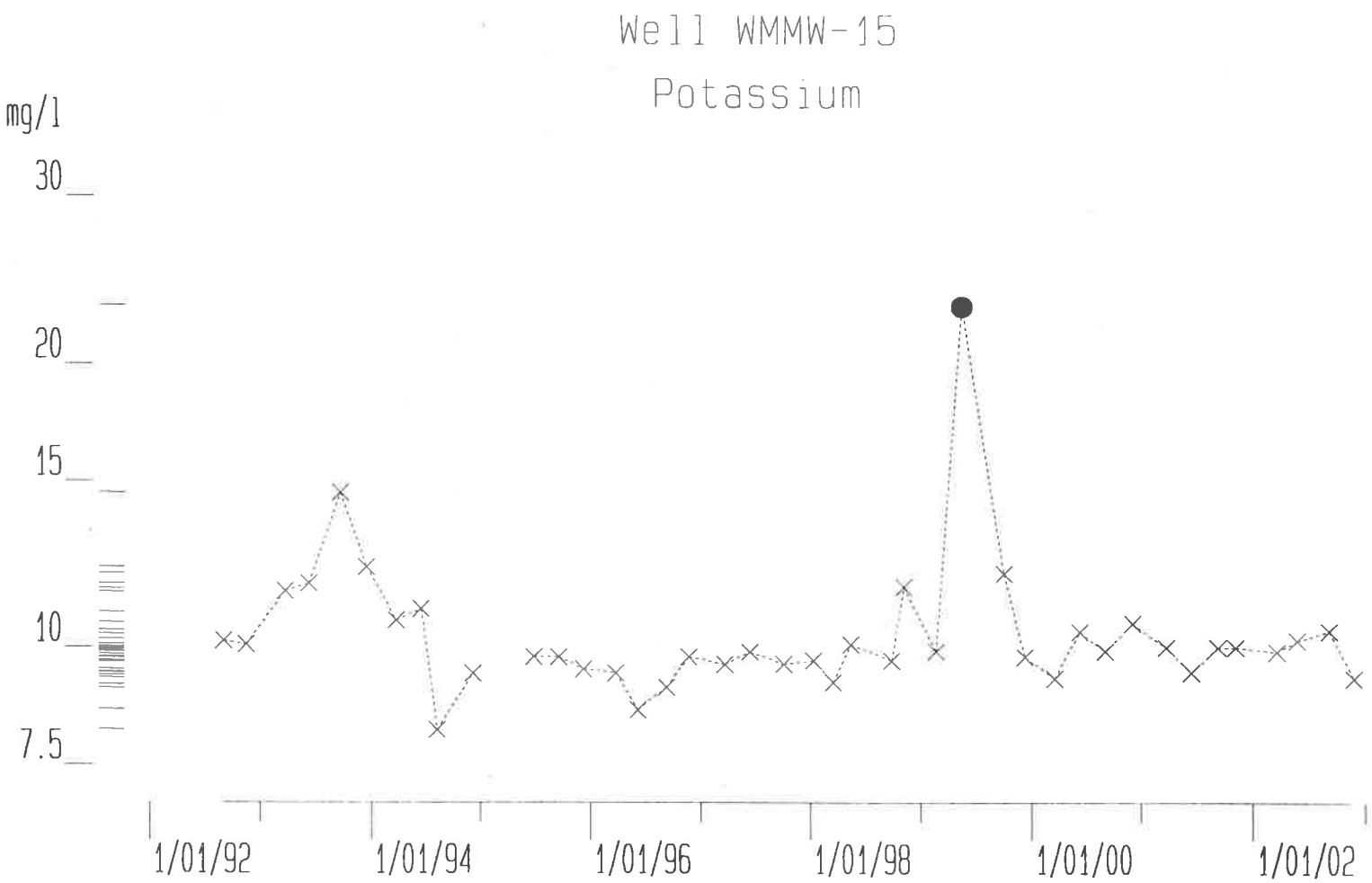
Combined Shewhart-CUSUM control charts

Warning: High serial correlation.

(C) DAMES & MOORE 1990-93

January 22, 2003

White Mesa Mill



Note: Variability does not appear Gaussian.

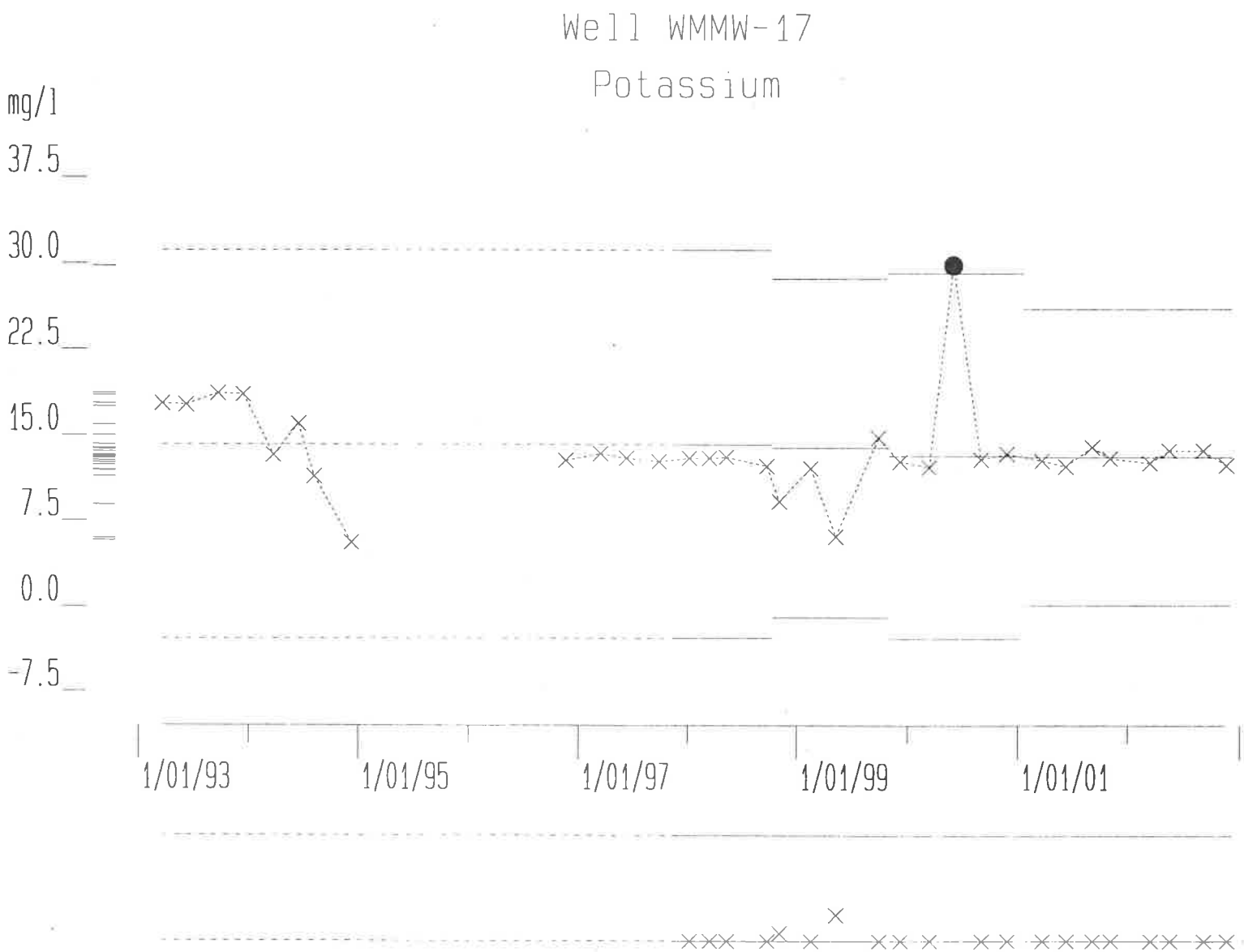
All calculations based on log(10) of actual values

Warning: High serial correlation.

(C) DAMES & MOORE 1990-93

January 22, 2003

White Mesa Mill



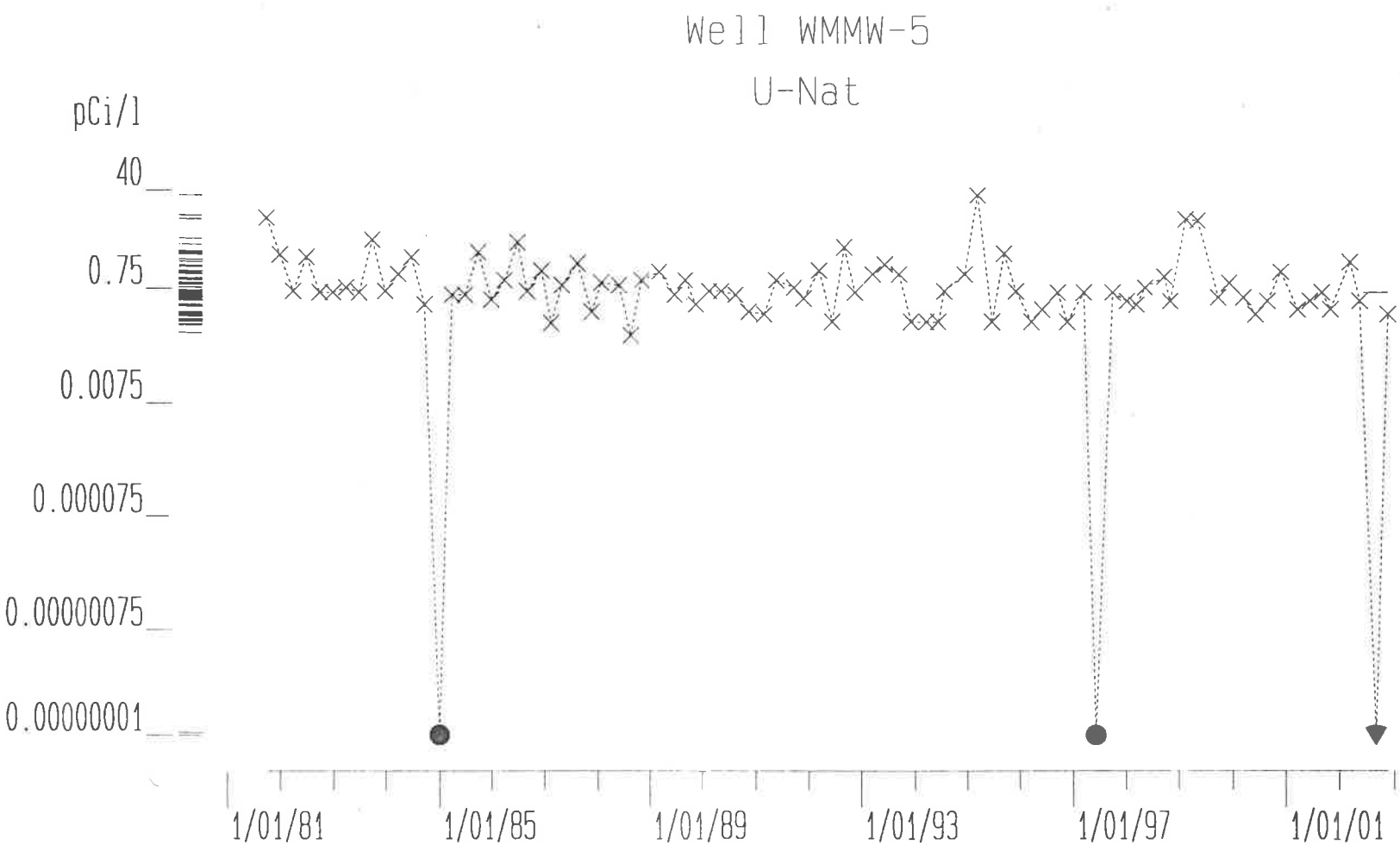
Combined Shewhart-CUSUM control charts

Warning: High serial correlation.

(C) DAMES & MOORE 1990-93

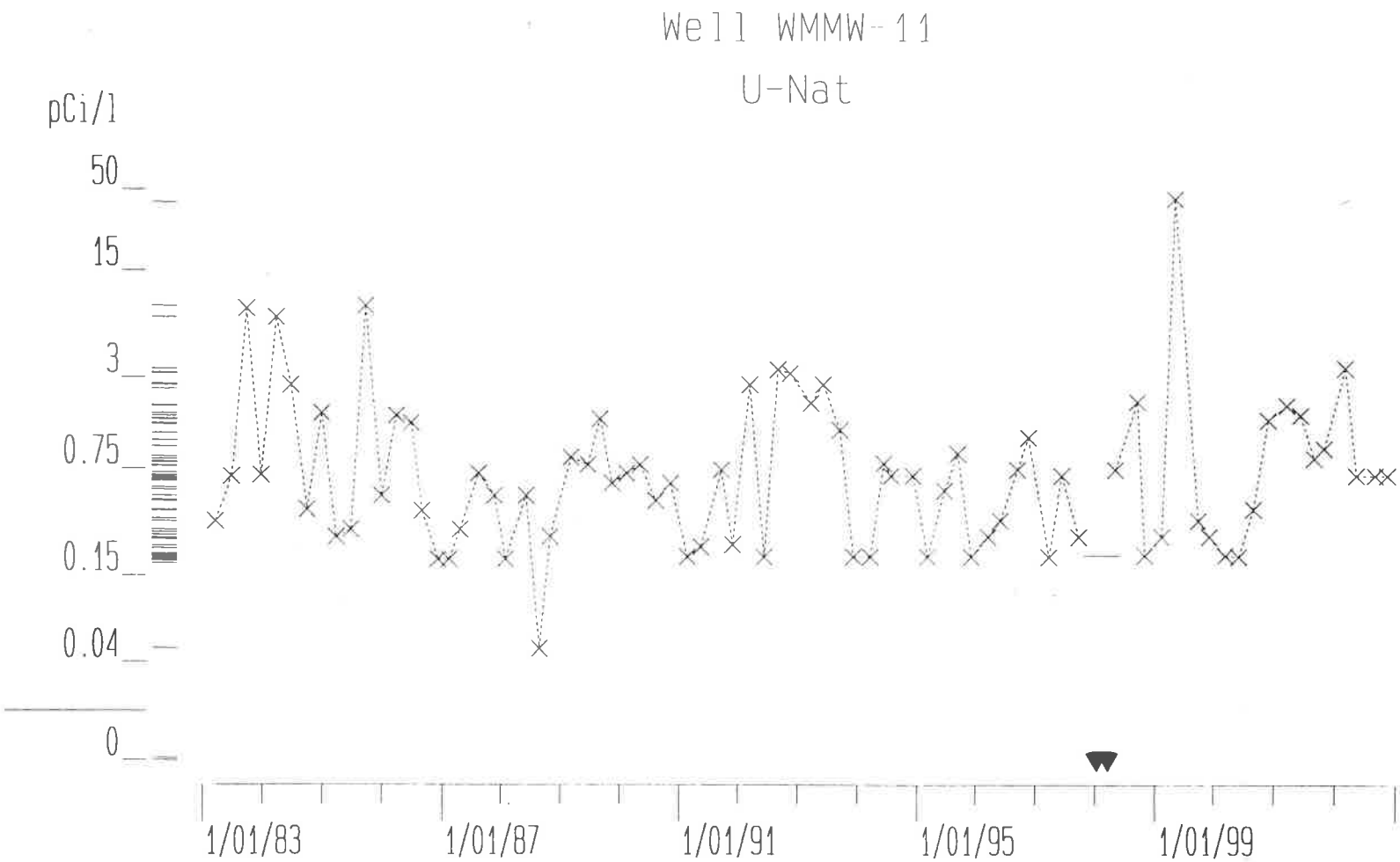
January 22, 2003

White Mesa Mill



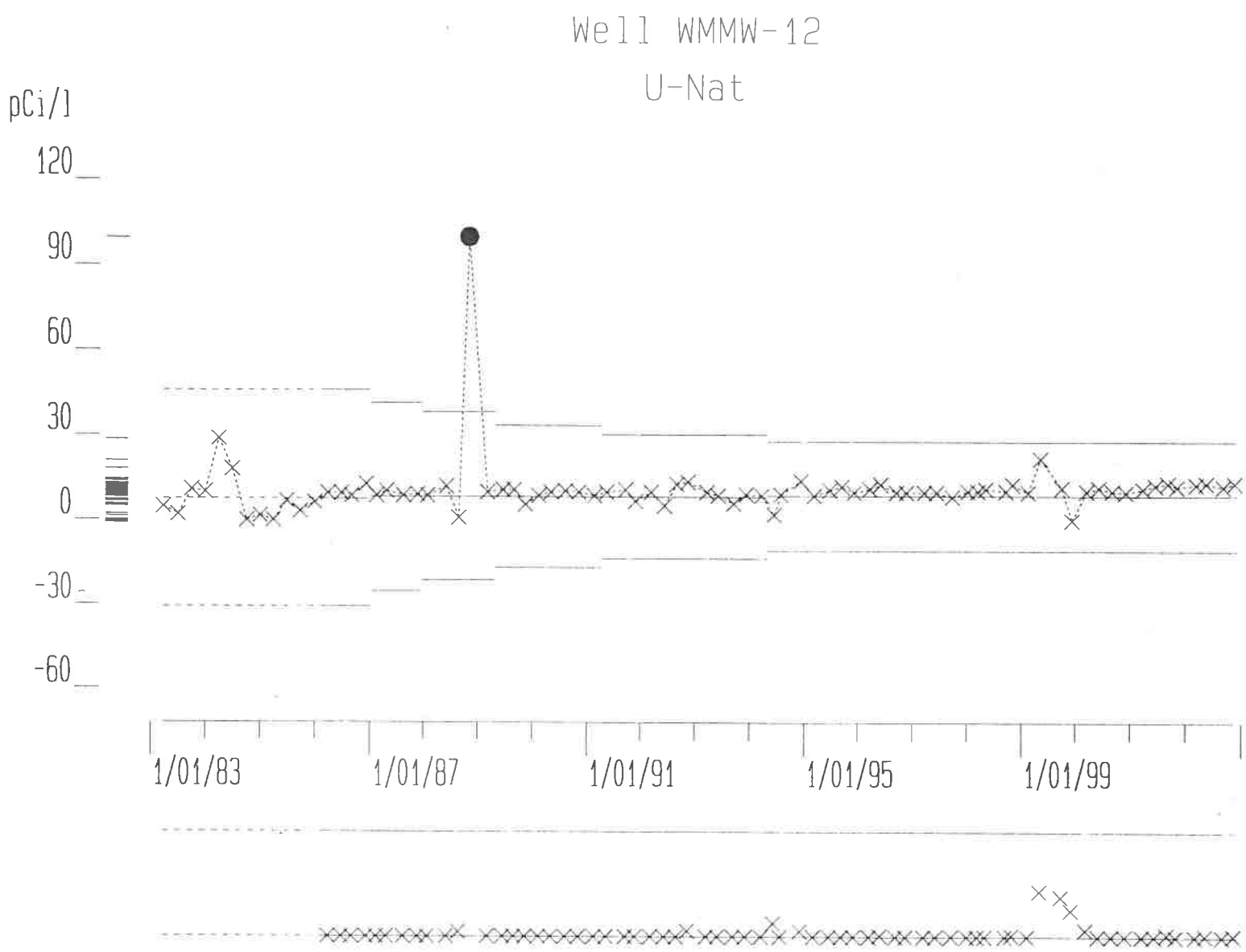
Note: Variability does not appear Gaussian.

All calculations based on log(10) of actual values



Note: Variability does not appear Gaussian.

All calculations based on log(10) of actual values



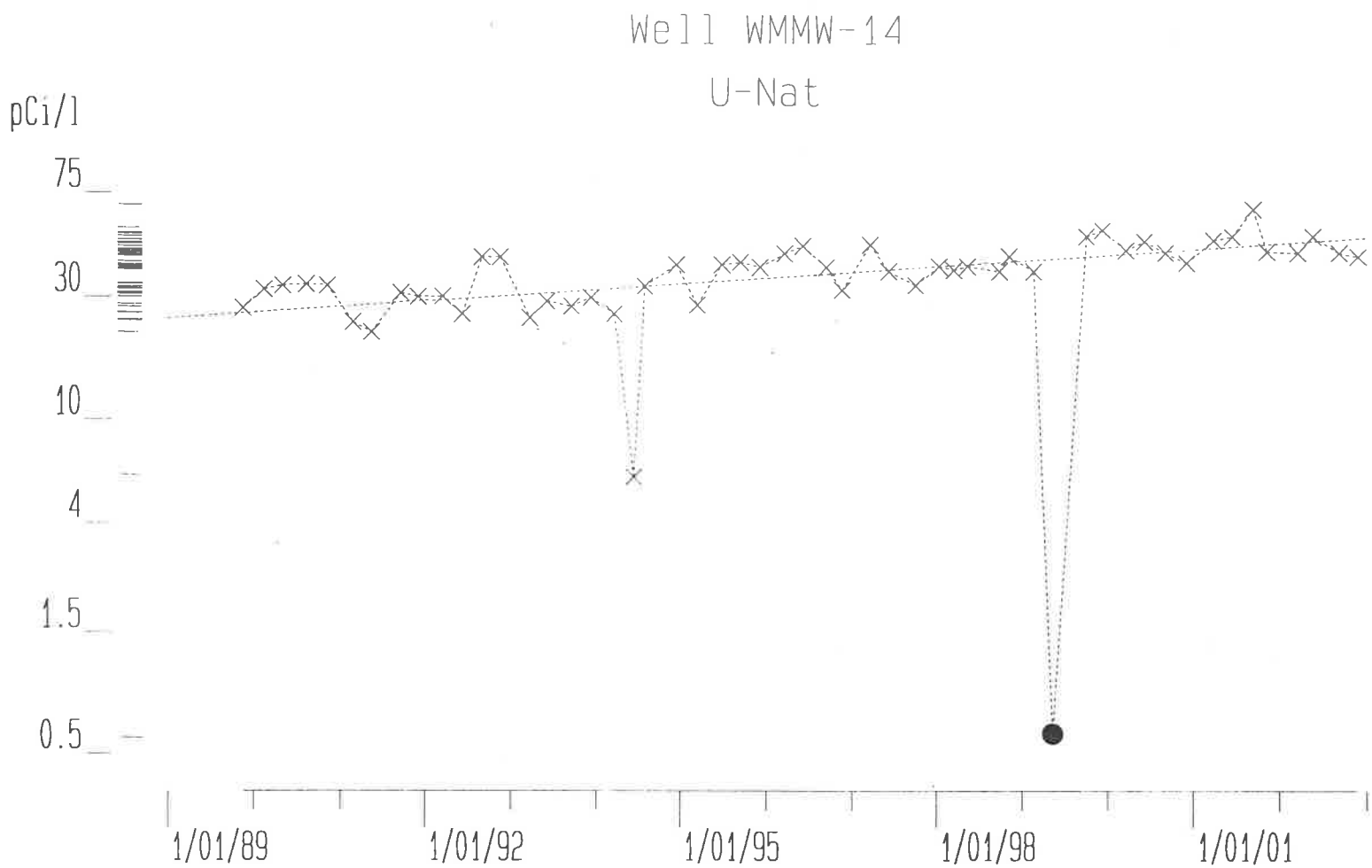
Combined Shewhart-CUSUM control charts

Warning: High serial correlation.

(C) DAMES & MOORE 1990-93

January 22, 2003

White Mesa Mill



Rate constant of regression line is 0.0224 pCi/l per year.

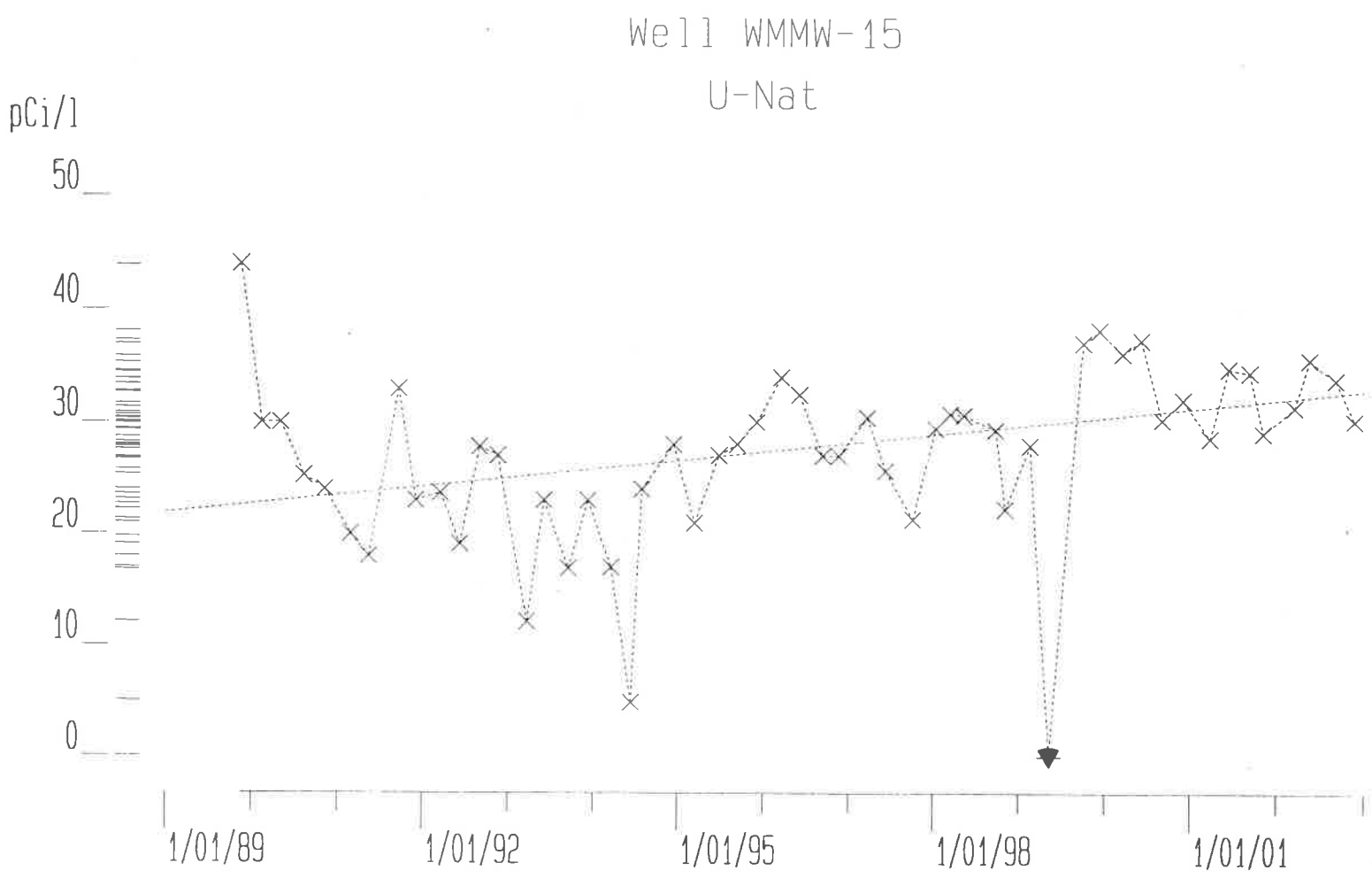
All calculations based on log(10) of actual values

Warning: High serial correlation.

(C) DAMES & MOORE 1990-93

January 22, 2003

White Mesa Mill



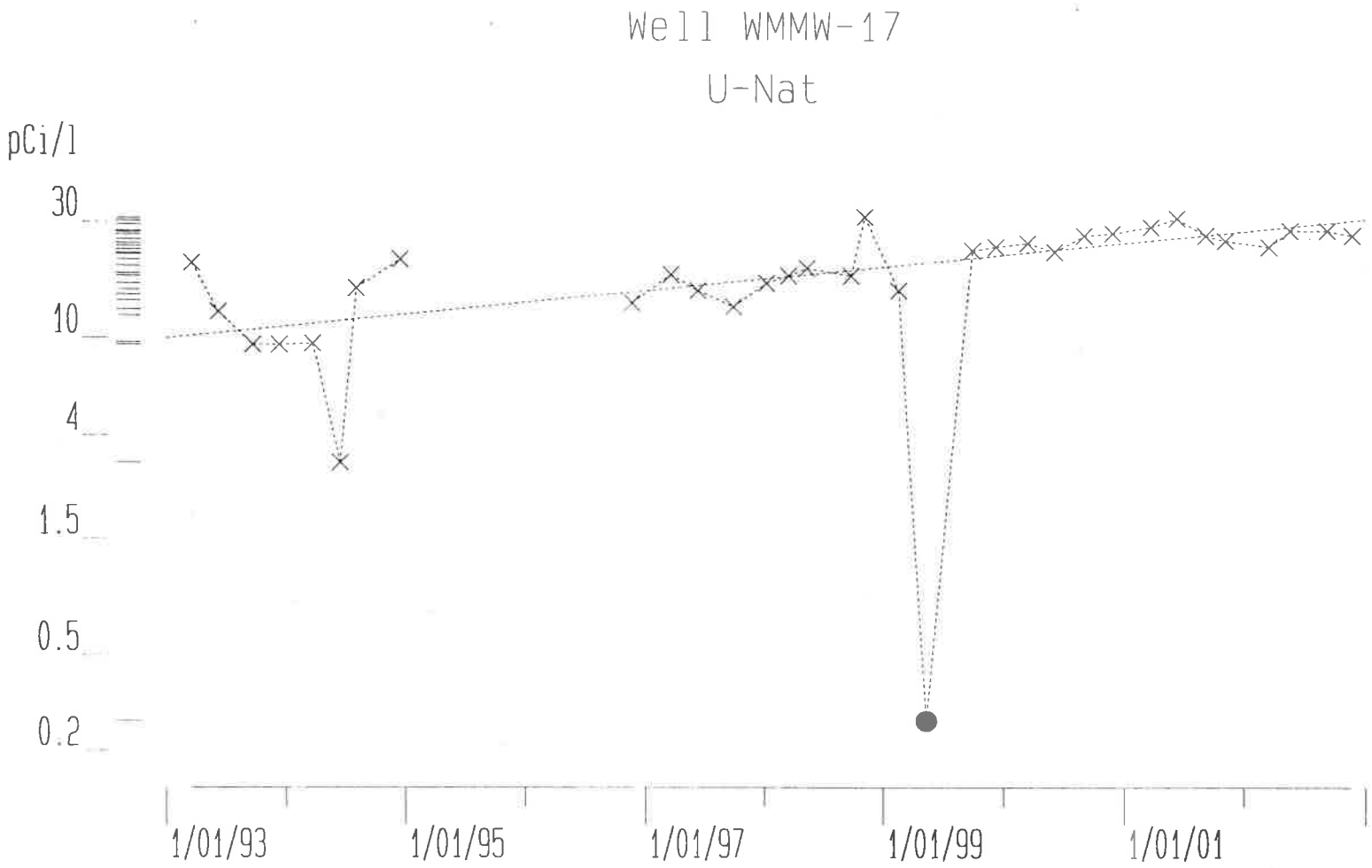
Slope of regression line is 0.7767 pCi/l per year.

Warning: High serial correlation.

(C) DAMES & MOORE 1990-93

January 22, 2003

White Mesa Mill



Rate constant of regression line is 0.0487 pCi/l per year.

All calculations based on log(10) of actual values

Warning: High serial correlation.

(C) DAMES & MOORE 1990-93

January 22, 2003

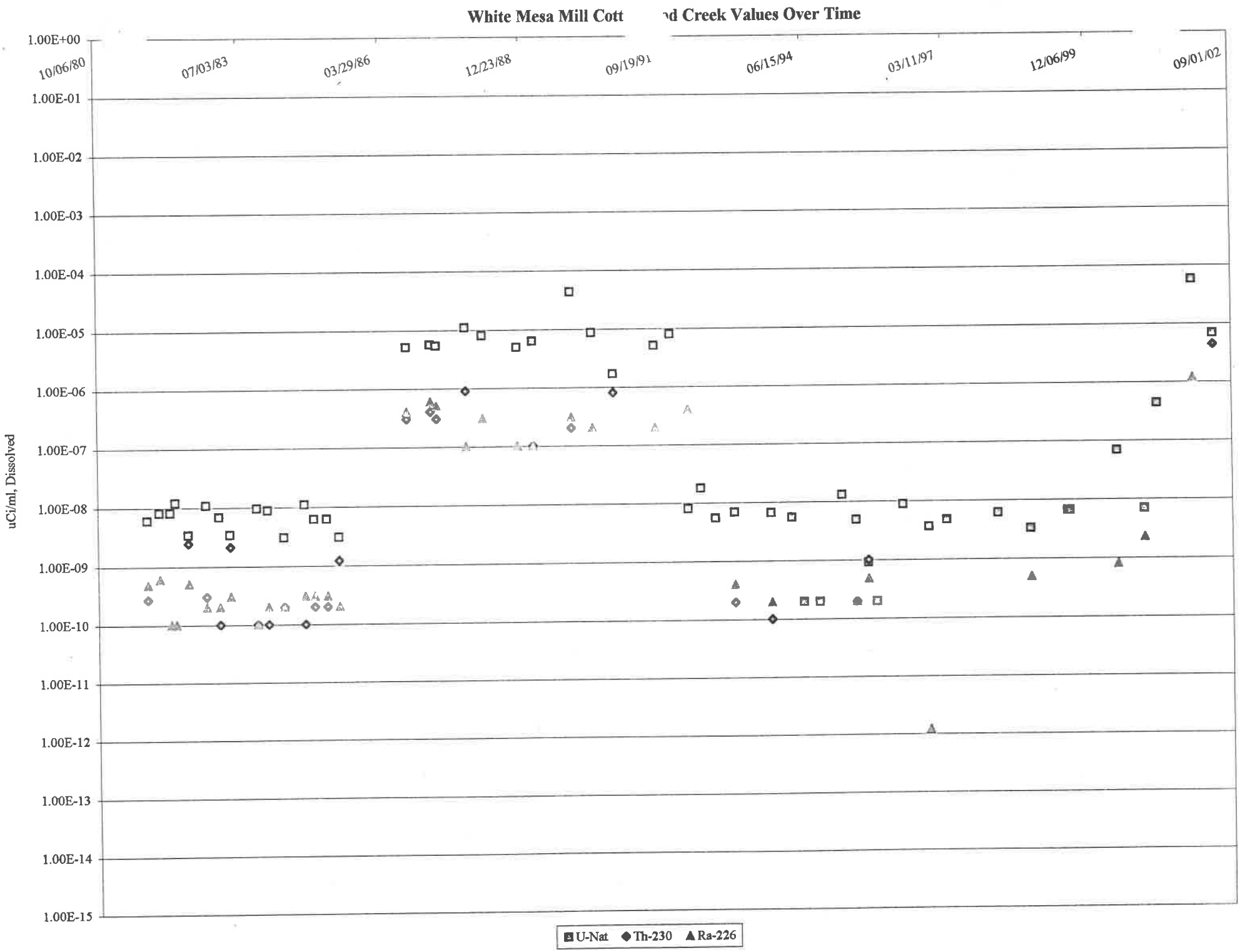
White Mesa Mill

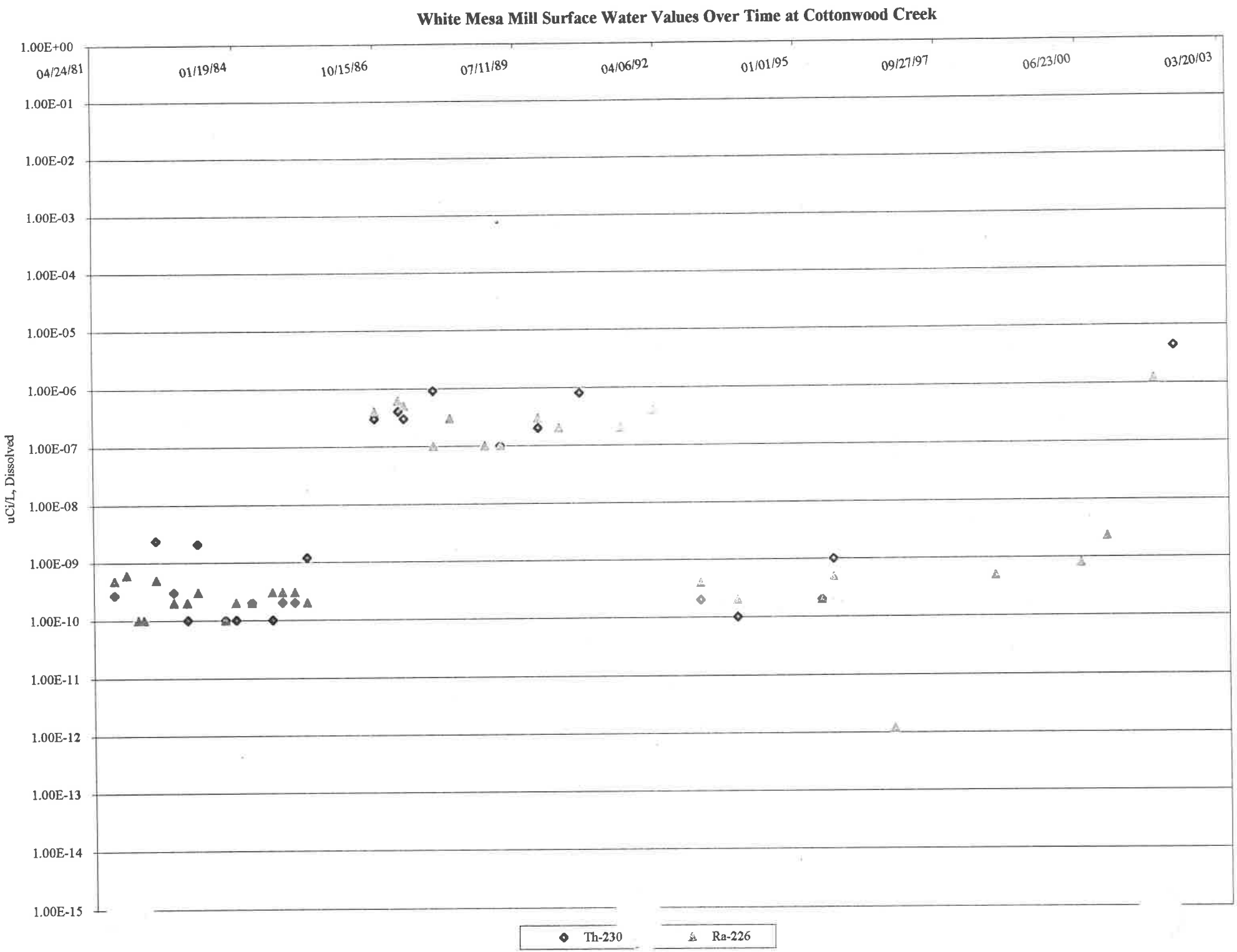
SURFACE-WATER ENVIRONMENTAL MONITORING RESULTS FOR THE PERIOD OF JULY 1, 2002 THROUGH DECEMBER 31, 2002

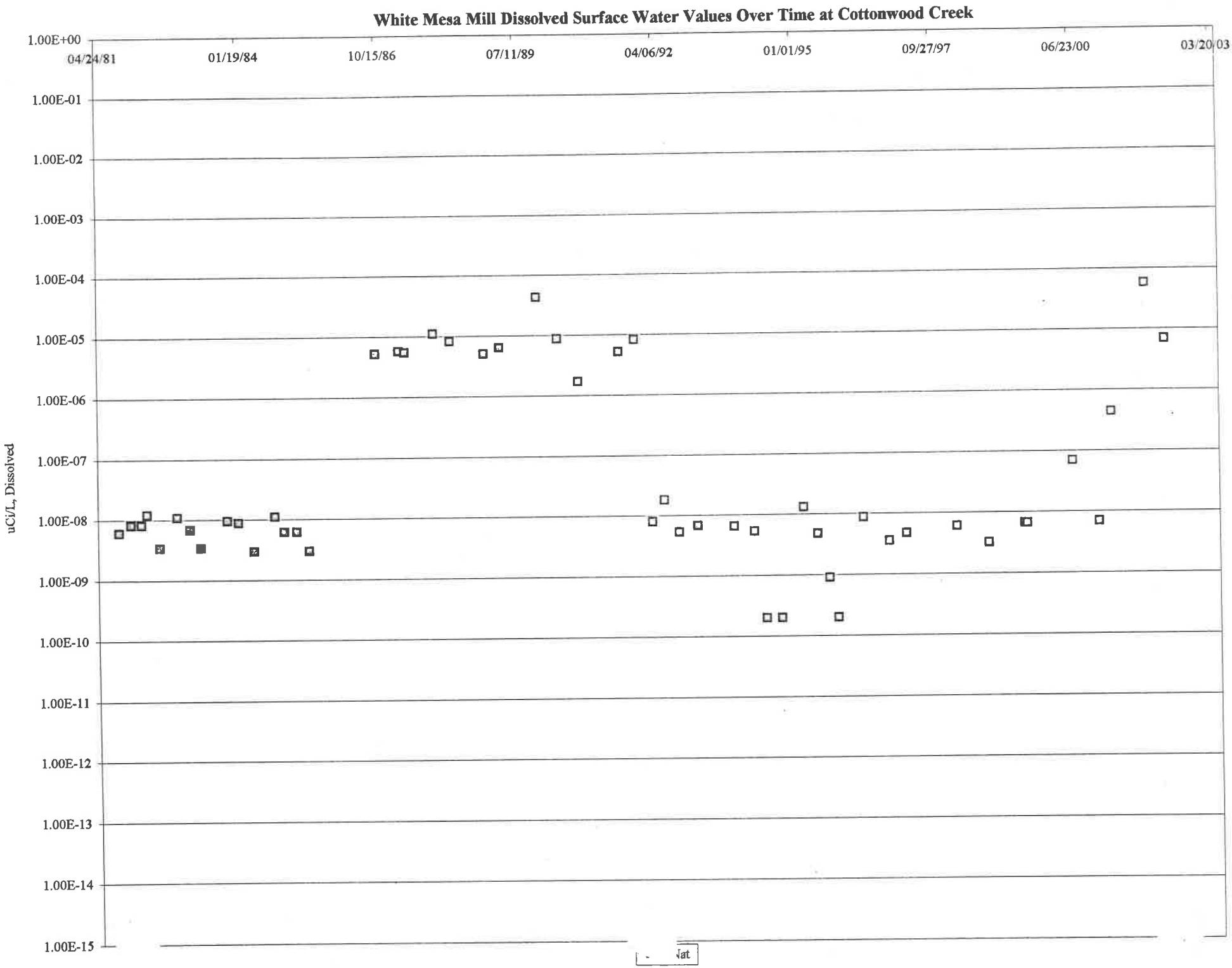
TABLE VI

INTERNATIONAL URANIUM (USA) CORPORATION
WHITE MESA MILL
SURFACE WATER ANALYSIS
SEMI-ANNUAL EFFULENT REPORT

	Cottonwood 1 3rd Quarter 2002	Cottonwood 2 4th Quarter 2002
Date of Sample	30-Sep-02	04-Nov-02
TDS (mg/l)	2.69E+02	2.45E+02
Reporting Limit	1.00E+01	1.00E+01
TSS (mg/l)	1.59E+02	8.10E+00
Reporting Limit	1.00E+00	1.00E+00
Ra-226 dissolved (þCi/l)		<2.00E-01
Ra-226 Reporting Limit		2.00E-01
Th-230 suspended (þCi/l)		<2.00E-01
Th-230 disolved (þCi/l)		<2.00E-01
Th-230 Reporting Limit (þCi/l)		2.00E-01
U-nat. suspended (pCi/L)		<3.00E-04
U-nat. dissolved (pCi/L)		2.23E+00
U-nat LLD (pCi/L)		2.03E-01
Gross Alpha Total (pCi/l)		<1.00E+00
Gross Alpha Reporting Limit (pCi/l)		1.00E+00


White Mesa Mill Cott d Creek Values Over Time
uCi/ml, Dissolved
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
10/06/80
07/03/83
03/29/86
12/23/88
09/19/91
06/15/94
03/11/97
12/06/99
09/01/02
U-Nat
Th-230
Ra-226


White Mesa Mill Surface Water Values Over Time at Cottonwood Creek
uCi/L, Dissolved
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
04/24/81
01/19/84
10/15/86
07/11/89
04/06/92
01/01/95
09/27/97
06/23/00
03/20/03
Th-230
Ra-226


White Mesa Mill Dissolved Surface Water Values Over Time at Cottonwood Creek
uCi/L, Dissolved
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
04/24/81
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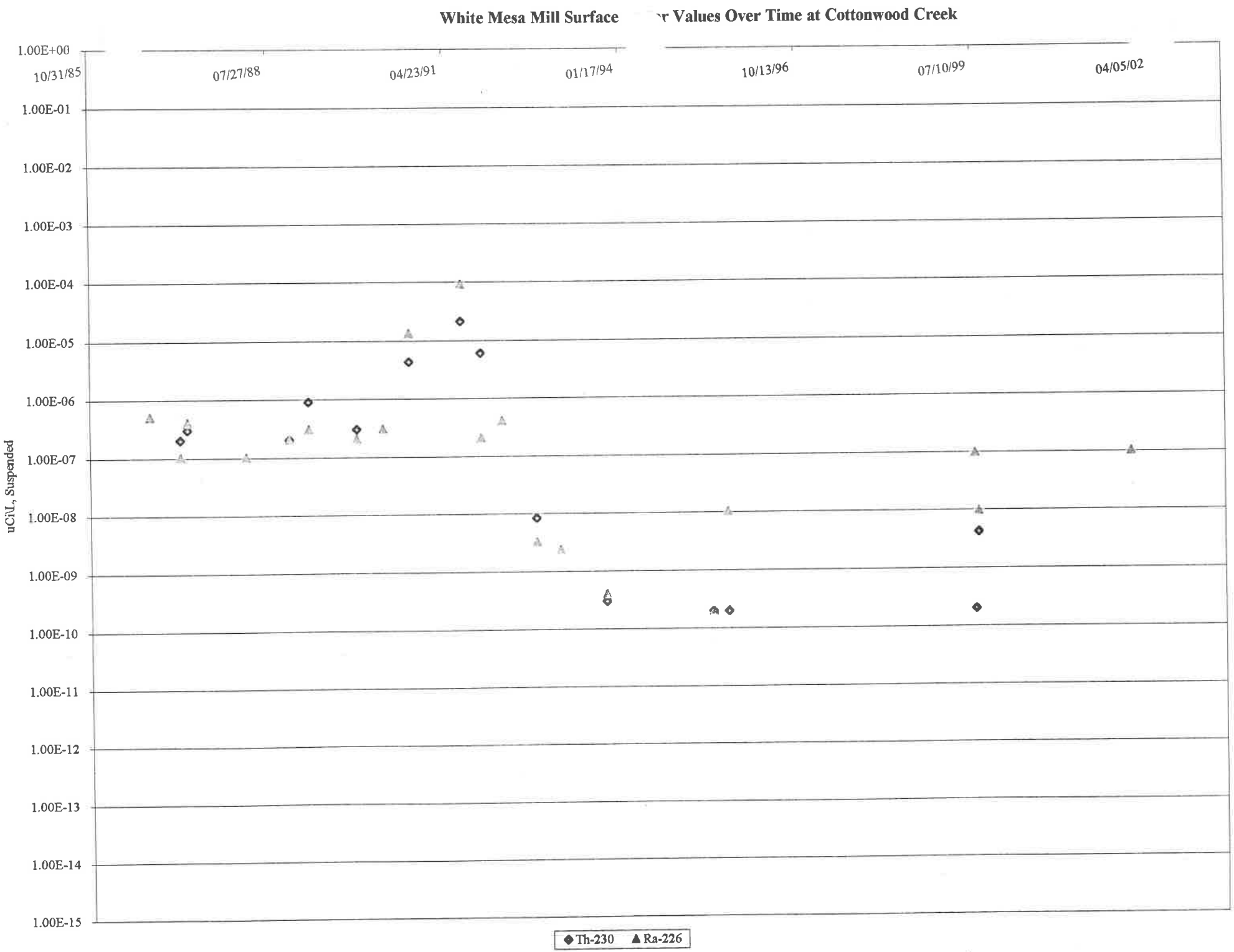
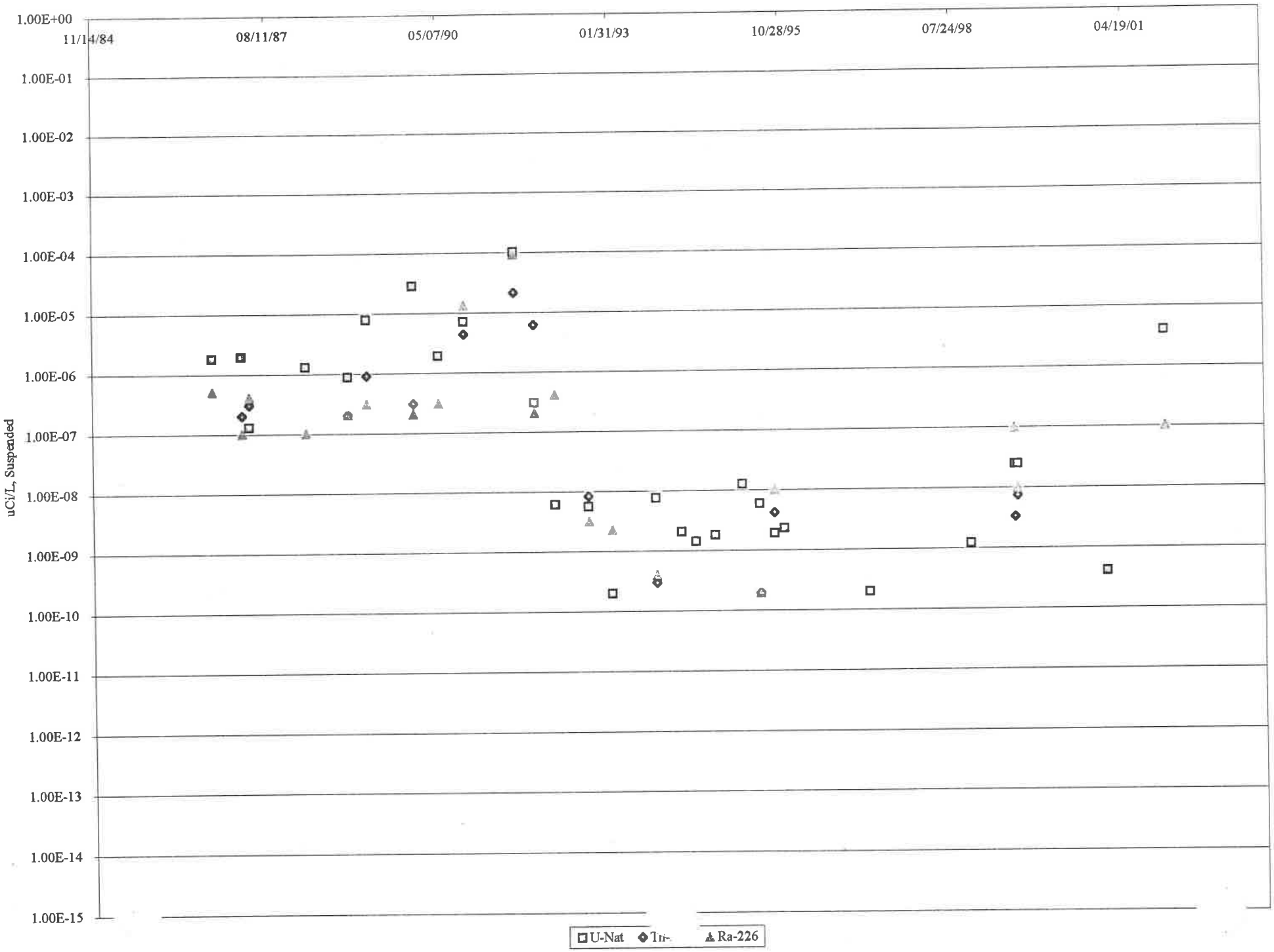
10/15/86
07/11/89
04/06/92
01/01/95
09/27/97
06/23/00
03/20/03


White Mesa Mill Surface r Values Over Time at Cottonwood Creek
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
uCi\L, Suspended
10/31/85
07/27/88
04/23/91
01/17/94
10/13/96
07/10/99
04/05/02
Th-230
Ra-226

White Mesa Mill Surface Water Values Over Time at Cottonwood Creek



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LABORATORY ANALYTICAL REPORT

Report Date: 12/10/02
Collection Date: 11/04/02 10:45
Date Received: 11/07/02
Matrix: AQUEOUS

International Uranium (USA) Corp
Project: 4th Quarter Surface Water
Lab ID: C02110239-001
Client Sample ID: Cottonwood

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	245	mg/L		10		A2540 C	11/08/02 11:19 / sml
Solids, Total Suspended TSS @ 105 C	8.1	mg/L		1.0		E160.2	11/08/02 09:22 / sml
METALS - DISSOLVED							
Uranium	0.0033	mg/L		0.0003		E200.8	11/19/02 02:21 / smd
METALS - SUSPENDED							
Uranium	ND	mg/L		0.00030		SW6020	11/27/02 00:16 / smd
RADIONUCLIDES - DISSOLVED							
Gross Alpha minus Rn & U	ND	pCi/L		1.0		E900.1	11/18/02 14:15 / rs
Radium 226	ND	pCi/L		0.2		E903.0	12/09/02 12:01 / es
Thorium 230	ND	pCi/L		0.2		E907.0	11/14/02 10:30 / ph
IONUCLIDES - SUSPENDED							
Radium 226	ND	pCi/L		0.2		E903.0	11/27/02 14:32 / es
Thorium 230	ND	pCi/L		0.20		E907.0	11/25/02 10:30 / ph

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACKING NO. PAGE NO.
110239R0001

Energy Laboratories Inc.

Sample Receipt Checklist

Date and Time Received: 11/07/2002

Client Name: INTRNTNL-URNM-(S)-CRP

Received by: sh

Work Order Number C02110239

Checklist completed by Signature Date 11/12/02

Reviewed by Initials Date

Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
mples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	6 °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Adjusted? Checked by

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted: Date contacted: Person contacted

Contacted by: Regarding:

Comments:

Corrective Action

TRACKING NO. PAGE NO.

110239R0003

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ANALYTICAL SUMMARY REPORT

December 10, 2002

International Uranium (USA) Corp
6425 S Hwy 191
PO Box 809
Blanding, UT 84511

Workorder No.: C02110239

Project Name: 4th Quarter Surface Water

Energy Laboratories Inc. received the following 1 sample from International Uranium (USA) Corp on 11/7/2002 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C02110239-001	Cottonwood	11/04/02 10:45	11/07/02	Filter	Uranium, Dissolved Metals, Suspended Digestion, Total Metals Gross Alpha minus Rn222 and Uranium Radium 226, Dissolved Radium 226, Suspended Thorium, Isotopic Thorium, Suspended Isotopic Solids, Total Dissolved Solids, Total Suspended

re were no problems with the analyses and all data for associated QC met EPA or laboratory specifications
.cept where noted in the Case Narrative or Report.

If you have any questions regarding these tests results, please call

Report Approved By:

TRACKING NO. PAGE NO.
110239R0004

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Date: 10-Dec-02

CLIENT: International Uranium (USA) Corp
Project: 4th Quarter Surface Water
Sample Delivery Group: C02110239

CASE NARRATIVE

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL REPORT

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-cs - Energy Laboratories, Inc. - College Station, TX

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet equirements as set forth by NELAC. Some client specific reporting requirements may not require NELAC reporting protocol.

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

The total number of pages of this report are indicated by the last four digits of the tracking number located in the lower right corner.

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LABORATORY ANALYTICAL REPORT

Report Date: 10/07/02
Collection Date: 09/30/02 10:30
Date Received: 10/02/02
Matrix: AQUEOUS

International Uranium (USA) Corp
Project: 3rd Quarter Surface Water Sampling
Lab ID: C02100094-001
Client Sample ID: Cottonwood Creek

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	269	mg/L		10		A2540 C	10/03/02 15:41 / sml
Solids, Total Suspended TSS @ 105 C	159	mg/L		1		E160.2	10/03/02 09:25 / sml

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACKING NO. PAGE NO.
10094R00001

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QA/QC Summary Report

Report Date: 10/09/02
Work Order: C02100094

Client: International Uranium (USA) Corp
Project: 3rd Quarter Surface Water Sampling

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
								Batch: 021003A-SLDS-TDS-W	
Method: A2540 C									10/03/02 15:36
Sample ID: C02100092-009AMS	Matrix Spike								
Solids, Total Dissolved TDS @ 180 C	6100	mg/L	10.0	101	90	110			
									10/03/02 15:36
Sample ID: C02100092-009AMSD	Matrix Spike Duplicate								
Solids, Total Dissolved TDS @ 180 C	6120	mg/L	10.0	102	90	110	0.3	10	
									10/03/02 15:44
Sample ID: C02100120-001BMS	Matrix Spike								
Solids, Total Dissolved TDS @ 180 C	4820	mg/L	10.0	101	90	110			
									10/03/02 15:44
Sample ID: C02100120-001BMSD	Matrix Spike Duplicate								
Solids, Total Dissolved TDS @ 180 C	4820	mg/L	10.0	101	90	110	0	10	
									10/03/02 15:16
Sample ID: C02100037-002BMS	Matrix Spike								
Solids, Total Dissolved TDS @ 180 C	2960	mg/L	10.0	99.1	90	110			
									10/03/02 15:17
Sample ID: C02100037-002BMSD	Matrix Spike Duplicate								
Solids, Total Dissolved TDS @ 180 C	2980	mg/L	10.0	100	90	110	0.8	10	
									10/03/02 15:23
ıple ID: C02100151-003AMS	Matrix Spike								
ɔolids, Total Dissolved TDS @ 180 C	3220	mg/L	10.0	101	90	110			
									10/03/02 15:23
Sample ID: C02100151-003AMSD	Matrix Spike Duplicate								
Solids, Total Dissolved TDS @ 180 C	3210	mg/L	10.0	101	90	110	0.5	10	
									10/03/02 15:26
Sample ID: C02100151-004AMS	Matrix Spike								
Solids, Total Dissolved TDS @ 180 C	4780	mg/L	10.0	103	90	110			
									10/03/02 15:26
Sample ID: C02100151-004AMSD	Matrix Spike Duplicate								
Solids, Total Dissolved TDS @ 180 C	4780	mg/L	10.0	103	90	110	0.1	10	
								Batch: 021003A-SLDS-TSS-W	
Method: E160.2									10/03/02 09:24
Sample ID: C02100084-001ADUP	Sample Duplicate								
Solids, Total Suspended TSS @ 105 C	75.0	mg/L	1.00				0	25	
									10/03/02 09:58
Sample ID: C02100094-001ADUP	Sample Duplicate								
Solids, Total Suspended TSS @ 105 C	157	mg/L	1.00				0.9	25	

Qualifiers: ND - Not Detected at the Reporting Limit
R - RPD outside of recommended recovery limits
S - Spike Recovery outside of recommended recovery limits

TRACKING NO. PAGE NO.
10094R00002

Energy Laboratories Inc.

Sample Receipt Checklist

Client Name: INTRNTNL-URNM-(S)-CRP

Work Order Number C02100094

Checklist completed by Tabitha Edwards 10/2/02
Signature Date

Date and Time Received: 10/2/2002 10:00:00

Received by: bcm

Reviewed by _____ Initials | Date

Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
mples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	3 °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Adjusted? _____ Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted: _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments:

Corrective Action _____

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10094R00004

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ANALYTICAL SUMMARY REPORT

October 07, 2002

David Turk
International Uranium (USA) Corp
6425 S Hwy 191
PO Box 809
Blanding, UT 84511

Workorder No.: C02100094

Project Name: 3rd Quarter Surface Water Sampling

Energy Laboratories Inc. received the following 1 sample from International Uranium (USA) Corp on 10/2/2002 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C02100094-001	Cottonwood Creek	09/30/02 10:30	10/02/02	Aqueous	Solids, Total Dissolved Solids, Total Suspended

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative or Report.

If you have any questions regarding these tests results, please call

port Approved By: R.A. Garling
ROGER GARLING
LABORATORY SUPERVISOR

TRACKING NO. PAGE NO
10094R00005

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• 2393 Salt Creek Highway (82601) • P.O. Box 3[illegible] • Casper, WY 82602

Date: 07-Oct-02

CLIENT: International Uranium (USA) Corp
Project: 3rd Quarter Surface Water Sampling
Sample Delivery Group: C02100094

CASE NARRATIVE

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL REPORT

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-cs - Energy Laboratories, Inc. - College Station, TX

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by NELAC. Some client specific reporting requirements may not require NELAC reporting protocol.

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

The total number of pages of this report are indicated by the last four digits of the tracking number located in the lower right corner.

WESTWATER CREEK

SEDIMENT ENVIRONMENTAL

MONITORING

RESULTS

FOR THE

PERIOD

OF

JULY 1, 2002

THROUGH

DECEMBER 31, 2002

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LABORATORY ANALYTICAL REPORT

Lab Order: C02080127
Report Date: 08/27/02

International Uranium (USA) Corp
Project: Annual Soil Sampling

Collection Date: 08/01/02 09:25
DateReceived: 08/05/02

Lab ID: C02080127-007
Client Sample ID: Westwater Creek
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	2.0E-02	µCi/kg		1.0E-03		E903.0	08/20/02 00:29 / rs
Radium 226 precision	1.0E-02	±				E903.0	08/20/02 00:29 / rs
Uranium	8.87E-05	µCi/kg		1.0E-05		SW6020	08/19/02 21:08 / jal

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACKING NO. PAGE NO.
80127R00003

SOIL

ENVIRONMENTAL

MONITORING

RESULTS

FOR

THE

PERIOD

JULY 1, 2002

THROUGH

DECEMBER 31, 2002

SOIL

Tat

INTERNATIONAL URANIUM CORPORATION
WHITE MESA MILL
Soil Sampling Results

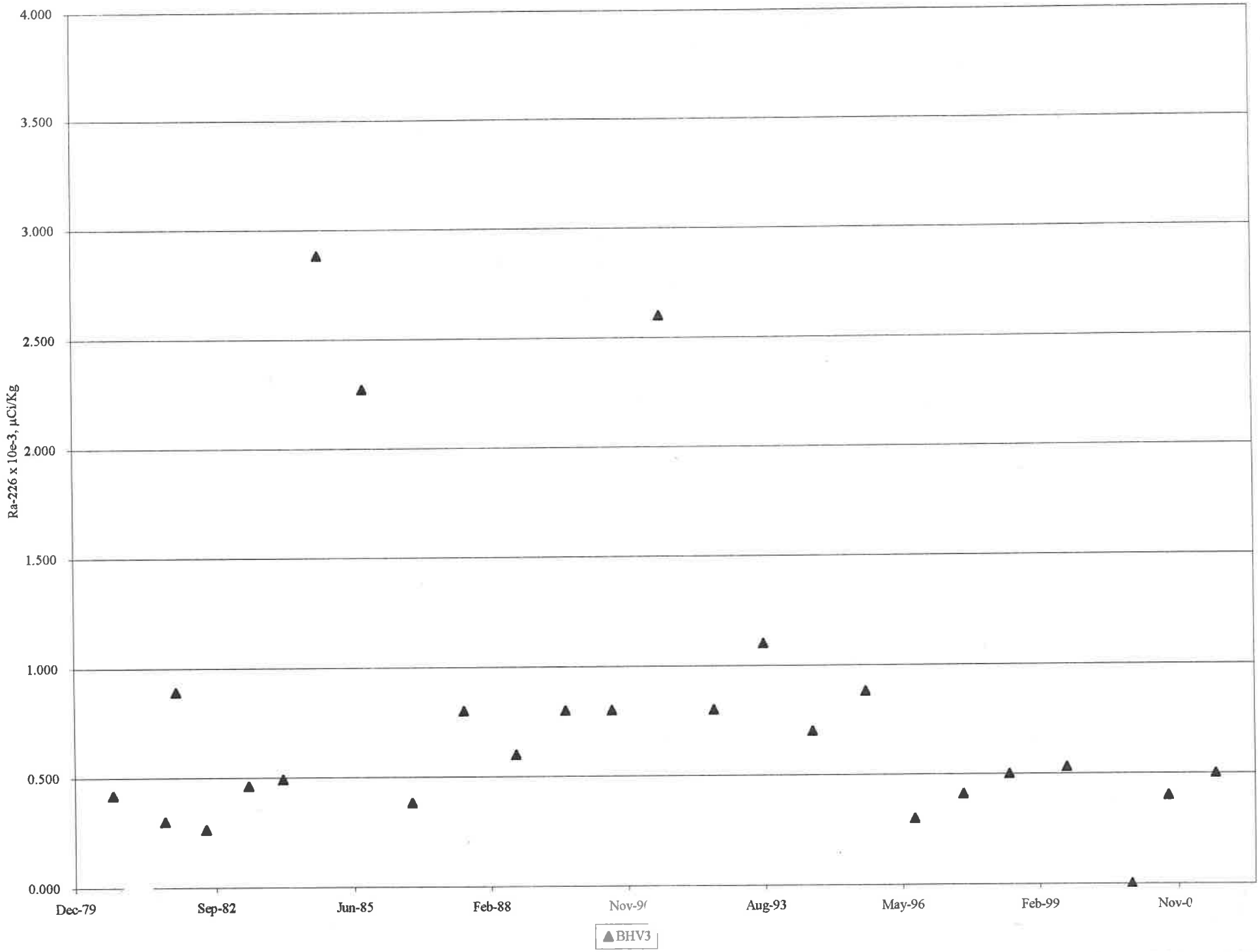
(VALUES) x 10-3 uCi/kg

Date	BHV-1		BHV-2		BHV-3		BHV-4		BHV-5	
	Ra-226	U-Nat	Ra-226	U-Nat	Ra-226	U-Nat	Ra-226	U-Nat	Ra-226	U-Nat
7-Sep-80	0.650	0.420	0.340	0.420	0.420	0.420	0.410	12.194	0.230	14.891
8-Sep-81	0.400	1.800	0.300	0.600	0.300	0.600	0.200	3.000	0.300	0.600
3-Dec-81	0.790	0.770	0.440	0.560	0.890	0.420	0.750	0.630	0.550	0.420
30-Jun-82	0.423	0.384	0.412	0.180	0.265	0.207	0.478	0.260	0.449	0.216
5-May-83	0.471	0.410	0.569	0.550	0.461	0.340	0.643	0.340	0.147	0.140
4-Jan-84	0.713	0.866	0.618	0.683	0.489	0.471	0.124	0.324	0.132	0.310
12-Oct-84	2.960	0.886	2.330	0.069	2.880	0.721	3.490	0.804	2.550	0.817
28-Aug-85	1.630	0.800	2.190	0.424	2.270	0.424	4.330	0.294	1.280	0.577
1-Aug-86	0.369	0.654	0.466	0.866	0.382	0.694	0.396	0.826	0.728	0.836
17-Aug-87	0.600	0.800	1.500	0.900	0.800	0.600	1.200	0.700	1.500	1.300
28-Aug-88	1.500	1.600	1.300	0.700	0.600	0.900	1.000	1.300	3.800	5.000
25-Aug-89	1.200	1.600	1.100	3.000	0.800	1.000	1.100	1.400	2.900	5.700
1-Aug-90	2.900	5.800	1.000	1.400	0.800	1.400	1.800	1.300	3.700	3.200
5-Aug-91	3.900	8.800	1.700	2.600	2.600	5.700	1.800	2.600	2.500	4.400
13-Aug-92	1.200	2.200	0.900	1.400	0.800	1.200	0.900	0.900	1.100	1.800
13-Aug-93	2.000	1.700	1.400	1.700	1.100	1.900	0.800	1.600	4.800	3.500
3-Aug-94	1.000	1.600	0.700	0.800	0.700	0.900	0.700	1.100	3.000	3.800
28-Aug-95	2.810	4.700	0.680	0.200	0.880	0.650	0.580	0.240	2.800	1.600
13-Aug-96	1.700	2.150	0.600	0.460	0.300	0.210	0.500	0.520	1.900	2.010
1-Aug-97	0.540	0.310	0.560	0.160	0.410	0.270	0.410	0.260	1.700	1.500
1-Jul-98	1.600	3.050	0.700	0.580	0.500	0.450	1.000	1.190	3.000	2.760
24-Aug-99	2.270	1.740	0.780	0.840	0.530	0.420	0.840	0.770	3.270	3.150
1-Dec-00	1.510	1.210	0.810	0.530	*	*	0.830	1.220	2.810	3.250
23-Aug-01	1.000	1.000	0.600	0.300	0.400	0.300	0.900	1.000	1.200	1.100
1-Aug-02	1.300	1.350	0.900	0.524	0.500		1.200	1.490	2.400	2.810

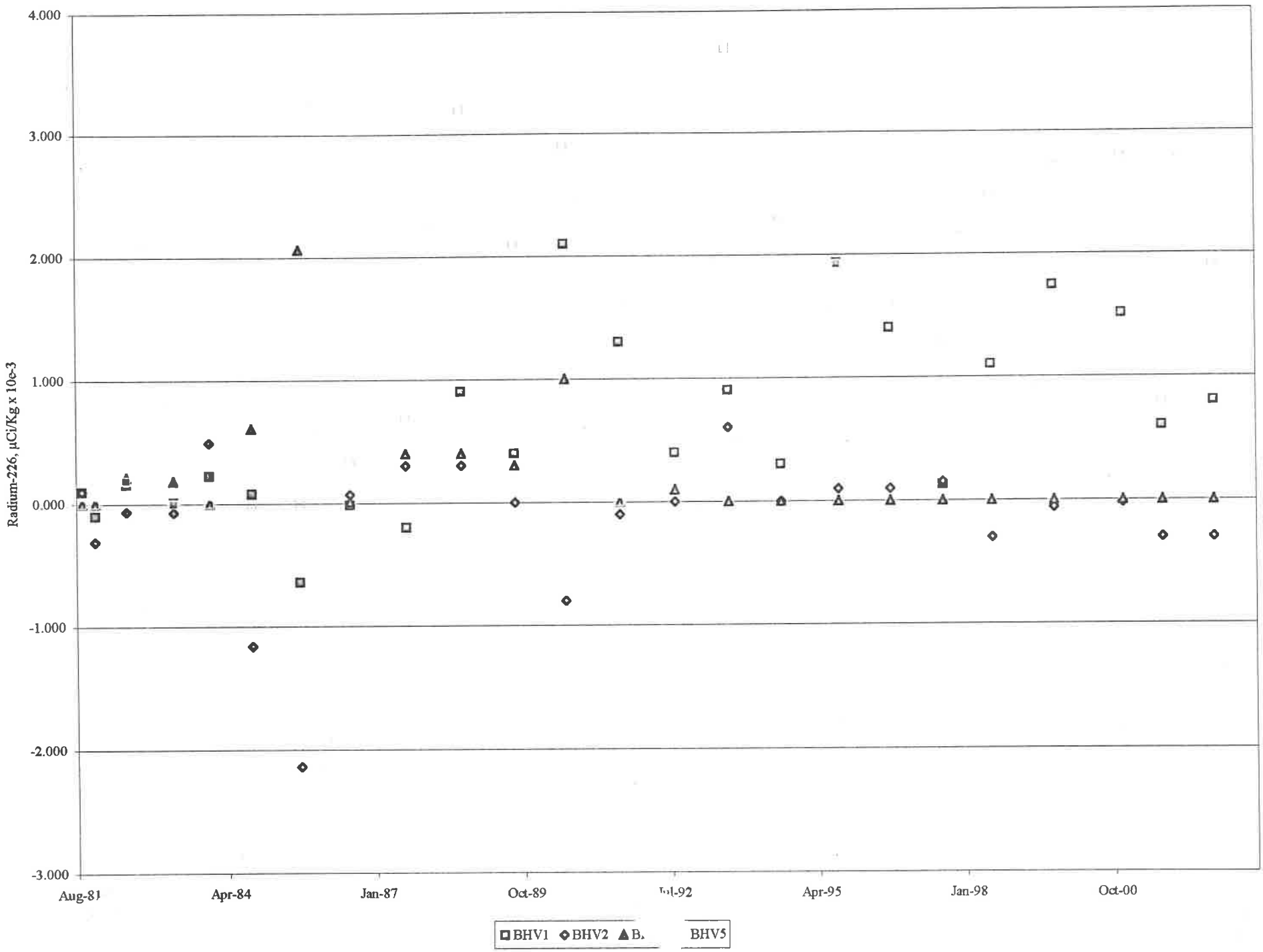
Mean	1.42	1.86	0.92	0.82	0.80	0.84	1.06	1.45	1.95	2.63
Std. Dev.	0.92	1.90	0.53	0.70	0.70	1.09	0.94	2.29	1.29	2.94

*BHV-3's Soil sample for 2000 was lost.

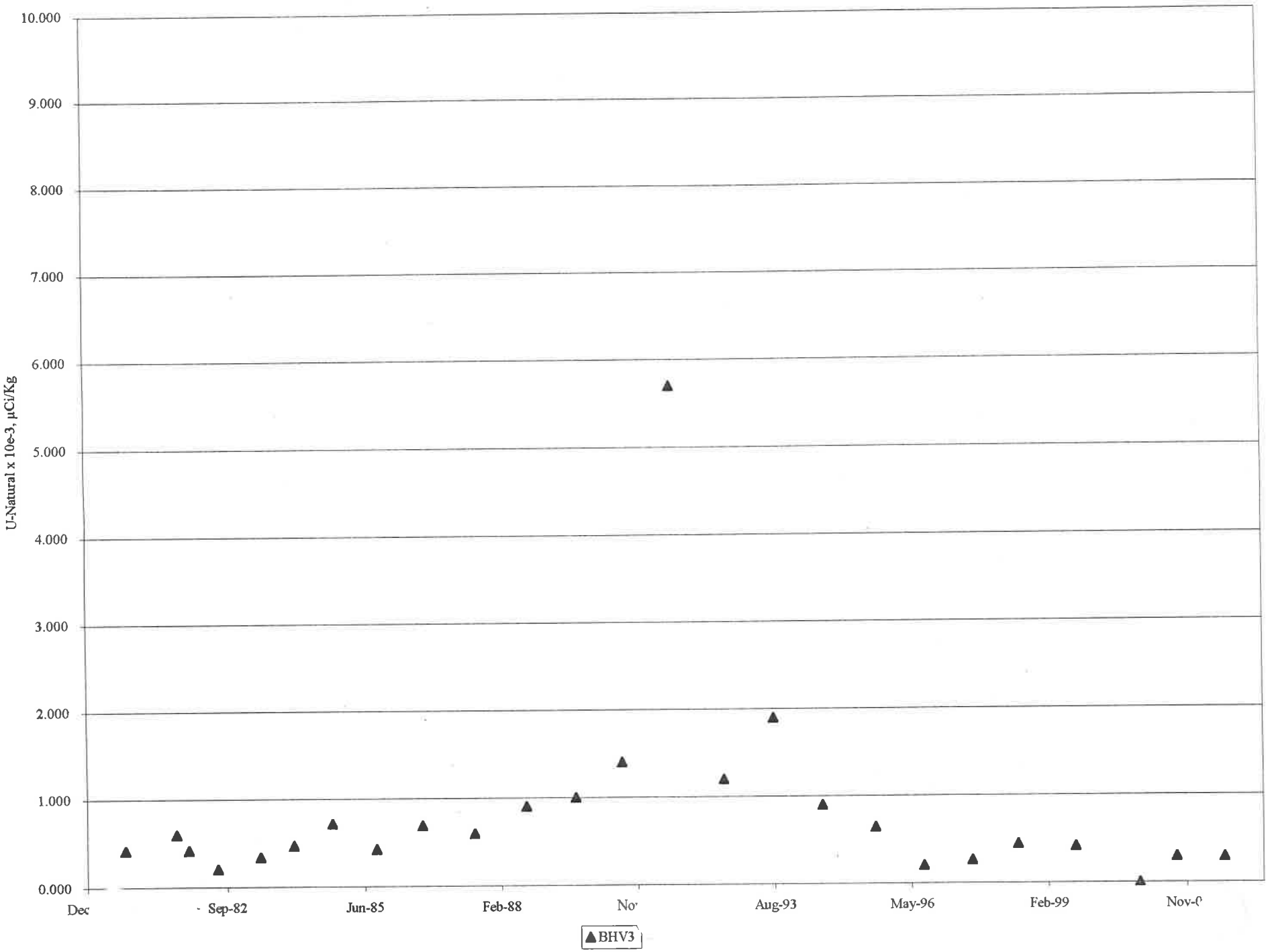
White Mesa Mill Ra-226 Soil Concentrations at BHV-3 (Background) Over Time



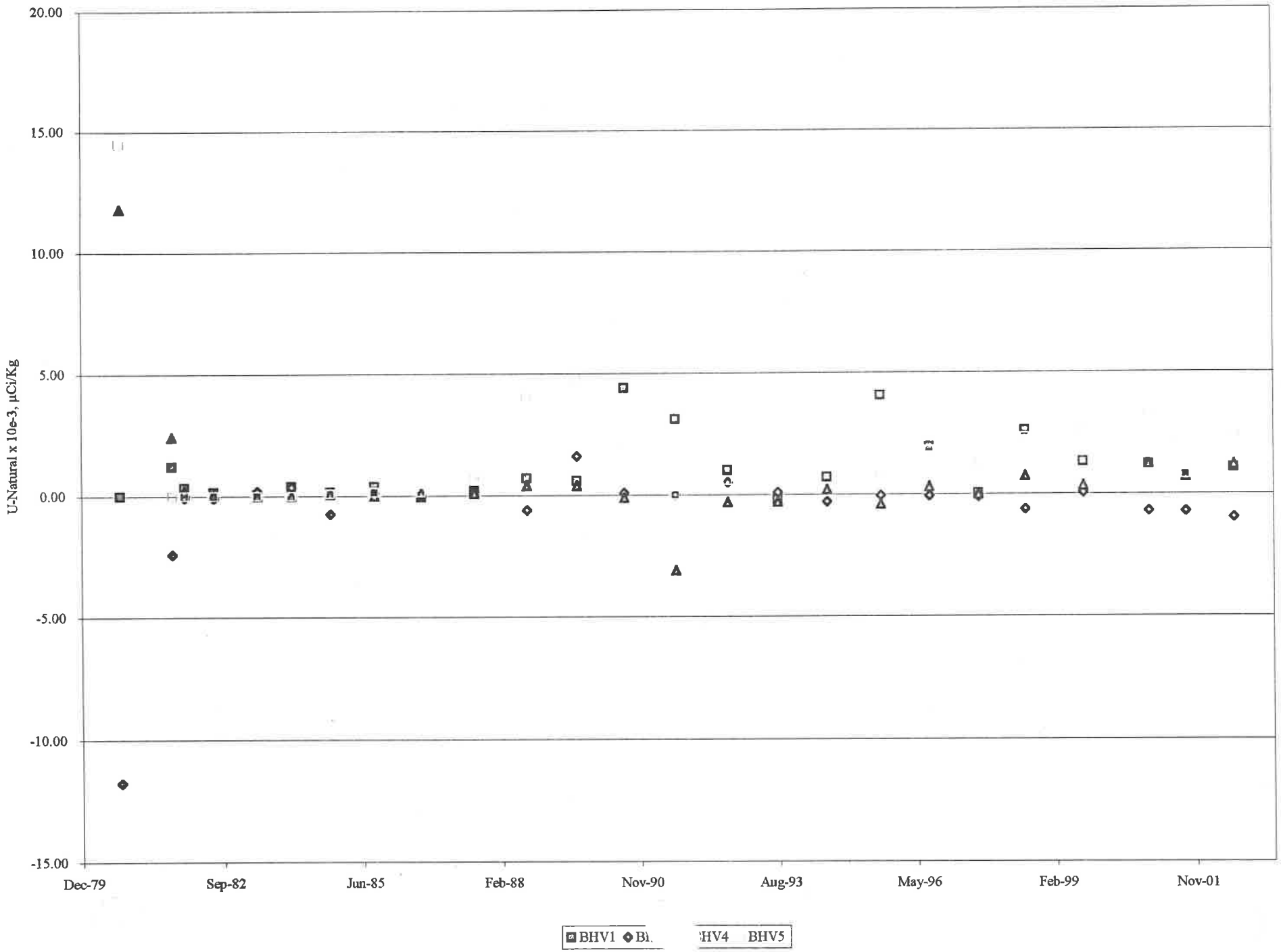
White Mesa Mill Ra-226 Soil Concentrations Compared to Background (BHV-3) Over Time



White Mesa Mill U-nat Soil Concentrations at BHV-3 (Background) Over Time



White Mesa Mill U-nat Soil Concentrations
Compared to Background (BHV-3) Over Time



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LABORATORY ANALYTICAL REPORT

Lab Order: C02080127
Report Date: 08/27/02

[illegible]: International Uranium (USA) Corp
Project: Annual Soil Sampling

Collection Date: 08/01/02 07:24
DateReceived: 08/05/02

Lab ID: C02080127-004
Client Sample ID: BHV-4
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	1.2E-03	µCi/kg		1.0E-03		E903.0	08/19/02 20:28 / rs
Radium 226 precision	1.0E-02	±				E903.0	08/19/02 20:28 / rs
Uranium	1.49E-03	µCi/kg		1.0E-05		SW6020	08/19/02 20:49 / jal

Collection Date: 08/01/02 07:39
DateReceived: 08/05/02

Lab ID: C02080127-005
Client Sample ID: BHV-5
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	2.4E-03	µCi/kg		1.0E-03		E903.0	08/19/02 22:28 / rs
Radium 226 precision	2.0E-02	±				E903.0	08/19/02 22:28 / rs
[illegible]nium	2.81E-03	µCi/kg		1.0E-05		SW6020	08/19/02 21:03 / jal

Collection Date: 08/01/02 07:33
DateReceived: 08/05/02

Lab ID: C02080127-006
Client Sample ID: BHV-6
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	6.0E-02	µCi/kg		1.0E-03		E903.0	08/19/02 23:29 / rs
Radium 226 precision	1.0E-02	±				E903.0	08/19/02 23:29 / rs
Uranium	5.51E-04	µCi/kg		1.0E-05		SW6020	08/19/02 21:06 / jal

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACKING NO. PAGE NO.
80127R00002

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LABORATORY ANALYTICAL REPORT

Lab Order: C02080127
Report Date: 08/27/02

: International Uranium (USA) Corp
Project: Annual Soil Sampling

Collection Date: 08/01/02 07:50
DateReceived: 08/05/02

Lab ID: C02080127-001
Client Sample ID: BHV-1
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	1.3E-03	µCi/kg		1.0E-03		E903.0	08/19/02 17:27 / rs
Radium 226 precision	1.0E-02	±				E903.0	08/19/02 17:27 / rs
Uranium	1.35E-03	µCi/kg		1.0E-05		SW6020	08/19/02 20:32 / jal

Collection Date: 08/01/02 08:03
DateReceived: 08/05/02

Lab ID: C02080127-002
Client Sample ID: BHV-2
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	9.0E-02	µCi/kg		1.0E-03		E903.0	08/19/02 18:27 / rs
Radium 226 precision	1.0E-02	±				E903.0	08/19/02 18:27 / rs
[illegible]nium	5.42E-04	µCi/kg		1.0E-05		SW6020	08/19/02 20:43 / jal

Collection Date: 08/01/02 09:06
DateReceived: 08/05/02

Lab ID: C02080127-003
Client Sample ID: BHV-3
Matrix: SOIL

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - TOTAL							
Radium 226	5.0E-02	µCi/kg		1.0E-03		E903.0	08/19/02 19:27 / rs
Radium 226 precision	1.0E-02	±				E903.0	08/19/02 19:27 / rs
Uranium	2.97E-04	µCi/kg		1.0E-05		SW6020	08/19/02 20:46 / jal

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACKING NO. PAGE 1
80127R0000

Appendix C

Site Hydrogeology and Estimation of Groundwater Travel Times in Perched Zone White Mesa Uranium Mill Site Near Blanding, Utah, January 30, 2003, Hydro Geo Chem, Inc.

White Mesa Mill

International Uranium (USA) Corporation
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SITE HYDROGEOLOGY AND ESTIMATION OF GROUNDWATER TRAVEL TIMES IN THE PERCHED ZONE WHITE MESA URANIUM MILL SITE NEAR BLANDING, UTAH

Prepared for:

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January 30, 2003

HYDRO GEO CHEM, INC.

Environmental Science & Technology

TABLE OF CONTENTS

1. INTRODUCTION 1

2. SITE HYDROGEOLOGY 2

2.1 Geologic Setting 2

2.2 Hydrogeologic Setting 3

2.3 Perched Zone Hydrogeology 4
2.3.1 Lithologic and Hydraulic Properties 5
2.3.1.1 Dakota 6
2.3.1.2 Burro Canyon 6
2.3.2 Perched Groundwater Flow 8

3. PERCHED ZONE HYDROGEOLOGY BENEATH AND DOWNGRADIENT OF THE TAILINGS CELLS 10

3.1 Saturated Thickness 10

3.2 Perched Water Flow 11

3.3 Permeability 12

4. EVALUATION OF POTENTIAL FLOW PATHS AND TRAVEL TIMES FOR HYPOTHETICAL SEEPAGE ORIGINATING FROM CELL #3 14

4.1 Estimated Travel Time From the Base of Cell #3 to the Perched Zone 14

4.2 Estimated Travel Time From Tailings Cell #3 to Ruin Spring 15

4.3 Estimated Total Travel Time from the Base of Tailings Cell #3 to Ruin Spring . 16

5. REFERENCES 18

TABLE OF CONTENTS (continued)

TABLES

1 Peel Hydraulic Test Results
2 Results of July 2002 Hydraulic Tests

FIGURES

1 Approximate Elevation of Top of Brushy Basin
2 Perched Water Levels, August 1990
3 Perched Water Levels, August 1994
4 Perched Water Levels, September 2002
5 Portion of USGS Black Mesa 7.5' Sheet Showing Approximate Location of Tailing Cells in Relation to Nearby Canyons and Ruin Spring
6 Depth to Perched Water, September 2002
7 Perched Zone Saturated Thickness, September 2002

1. INTRODUCTION

This report provides a brief description of the hydrogeology of the White Mesa Uranium Mill Site, located south of Blanding, Utah, and focuses on the occurrence and flow of groundwater within the relatively shallow perched groundwater zone at the site. Based on available existing hydrogeologic information from the site, estimates of hydraulic gradients and intergranular rates of groundwater movement (interstitial velocities) are provided. These estimates are then used to calculate average travel times for a hypothetical conservative solute (assuming no dispersion) from tailings cell #3 at the site to a downgradient discharge point.

2. SITE HYDROGEOLOGY

Titan, 1994 provides a detailed description of site hydrogeology based on information available at that time. A brief summary of site hydrogeology that is based primarily on Titan, 1994, but includes the results of more recent site investigations, is provided below.

2.1 Geologic Setting

The White Mesa Uranium Mill site (the "Mill" or the "site") is located within the Blanding Basin of the Colorado Plateau physiographic province. Typical of large portions of the Colorado Plateau province, the rocks underlying the site are relatively undeformed. The average elevation of the site is approximately 5,600 feet (ft) above mean sea level (amsl).

The site is underlain by unconsolidated alluvium and indurated sedimentary rocks consisting primarily of sandstone and shale. The indurated rocks are relatively flat lying with dips generally less than 3°. The alluvial materials consist mostly of aeolian silts and fine-grained aeolian sands with a thickness varying from a few feet to as much as 25 to 30 ft across the site. The alluvium is underlain by the Dakota Sandstone and Burro Canyon Formation, which are sandstones having a total thickness ranging from approximately 100 to 140 ft. Beneath the Burro Canyon Formation lies the Morrison Formation, consisting, in descending order, of the Brushy Basin Member, the Westwater

Canyon Member, the Recapture Member, and the Salt Wash Member. The Brushy Basin and Recapture Members of the Morrison Formation, classified as shales, are very fine-grained and have a very low permeability. The Brushy Basin Member is primarily composed of bentonitic mudstones, siltstones, and claystones. The Westwater Canyon and Salt Wash Members also have a low average vertical permeability due to the presence of interbedded shales.

Beneath the Morrison Formation lie the Summerville Formation, an argillaceous sandstone with interbedded shales, and the Entrada Sandstone. Beneath the Entrada lies the Navajo Sandstone. The Navajo and Entrada Sandstones constitute the primary aquifer in the area of the site. The Entrada and Navajo Sandstones are separated from the Burro Canyon Formation by approximately 1,000 to 1,100 feet of materials having a low average vertical permeability. Groundwater within this system is under artesian pressure in the vicinity of the site, is of generally good quality, and is used as a secondary source of water at the site.

2.2 Hydrogeologic Setting

The site is located within a region that has a dry to arid continental climate, with average annual precipitation of less than 11.8 inches, and average annual evapotranspiration of approximately 61.5 inches. Recharge to aquifers occurs primarily along the mountain fronts (for example, the Henry, Abajo, and La Sal Mountains), and along the flanks of folds such as Comb Ridge Monocline.

Although the water quality and productivity of the Navajo/Entrada aquifer are generally good, the depth of the aquifer (approximately 1,200 feet below land surface [ft bls]) makes access difficult. The Navajo/Entrada aquifer is capable of yielding significant quantities of water to wells (hundreds of gallons per minute [gpm]). Water in wells completed across these units at the site rises approximately 800 feet above the base of the overlying Summerville Formation.

Perched groundwater in the Dakota Sandstone and Burro Canyon Formation is used on a limited basis to the north (upgradient) of the site because it is more easily accessible. Water quality of the Dakota Sandstone and Burro Canyon Formation is generally poor due to high total dissolved solids (TDS) and is used primarily for stock watering and irrigation. The saturated thickness of the perched water zone generally increases to the north of the site, increasing the yield of the perched zone to wells installed north of the site.

2.3 Perched Zone Hydrogeology

Perched groundwater beneath the site occurs primarily within the Burro Canyon Formation. Perched groundwater at the site has a generally low quality due to high total dissolved solids (TDS) in the range of 1,200 to 5,000 milligrams per liter (mg/L), and is used primarily for stock watering and irrigation in the areas upgradient (north) of the site. Perched water is supported within the Burro Canyon Formation by the underlying, fine-grained Brushy Basin Member. Figure 1 is a contour map showing the approximate

elevation of the contact of the Burro Canyon Formation with the Brushy Basin Member, which essentially forms the base of the perched water zone at the site. Contact elevations are based on perched monitoring well drilling and geophysical logs and surveyed land surface elevations. As indicated, the contact generally dips to the south/southwest beneath the site.

Groundwater within the perched zone generally flows south to southwest beneath the site. Beneath the tailings cells at the site, perched water flow is generally southwest to south-southwest.

2.3.1 Lithologic and Hydraulic Properties

Although the Dakota Sandstone and Burro Canyon Formations are often described as a single unit, due to their similarity, previous investigators at the site have distinguished between them. The Dakota Sandstone is a relatively-hard to hard, generally fine-to-medium grained sandstone cemented by kaolinite clays. The Dakota Sandstone locally contains discontinuous interbeds of siltstone, shale, and conglomeratic materials. Porosity is primarily intergranular. The underlying Burro Canyon Formation hosts most of the perched groundwater at the site. The Burro Canyon Formation is similar to the Dakota Sandstone but is generally more poorly sorted, contains more conglomeratic materials, and becomes argillaceous near its contact with the underlying Brushy Basin Member. The permeability of the Dakota Sandstone and Burro Canyon Formation at the site is generally low.

No significant joints or fractures within the Dakota Sandstone or Burro Canyon Formation have been documented in any wells or borings installed across the site (Knight Piésold, 1998). Any fractures observed in cores collected from site borings are typically cemented, showing no open space.

2.3.1.1 Dakota

Based on samples collected during installation of wells MW-16 and MW-17, located immediately downgradient of the tailings cells at the site, porosities of the Dakota Sandstone range from 13.4% to 26%, averaging 20%, and water saturations range from 3.7% to 27.2%, averaging 13.5%. The average volumetric water content is approximately 3%. The permeability of the Dakota Sandstone based on packer tests in borings installed at the site ranges from 2.71×10^{-6} centimeters per second (cm/s) to 9.12×10^{-4} cm/s, with a geometric average of 3.89×10^{-5} cm/s.

2.3.1.2 Burro Canyon

The average porosity of the Burro Canyon Formation is similar to that of the Dakota Sandstone. Based on samples collected from the Burro Canyon Formation at MW-16, located immediately downgradient of the tailings cells at the site, porosity ranges from 2% to 29.1%, averaging 18.3%, and water saturations of unsaturated materials range from 0.6% to 77.2%, averaging 23.4%. Titan, 1994, reported that the

hydraulic conductivity of the Burro Canyon Formation ranges from 1.9×10^{-7} to 1.6×10^{-3} cm/s, with a geometric mean of 1.1×10^{-5} cm/s, based on the results of 12 pumping/recovery tests performed in monitoring wells and 30 packer tests performed in borings prior to that time.

Recent hydraulic testing of wells MW-01, MW-03, MW-05, MW-17, MW-18, MW-19, MW-20, and MW-22 during the week of July 8, 2002, yielded average perched zone permeabilities ranging from approximately 4×10^{-7} cm/s to 5×10^{-4} cm/s, similar to the range reported by previous investigators at the site (HGC, 2002). Downgradient (south to southwest) of the tailings cells, average perched zone permeabilities based on tests at MW-3, MW-5, MW-17, MW-20, and MW-22 ranged from approximately 4×10^{-7} to 4×10^{-5} cm/s. Permeability estimates from these tests were based on pumping/recovery and slug tests analyzed using several different methodologies.

A number of temporary perched zone monitoring wells have been installed at the site to investigate elevated concentrations of chloroform initially discovered at well MW-4 in 1999. Some of the conglomeratic zones encountered within the perched zone during installation of these wells are believed to be partly continuous or at least associated with a relatively continuous zone of higher permeability (International Uranium [USA] Corporation [IUSA] and Hydro Geo Chem, Inc. [HGC], 2001). The higher permeability zone defined by these wells is generally located east to northeast of the tailings cells at the site, and is hydraulically cross-gradient to upgradient of the tailings cells with respect to perched groundwater flow. Relatively high permeabilities

measured at MW-11, located on the southeastern margin of the downgradient edge of tailings cell #3, and at MW-14, located on the downgradient edge of tailings cell #4, of 1.4×10^{-3} cm/s and 7.5×10^{-4} cm/s, respectively (UMETCO, 1993), may indicate that this zone extends beneath the southeastern margin of the cells. This zone of higher permeability within the perched water zone does not appear to exist downgradient (south-southwest) of the tailings cells, however. At depths beneath the perched water table, the zone is not evident in lithologic logs of the southernmost temporary wells TW4-4 and TW4-6 (located east [cross-gradient] of cell #3), nor is it evident in wells MW-3, MW-5, MW-12, MW-15, MW-16, MW-17, MW-20, MW-21, or MW-22, located south to southwest (downgradient) of the tailings cells, based on the lithologic logs or hydraulic testing of the wells.

Because of the generally low permeability of the perched zone beneath the site, well yields are typically low (less than 0.5 gpm), although yields of about 2 gpm may be possible in wells intercepting the higher permeability zones on the east side of the site. Sufficient productivity can, in general, only be obtained in areas where the saturated thickness is greater, which is the primary reason that the perched zone has been used on a limited basis as a water supply to the north (upgradient) of the site.

2.3.2 Perched Groundwater Flow

Perched Groundwater flow at the site has historically been to the south/southwest. Figures 2 through 4 are perched groundwater elevation contour maps for the years 1990,

1994, and 2002 respectively. As indicated, the perched groundwater gradient changes from generally southwesterly in the western portion of the site to generally southerly in the eastern portion of the site.

In general, perched groundwater levels have not changed significantly at most of the site monitoring wells since installation. However, relatively large increases in water levels have occurred since about 1994 at MW-4 and MW-19, located in the east and northeast portions of the site, as shown by comparing Figures 3 and 4. These water level increases in the northeastern and eastern portions of the site are believed to result from seepage from wildlife ponds located near the piezometers shown in Figure 4, which were installed in 2001 for the purpose of investigating these changes. The increase in water levels in the northeastern portion of the site has resulted in a local steepening of groundwater gradients over portions of the site.

Perched water discharges in springs and seeps along Westwater Creek Canyon and Cottonwood Canyon to the west-southwest of the site, and along Corral Canyon to the east of the site, where the Burro Canyon Formation outcrops. The discharge point located most directly downgradient of the tailings cells is Ruin Spring. This feature is located approximately 10,000 feet south-southwest of the tailings cells at the site and is depicted on the USGS 7.5-minute quad sheet for Black Mesa (Figure 5).

3. PERCHED ZONE HYDROGEOLOGY BENEATH AND DOWNGRADIENT OF THE TAILINGS CELLS

Perched water as of September 2002, was encountered at depths of approximately 50 to 110 ft bls in the vicinity of the tailings cells at the site (Figure 6). Beneath tailings cell #3, depths to water ranged from approximately 83 ft below top of casing (btoc) east of the cell (at TW4-17), to approximately 109 ft btoc at the southwest margin of the cell (at MW-12). Assuming an average depth of the base of tailings cell #3 of 25 ft below grade, this corresponds to perched water depths of approximately 58 to 84 ft below the base of the cell, or an average depth of approximately 70 feet beneath the base of the cell.

3.1 Saturated Thickness

The saturated thickness of the perched zone as of September 2002, ranges from approximately 82 ft in the northeast portion of the site to less than 5 ft in the southwest portion of the site (Figure 7). Beneath tailings cell #3, the saturated thickness varies from approximately 45 feet in the easternmost corner of the cell to approximately 7 ft in the westernmost corner of the cell. South-southwest of the tailings cells, the saturated thickness ranges from less than 1 foot at MW-21 to approximately 21 feet at MW-17. The average saturated thickness south-southwest of the tailings cells, based on measurements at MW-3, MW-5, MW-12, MW-14, MW-15, MW17, and MW-20, is approximately 13 feet. The average saturated thickness based on measurements at MW-5, MW-15, MW-3, and MW-20, which lay close to a line between the center of

tailings cell #3 and Ruin Spring, is approximately 12 feet. By projecting conditions at these wells, the average saturated thickness is estimated to be approximately 10 to 15 feet between MW-20 and Ruin Spring.

3.2 Perched Water Flow

Perched groundwater flow beneath the tailings cells has historically been southwest, with the gradient steepening in recent years (since about 1994) and becoming more westerly as perched water levels in the northeastern portion of the site have risen. Perched water flowing beneath the tailings cells eventually discharges in springs and seeps located in Westwater Canyon, to the south-southwest of the cells. The primary discharge point for perched water flowing beneath the tailings cells is believed to be Ruin Spring, located approximately 10,000 ft south-southwest of the cells.

Perched zone hydraulic gradients currently range from a maximum of approximately 0.04 feet per foot (ft/ft) immediately northeast of tailings cell #3 to less than 0.01 ft/ft downgradient of cell #3, between cell #3 and MW-20. The average hydraulic gradient between the downgradient edge of tailings cell #3 and Ruin Spring can be approximated assuming the following:

1) The elevation of Ruin Spring, based on the USGS topographic map for Black Mesa, is approximately 5,390 ft amsl.

2) The distance between the downgradient edge of tailings cell #3 and Ruin Spring is approximately 10,000 ft.

3) The average groundwater elevation at the downgradient edge of tailings cell #3 is approximately 5,507 ft amsl.

Using these assumptions, the average perched zone hydraulic gradient between tailings cell #3 and Ruin Spring is approximately

$$\frac{5507 - 5390}{10{,}000} = 0.012\, ft / ft$$

A hypothetical worst case average perched zone hydraulic gradient can also be estimated assuming the perched water elevation to be coincident with the base of tailings cell #3. The elevation of the base of tailings cell #3, which is also the approximate pre-existing land surface elevation near the center of the cell, is approximately 5,580 ft amsl. Under these conditions, for an unconfined perched zone, the maximum possible average perched zone hydraulic gradient between tailings cell #3 and Ruin Spring would be approximately:

$$\frac{5580 - 5390}{10{,}000} = 0.019\, ft / ft$$

3.3 Permeability

The average permeability of the perched zone downgradient of tailings cell #3 can be approximated based on the pumping/recovery test and slug test data obtained from perched zone wells located along the downgradient edge of and south of cell #3. Peel conducted hydraulic tests at perched zone wells MW-11, MW-12, MW-14, and MW-15 in 1992 (UMETCO, 1993). Results of these tests are provided in Table 1. HGC

conducted slug tests at perched zone wells MW-3, MW-5, MW-17, MW-20, and MW-22 in July 2002 (HGC, 2002).

The HGC slug test results were analyzed using different solution methods including Moench (Moench, 1985), KGS (Hyder, 1994), and Bouwer-Rice (Bouwer and Rice, 1976). Each method yielded slightly different results as shown in Table 2, which is based on Table 1 of HGC, 2002. A range of average permeabilities for the portion of the site south of the tailings cells can be obtained by taking the geometric mean of the Peel test results and the results obtained by the various solution methods used to analyze the HGC data. Averaging the Peel test results for wells MW-11, MW-12, MW-14, and MW-15 with the HGC KGS results for wells MW-3, MW-5, MW-17, MW-20, and MW-22 yields a geometric average of 1.9×10^{-5} cm/s, and similarly averaging the Peel test results with the HGC Bouwer-Rice results yields a geometric average of 4.1×10^{-5} cm/s, as shown in Table 2. The "early time" results at MW-5 using the Bouwer-Rice solution (from Table 1 of HGC, 2002) were used in the computations to yield a conservatively high estimate of permeability.

4. EVALUATION OF POTENTIAL FLOW PATHS AND TRAVEL TIMES FOR HYPOTHETICAL SEEPAGE ORIGINATING FROM CELL #3

Although more than 20 years of groundwater monitoring at the site has shown no impact to perched water from the tailings cells, an evaluation of hypothetical transport of a conservative solute in seepage from cell #3 is presented assuming a flow path from the base of the cell to the perched water, and thence to Ruin Spring. Average travel times for a conservative constituent moving from the base of tailings cell #3 to the perched water, and then moving with the perched water to Ruin Spring, are computed assuming no dispersion.

The porosities and water saturations used in the calculations were based on measurements reported in Titan, 1994, for samples collected from the Dakota Sandstone during drilling of MW-16 and MW-17, and from the Burro Canyon Formation during drilling of MW-16.

4.1 Estimated Travel Time From the Base of Cell #3 to the Perched Zone

Knight-Piésold estimated a maximum volumetric seepage rate for tailings cell #3 based on cell construction and liner characteristics, of approximately 80 cubic feet per day (ft^3/day) or 0.42 gpm over the entire cell (Knight-Piésold, 1998). Most of this seepage was estimated to be via diffusion through the liner. This rate was estimated to drop off over time as the cell desaturates once the final cover is emplaced. Assuming a

cell footprint of 3.38 x 10^6 ft ^{2}, this rate is equivalent to 2.37 x 10^{-5} ft/day or 0.0086 ft/year.

The average rate of downward movement of a conservative solute dissolved in the seepage, assuming 1) no dispersion, 2) an average water saturation of 0.20, 3) an average porosity of 0.18, and assuming that this rate of seepage would not significantly raise the average saturation of the underlying materials, can be approximated as

$$\frac{0.0086\, ft/yr}{(.20)(.18)} = 0.24\, ft/yr$$

The average time to travel 70 ft to the perched water zone would then be approximately 290 years. This is a conservative estimate because the average water saturations would be likely to increase, thereby reducing the downward rate of travel, and increasing the travel time.

4.2 Estimated Travel Time From Tailings Cell #3 to Ruin Spring

Under current conditions, the average hydraulic gradient between the downgradient edge of tailings cell #3 to Ruin Spring is estimated to be 0.012, as discussed in Section 3.2. Assuming the following:

Average porosity	= 0.18
Average hydraulic gradient	= 0.012
Flow path length	= 10,000 ft
Average permeability range	= 1.9 x 10^{-5} to 4.1 x 10^{-5} cm/s (0.053 ft/day to 0.115 ft/day)

the average rate of intergranular movement of perched groundwater (interstitial velocity) can be approximated to range from 0.0035 ft/day to 0.0076 ft/day (or 1.3 ft/yr to 2.8 ft/yr). The estimated average travel time for a conservative solute, assuming no dispersion, from tailings cell #3 to Ruin Spring would then be approximately 7,690 to 3,570 years over this range of permeabilities. Under conditions of the maximum possible average perched groundwater gradient of 0.019 ft/ft, as estimated in Section 3.2, and assuming the same permeabilities, porosity, and path length as above, the estimated average travel times would range from approximately 4,900 to 2,260 years.

4.3 Estimated Total Travel Time from the Base of Tailings Cell #3 to Ruin Spring

The total average travel time for a conservative solute from the base of tailings cell #3 to Ruin Spring under current conditions would be the sum of 1) the travel time from the base of cell #3 to the perched water table, and 2) the time to travel within the perched zone to Ruin Spring. Based on the estimates provided in Sections 4.1 and 4.2, the total average travel time of a conservative solute (assuming no dispersion) over the range of average permeability estimates would be between 7,980 and 3,860 years, assuming an average hydraulic gradient of 0.012 ft/ft.

Conditions may hypothetically develop under which travel times may be reduced, such as an increase in average perched zone groundwater gradients between tailings cell #3 and Ruin Spring (as discussed in Section 3.2) or as a result of reduced vadose zone travel times due to development of a relatively large leak in cell #3. Under

hypothetical conditions in which a relatively large leak were to develop in tailings cell #3, potentially reducing vadose zone travel times to only a few years, the vadose zone travel time could be ignored, and the total average travel time (assuming no dispersion) would range from approximately 7,690 to 3,570 years, assuming an average hydraulic gradient of 0.012 ft/ft. Under hypothetical conditions in which the average perched zone hydraulic gradient between tailings cell #3 and Ruin Spring reached 0.019 ft/ft, which also implies a negligible vadose zone travel time, the total average travel time (assuming no dispersion) over the estimated range in permeability would be between approximately 4,900 and 2,260 years.

Estimates based on hypothetical assumptions of a relatively large leak in tailings cell #3 or an average hydraulic gradient as high as 0.019 ft/ft between cell #3 and Ruin Spring are considered very conservative because they assume conditions that are unlikely ever to develop.

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TABLES

TABLE 1
Peel Hydraulic Test Results [1]

Well	Hydraulic Conductivity (cm/s)
MW-11	1.4×10^{-3}
MW-12	2.2×10^{-5}
MW-14	7.5×10^{-4}
MW-15	1.9×10^{-5}

[1] From UMETCO, 1993

TABLE 2
Results of July 2002 Hydraulic Tests [2]

	Permeability in cm/s		
Well	Moench	KGS	Bouwer-Rice
MW-3	4.3×10^{-5}	4.0×10^{-7}	1.5×10^{-5}
MW-5	1.1×10^{-5}	3.5×10^{-6}	2.4×10^{-5}
MW-17	2.9×10^{-5}	2.6×10^{-5}	2.7×10^{-5}
MW-20	8.2×10^{-6}	--	9.3×10^{-6}
MW-22	4.2×10^{-6}	1.0×10^{-6}	7.9×10^{-6}

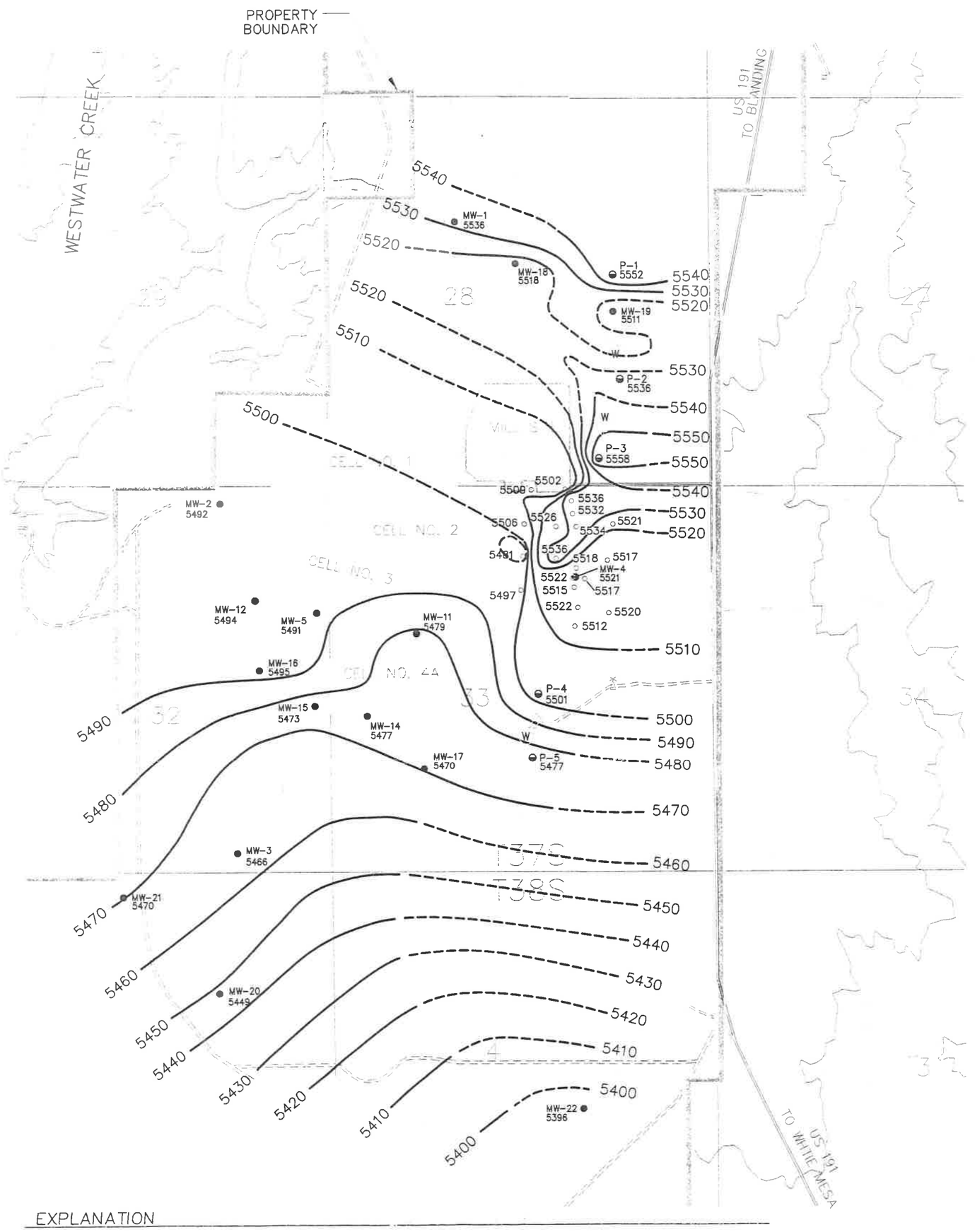
Geometric Average of above test results with Peel [3] test results for MW-11, MW-12, MW-14, and MW-15.

3.9×10^{-5}	1.9×10^{-5}	4.1×10^{-5}

[2] From HGC, 2002

[3] From UMETCO, 1993

FIGURES



EXPLANATION

● MW-11 5479	PERCHED MONITORING WELL SHOWING APPROXIMATE ELEVATION OF BRUSHY BASIN CONTACT IN FEET AMSL
○ 5536	TEMPORARY PERCHED MONITORING WELL SHOWING APPROXIMATE ELEVATION OF BRUSHY BASIN CONTACT IN FEET AMSL
◒ P-5 5552	PIEZOMETER SHOWING APPROXIMATE ELEVATION OF BRUSHY BASIN CONTACT IN FEET AMSL
W	WILDLIFE POND
5410	CONTOUR LINE IN FEET AMSL, DASHED WHERE UNCERTAIN

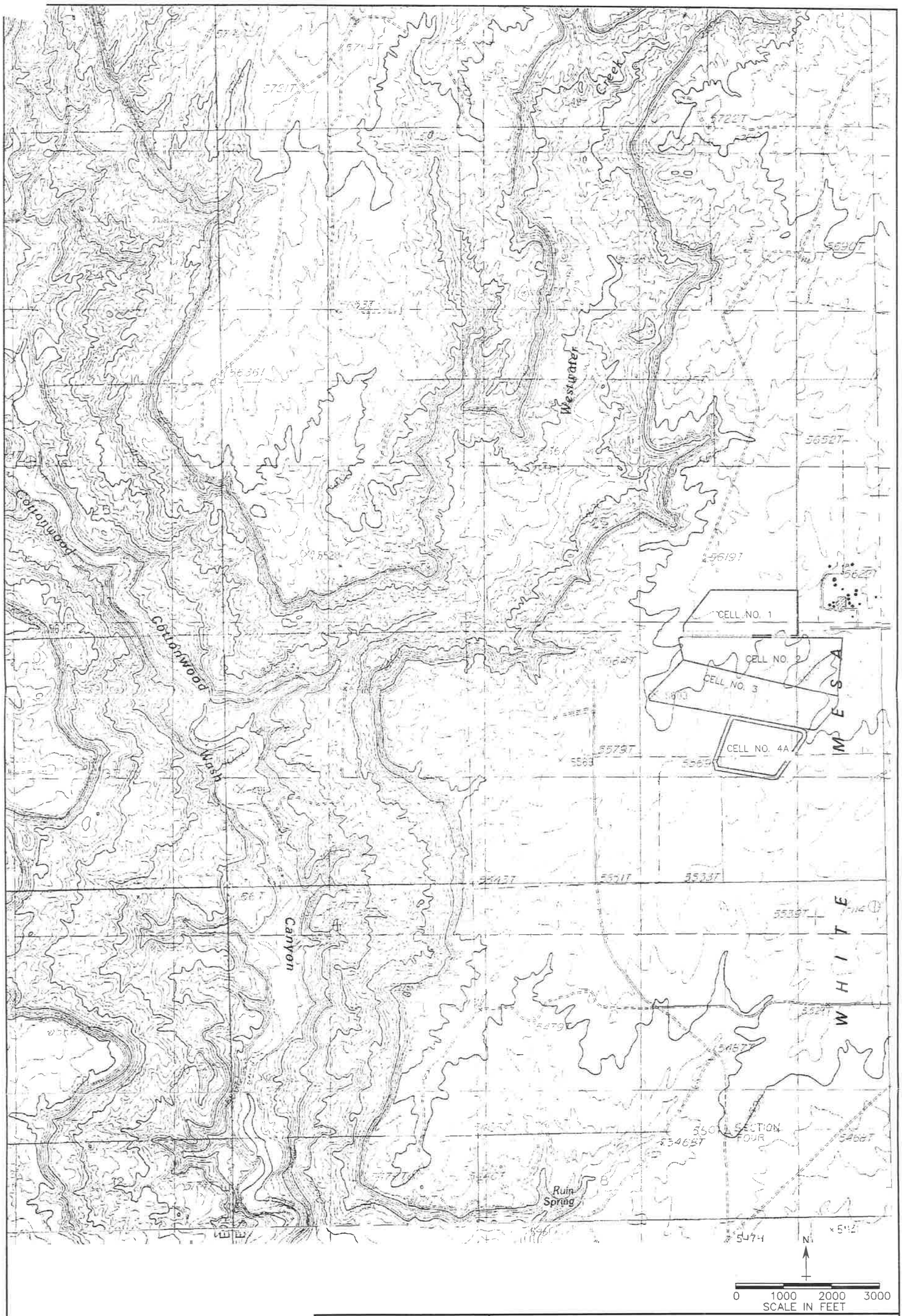
N

0 3000
SCALE IN FEET

HYDRO GEO CHEM, INC.

APPROXIMATE ELEVATION OF TOP OF BRUSHY BASIN

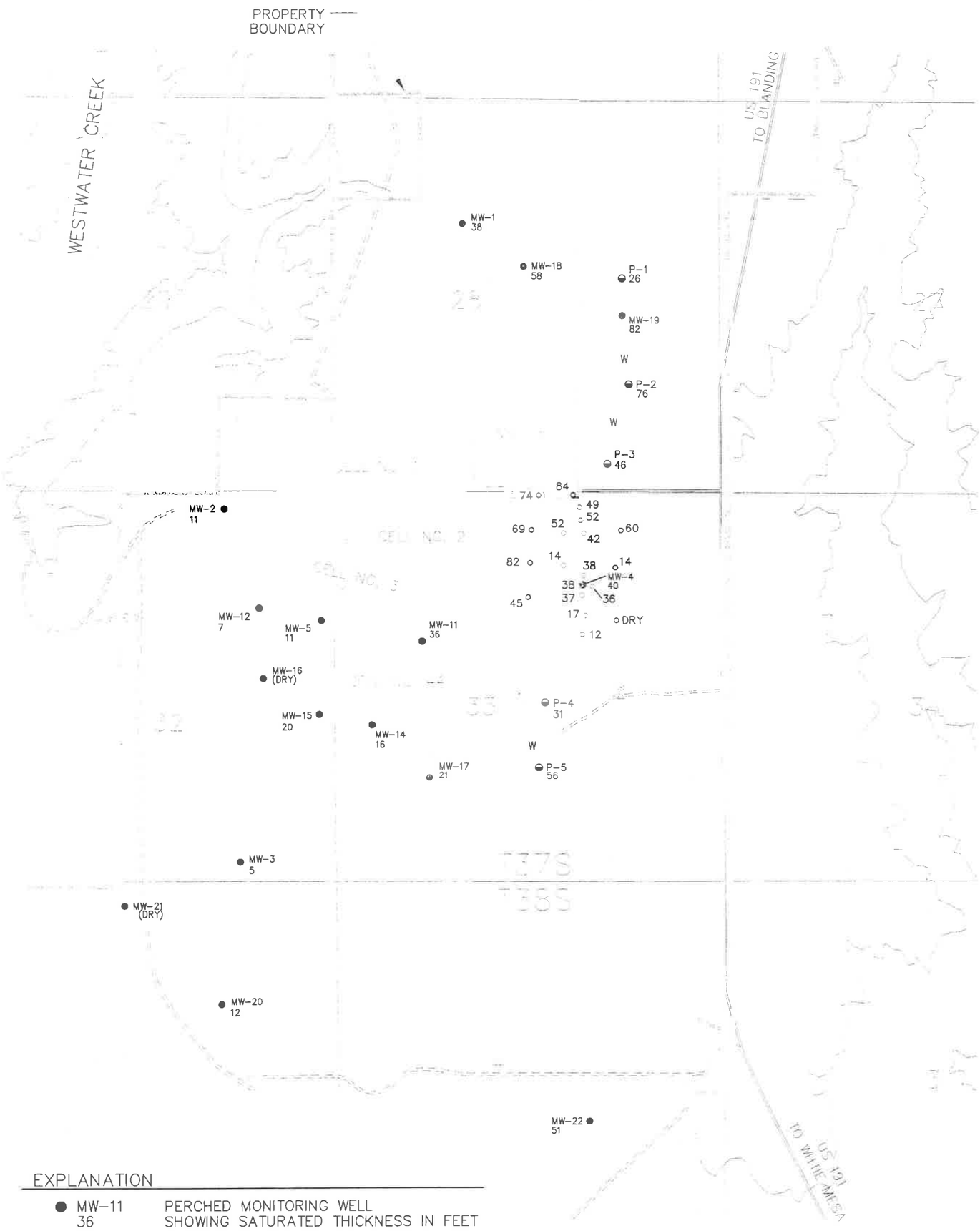
Approved	Date	Revised	Date	Reference:	FIG:
SS	01/30/03			71800075	FIGURE 3.7-4



HYDRO GEO CHEM, INC.

PORTION OF USGS BLACK MESA 7.5' SHEET SHOWING APPROXIMATE LOCATION OF TAILING CELLS IN RELATION TO NEARBY CANYONS AND RUIN SPRING

Approved	Date	Revised	Date	Reference:	FIG:
SS	1/30/03			7180076A	FIGURE 3.7-6



EXPLANATION

● MW-11 36	PERCHED MONITORING WELL SHOWING SATURATED THICKNESS IN FEET
○ 12	TEMPORARY PERCHED MONITORING WELL SHOWING SATURATED THICKNESS IN FEET
◒ P-5 56	PIEZOMETER SHOWING SATURATED THICKNESS IN FEET
W	WILDLIFE POND

NOTE: DATA FOR PIEZOMETERS ARE FROM AUGUST, 2002

N

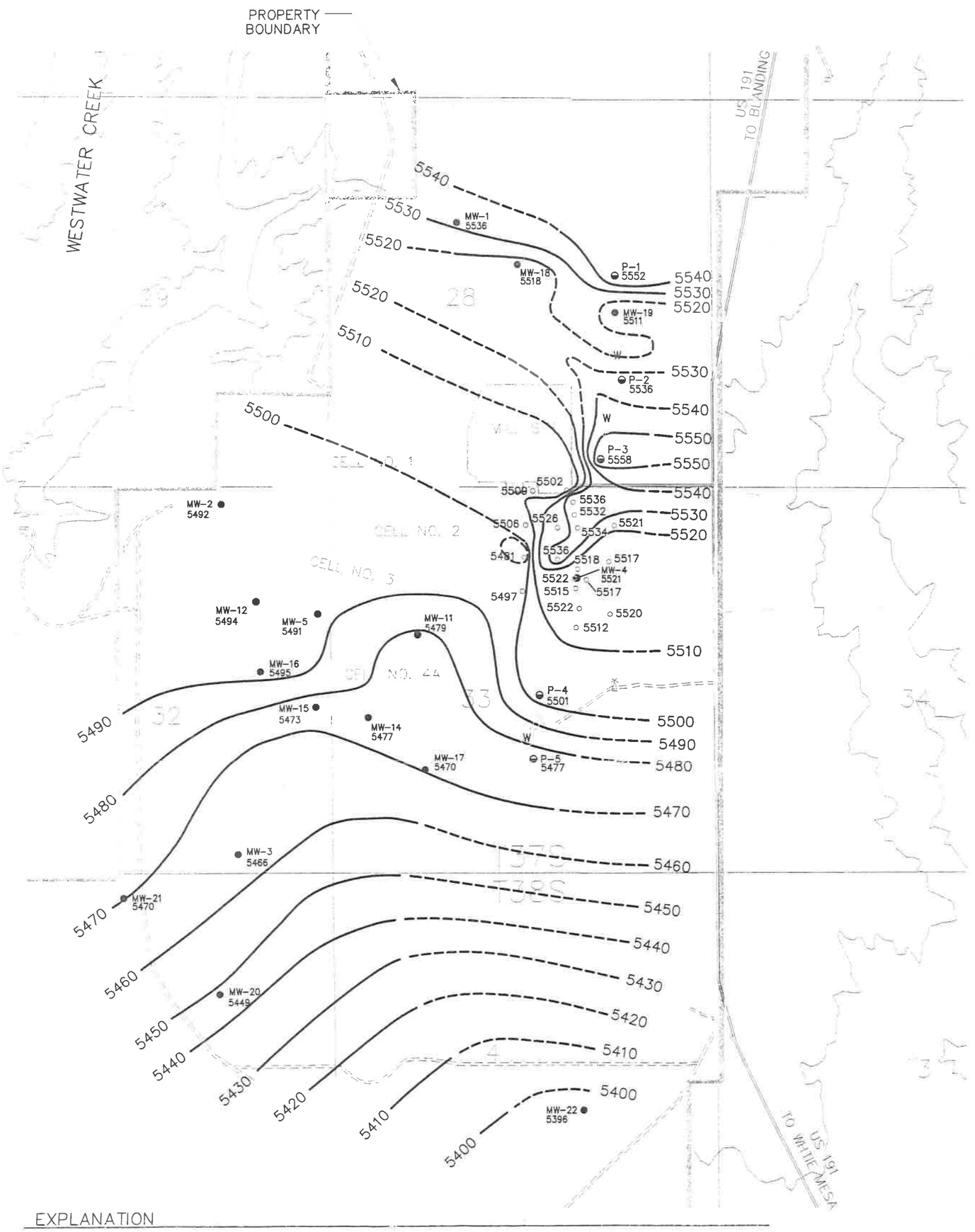
0 3000

SCALE IN FEET

HYDRO GEO CHEM, INC.

PERCHED ZONE SATURATED THICKNESS SEPTEMBER 2002

Approved	Date	Revised	Date	Reference:	FIG:
SS	1/30/03			71800073	7



EXPLANATION

● MW-11 5479	PERCHED MONITORING WELL SHOWING APPROXIMATE ELEVATION OF BRUSHY BASIN CONTACT IN FEET AMSL
○ 5536	TEMPORARY PERCHED MONITORING WELL SHOWING APPROXIMATE ELEVATION OF BRUSHY BASIN CONTACT IN FEET AMSL
◒ P-5 5552	PIEZOMETER SHOWING APPROXIMATE ELEVATION OF BRUSHY BASIN CONTACT IN FEET AMSL
W	WILDLIFE POND
5410	CONTOUR LINE IN FEET AMSL, DASHED WHERE UNCERTAIN

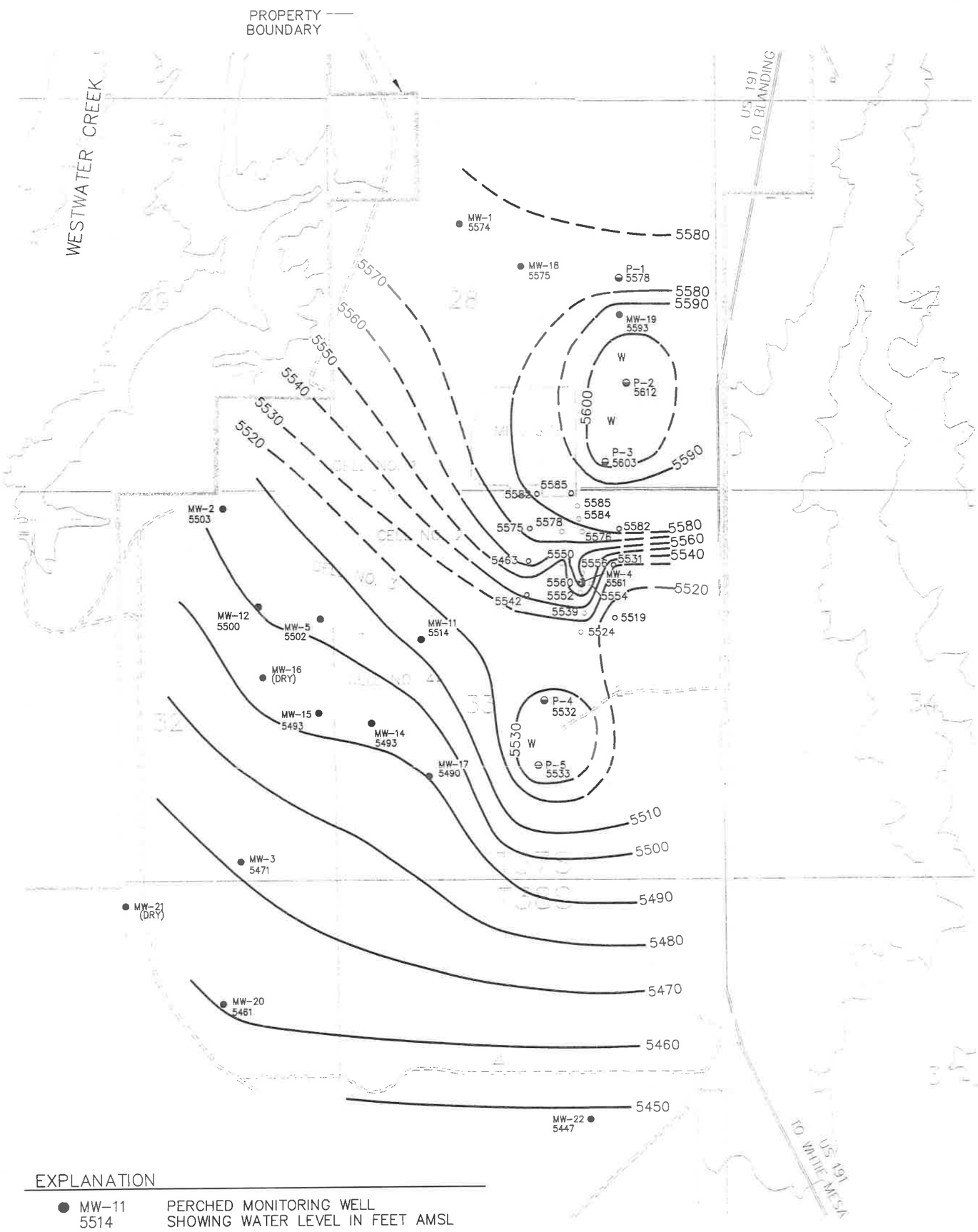
N

0 3000
SCALE IN FEET

HYDRO GEO CHEM, INC.

APPROXIMATE ELEVATION OF TOP OF BRUSHY BASIN

Approved	Date	Revised	Date	Reference:	FIG:
SS	01/30/03			71800075	FIGURE 3.7-4



EXPLANATION

● MW-11 5514	PERCHED MONITORING WELL SHOWING WATER LEVEL IN FEET AMSL
○ 5524	TEMPORARY PERCHED MONITORING WELL SHOWING WATER LEVEL IN FEET AMSL
◒ P-5 5533	PIEZOMETER SHOWING WATER LEVEL IN FEET AMSL
5580 ——— — —	WATER LEVEL CONTOUR LINE, DASHED WHERE UNCERTAIN
W	WILDLIFE POND

NOTE: WATER LEVELS FOR PIEZOMETERS ARE FROM AUGUST, 2002

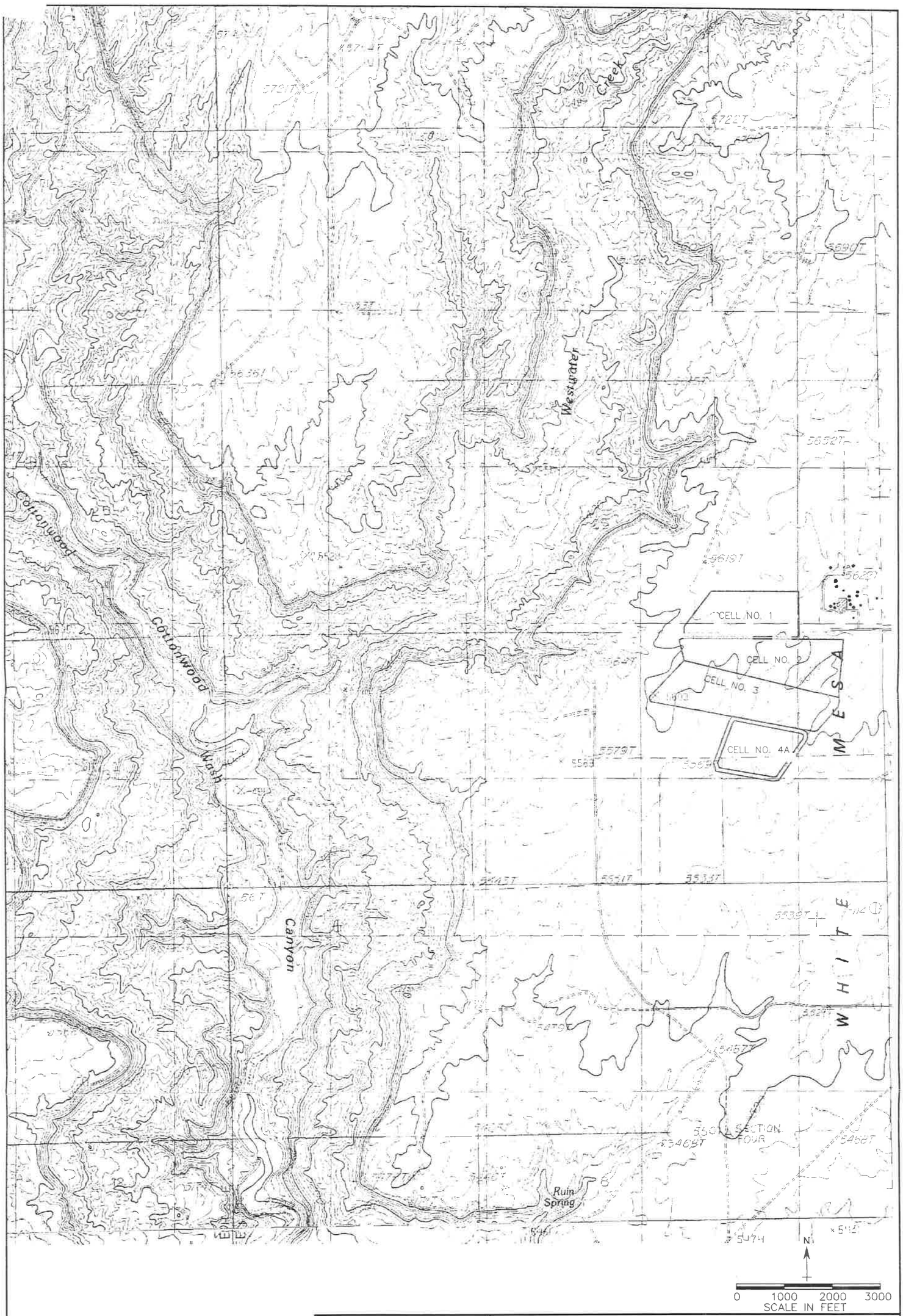
N

0 3000
SCALE IN FEET

HYDRO GEO CHEM, INC.

PERCHED WATER LEVELS
SEPTEMBER 2002

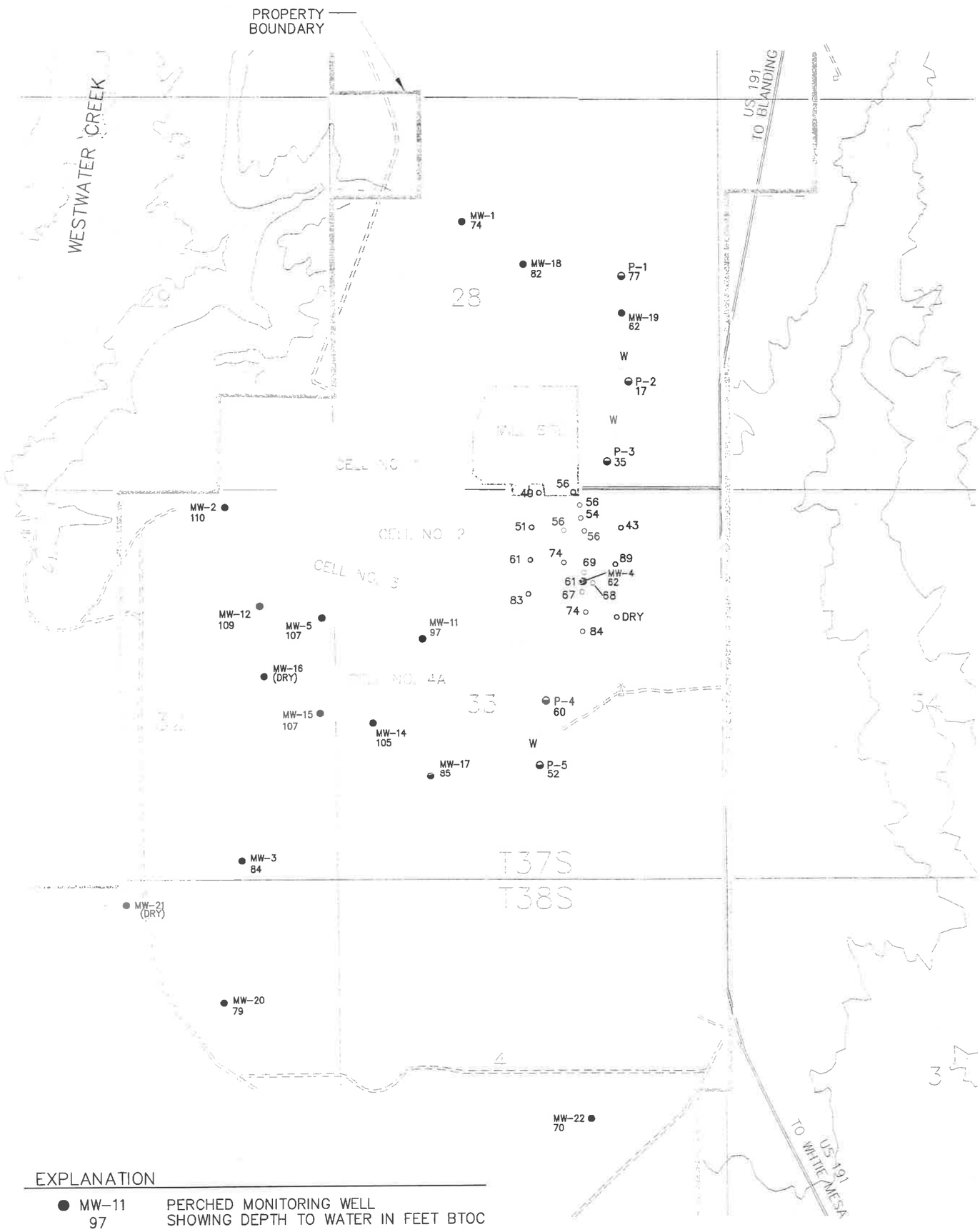
Approved	Date	Revised	Date	Reference	FIG:
SS	1/30/03			71800074	FIGURE 3.7-5



HYDRO GEO CHEM, INC.

PORTION OF USGS BLACK MESA 7.5' SHEET SHOWING APPROXIMATE LOCATION OF TAILING CELLS IN RELATION TO NEARBY CANYONS AND RUIN SPRING

Approved	Date	Revised	Date	Reference:	FIG:
SS	1/30/03			7180076A	FIGURE 3.7-6



EXPLANATION

● MW-11 97	PERCHED MONITORING WELL SHOWING DEPTH TO WATER IN FEET BTOC
○ 84	TEMPORARY PERCHED MONITORING WELL SHOWING DEPTH TO WATER IN FEET BTOC
◒ P-5 52	PIEZOMETER SHOWING DEPTH TO WATER IN FEET BTOC
W	WILDLIFE POND

NOTE: DATA FOR PIEZOMETERS ARE FROM AUGUST, 2002

N

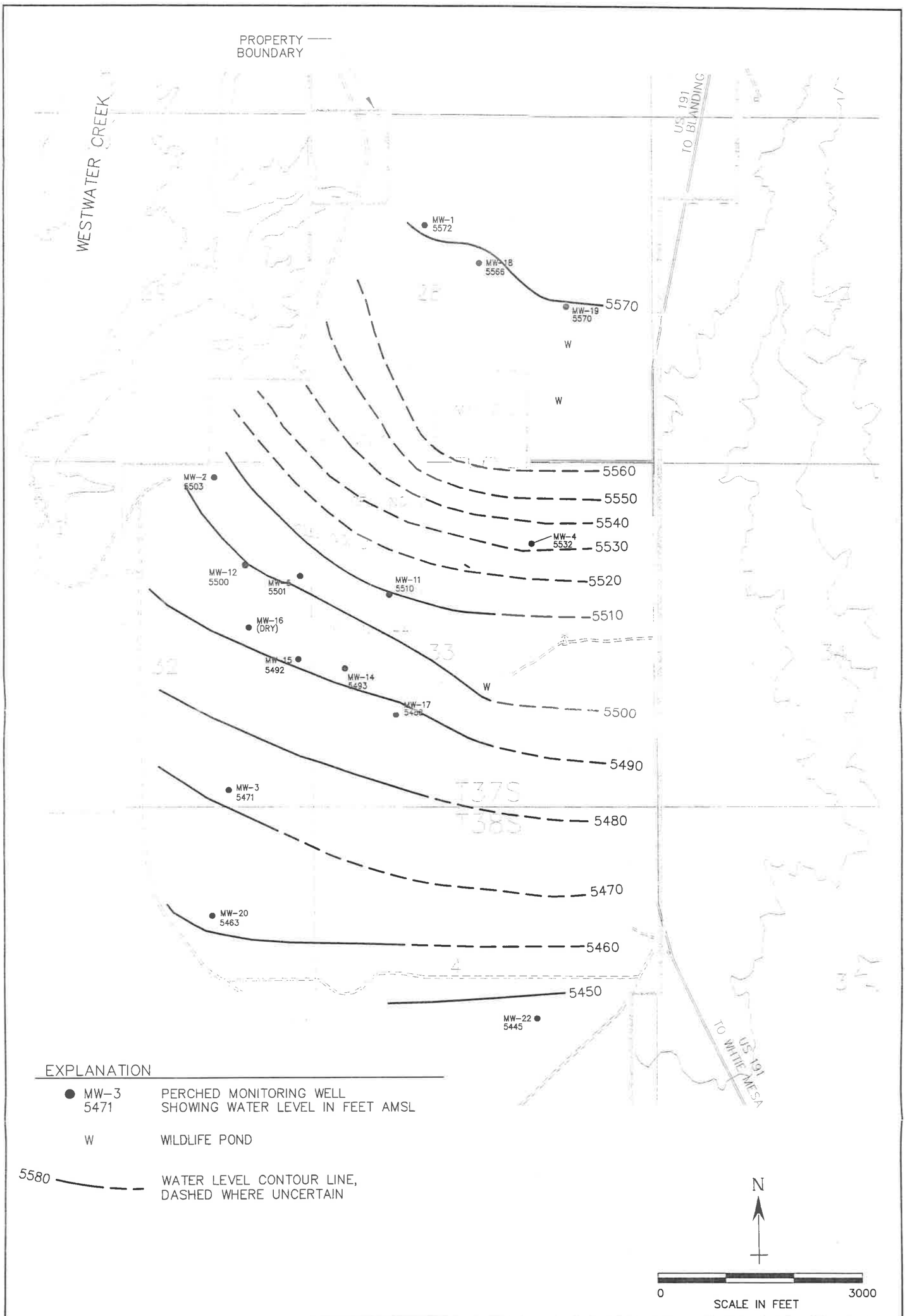
0 3000

SCALE IN FEET

HYDRO GEO CHEM, INC.

DEPTH TO PERCHED WATER SEPTEMBER 2002

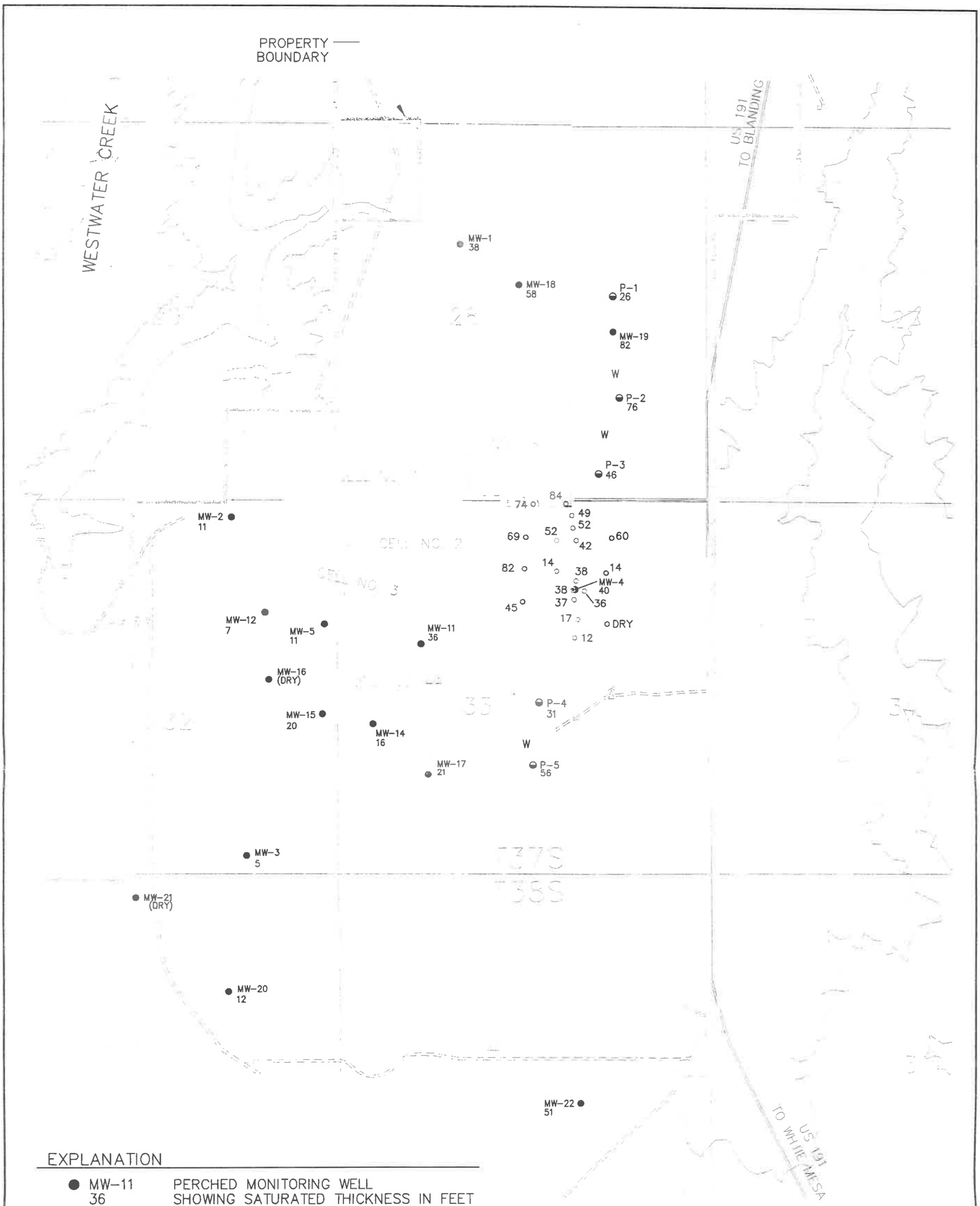
Approved	Date	Revised	Date	Reference:	FIG:
SS	1/30/03			71800072	FIGURE 3.7-7



HYDRO GEO CHEM, INC.

PERCHED WATER LEVELS AUGUST 1994

Approved	Date	Revised	Date	Reference:	FIG:
SS	01/30/03			71800070	3



EXPLANATION

● MW-11 36	PERCHED MONITORING WELL SHOWING SATURATED THICKNESS IN FEET
○ 12	TEMPORARY PERCHED MONITORING WELL SHOWING SATURATED THICKNESS IN FEET
◒ P-5 56	PIEZOMETER SHOWING SATURATED THICKNESS IN FEET
W	WILDLIFE POND

NOTE: DATA FOR PIEZOMETERS ARE FROM AUGUST, 2002

N

0 3000

SCALE IN FEET

HYDRO GEO CHEM, INC.

PERCHED ZONE SATURATED THICKNESS SEPTEMBER 2002

Approved	Date	Revised	Date	Reference:	FIG:
SS	1/30/03			71800073	7

Appendix D

Review of 1994 Drilling Program Results, June 21, 2001, Hydro Geo Chem, Inc.

White Mesa Mill

International Uranium (USA) Corporation
1050 17th Street, Suite 950
Denver, Colorado 80265

HYDRO GEO CHEM, INC.
Environmental Science & Technology

June 21, 2001

Mr. Harold Roberts
International Uranium Corporation
Independence Plaza, Suite 950
1050 17th Street
Denver, CO 80265

Re: Review of 1994 Drilling Program Results

Dear Harold,

This letter report provides a summary and interpretation of field tests conducted at the White Mesa Uranium Mill Site near Blanding, Utah, during 1994. The testing was conducted primarily by Peel Environmental Services, and consisted of the installation of 3 perched groundwater monitoring wells and 4 angled geotechnical borings to further characterize the hydrogeology of the site. A summary of the site hydrogeology is provided in TITAN, 1994[1]. In brief, the site is underlain by the Dakota and Burro Canyon sandstones, which are underlain by the Brushy Basin shale member of the Morrison Formation. The Burro Canyon sandstone hosts a thin saturated zone perched on the underlying Brushy Basin shale. Approximately 100 vertical feet of unsaturated Dakota and Burro Canyon sandstone separate the Mill facility from the perched water zone beneath the site.

Although the data from the drilling, logging, well installation, and permeability testing was compiled at the time of collection, a final report for the work was never completed and in fact, some of the initial calculations included in the report were in error. At the request of IUC, this letter report has been prepared for the purpose of serving as a final report for the work based on a review of the compiled data, review of an incomplete, tentative, and preliminary report prepared by Peel Environmental Services, and examination of drill core and video logs from geotechnical borings.

[1] TITAN. 1994. Hydrogeological Evaluation of White Mesa Uranium Mill. Prepared by TITAN Corporation.

51 West Wetmore, Suite 101 Tucson, Arizona 85705-1678 520.293.1500 520.293.1550-Fax 800.727.5547-Toll Free

Description of Work Performed

Work at the site included the following:

1) Installation of perched groundwater monitoring wells MW-20, MW-21, and MW-22 (Figure 1).
2) Installation of geotechnical angle borings GH-94-1, GH-94-2A, GH-94-3, and GH-94-4 at the margins of and extending beneath tailings cells 3 and 4 (Figure 1).
3) Coring, lithologic logging, and geophysical logging of the angle and vertical borings.
4) Video logging of some of the angle borings.
5) Field and laboratory permeability testing of the Dakota, Burro Canyon, and Brushy Basin.

All borings installed at the site were used to provide lithologic and hydrologic information including:

1) Lithology of the Dakota and Burro Canyon sandstones and of the Brushy Basin shale.
2) Permeability of portions of the Dakota and Burro Canyon sandstones and of the Brushy Basin shale.

The angle borings were installed to further characterize the lithology and rock quality beneath the tailings cells and the vertical borings (completed as perched groundwater monitoring wells) to provide additional information on hydraulic gradients and saturated thicknesses of perched water downgradient of the existing perched monitoring well network.

Downhole constant-head packer tests were conducted at various intervals within the Dakota, Burro Canyon, and Brushy Basin units that were intersected by the angle borings, and within portions of the Brushy Basin intersected by the vertical borings. Only the upper portion of the Brushy Basin was penetrated by the borings. Slug tests within the perched groundwater zone were conducted in MW-20 and MW-22 after their completion as monitoring wells. These tests were used to provide estimates of the horizontal permeability of the tested intervals. Core samples from the Brushy Basin were collected from vertical borings MW-21 and MW-22, and submitted to Western Engineers, Grand Junction, Colorado, for analysis of vertical permeability.

Perched monitoring wells MW-20, MW-21, and MW-22 were installed at the locations shown in Figure 1 by drilling a 10-inch diameter surface hole to a depth of approximately 20 feet below land surface (bls) and cementing an 8-inch diameter steel surface casing in place using a 5% bentonite cement slurry. Each vertical boring was then rotary drilled to a depth of approximately 70 feet bls using a $7\,^{7}/_{8}$-inch bit. Borings were then advanced to total depth using a $3^{7}/_{8}$-inch coring bit. MW-20, MW-21, and MW-22 were cored to total depths of approximately

114.5 feet, 117 feet, and 140 feet bls, respectively. Each boring penetrated approximately 20 to 25 feet of Brushy Basin shale.

Wire line geophysical logs (natural gamma and neutron) were then run. Constant head packer tests within the Brushy Basin were also performed, then each hole was cemented up to the Brushy Basin/Burro Canyon contact (approximately 90 feet bls in MW-20, 91 feet bls in MW-21, and 120 feet bls in MW-22), and completed as a perched groundwater monitoring well. MW-20 was screened between approximately 80 and 90 feet bls, MW-21 between approximately 70 and 90 feet bls, and MW-22 between approximately 80 and 120 feet bls. Field notes and lithologic logs are provided in Attachment 1.

Angle (geotechnical) borings were installed at the locations shown in Figure 1. GH-94-1 and GH-94-2 were drilled at an azimuth of N30°E and an angle of 40° to the vertical. Each hole was cored from the top of the Dakota to the total depth of approximately 165 feet. GH-94-1 was drilled with water and GH-94-2A with polymer. The polymer was reportedly needed to enhance core recovery. Constant head packer tests were conducted at various depth intervals in both borings, and natural gamma and neutron geophysical logs were run. A video log was run on GH-94-2A. Both holes were abandoned by plugging with a 5% bentonite cement slurry.

GH-94-3 and GH-94-4 were drilled at an azimuth of 150° and an angle of 40° to the vertical, and logged in the same fashion as GH-94-1 and GH-94-2A. Logging included natural gamma, neutron, and video. A polymer was used to drill both. Constant head packer tests were also performed on the borings at various depth intervals after washing to remove the drilling fluid. Both borings were abandoned in the same fashion as GH-94-1 and GH-94-2A.

Raw data (Attachment 1) from constant head packer tests was used to calculate the permeability for each interval tested using the following formula as designated in the preliminary Peel report:

$$K = \frac{Q}{2\pi LH} \ell n(\frac{L}{r})$$

where:
K = permeability (cm/s or ft/min)
Q = flowrate (cm^3/s or ft^3/min)
L = test interval length (cm or ft)
H = total hydraulic head (cm or ft)
r = borehole radius (cm or ft)

Results

Well completion and geophysical logs are provided in Attachment 2. Results of slug tests and laboratory permeability tests are provided in Attachment 3. Table 1 summarizes the

results of the permeability tests. These values may be slightly different from those previously reported because of the recalculation based on the raw data.

Based on the information provided in the Attachments, the video logs of GH-94-2A and GH-94-3, and examination of core from the angle borings stored at the site, the following observations were made:

1) The Dakota and Burro Canyon sandstones are predominantly composed of hard, fine- to medium-grained locally cross-bedded sandstones with interbedded conglomeratic layers, and layers of shale and claystone.
2) Few fractures are present in the cores or observable in the video logs. Where present fractures are closed and/or sealed with gypsum. Partings in the core are primarily related to bedding planes, and shale and clay interbeds.
3) Video logs show conglomeratic zones, occasional cross-bedding features, and scour features within planes perpendicular to the direction of drilling. These scour features, which often appear only on one side of the boring, are most likely related to scoring by the drill bit.
4) Video logs also show washouts in claystones, small washouts parallel to bedding planes in sandstone, and smaller washouts of finer-grained matrix material surrounding larger clasts in conglomeratic zones.

The permeability test results are similar to values collected from previous site investigations and show the average horizontal permeability of the Dakota and Burro Canyon sandstone to be on the order of 10^{-5} cm/s to 10^{-6} cm/s. These values are consistent with the lithology of these units. The average vertical hydraulic conductivity of the upper portion of the Brushy Basin is on the order of 10^{-8} cm/s, or less, typical for a tight clay material and consistent with its functioning as a perching layer beneath the site. Furthermore, because the upper contact of the Brushy Basin is an erosional surface and therefore weathered, the measured vertical hydraulic conductivities are likely higher than would be expected for deeper, less weathered portions of the unit.

Conclusions

Results of the 1994 drilling and testing program support previous investigations at the site that characterize the Burro Canyon and Dakota sandstones as relatively low permeability formations underlain by a very low permeability unit (Brushy Basin shale) that supports the perched water zone at the site. Examination of lithologic logs, core samples, and video logs from angle borings indicates that fluids present in the subsurface will be transmitted primarily via intergranular porosity, and that minor fractures, because they are few in number and are closed and/or filled with gypsum, are expected to have a negligible effect on fluid movement. This is corroborated by the results of pump tests conducted in perched wells at the site, which are

consistent with flow through a porous medium and do not display features characteristic of a fractured medium. These conclusions are also consistent with those presented in the preliminary Peel report.

Sincerely,

Stewart Smith
Senior Hydrogeologist

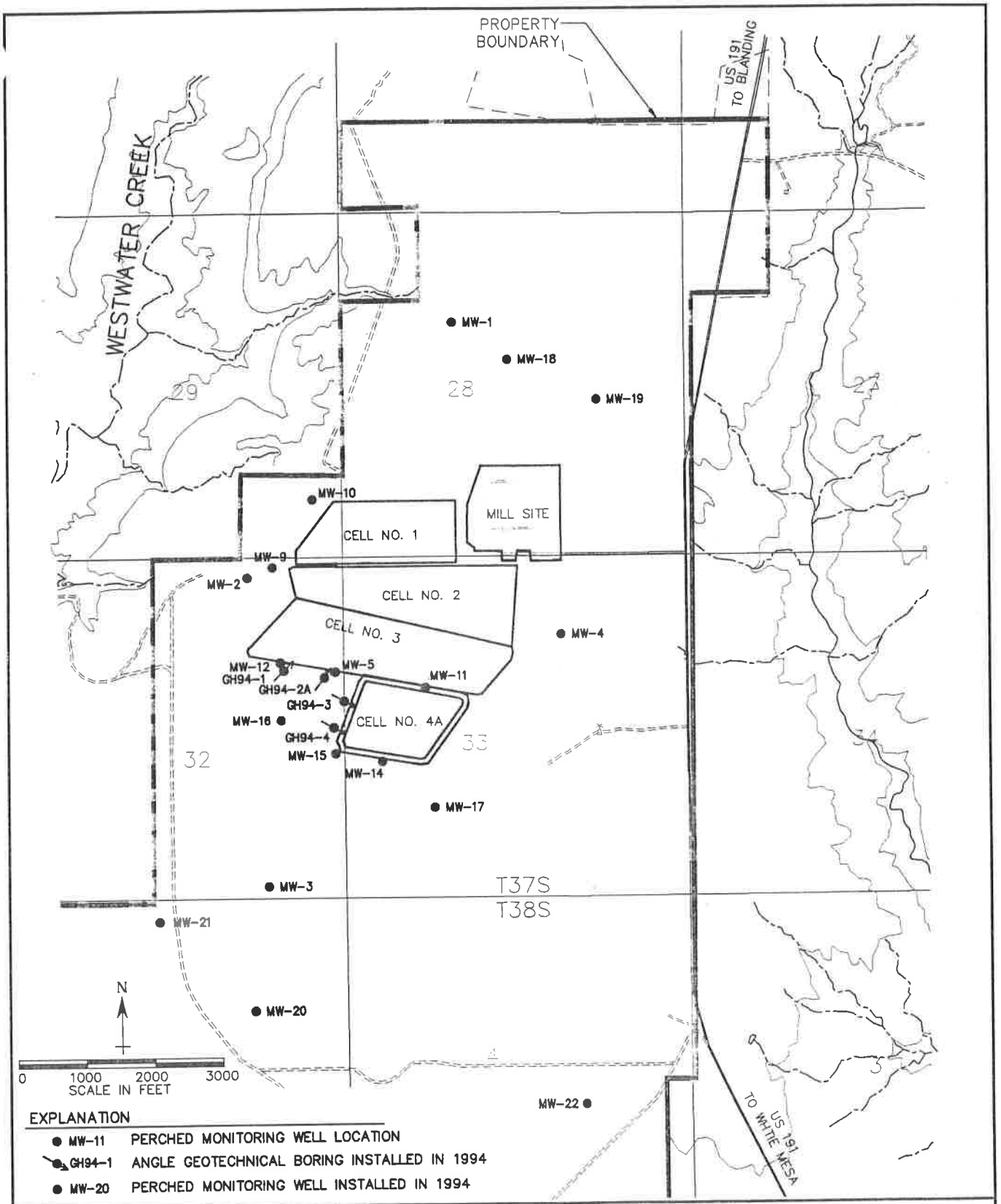
TABLE

TABLE 1
HYDRAULIC CONDUCTIVITY MEASUREMENTS

Well No.	Interval (down hole depth in feet)	Type of Test	Formation	Horizontal Hydraulic Conductivity (cm/sec)
WMMW-20	86.4-89.08	Slug	Burro Canyon	5.29E-06
	110.5-114.5	Constant Head	Brushy Basin	2.1E-07
WMMW-21	109.5-117.0	Constant Head	Brushy Basin	8.10E-06
WMMW-22	76.0-120.0	Slug	Burro Canyon	2.02E-06
	130.0-134.0	Constant Head	Brushy Basin	No Take
GH-94-1	34.0-40.0	Constant Head	Dakota	5.9E-06
	40.0-50.0	Constant Head	Dakota	4.5E-05
	70.0-80.0	Constant Head	Burro Canyon	6.3E-05
	92.0-100	Constant Head	Burro Canyon	5.1E-04
	103.0-110.0	Constant Head	Burro Canyon	6.3E-04
	130.0-140.0	Constant Head	Brushy Basin	1.4E-04
	163.0-165.0	Constant Head	Brushy Basin	No Take
GH-94-2A	34.0-40.0	Constant Head	Dakota	2.5E-05
	32.5-40.0	Constant Head	Dakota	7.2E-04[1]
	50.0-56.0	Constant Head	Dakota	8.8E-05
	60.0-70.0	Constant Head	Burro Canyon	4.0E-05
	70.0-80.0	Constant Head	Burro Canyon	1.6E-04
	80.0-90.0	Constant Head	Burro Canyon	1.2E-04
	138.0-144.0	Constant Head	Brushy Basin	No Take
GH-94-3	155.0-161.0	Constant Head	Brushy Basin	2.7E-06[1]
	138.0-144.0	Constant Head	Brushy Basin	2.2E-06
Well No.	**Interval (down hole depth in feet)**	**Type of Test**	**Formation**	**Vertical Hydraulic Conductivity (cm/sec)**
WMMW-21	106.5-107.0	Laboratory	Brushy Basin	1.15E-10
	114.5-115.0	Laboratory	Brushy Basin	4.00E-07
WMMW-22	122.2-122.7	Laboratory	Brushy Basin	1.10E-06
	126.3-127.2	Laboratory	Brushy Basin	6.94E-10
	133.3-133.7	Laboratory	Brushy Basin	1.58E-09
	137.3-137.8	Laboratory	Brushy Basin	5.95E-04[2]

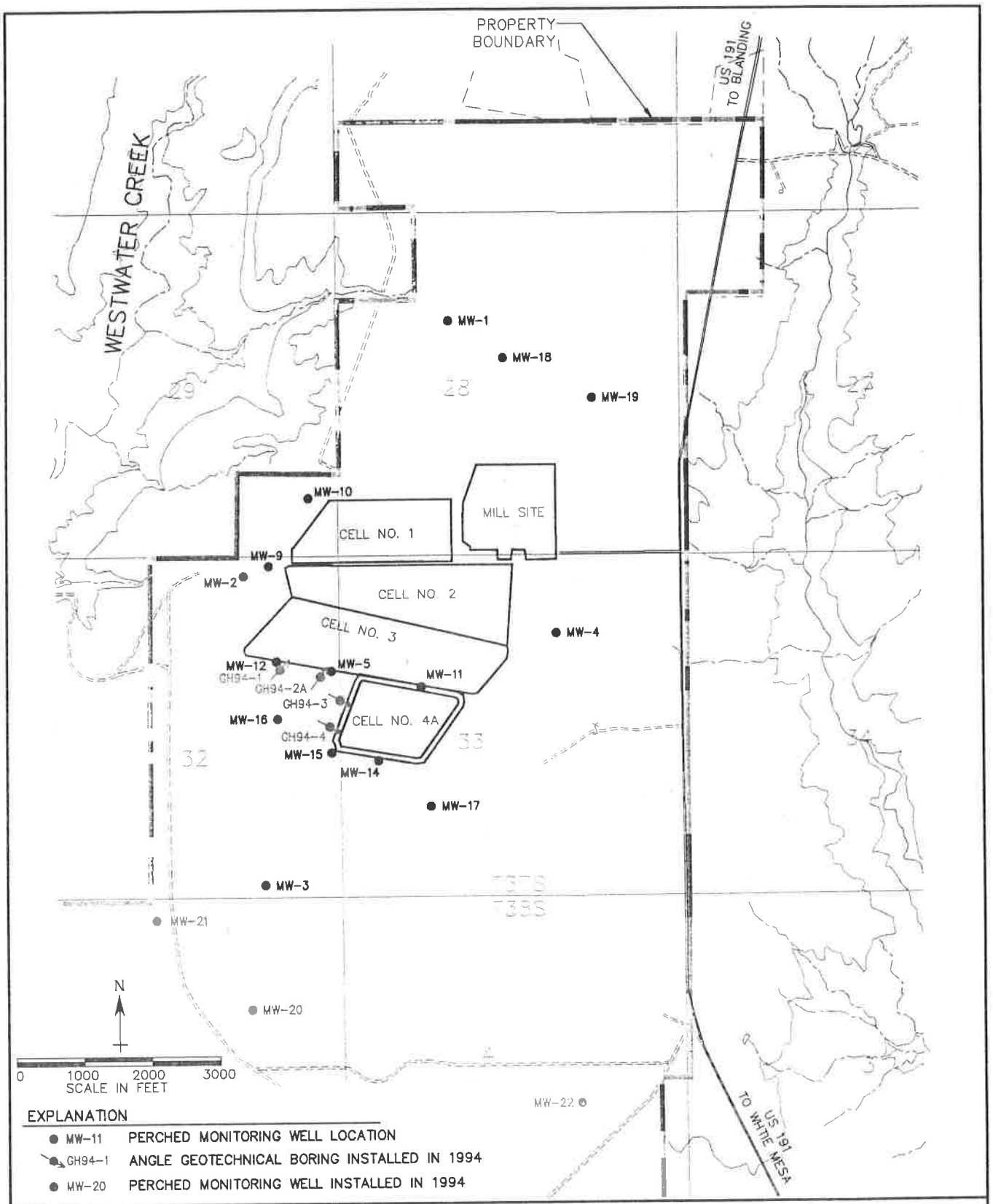
[1] Note: Packer leaking, value overestimated.
[2] Note: This value is reported to be anomalously high due to a vertical fracture present in the core sample.

FIGURES



APPROXIMATE LOCATIONS ANGLE GEOTECHNICAL BORINGS AND PERCHED MONITORING WELLS MW-20, MW-21, AND MW-22

Approved	Date	Revised	Date	Reference:	FIG.
SS	6/12/01			71800019	1



APPROXIMATE LOCATIONS ANGLE GEOTECHNICAL BORINGS AND PERCHED MONITORING WELLS MW-20, MW-21, AND MW-22

Approved	Date	Revised	Date	Reference:	FIG.
SS	6/12/01			71800019	1

ATTACHMENT 1

Drill Hole No. MW-20	W/ENE 32 [illegible] 22e	Sheet No. of

Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
		Feolean sand	0-2.5	Spud 8/4/94 10:15 AM
	10		12.5 Top dakota	
			SS 3½ 1' thick	
			SS, qtz lt gy, round to subrnd v.f.g to f gn.	
	20		SS: qtz, ltgry/buff, vf/fgr, argill, subangular, soft	
			SS: qtz, ltgry, f/mgr, subrnd, argill, tr iron stain, soft, Tr pp ⌀	
	30		SS: AA, conglomeratic in part, dark gray chert clasts	
	40		SS: Ltgry, qtz, argill, f/mgr, firm	
	50		SS: AA, conglomeratic in part, dk gryd white chert clasts	
	60		SS: A.A., becoming less argill, mgr, lt brn-gray, well sorted, fair intergrand	
	70			
1st [illegible]	80			
2nd [illegible]	90		Coring: Drlg break @ 70'	
	100			

TD: 114.5' 8/8/94 @ 12:26 pm

Core #1 70 – 80' Rec 6.0'

? – 71.0 Ss, qtz lt gy mg occ c.g. sl arg sub rnd

71.0 – 72.0 Ss, as ab >> v arg lt gy to wh. Shale clasts from 72.0 to 72.2

73.0 – 74.0 Cong, pebble, lithic / shale, qtz chert clasts) very sandy, poorly sorted sub rnd

74.0 – 76.0 Sh ~~green~~, olive grn waxy soft blocky top 0.2' sndy shale olive grn.

Core #2 89–94.5 : Rec. 6'

80.0 – 82.0 : ss. qtz. fgr, dark reddish-grn/gray, very argill. subrnd, scattered iron stain, massive, hard, tite, becomming dark reddish gray, thin bedded & platy @ base

82.0 – 88.2 : Lost Core

88.2 – 90.0 : Siltstone: dark reddish-brn. sandy in part, argill to vry argill, Thin stringer dark red-brn silty shale @ top

? – 94.0 : Slt; Green, waxey, brittle, occ. vert tension joints. silty in part, iron staining along 2" near vertical fractures

Brushy Basin 90'

Core #3 94.5 – 114.5 Rec 19 ft

94.5 – 95.5 Lost Core

95.5 – 97.0 : Shale: dk grn-gry w/reddish cast, ~~pronounced~~ poorly developed horizontal plating, waxey vert joints filled & annealed w/similar material becomming lighter in color @ base

97.0 – 98.3 : Shale: lt grn-gray, silty to sandy, hard to vry hard, no ϕ

98.3 – 99.6 : Shale: Red, silty to sandy, hard, mott green top & bottom, poor horiz platy dev.

99.6 – 102.8 : Shale: dk red-~~brn~~ prple, occ grn tinge, blocky. 2" vert fracture @ base, filled w/white clay material

102.8 – 105.5. Shale, earthy red, poor horiz platyness some thin vert hairline fractures 2"-4" filled & altered to lt grn in color.

105.5 – 110.3 : SS: Lt grn-gry, qtz, vfgr, very argill, subang. silty poorly sorted in part w/mgr grading downward into lt grn-gry siltstone & lt grn-gry shale, very hard & tite & vry argill in sandy section

110.3 – 111.3 : Shale dk red-brn, massive, hard

111.3 – 114.5 : Shale - Lt gry-grn poor horiz parting, hard, sharp contact w/above red shale.

8/13/91 MW-20 Gd Elev = 5538' est. TD = 114.5'

Test # 1

Gd to Press gage = 2.0'
Hole dia. = 3 7/8"
Bottom of packer 108.5'
Test interval = 6'
Packer pressures = 300 psi

9:10	0.40 gpm	130 psi	
9:15	0.25 gpm	130 psi	
9:20	0.20 gpm	130 psi	
9:25	0.13 gpm	130 psi	
9:30	0.12 gpm	130 psi	
9:35	0.05 gpm	130 psi	
9:45	0.10 gpm	175 psi	packer slipped reduced psi
10:07	0.20 gpm	150 psi	Surge packer leak?
10:15	0.15 gpm	150 psi	Surge packer leak?

Reset packer 2' deeper to 110.5'

10:34	0.02 gpm	130 psi	
10:40	0.01 gpm	130 psi	
10:45	0.01 gpm	130 psi	
10:50	0.01 gpm	130 psi	
10:55	0.01 gpm	130 psi	
11:00	0.09 gpm	160 psi	Slight surging

CONSTANT HEAD PRESSURE TESTS

Well Number: WMMW-20
White Mesa Project
San Juan County, Utah

Pressure Test No. 1
Date: 8/13/94
Elevation: 5538' GL Estimated
Total Depth: 114.5'
Gound Level to Gauge: 2.0'
Hole Diameter: 3 7/8" (0.32')
Depth:
Measured: 108.5' - 114.5'
Test Interval: 6.0'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE	
09:10 am	130 psig	0.40 gpm	
09:15 am	130 psig	0.25 gpm	
09:20 am	130 psig	0.20 gpm	
09:25 am	130 psig	0.13 gpm	
09:30 am	130 psig	0.17 gpm	
09:35 am	130 psig	0.05 gpm	
09:45 am	175 psig	0.10 gpm	
10:07 am	150 psig	0.20 gpm	Surge; packer leak?
10:15 am	150 psig	0.15 gpm	Surge; packer leak?

Reset packer 2 feet deeper: Test interval 110.5 to 114.5 (4.0')

10:34 am	130 psig	0.02 gpm	
10:40 am	130 psig	0.01 gpm	
10:45 am	130 psig	0.01 gpm	
10:50 am	130 psig	0.01 gpm	
10:55 am	130 psig	0.01 gpm	Slight surging
11:00 am	160 psig	0.09 gpm	Slight Surging

Remarks: None

PEEL Environmental Services

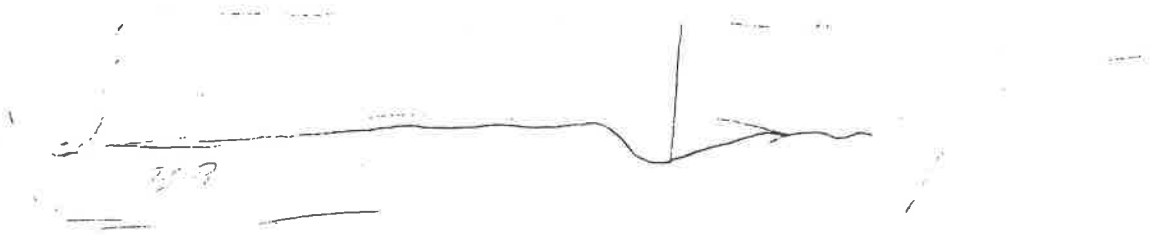
BORING LOG

Boring No. WMMW-21

t: ~~MMW-20~~ 2' White Mesa | Geologist: | Sheet No. of

Client: | Date: | Project No.

Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
	0		Spud @ 1:00 pm 8/4/94 SESWSW 32-37s-22e	
	10			
			Top Dakota @ 17.5' SS: lt gray, fgr, ~~ang~~ subang-md, well sorted w/white sht.	
	20		SS: A.A w/sm poorly sorted f/mgr lt tn/gry argill	
	30		SS: qtz, lt tn fgr-mgr, argill, limonite stn Abndt chert frags, prob. v conglomeratic	
	40		SS: qtz, lt tn, f/mgr, friable, well sorted Clay: olive green, v-soft	
	50		SS: qtz, lt gry/gm gry f/mgr poorly sorted, argill, abndt vari. colored chert, sub ang to subround. Conglomeratic in part. Pyritic	
	60		SS: f/mgr, well sorted, subround, abndt. gry/lt gry diss pyrite & pyrite crystals, gry chert	
	70			
Core #1				
	80			
	90			
	100			



CORE #1 70 - 75'4"
CORE #2 75'4" - 76'4"
CORE #3 76'4" -

CORE #1 (70 to 71'-9"):- missing core

(71'-9" to 72'-0"): SS: qtz, mgr, subrnd, very argill cement, conglomeratic, lithic chert fragments, ang-subang, occ. subrounded, pebble size coarse, black chert frags.

(72'-0" to 74'-0") missing core

(74'-0" to 75'-4"): Congl: chert pebble, black, very sandy, quartz, mgr subrnd, very argill

(75'-4" to 76'-4"): SS: qtz, conglomeratic grading downward to sandy congl. A A.

CORE #1: 70.0 _ 75'-4"
CORE #2: 75'-4" - 76'-4"
CORE #3: 76'-4" to 78'-11" (Rec 2'-3") 10:30 am 8/11/94
76'-4" to 76'-8": Missing Core
76'-8" to 77'-4": Chert pebble conglomerate, argill, sandy, hard, tite (Bottom of Core #2)?
77'-4" to 78'-11": SS: qtz, f/mgr, subang to subround, lt grey, conglomeratic, argill, hard, tite
CORE #4: 78'-11" to 81'-7" (Rec. 2'-8")
78'-11" to 79'-4" SS: Lt grey, qtz, f/mgr, rnd to subround, slightly conglomeratic, very hard & tite, well sorted, siliceous cement, no vis. ϕ
79'-4" to 80'-9": SS: A.A. w/ large vertical fractures filled w/ pyrite
80'-9" to 81'-7": SS: qtz, Lt grey, f/mgr, subrounded to rounded, very hard & tite, siliceous cement, no visible ϕ

Dec ERROR(?): 81'-7" = 82'-8"
CORE #3(?): 77'-5" to 80'-0"

CORE #5: 82'-8" to 97'-0" (14'-4") Rec. 13'-6"
Top Brushy Basin @ 91'-2"
82'-8" to 91'-2": SS: qtz, lt grey, vfine - mgr, poorly sorted, conglomeratic, siliceous cement, bedding parting, numerous vertical to near vertical fractures filled w/ pyrite, very hard & tite, no visible ϕ.
91'-2" to 94'-9": Siltstone: very lt grey-grn, pyritic, near vertical fractures, some horizontal bedding plateyness, hard becoming more shaley @ base
94'-9" to 96'-2": Shale: Lt grey-grn, sandy w/ near vertical fractures, pyritic, blocky in part
96'-2" to 97'-0": Lost Core
CORE #6: 97'-0" to 117'-0" (20'-0") Rec. 13'-6"
97'-0" to 99'-9": SS: qtz, vfgr, argill, shaley, lt grey-grn, vert fractures, occassional small chert pebbles, some horiz. plateyness
101'-9" to 103-1": Shale: grey-grn, soft, blocky
103'-1" to 109'-7": Missing Core
109'-7" to 110'-7": Siltstone: Lt grey-grn, w/ vfgr sand layers, chert fragments, argill, very sandy
99'-9" - 101'-9": Shale: [illegible]

CORE #6 (Cont'd)

110'-7" to 112'-7" : Shale: brn-gray changing to grn-grey, soft, very platy, considerable random fracturing

112-7" to 116-0" : Shale: Lt grn-grey / grey-grn, very sandy & silty, argill, considerable fracturing & possible brecciation becoming blocky @ base. Trace of soft red shale @ base

116'-0" - 117'-0" Missing Core

Pressure Test #1 109.5'-117'

ELEV: 5558'

GL/Gauge: 12"

11:47am 8/13/94

~1.0gpm @ 110# ↓ 0.95gpm

1.05gpm @ 110#

0.95gpm @ 140#

0.60gpm @ 130#

12:15PM 0.3 gpm @ 130#

12:20PM 0.6 gpm @ 130#

12:25 0.6gpm @ 130#

12:30 0.6 gpm @ 130#

CONSTANT HEAD PRESSURE TESTS

Well Number: WMMW-21
White Mesa Project
San Juan County, Utah

Pressure Test No. 1
Date: 8/13/94
Elevation: 5558' GL Estimated
Total Depth: 117.0'
Gound Level to Gauge: 2.0'
Hole Diameter: 3 7/8" (0.32')
Depth:
Measured: 109.5 - 117.0'
Test Interval: 7.5'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE
12:15 pm	130 psig	0.30 gpm
12:20 pm	130 psig	0.60 gpm
12:25 pm	130 psig	0.60 gpm
12:30 pm	130 psi	0.60 gpm

Remarks: None

PEEL Environmental Services

BORING LOG

Boring No. WMMW-22

Geologist :

Date:

Sheet No. of

Project No.

Client:

Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
			0-11.5 Peolean sand reddish grn	Spud 8/4/94 4:00 PM Set surface csg
	10		11.5 – 17.5 Cong, chert light gry to dk gy, occ translucent, ibedded with ss, qtz lt gy rnd sft thin beds	
	20		17.5 ss qtz ltgy v.f.g. subrnd rnd gry	
			ss & cong/ss a.a	
	30		ss: white, vry lt gry, flmgr, argill	
	40		Torque @ 41'	
			ss: A.A	
			ss: lt tan, fgr, limonitic, hard	
	50		ss: white, vry lt tan fgr, well cemented hard, tite	
			ss: A A, hard, silic cement, tite	
	60		ss A A. w/tr lith lt gr, chert, sm iron stn	
			ss. A.A w/sm incr iron staining bldg break @ 70'	

Core # 1 70.0 - [illegible]

70.0 - 70.1 Ss. lt gy to lt tan v.f.g, subang, chert clast ½", siliceous well cemented hd. Iron stn specks, occ lt grn color.

- 70.7 Ss as ab w/chert clasts (m to coarse grn)

70.7 - 71.2 Missing Core

71.2 - 72.5 Ss, qtz. lt tan to lt gy, f - to m. grn, subang to subrng, siliceous tight >>> very conglomeratic at base. hd well cemented.

72.5 - 74.5 Ss as ab. >>> conglomerate at base Conglerate - pebbles of rock clasts subang to subrnd. varicy colored

74.5 - 79.0 Missing core (probabal conglomerate as ab)

79.0 - 79.6 Conclomerate varicolored, as ab subrnd, ~~subang~~ rk frag chert shale etc

79.6 - 80.0 Ss, qtz v. lt g, v.f. gn arg subrnd occ rk clast hd tr ig poro

Note: core broke along horizontal bedding planes. x. bedded

Core # 2 - 80 to 100 Rec 10' 80' to 90' missing RQD = 5.8' > 4"

Bedding planes free

80.0 - 90.0 Missing core

90.0 - 93.8 Ss. qtz, f. to v. c. g. occ pbl. lt gy to grn gy, subang to rnd poorly sorted, large 1" grn gy clay clasts fair to good i/gran poro. very friable.

93.8 - 100.0 Ss. qtz f. - to m gr subang to subrnd v. friable good i/gran poro, massive, well sorted, friable

Core # 3 100 to 120 Rec 10.8' RQD = 3.8'

100.0 - 110.0 - Ss, qtz, lt grn gy f. grn arg subrnd fair i/gran poro friable.

110.0 - 117.7 - Missing Core

117.7 - 119.5 - Ss. qtz. lt gn gy, f. grn to c. grn. arg at base conglomeratic varicolored w shale from brushy basin f, chert & lithic frag slt

119.5 - 119.6 - shale, grn waxy. slt

119.6 - 120.0 - Missing core Top Brushy Basin 120.'

Core # 4 120.0 - 140 Rec 20' RQD = 20" < 4"

120. - 127.0 - Sh, rd brn mottled green he then 2/10' green band at 1' platy

127 - 129.2 - Sh. gygn to bright grn, some mottling and some banding

129.2 - 135.0 - Sltstn, lt grn gy, hd v. argillaceous, sl sndy, lower 1 foot grading to lt. grn shale

135.0 - 140.0 - Shale, lt gr mottled with rd brn shale hd platy occ shale v. fracture 3" to 20". Lower fracture sealed # other fracture are tension release fractures

8/ '44 MW-22 Gd Elev. 5516' est T.D 1400

Gd to press gage 24" Packer Press = 300 psi

2:00 PM	100 psi	No Take
2:05 PM	125 psi	No Take
2:10 PM	125 psi	No Take
2:15 PM	125 psi	No Take
2:20 PM	125 psi	No Take

Attempted to increase pressure to 130 psi but packer would not hold seat.

CONSTANT HEAD PRESSURE TESTS

Well Number: WMMW-22
White Mesa Project
San Juan County, Utah

Pressure Test No. 1
Date: 8/13/94
Elevation: 5516' GL Estimated
Total Depth: 140.0'
Gound Level to Gauge: 2.0'
Hole Diameter: 3 7/8" (0.32')
Depth:
Measured: 130.0 - 140.0'
Test Interval: 10.0'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE
02:00 pm	100 psig	0.00 gpm
02:05 pm	125 psig	0.00 gpm
02:10 pm	125 psig	0.00 gpm
02:15 pm	125 psig	0.00 gpm
02:20 pm	125 psig	0.00 gpm

Remarks: Pressure increase to 130 psig; Packer started to move slightly, slight surging.

PEEL Environmental Services

BORING LOG

Boring No. GH-94-1

Sheet No. 1 of 3

Project No.

Client: White Mesa

Geologist: PEEL

Client: Energy Fuels

Date: 8/11/94

Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
		Fractures & Partings	0.0 – 14.0 Sand missing core	
	5			
	10		Core #1 10' to 20' Rop 4' Sand No core RQD 1'<4" = 50%	Rec 6ft of 6ft
	15		14.0 – 18.2 Ss. qtz lt gy m.g. subrnd, arg tr fe stn tr gr poro 18.2 – 19.0 Ss. as ab gry brn with abundant fe stn faint x-bed 19.0 – 20.0 Ss as ab >> c gnd conglomeratic in pt.	
	20			
able broken →		parting (bedding)	20.0 – 20.6 Ss qtz m-lt gy, subrnd v. arg f.g. 20.6 – 21.0 Ss qtz m-lt gy, m grn subrnd, v. fria	Core #2 20–30' Rec 100% RQD 1.5'<4" = 85%
	25	partings (bedding)	21.0 – 26.0 Ss, qtz lt grn gy, f. gnd >> c. gnd in pt. subrnd, thin x-beds, pting along x-beds occ pebb. poss vert frac at 25.2' clay filled follows bedding	
		partings (bedding)		
	30		26.0 – 28.0 Ss as ab fe stn along some x-beds, fe stn, cong lense @ 29' 28.0 – 30.0 Ss as ab more pebbles are lithic frags two thin clay partings, pebbles are lithic frags At 29.7 – 30.0 Ss is dk brn v g in poro ~~[illegible]~~ oil stn	
	35	Filled Vert fracture	Core #3 30'–40' Rec 7.5' RQD 29" > 4" long (51%) 30.0 – 30.5 Ss, qtz, m. to c. gn, subrnd, occ pebb. (lithic), qd i/grain poro. oil stn. x-bedded.	
	40	Small 2" hairline fracture fe stn	30.5 – 33.0 Missing core 33.0 – 34.5 Sh dk gry, platy bedding plane parting silty in part soft	
		parting (bedding)		
		parting (bedding	34.5 – 35.0 Ss. qtz, lt gy to buff, f. m. grn., subrnd arg. thin bedded, fe stn	
	45		35.0 – 36.5 Ss as ab m to c gnd, occ pebb clasts (lithic) 1 is 2" in dia. 36.5 – 40 Sh dk gy to m gy sft fissil	
			Packer Test #1 34–40 (21 – 25) Hole dia = 3.0"	
	50	Parting (Bedding	2:10 PM 90 PSI 0.3 gpm 2:15 PM 90 PSI 0.2 gpm	

2:20 PM 90 PSI 0.2 gpm

2:25 PM 90 PSI 0.2 gpm

5.7 x 10⁻⁶ cm/sec (Auer)

Core #4 40 - 50 Rec 9.8 RQD = 1' < 4" = 88%

40.0 - 40.5 Sh m.gy to dk gy fissile sandy at top

" - 50.0 Ss, qtz lt buff to lt brn to yellow brn, m grd occ c grn., faint thin bedding, some solution vugs from fossils (brac) along bedding plane, good to excel i/gran poro sl. arg

Packer Test #2 40.0 - 50.0 (25 - 32)

3:10 PM 30 psi 1.4 gpm

3:15 PM 30 psi 1.0 gpm 4.1 x 10^-5 cm/sec

3:20 PM 30 psi 1.0 gpm

3:25 PM 30 psi 1.0 gpm

3:30 PM 30 psi 1.0 gpm

Core # 5 50 - 60 Rec 10.0' RQD = 0.5' < 4" = 95%

50.0 - 56.6 Ss. qtz, lt gy to buff, m. to c. grd, ≠ subang - subrnd, arg, buff color due to festn. occ small lithic pebble, one lith frag 1" dia, good i/gran poro. Large 1/2" ~~clay~~ shale clasts at base faint thin x-bedding parting occurs along bedding

56.6 - 60.0 Ss, qtz lt gy (buff near top where some fest occurs) f. to m. grn. subrnd sl. arg. occ c.g or pebb clast. faint x-bedding. faint ≤ 2" fracture at top (sealed) does not continue into ~~[illegible]~~ unit above. fair i/gran poro.

Top Brushy Basin 56'

Core #6 60 - 70 Rec 10' RQD 100%

60.0 - 60.6 Ss. qtz, lt gy f. to m grn subrnd, sl arg faint x-bedding occ c.g. lithic clast, f. i/gran poro.

60.5 - 62.0 Ss ab grading downward to conglomerate & conglomerate ss. pebble lithic clasts becoming coarser at base SS subrnd to rnd pebbles angular good i/gran poro

62.0 - 70.0 Ss. qtz, lt gy, vf to mg, v arg hd tight faint bedding

Core #7 70 - 80 Rec 10' RQD 2' < 4" = 80%

70.0 - 80.0 Ss. qtz lt gy occ lt brn gy fg (occ lith pebb.) poorly cemented subround to round Appears massive near base. sl. fria tr festn

8/12/94

Packer Test #3 (70 - 80) (45 - 51)

8:00 AM 30 psi 1.7 gpm

8:05 AM 30 psi 1.8 gpm = 8 x 10^-4 gm/ft^2

8:13 AM 30 psi 1.7 gpm K = 5.6 x 10^-5

8:17 AM 30 psi 1.7 gpm

Core # 8 80.0 - 90.0 Rec 10' RQD = 2.2' < 4" = 78%

[illegible] - 90.0 Ss, qtz, lt gy, fine to m. grd, subrnd, >>> more m. grn at base (pebble size (up to 1/4") lithic frag, ang, [illegible] occ. abundant in places), scattered [illegible] faint x-bedding, in places ~~#~~ good i/gran poro.

PEEL Environmental Services

BORING LOG

Boring No. GH-94-1

Geologist :

Date: 8/12/94

Sheet No. 2 of 3

Project No.

Client:

Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
		parting (bedding)	Core # 9 90-100	RQD 1'<4"
			Ss, qtz as ab. pinkish at btm frag., faint x-bedding,	less pebble
	55		Note lost circulation at	95' may be a fracture joint
		parting (bedding)	Packer Test # 4 92-100	(59x-64x) depth corrected
	60		9:20 30 psi 13.5 gpm	
			9:45 30 psi 13.0 gpm	4.4 x 10^-4 cm/sec
			9:50 30 psi 13.0 gpm	
			9:55 30 psi 13.0 gpm	
	65		Core # 10 100 - 110 Rec 3'	RQD 1' > 4"
		100 - 102.5	Ss. qtz as ab scat lithic pebbles ang lt gy to wh) faint x-bedding	
	70	102.5 - 102.2	sltsln tan, hd. arg sl sndy	
		102.7 - 110.0	Lost core may be conglomerate	
			Packer Test # 5 103-110	
	75		10:40 30 psi 15.5 gpm	K = 5.5 x 10^-4 cm/sec
			10:47 30 psi 15.5 gpm	
			10:55 30 psi 15.6 gpm	
			11:00 30 psi 15.5 gpm	
	80		Core # 11 110-120 Rec 6'	RQD 8"<4" = 54%
			110-120 Ss, qtz, f-m gn. subrnd sl arg	
	85		faint bedding planes, Bedding plane parting @ 113.5 & 117.0 Thin conglomeratic (lithic pebbles)	
			@ 117.5 and at base of core lithic frag to 3/4	
	90		Core # 12 120-130 Rec 8.5'	RQD 3' < 4" 55%
		Joint?	120-130 Ss as ab Top 0.5' conglomeratic fine pebble lithic frags. Bottom 3.5' conglomeratic lith pe	
			to 1/4" Thin x-bedding throughout.	
	95	Hairline joint?	Core # 13 130-140 Rec 8.5'	RQD 5.5' > 4"
			130-140 Ss as ab cong as ab @ 120-121.5, 123-123.5, 126.5 -130. Vertical joint at 121.1' and 125' hairline	
	100	Bedding plane parting		

over

Packer Test # 6 130 - 140'

1:45 PM	30 psi	4.5 gpm	
1:50 PM	30 psi	5.0 gpm	$K = 1.2 \times 10^{-4}$ cm/sec
1:55 PM	30 psi	5.0 gpm	
2:00 PM	30 psi	5.1 gpm	
2:05 pm	30 psi	5.0 gpm	

Core # 14 140 - 150 Rec 5' RQD 4" < 4" - 4#

Top of Brushy Basin 146'

140 - 146 Ss, as ab >>> congl at bottom 1.5' Cong is yellow brn sandy pebble

146 - 150 shale grn wavy hd blocky ~~[illegible]~~ sl. fiss

Packer Test # 7 146 - 150

Could not get a good packer seat

Core # 15 150-160 - Rec 0'. Core barrel hung in rods

5/13/84 10 AM When we pulled rods in order to ream and clean out hole had trouble pulling past 30 - 33 feet where lost core was. Ruined barrel. Appears to be a 3-foot shale zone soft, gy brn swelling.

8/14/84 8:30 AM

Reaming hole

Packer Test # 8 162-165

Could not get packer to seat

Packer Test # 9 163 - 165

12:45	30 lbs	No take
12:50	30 lbs	No take
1:00	30 lbs	No take

Increased psi to 60 psi test acted as thought packer was leaking.

Core #16 160 - 165 Rec 5'

160-165 Ss lt grn qtz, m.g. sub-rnd arg to ru grg >>> shaley grn blky brittle sandy in part wavy bedding plane parting tension release parting

TD = 165

PEEL Environmental Services

BORING LOG

Boring No. GH-94-1

...ect:	Geologist :	Sheet No. 3 of 3
...t:	Date:	Project No.

Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
	105	Last core Fractures? No sine Conglomerate?		
	110			
		parting (bedding plane)		
	115			
		parting (bedding plane		
	120	hair line joint		
	125	hair-line joint		
	130			
	135			
	140			
	145			
	150			

CONSTANT HEAD PRESSURE TESTS

Well Number: GH-94-1
White Mesa Project
San Juan County, Utah

Pressure Test No. 1
Date: 8/11/94
Elevation: 5592' GL Estimated
Total Depth: 40'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 34.0' - 40.0'
Vertical: 26.2' - 30.8'
Test Interval:
Measured: 6.0'
Vertical: 4.6.0'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE
02:10 pm	90 psig	0.30 gpm
02:15 pm	90 psig	0.20 gpm
02:20 pm	90 psig	0.20 gpm
02:25 pm	90 psig	0.20 gpm
02:30 pm	90 psig	0.20 gpm

Remarks: None

Pressure Test No. 2
Date: 8/11/94
Elevation: 5592' GL Estimated
Total Depth: 50'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 40.0' - 50.0'
Vertical: 30.8' - 38.5'
Test Interval:
Measured: 10.0'
Vertical: 7.7'
Packer Pressure: 300psig

TIME	PRESSURE	FLOW RATE
03:10 pm	30 psig	1.40 gpm
03:15 pm	30 psig	1.00 gpm
03:20 pm	30 psig	1.00 gpm
03:25 pm	30 psig	1.00 gpm
03:30 pm	30 psig	1.00 gpm

Remarks: None

Well Number: GH-94-1

Pressure Test No. 3
Date: 8/11/94
Elevation: 5592' GL Estimated
Total Depth: 80'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 70.0' - 80.0'
Vertical: 53.9' - 61.6'
Test Interval:
Measured:10.0'
Vertical: 7.7'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE
08:00 am	30 psig	1.70 gpm
08:05 am	30 psig	1.80 gpm
08:13 am	30 psig	1.70 gpm
08:17 am	30 psig	1.70 gpm

Remarks: None

Pressure Test No. 4
Date: 8/11/94
Elevation: 5592' GL Estimated
Total Depth: 100'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 92.0' - 100.0'
Vertical: 70.8' - 77.0'
Test Interval:
Measured: 8.0'
Vertical: 6.2'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE
09:20 am	30 psig	13.50 gpm
09:45 am	30 psig	13.00 gpm
09:50 am	30 psig	13.00 gpm
09:55 am	30 psig	13.00 gpm

Remarks: None

Well Number: GH-94-1

Pressure Test No. 5
Date: 8/12/94
Elevation: 5592' GL Estimated
Total Depth: 110'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 103.0' - 110.0'
Vertical: 79.3' - 84.7'
Test Interval:
Measured: 7.0'
Vertical: 5.4'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE
10:40 am	30 psig	15.5 gpm
10:47 am	30 psig	15.5 gpm
10:55 am	30 psig	15.6 gpm
11:00 am	30 psig	15.5 gpm

Remarks: None

Pressure Test No. 6
Date: 8/12/94
Elevation: 5592' GL Estimated
Total Depth: 140'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 130.0' - 140.0'
Vertical: 100.1' - 107.8'
Test Interval:
Measured:10.0'
Vertical: 7.7'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE
01:45 pm	30 psig	4.50 gpm
01:50 pm	30 psig	5.00 gpm
01:55 pm	30 psig	5.00 gpm
02:00 pm	30 psig	5.10 gpm
02:05 pm	30 psig	5.00 gpm

Remarks: None

Well Number: GH-94-1

Pressure Test No. 7
Date: 8/12/94
Elevation: 5592' GL Estimated
Total Depth: 150'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 146.0' - 150.0'
Vertical: 112.4' - 115.5'
Test Interval:
Measured: 4.0'
Vertical: 3.1'
Packer Pressure: 300 psig

Remarks: Test aborted; unable to get good packer seat.

Pressure Test No. 8
Date: 8/12/94
Elevation: 5592' GL Estimated
Total Depth: 165.0'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 162.0' - 165.0'
Vertical: 124.7' - 127.0'
Test Interval:
Measured:10.0'
Vertical: 7.7'
Packer Pressure: 300 psig

Remarks: Test aborted; unable to get good packer seat.

Pressure Test No. 9
Date: 8/12/94
Elevation: 5592' GL Estimated
Total Depth: 165.0'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 163.0' - 165.0'
Vertical: 125.5' - 127.0'
Test Interval:
Measured: 2.0'
Vertical: 1.54'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE
12:45 pm	30 psig	0.00 gpm
12:50 pm	30 psig	0.00 gpm

Well Number: GH-94-1

01:00 pm 30 psig 0.00 gpm

Remarks: Increased pressure to 60 psig; packer leaking?

PEEL Environmental Services

BORING LOG

Boring No. GH-94-2

Project: White Mesa | Geologist: | Sheet No. 1 of 1

Client: FEN | Date: 8/14/94 | Project No.

Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
			Core # 1 17 - 20 Rec 3 ft Ss qtz, ltgy to buff, m. - to c.g., subang to subrnd, v.c.g (lithic frag) cong. lenses at 18', 18.5' & 19.5' ang lith frag. g. i gran poro	3:00 PM on hole start placing surface csg. 4:15 PM Start Core chl.
	5		Core # 2 20-30 10' 20.0-21.5 Ss qtz ltgy, f to m.g. sub ang to sub rnd, arg, lithic frag. 0.3' shale lense @ 20.5' ltgy blocky bd	
	10		21.5 - 25.5 SS. qtz lt buff to gy. subrnd to rnd f. to v.c.g to cong. lithic frag ang. thin x-beds	
	15		25.5 to 30 Ss qtz ltgy m. to v.c.g subrnd poorly cemented g i/gran poro tr. pebbles lith frag ang.	
			Core # 3 30-36.5 Rec 5' RQD = 60%	8/15/94
		Bedding plane parting fe stn.	30-36.5 Ss. qtz ltgy to lt buff gy, m.gr., subrnd to rnd, arg cong @ 30.5-30.8 (lithic frag) and 36.0-36.5 pebbles ang to subang. faint x-bed bedding plane parting	
	20			
		BPP	Core # 4 36.5 - 37.5 Rec 0.1' RQD = 0	
	25	DPP	Ss as ab cong	
			TD = 40' Bit crown in Hole	
	30	BPP		
	35			
	40			
	45			
	50			

PEEL Environmental Services

BORING LOG

Boring No. GH-94-2A

t: White Mesa | Geologist: PEEL | Sheet No. of 3

Client: EFN | Date: 8/15/94 | Project No.

Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
			Core #1 10-20 Rec 10' RQD = 99%	
			10-20 Ss, gtz, yellowish brn gy <<< brn gy m- to v c.g. v.g. i gran poro. thin x-bedd bedding plane parting vertical joint (18.5') sealed washout by drilling fluid. testn	
	5		Core #2 20-30 Rec 10' RQD = 99%	
	10		20.0-26.6 Ss, gtz lt gy to brn (testn) f. to v.c.g. (congeratic from 25-26 ang to subang lithic frags) subrnd, arg tr in/gran poro bed plane part. good x-bedding	
	15		26.0-26.5 Congl lith pebble ang to sub ang, v. sndy (gtz) at top to v. arg. at base.	
		BPP	26.5-30.0 Ss, gtz, m. to v c.gn subrnd, cong at 29-30'. good x-bed, tr arg cement g. i/gran poro	
		v. joint sealed		
	20	BPP		
		BPP	Core #3 30.0-40.0 Rec 9'	RQD 86%
		BPP	30.0-30.3 Sndy Cong as ab	
	25		30.3-33.0 Ss, gtz yellow gy, m g subrnd v arg sft fsstn on ptgs	
			33.0-36.0 Ss gtz grn gy f. to v.c.g. subrnd c. grns occ subang. faint bedding. grading into conglomeratic ss at base 6" poss v. joint at 33.5' lith pebbls	
	30			
		v. joint ?? sealed	36'-40' Ss as ab cong in part lith frags pebble size	
	35		Packer test #1 34-40'	
			Start test 11:40	
			11:45 30 psi 0.35 gpm	
			11:50 30 psi 0.36 gpm	K = 2 x 10^-5 cm/sec
			11:55 30 psi 0.36	= 3 x 10^-4 g/m/ft^2
	40		12:00 30 psi 0.36	
			12:05 30 psi 0.36	
			Packer Test #2 32.5-40	
	45		12:10 30 psi 12 gpm	
			12:15 30 psi 12 gpm	K = 7 x 10^-4 cm/sec
			12:20 30 psi 12 gpm	= 1 x 10^-2 g/m/ft^2
			12:25 30 psi 12 gpm	
	50		Note water coming out of	

GH-94-2 hole Test not accurate

Drill Hole No. 6H-94-2A

Sheet No. 2 of 3

Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
			Core # 4 - 40-48 Rec. 0.5'	Bit worn
			47.5-48.0 Ss qtz, lt. gy f-m grn subrnd arg occ pebble (lithic) at base	
	55		Core # 5 48.0-50 Rec 1 ft	
			ss as ab congl (lithic ang to subang)	Carbide bit.
			Core #6 50-56 Rec 1 ft	
	60		55.0-55.9 ss as ab cong as ab	
			55.9-56.0 Cong pebble gy buff lithic subang to subrnd sndy arg.	
	65		Core # 7 56.0-66.0 Rec 1.3 ft	
			ss qtz lt buff gy f grn. subrnd arg fe stn faint x-bed. congl. in part (lithic frags, subang)	
	70		Core # 8 66.0-70 Rec 3.7 ft	RQD
			66.0-70.0 qtz, lt buff gy, f. to m.grn. occ. v.c.g. subrnd to rnd arg faint x-bed >>> v frio at base.	
	75		Core # 9 70-80 Rec 8.5 ft	RQD < 50%
			70-80 ss qtz yellow buff f. to m grn, occ v.c.g., subrnd, arg. destn. x-bed rock v frio @ 79 & 80 ft. Poss v. frac 74.5' no fe stn along fract. @ 76.4' @ 78.4 joints are closed but water coursing has opened them	
	80			
	85		Core # 10 80-90 Rec 8.0'	
			80-90 ss qtz m.g. occ v.c.g. occ cong. subrnd Core missing	
			84-87' x-bed v joint @ 83.9 closed	Stopped [illegible]
	90		Core # 11 90-100 Rec 3.5'	
			90 to 96.5 Missing Core probably cong.	
	95		96.5-97.7 Conglom, lt buff gy lithic pebble subang to subrnd. v. sndy congl ss in pt.	
		v. joint closed	97.7-100.0 Ss. qtz lt yellgy f. gnd subrnd arg v. joint at 93.5	
	100			

Packer Tests on back

Packer Test # 3 50 - 56'

1:50 PM	30 psi	1.5 gpm
1:00 PM	30 psi	1.4 gpm
2:05 PM	30 psi	1.4 gpm
2:15 PM	30 psi	1.4 gpm

$K = 1 \times 10^{-3}$ g/m/ft^2
$= 8 \times 10^{-5}$ cm/sec

Packer Test # 4 60 - 70'

10:40	35 psi	1.8 gpm
10:45	35 psi	1.1 gpm
10:50	35 psi	1.1 gpm
10:55	35 psi	1.1 gpm
11:00	35 psi	1.1 gpm

$K = 5 \times 10^{-4}$ g/m/ft^2
$= 4 \times 10^{-5}$ cm/sec

Packer Test # 4 70' to 80'

11:35	30 psi	5.5 gpm
11:40	30 psi	4.4 gpm
11:45	30 psi	4.45 gpm
11:55	30 psi	4.4 gpm

$K = 2 \times 10^{-3}$ g/m/ft^2
$= 1 \times 10^{-4}$ cm/sec

Packer Test # 5 80' to 90'

12:35	30 psi	5.8 gpm
12:40	30 psi	3.5 gpm
12:45	30 psi	3.4 gpm
12:50	30 psi	3.4 gpm
12:55	30 psi	3.4 gpm

$K = 3 \times 10^{-3}$ g/m/ft^2
$= 2 \times 10^{-4}$ cm/sec

Packer Test # 6 138 - 144

2:25	90 psi	No take
2:30	90 psi	No take
2:35	90 psi	No take

Tried to increase to 120psi @ 100 lost packer seat.

Drill Hole No. GH-94-2A

Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
	100	v. joint (closed)	Core 12 100-110 Rec 10'	RQD = 80%
		100.0-102.0	Ss qtz lt yell gy, f. gnd, subrnd to rnd, arg thin ¼" to 1" cong (lithic) x-beds. Closed v. joint 100.5'.	
	105	102.0-103.0	Congl. lithic, lt gy pebble subang to subrnd sndy to v. sndy, tr fe stn tr. igran poro.	
	110	103.0-105.5	Ss. lt gy f. tom. gnd occ v.c.g. rnd to subrnd sl. fria. igran poro occ cong (lithic, pebbles) x-bed (faint)	
		105.5-110.0	Ss qtz lt brn gy, f. gnd subrnd, thin x-bed tr fe stn. hd.	
	115		Core 13 110-120 Rec 10' RQD Note: core was 1 piece unbroken	100%
		110.0-120.0	Ss. qtz lt brn gy occ grn cast, v.f. to f.g occ v.c.g, subrnd tr. igran poro. tr dead oil stn. thin x. beds	
	120		Core 14 120-130 Rec 10' RQD 100% Note: core was 1 piece unbroken	
		120.0-130.0	Ss. qtz. lt yellow gy, v.f. to f. gnd subrnd, becoming v.c.g. to sl. cong in part sft fria. core broke while placing into box. sl. arg good igran poro. tr fe stn.	
	125			
	130		Core #15 130-134 Rec 4' Ss qtz lt gy m gnd subrnd sl arg tr igran poro faint x-beds fe stn	RQD < 50%
		134-138	Core #16 134-140 Rec 6' Ss as ab good x-beds bedding plane parting fe stn	RQD < 50%
	135	v. Joint (closed)		
		138-140	Shale, grn, platy waxy.	Brushy Basin Top 138'
		Brushy Basin		
	140		Core #17 140-150 Rec 3' Shale, dk grn to blk, red, waxy, blocky.	
			Core #18 150-155 Rec 5'	RQD 90%
	145		150.-155 Cl stn. dk grn waxy trace red waxy sndy to v. sndy bldg.	
	150			

CONSTANT HEAD PRESSURE TESTS

Well Number: GH-94-2A
White Mesa Project
San Juan County, Utah

Pressure Test No. 1
Date: 8/15/94
Elevation: 5582' GL Estimated
Total Depth: 40'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 34.0' - 40.0'
Vertical: 26.2' - 30.8'
Test Interval:
Measured: 6.0'
Vertical: 4.6'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE
11:45 am	30 psig	0.35 gpm
11:50 am	30 psig	0.36 gpm
11:55 am	30 psig	0.36 gpm
12:00 pm	30 psig	0.36 gpm
12:05 pm	30 psig	0.36 gpm

Remarks: None

Pressure Test No. 2
Date: 8/15/94
Elevation: 5582' GL Estimated
Total Depth: 40'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 32.5' - 40.0'
Vertical: 25.0' - 30.8'
Test Interval:
Measured: 7.5'
Vertical: 5.8'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE
12:10 pm	30 psig	12.00 gpm
12:15 pm	30 psig	12.00 gpm
12:20 pm	30 psig	12.00 gpm
12:25 pm	30 psig	12.00 gpm

Remarks: Water returning to surface; test inaccurate and inconclusive.

Pressure Test No. 3
Date: 8/15/94
Elevation: 5582' GL Estimated
Total Depth: 56'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 50.0' - 56.0'
Vertical: 38.5' - 43.1'
Test Interval:
Measured: 6.0'
Vertical: 4.6'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE
01:50 pm	30 psig	1.50 gpm
02:00 pm	30 psig	1.40 gpm
02:05 pm	30 psig	1.40 gpm
02:15 pm	30 psig	1.40 gpm

Remarks: None

Pressure Test No. 4
Date: 8/15/94
Elevation: 5582' GL Estimated
Total Depth: 70'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 60.0' - 70.0'
Vertical: 46.2' - 53.9'
Test Interval:
Measured: 10.0'
Vertical: 7.7'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE
10:40 am	35 psig	1.80 gpm
10:45 am	35 psig	1.10 gpm
10:50 am	35 psig	1.10 gpm
10:55 am	35 psig	1.10 gpm
11:00 am	35 psig	1.10 gpm

Remarks: None

Well Number: GH-94-2A

Pressure Test No. 5
Date: 8/15/94
Elevation: 5582' GL Estimated
Total Depth: 80'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 70.0' - 80.0'
Vertical: 53.9' - 61.6'
Test Interval:
Measured: 10.0'
Vertical: 7.7'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE
11:35 am	30 psig	5.50 gpm
11:40 am	30 psig	4.40 gpm
11:45 am	30 psig	4.45 gpm
11:55 pm	30 psig	4.40 gpm

Remarks: None

Pressure Test No. 6
Date: 8/15/94
Elevation: 5582' GL Estimated
Total Depth: 69'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 80.0' - 90.0'
Vertical: 61.6' - 69.3'
Test Interval:
Measured: 10.0'
Vertical: 7.7'
Packer Pressure: 300 psi

TIME	PRESSURE	FLOW RATE
12:35 pm	30 psig	5.80 gpm
12:40 pm	30 psig	3.50 gpm
12:45 pm	30 psig	3.40 gpm
12:00 pm	30 psig	3.40 gpm
12:55 pm	30 psig	3.40 gpm

Remarks: None

Well Number: GH-94-2A

Pressure Test No. 7
Date: 8/15/94
Elevation: 5582' GL Estimated
Total Depth: 144'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
    Measured: 138.0' - 144.0'
    Vertical: 106.3' - 110.9'
Test Interval:
    Measured: 6.0'
    Vertical: 4.6'
Packer Pressure: 300 psi

TIME	PRESSURE	FLOW RATE
02:25 pm	90 psig	0.00 gpm
02:30 pm	90 psig	0.00 gpm
02:53 pm	90 psig	0.00 gpm

Remarks: Attempted to increase pressure to 120 psi; lost packer seat.

PEEL Environmental Services

BORING LOG

Boring No. GH-911-3

Project: [illegible] Mesa | Geologist: PEEL | Sheet No. 1 of 3

Client: EFN | Date: 3/13/94 | Project No.

Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
			Core # 1 10-20 Rec 10' RQD	93%
			10.0-19.1 SS qtz m buff f. to m grn subrnd, arg fe stn tr dead oil stn Tr c. to v. c grns from 16.5 to 19.1 x-bedding bedd plane parting	
	5		19.1-19.7 Claystn, gy brn, soft pliable	
			19.7-20.0 SS. qtz, m buff, f. grn. subrnd. v arg. hd	
	10		Core # 2 20-30 Rec 10' RQD =	95%
			20.0-20.8 SS. qtz m. buff f. grn subrnd, arg fe stn. vert liss filled w claystn as described above.	
	15		20.8-22.4 Cong lithic buff gy, pebble subang and y arg fe stn. x-bedd?.	
			22.4-22.8 Clstn grn brn soft w/0.1' congl as ab at base pebbs to 1½"	
	20		22.8-30 Ss qtz m buff mottled gy, f. to m grn. subang to subrnd tr arg fe stn g. i/gran & pp poro. x-bedd.	
	25		Core # 3 30-40 Rec 10' RQD	100% Note 28-30 fill apart p[illegible] into bac
			30.0-40.0 Ss qtz m to lt yellow buff m. g occ c. grn. fe stn oil stn x-bedd. 38-40 v-fine poorly cemen v. g i/gran poro. arg in pt.	
	30		Core # 4 40-50 Rec 10' RQD 98%	
			40.0-40.8 Ss qtz gy brn, m-c g occ lithic pebb frag, arg. subang g. i gran poro, thin 1" shale stringer near base	
	35		40.0-50.0 Ss qtz, lt gy brn. f to m-grn. subrnd arg tr fe stn occ v. c g cong lith frags thin x-beds	
			Core # 5 50-60 Rec 9.4' RQD	80%
	40		50.0-53.7 SS qtz m to lt gy v. f g to f g. subrng, v. arg. thin bedd	
			53.7-60.0 Ss qtz lt brn gy to gy, m to c. g., fe stn moss v. g i/gran poro. occ pebl frag.	
	45		Core # 6 60-70 ft Rec 10' RQD	88%
			60-65.7 Ss qtz lt brn gy occ lt grn gy f to m g subrnd, g. i gran poro tr fe stn massive	
	50			

Packer Test #1 155 - 161

11:30	60 psi	.1 gpm	Test questionable may have water coursing past packer. Water pressure surging
11:35	60 psi	.1 gpm	
11:40	60 psi	.1 gpm	
11:45	60 psi	.1 gpm	
11:50	60 psi	.1 gpm	

Packer Test #2 138-144

12:03	30 psi, 60 psi no take	
12:05	90 psi	0.1 gpm
12:10	90 psi	0.1 gpm
12:15	90 psi	0.1 gpm
12:20	90 psi	0.1 gpm

Drill Hole No. GH-94-3				Sheet No. 2 of 3
Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
	50		Core # 6 cont 65.7 - 68' Ssasab brngy above fe stn 68 - 70 Ss qtz lt gy f. to m.g occ v.c.g subrnd g i/gran poro massive hard.	
	55		Core # 7 70 - 80 Rec 10' RQD 96 % 70.0 - 75.5 Ss qtz, lt gy, m. to v.c.g, subrnd pebs at 73.2 & base of unit. faint x-bedding tr fe stn sl arg. hd.	
	60		75.5 - 80.0 Ss qtz, yell brn, f-mg subrnd fe stn fria poor cem v.g. i/gran poro, massive	Burro Canyon ?
	65		Core # 8 80 - 90 Rec 6.3'	RQD < 50%
	70		80 - 90 Ss qtz grn brn f.-m.g. subang - subrnd, sl arg cong in places dead oil stn #1" clstn at base	
			Core # 9 90 - 100 Rec 9.9' RQD 99%	
	75		90.0 - 96.1 Clstn dk grn gy occ thin bedding v. slty & sndy SCt sharp contact with unit below. 92.2 is bed plane parting w fe stn	
	80		96.0 - 97.8 Ss, qtz, brn, f. to c.g. subang arg fe stn. thin x-bed	
			97.8 - 100 ss. qtz yellow buff f-m g. v.c.g to pbble cong near top and base massive arg sub ang fria.	
	85		Core # 10 100 - 110 Rec 10' RQD < 50%	
			100.0 - 110.0 Ss, qtz, yellow buff f.-m.g. subang occ v.c.g. fria to v. fria. i/gran poro. occ pebble (lith)	
	90		Core # 11 110 - 120 Rec 6.5'	RQD < 50%
	95		120.0 - 120.0 Ss qtz lt yellow gy f.-m.g. subrnd, sl arg g/gran poro. fria to v. fria. f x-bed occ v.c.g bed	
			Core # 12 120 - 130 Rec 10'	RQD 98%
	100		120 - 123.7 Ssasab 123.7 - 126.0 Cong, lithic, pebble grnish buff, subang, sandy 126.0 - 127.1 Ss qtz, lt grn gy v f g thin bedded. Sharp upper & lower contact	

Drill Hole No. GH-94-3

Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
	100		Core # 12 Cont'd	
			127.1 - 128.1 Ss. qtz lt brn gy, v.f. to f.g. subrnd tr org cem, tr i/gran poro fe stn faint x-bed	
	105		128.1 - 130 Ss. qtz, lt gy f.-mg x-bedd g i/gran poro	
			Core # 13 130-140 Rec 10'	RQD = 98%
	100		130-140 ss qtz, lt grn gy, f. to mg upper 10" c.g. to v.c.g. subrnd sl. arg. cem g. i/gran poro thin bedded tr. fe stn	
			Core # 14 140-145 Rec 5'	RQD = 88%
	115		140 - 142.5 Ss qtz, lt gy, f.-mg sub-rng. tr thin x bed (v. frac. @ 141.3 ?? closed)	
			142.5-145 Clystn, dk grn, waxy blky.	Top Brushy Basin 142.5'
	120		Core # 15 145-150 Rec 5'	RQD < 50%
			145-150 Clstn m-dk grn occ dk rd patches, waxy, sl. slty slg sndy in pts	
	125		Core # 16 150-155 Rec 4'	RQD < 50%
			150-155 - Clstn dk grn to rd. waxy, sl slty in pt, blocky,	
	130		Core # 17 155-160 Rec 5'	RQD = 80%
			155-160 Clstn m. grn occ dk red splotch, waxy sticky. From 158-160 >>> v. sndy number of hairline fractures all filled, occ fissile.	
	135		Core # 18 160-165 Rec 5'	RQD 100%
			160-165 Clstn m.grn. v. sndy thin hair-like frac. filled w gyp.	
	140	Burro Canyon / Brushy Basin		
	145		TD = 165 8/19/94	
	150			

CONSTANT HEAD PRESSURE TESTS

Well Number: GH-94-3
White Mesa Project
San Juan County, Utah

Pressure Test No. 1
Date: 8/18/94
Elevation: 5580' GL Estimated
Total Depth: 165.0'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 155.0' - 161.0'
Vertical: 119.3' - 124.0'
Test Interval:
Measured: 6.0'
Vertical: 4.6'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE
11:30 am	60 psig	0.10 gpm
11:35 am	60 psig	0.10 gpm
11:40 am	60 psig	0.10 gpm
11:45 am	60 psig	0.10 gpm

Remarks: Some surging; test results may be inaccurate and inconclusive.

Pressure Test No. 2
Date: 8/18/94
Elevation: 5580' GL Estimated
Total Depth: 165.0'
Gound Level to Gauge: 0.0'
Hole Diameter: 3.0" (0. 125')
Depth:
Measured: 138.0' - 144.0'
Vertical: 106.3' - 110.9'
Test Interval:
Measured: 6.0'
Vertical: 4.6'
Packer Pressure: 300 psig

TIME	PRESSURE	FLOW RATE	
12:03 pm	30psig	0.00 gpm	Increase pressure to 60 psig
12:05 pm	90 psig	0.10 gpm	
12:10 pm	90 psig	0.10 gpm	

Well Number: GH-94-3

12:15 pm	90 psig	0.10 gpm
12:20 pm	90 psig	0.10 gpm

Remarks: Some surging; test results may be inaccurate and inconclusive.

PEEL Environmental Services

BORING LOG

Boring No. GH-94-4

Client: White Mesa | Geologist: | Sheet No. 1 of 3

Client: Energy Fuels Nuclear | Date: 8/19/94 | Project No.

Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
			Core #1 10-20 Rec 6' RQD = <50%	
			14' top Dakota loose sand & slt. above	
			14-20 Ss. qtz buff, f.-m.g. subrnd arg. fe stn, thin x-beds at top pyrite mineralization.	
	5			
			Core #2 20-30 Rec = 7.5' RQD = 60%	
			20-26.5 Ss qtz buff f m.g. occ c.gn to v.c.gr., subrnd fe stn thin x-beds parting along beds lith frags where v c.g.	
	10		26.5-28.5 Missing Core	
			28.5-30.0 Clstn, yell buff sft bllay >> sndy at base	
	15			
			Core #3 30-40 Rec 10' RQD = 100%	
			30-40 Ss. qtz yel buff f-m.g.r. c. to v.c.g at top 4". Thin x-beds thin clay parting at 4". f. igran poro. fe stn arg cem.	
	20			
			Core #4 40-50.0 Rec 9' RQD = 87%	
			40.0-42.9 ss. qtz, buff, m.g. arg cem thin x-bed	
	25		42.9-44.1 Ss qtz lt gy to wh, f-m.g. arg cem, mass.	
			44.1-50.0 ss, qtz buff to lt gy to wh. v.f to m.g., occ v.c.g occ lith pebbles in top 1.5'. clay stn layer 1" at base thin x-beds	
	30			
			Core #5 50-60 Rec-10' RQD = 100%	
			50-60 Ss qtz lt.gy. buff in pt., v.f. to f g. subrnd arg cem. fria. thin x-bed. tr fe stn. occ v.c.g. occ lithic peb.	
	35			
			Core #6 60-70 Rec 10' RQD = 100%	
			60.0-70.0 Ss, qtz, lt gn gy. f. to m.g. subang to subrnd, slty in pt sl. fria tr fe stn occ c.g. occ lithic peb. massive.	
	40			
			Core #7 70-80 Rec 8' RQD = 65%	
			70-80 Ss qtz, lt gn gy to yell buff. to lt buff, m.g. subrnd tr-rnd arg tr fe stn. occ c.g. lithic, subang to subrnd massive x bedd in lower 1'. last core 76-79.5. tr igran poro	
	45			
	50			

Drill Hole No. 64-94-4				Sheet No. 2 of 3
Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
	50		Core #6 80-90 Rec 10' RQD = 100%	Top Brushy = 98'??
			80.0 - 90.0 Ss, qtz m. to lt. buff f. - m.g. occ v.c.g. occ lithic pebb. fe stn tr igran poro Point thin x-beds. Sphere (concretions pyrite)	
	55		Core #9 90-100 Rec 6.5' RQD = 50%	
			90.0 - 90.7 Ss qtz buff m.g. subrnd to rnd, tr festn tr d.p.s.	
	60		90.7 - 91.5 Cong. lith. pebb. subang to subrnd grn buff.	
			91.5 - 94.2 Ss qtz grn gy m.g. to fg arg subrnd v. arg at base grading into clstn below	
	65		94.2 - 95.2 clstn gy grn sndy in pt. blocky tr festn along bed planes	
	70		95.2 - 98.0 Missing core	
			98.0 - 100 Clstn, gy grn blky sft in pt.	
	75		Core #10 100 - 110 Rec 9.7' RQD = 60%	
			100.0 - 103.3 Clstn gy grn, blky firm sndy >>> Ss qtz, gy grn, f. to mg subrnd arg to v arg occ v. c.g. near base of unit. ~~[illegible]~~	
	80		103.3 - 104.1 Ss, qtz grn gy, m.g subrnd occ lithic pebb g igran poro	
			104.1 - 110.0 Ss. qtz lt gy, subrnd m.g. arg. thin x-beds v.c.g along bedding planes g. igran poro	Burro Canyon 104 ?
	85		Core #11 110-120 Rec 10' RQD = 97%	
			110-120 - Ss qtz yell buff fine to m.g. subrnd arg thin x-bed. Occ v.c.g. along bed planes, Occ thin congl zones lithic sndy subang to subrnd	
	90		Core #12 120-130 Rec 10' RQD = 98%	
			120 - 124.1 Ss, qtz yell buff, f.-m.g. subang, thin x-beds. occ v.c.g. & lithic pebbs tr pp poro	
			124.1 - 124.2 Clstn dk grn gy sharp upper & lower contact	
	95		124.2 - 129.0 Cong. lithic m. brn gy pebble, subang to subrnd sndy to very sndy thin x beds.	

Drill Hole No. GH-92/-4

Well Construction	Depth (Feet)	Graphic Description	DESCRIPTION	REMARKS
			129-130 - Ss, qtz, brn gy, m. - c.g. subrnd sl arg g i/gran poro, thin x-beds.	
			Core #13 130-140 Rec 10'	RQD 100%
			130.0 - 131.2 Ss qtz grn brtt, m to v.c.g. subang subrng grading into next unit	
			131.2 - 140.0 Cong, lithic, pebble grn brtt to lt gy albase, v. sndy go i/gran poro. subang subrnd pebs to 1" in places thin ~~bed~~ bed poorly sorted	
			Core #14 140-150 Rec 8.5'	RQD 80%
			140.0 - 142 - Ss, qtz m. gy brtt, m.-v.c.g., subang subrnd, larger grns are lithic frag. occ pebb. thin bedded g i/gran poro	
			142.0 - 147.6 Ss qtz lt brtt gy to lt gy, f - m.g., arg bd. subrnd thin x-beds x-gran along bedding planes. occ clay pebb.	
			147.6 - 150.0 Clstn, dk grn waxy blky, sl. sndy	Brushy Basin 147.6
			Core #15 150-160 Rec 10 ft	RQD = 92%
			150. -160 Clstn, dk grn waxy blocky, sndy to v sndy in pt. occ rd. oxidation patch in one	
			Core #16 - 160-165 Rec 4'	RQD =
			160-165 Clstn, dk grn waxy blky >> Ss. qtz in pt dk grn v arg f.g., subrnd. Numerous fracs filled with gypsum? 1/8 - 1/16".	

WESTERN ENGINEERS, INC.
CONSULTING ENGINEERS / LAND SURVEYORS
2150 Hwy 6 & 50, Grand Junction, CO 81505 · 303/242-5202

September 14, 1994

Fred Peel
10378 W. 77th Circle
Arvada, CO 80005

RE: Rock core sample testing, White Mesa Mill Site

Fred:

Enclosed are the above test results completed to date. The permeability tests were run in general accordance with ASTM D-5084-90 (Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter). A solution of .005 N $CaSO_4$ was used for the permeant liquid. Because of apparatus limitations, confining pressures used were limited to about 8000 lbs/sq ft. You will note that specimen MW 22 @ 137.3-137.8 exhibited an exceptionally high permeability coefficient. This specimen had a well established, mineral filled joint running the length of the sample tested which, it is presumed, controlled the rate of flow through the specimen during the test. If this is a reasonable assumption, based on measurements of the width of the joint, the joint transmissivity is estimated to be 3.51×10^{-1} cm^2/sec.

Please call me if you have any questions.

Submitted by:
WESTERN ENGINEERS, INC.

Bruce D. Marvin P.E.

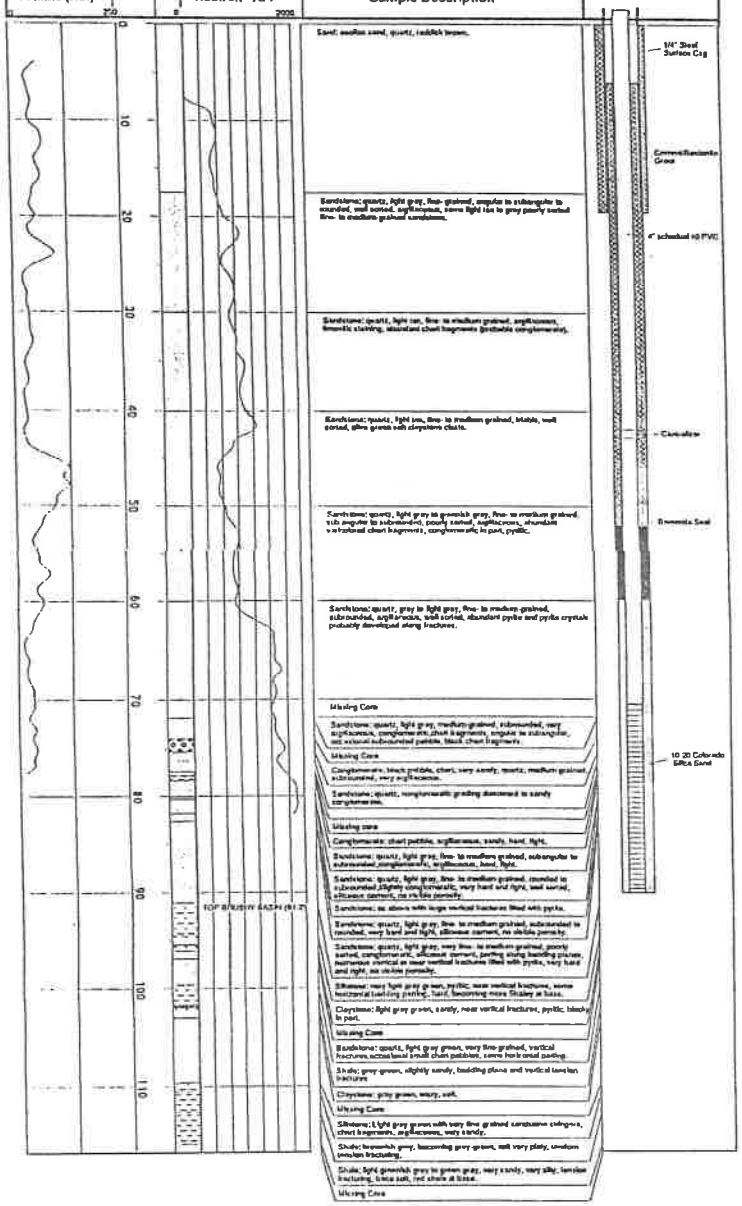
SAMPLE IDENTIFICATION	INITIAL MOISTURE (PERCENT)	INITIAL DRY UNIT WEIGHT (LBS/CU FT)	PARTICLE SPECIFIC GRAVITY	POROSITY	VERTICAL PERMEABILITY							HORIZONTAL PERMEABILITY						
					SATURATION B FACTOR (PERCENT)	GRADIENT	AVERAGE CONFINING PRESSURE (LBS/SQ FT)	PERMEABILITY COEFFICIENT (CM/SEC)	FINAL MOISTURE (PERCENT)	FINAL DRY UNIT WEIGHT (LBS/SQ FT)	PERCENT SWELL	SATURATION B FACTOR	GRADIENT	AVERAGE CONFINING PRESSURE (LBS/SQ FT)	PERMEABILITY COEFFICIENT (CM/SEC)	FINAL MOISTURE (PERCENT)	FINAL DRY UNIT WEIGHT (LBS/SQ FT)	PERCENT SWELL
MW 21 @ 106.5-107.0	6.24	141.1	2.65	0.159399	100	130.38	7920	1.15E-10	NA	NA	NA							
MW 21 @ 114.5-115.0	NA	NA	2.68	NA	100	125.65	7920	4.07E-07	NA	NA	NA							
MW 22 @ 122.2-122.7	3.96	148.56	2.69	0.114956	100	139.44	7920	1.18E-06	5.83	150.44	1.25							
MW 22 @ 126.3-127.2	5.76	144.03	2.66	0.132266	100	138.6	7920	6.94E-10	7.24	145.96	1.32							
MW 22 @ 133.3-133.7	2.57	151.69	2.67	0.08954	100	134.85	7920	1.58E-09	NA	156.25	2.92							
MW 22 @ 137.3-137.8	4.19	145.15	NA	NA	100	41.76	8352	5.95E-04	8.02	149.52	~~2.92~~ NA							

ATTACHMENT 2

PEEL En Arrec ...rvices ...ite

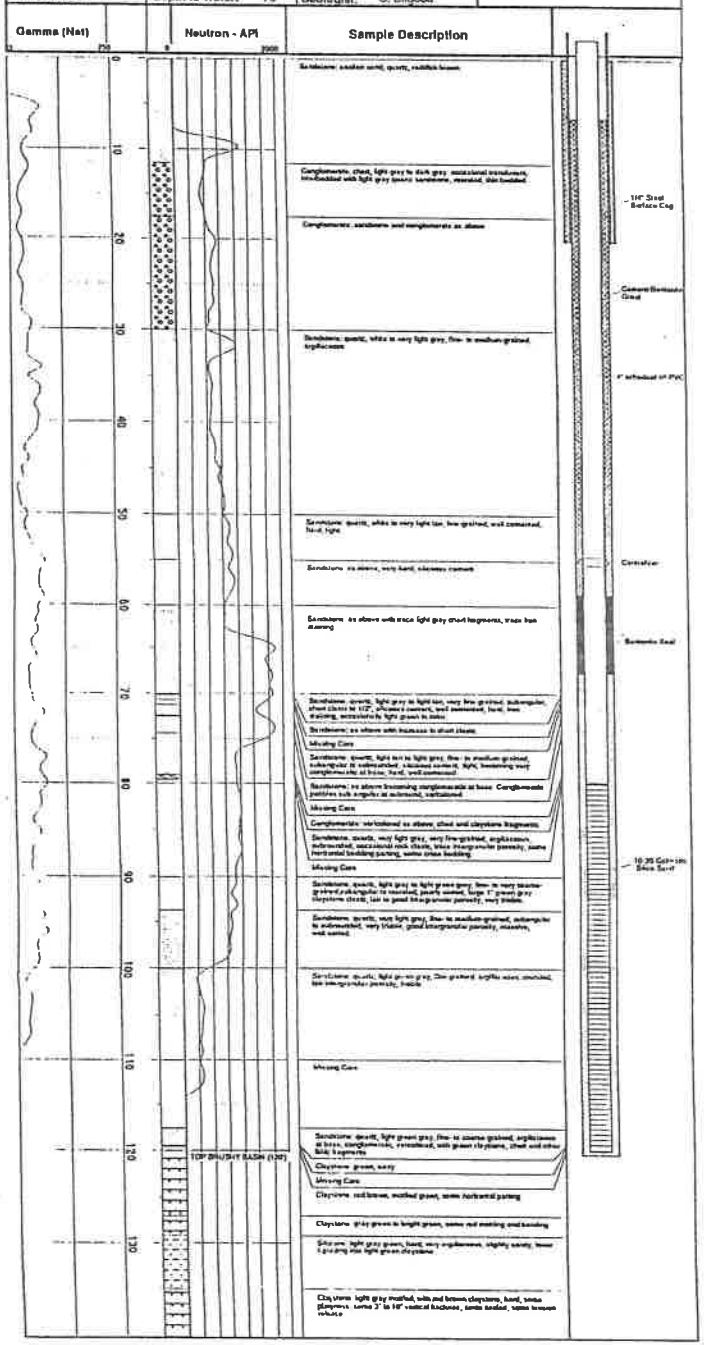
Bore Hole No. : WMMW-21

Project: White Mesa	Surface Elev. 5558 Est	T. D. = 117.0'	PBTD = 90.0'
Date: 8/12/94	Depth to Water: Dry	Geologist: C. Bligood	



PEEL Environmental Services
Arvada, CO (303)422-5110

Project: White Mesa	Surface Elev. 5516 Est	T. D. = 140'	Bore Hole No.: WMMW-22
Date: 8/4/94	Depth to Water: 76	Geologist: C. Bilgood	PBTD = 120'



PEEL Energy	/ices		Bore Hole No. : GH94-1
Project: 3	rface Elev. 5592 est	T. D. = 165	
Date: 8/9/94	Depth to Water:	Geologist: F. A. Peel	

Gamma (Hot)	Neutron - API	Sample Description	Comments
		Missing Core	Re video drill string left in hole.
		Sandstone: Quartz, light gray, medium grained, well-sorted, angularness, some fine sand, trace bedding, poor porosity.	TOP OF DAKOTA 14'(vertical depth 18.5')
		Sandstone: As above, some gray brown with discoloration stain, some bedding.	
		Sandstone: As above with some coarse grained, angularness to poor.	
		Sandstone: Quartz, Medium to light gray, fine grained, well-sorted, very angularness.	
		Sandstone: Quartz, medium to light gray, medium grained, well-sorted very hard.	
		Sandstone: Quartz, light gray white gray, fine grained bimodal coarse grained to pebbles, well-sorted, some cross bedding, high cementing, thin bedding planes. Possible step fault vertical surface @ 31.7'.	
		Sandstone: As above with less coloring, some cross bedding surfaces.	
		Sandstone: As above. Increasing more heavily iron stained. Carbon seam @ 39'. Trace to slide drop particles, pebbles are little large. Possible hydrocarbon porosity with brown oil stain @ 39.7' to 39.8'.	
		Sandstone: Quartz, medium to coarse grained, well-sorted, angularness fair pebbles, good hydrocarbon porosity, oil stain, cross bedded.	
		Missing Core	
		Shale: Dark gray, silty, bedding plane parting, slip to pass, soft.	
		Sandstone: Quartz, Light gray to buff, fine to medium grained, well-sorted, angularness, thin bedding, iron stain.	
		Sandstone: As above medium to coarse grained, occasional little pebbles up to 2" diameter.	
		Shale: Dark gray to medium gray, soft, brittle.	
		Shale: Medium to dark gray, brittle, sandy near top.	
		Sandstone: Quartz, light buff to light brown to yellow to white, medium grained and coarse grained, well-sorted, angularness, some calcium iron. Low healing along bedding planes, good to excellent hydrocarbon porosity, slightly angularness.	
		Sandstone: Quartz, light gray to buff, medium to coarse grained, subangular to subrounded, angularness, buff color due to iron staining, occasional little pebbles up to 1" diameter, good hydrocarbon porosity. Large 10" shale clasts at base. Fair thin cross bedding, parting across along bedding surfaces.	
		Sandstone: Quartz, light gray, brown to tan to iron staining, fine to medium grained, well-sorted, slightly angularness, occasional coarse grained or pebble size, thin cross bedding, fair hydrocarbon porosity, 2" broken fracture at top plus one continuous fracture cutting out.	
		Sandstone: Quartz, light gray, fine to medium grained, well-sorted, slightly angularness, thin cross bedding, occasional coarse grained, little shale, fair hydrocarbon porosity.	
		Sandstone: As above grading downward to angularness and angularness sandstone with pebbles also with iron staining, increasing pebbles, angularness to subrounded to rounded, pebbles range up to 1/2" diameter, good hydrocarbon porosity at base.	TOP OF SUPAI CANYON 68' (vertical depth 68.5')
		Sandstone: Quartz, light gray, very fine to medium grained, very angularness, well-sorted, fair healing along bedding planes.	
		Sandstone: Light gray, occasional light brown gray, fine grained, occasional little pebbles, poorly cemented, occasional broken fracture surfaces, slightly brittle, some iron staining.	
		Sandstone: Quartz, light gray, fine to medium grained, well-sorted, angularness, thin cross bedding, occasional coarse grained, little shale, fair hydrocarbon porosity.	
		Sandstone: As above grading downward to angularness and angularness sandstone with pebbles also with iron staining, increasing pebbles, angularness to subrounded to rounded, pebbles range up to 1/2" diameter, good hydrocarbon porosity.	
		Sandstone: As above with less pebbles, some iron, fair cross bedding, HOLE TWO deviation @ 90' - angular hydrocarbon.	
		Sandstone: As above, occasional little pebbles, angular, light gray to white, fine cross bedding.	
		Missing Core	
		Sandstone: Quartz, fine to medium grained, well-sorted, slightly angularness, thin bedding planes, fair healing along bedding planes, 1" to 117' to 117' to 117.5' and at base of core, little angularness up to 2".	
		Sandstone: As above, top 6' angularness, bottom 3 1/2' angularness with little fine angularness to 2". Thin cross bedding, fair angularness.	
		Sandstone: As above with angularness as above 3 to 129' to 131.5' 131.5' to 132.5' 132.5' to 133.5' 133.5' to 134.5' 134.5' to 135.5' 135.5' to 137.5' 137.5' to 138.5' 138.5' to 139.5' 139.5' to 140.5' 140.5' to 141.5' end of 129.	
		Sandstone: As above with angularness and little pebbles, some angularness to 1/2".	
		Shale: Dark gray, hard, brittle, slightly black.	TOP OF BRIGHAM SHALE (vertical depth 143.5')
		Missing Core Core Barrel Stuck	
		Sandstone: Quartz, light gray, medium grained, subrounded to angularness, well-sorted, fair healing along bedding, very hard, very bedding planes with angularness, cross bedding along bedding.	

PEEL

Services

Bore Hole No.: GH94-2A

Project:

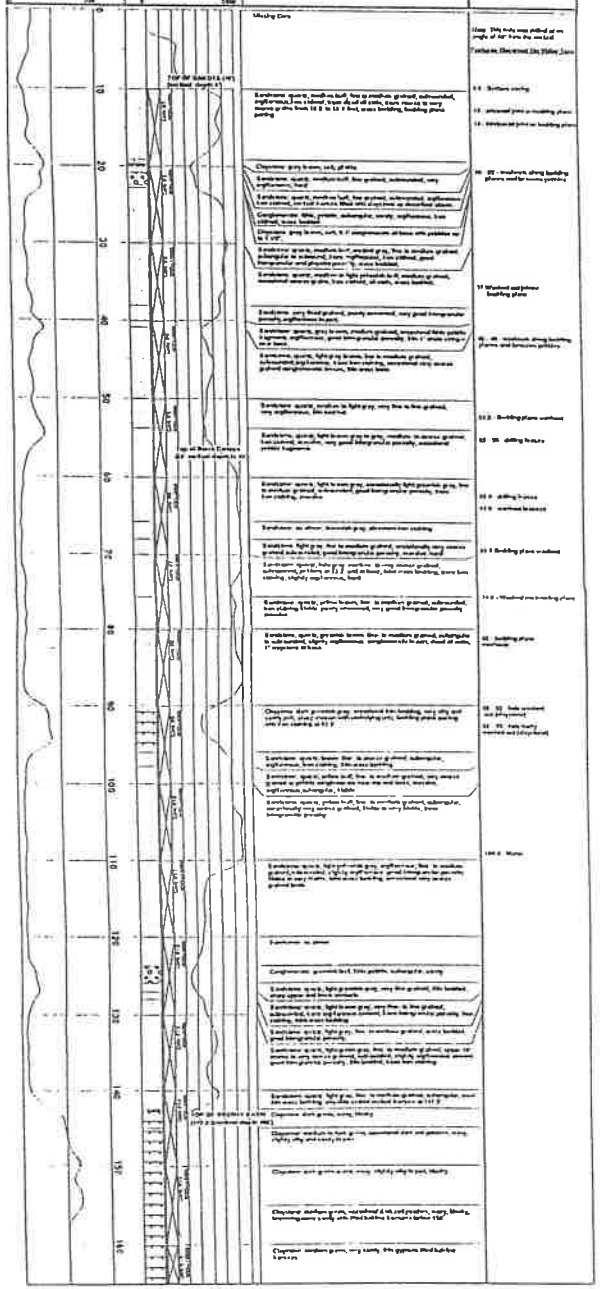
Surface Elev. 5582 est | T. D. = 155

Date: 8/12/94 | Depth to Water: 117' | Geologist: F. A. Peel

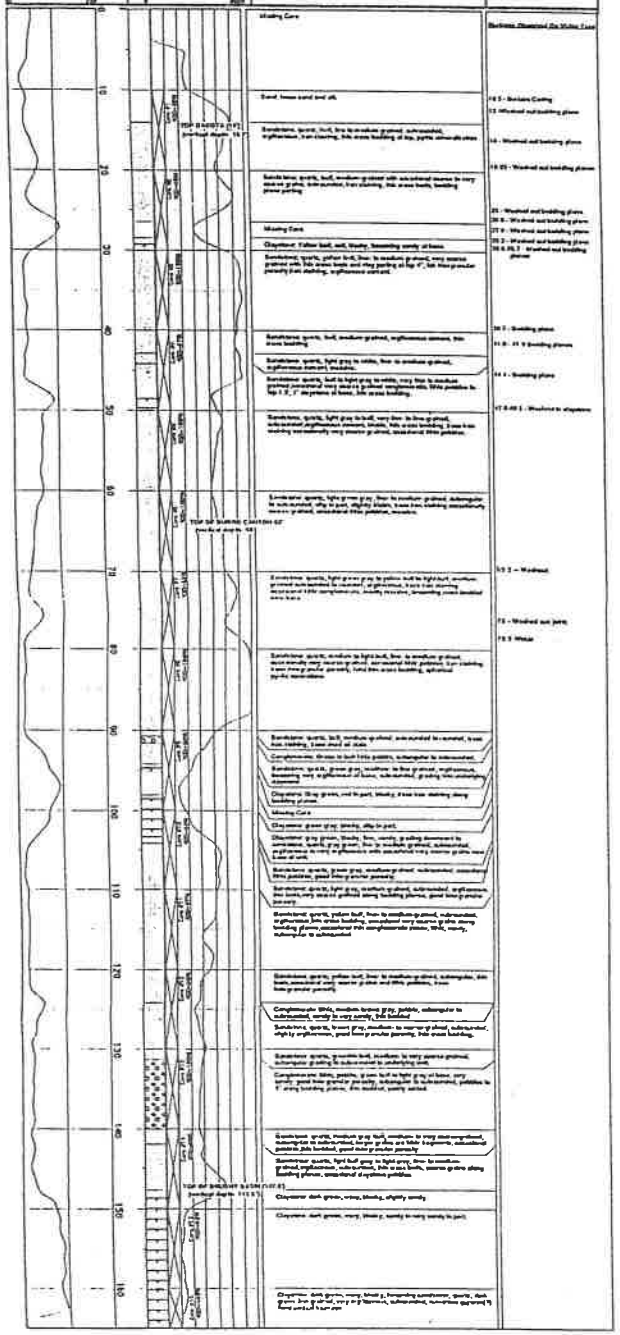
Gamma (NaI)	Neutron - API	Sample Description	Comments

Features Observed On Video Tape

...nental Services		Bore Hole No. : GH94-3
Surface Elev. 5580 est	T.D. = 165	
Depth to Water: 109.8'	Geologist: F. A. Peel	



PEE[illegible]	[illegible]tal Services	Bore Hole No. : GH94-4
Project: [illegible]	Surface Elev. 5572 est	T. D. = 165
Date: 8/19/94	Depth to Water: 88.5'	Geologist: F. A. Peel



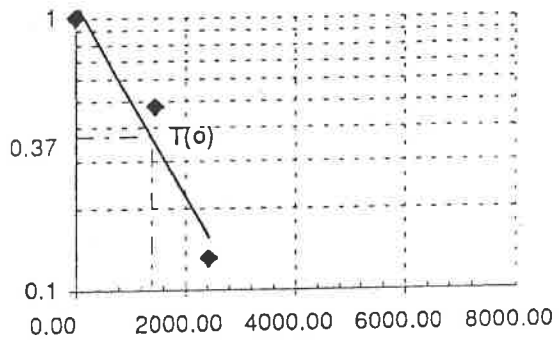
ATTACHMENT 3

Hvorslev's Method for Calculating Hydraulic Conductivity

Project Name: White Mesa
Client Name: Energy Fuels
User Name:

Project No.:
Run Date:
Identification: WMMW-20

Test Type:	7	1 to 7
Riser Pipe Diameter:	0.6562	feet
Intake Diam.:	0.6562	feet
Intake Length:	14	feet
Water Table Depth:	86	feet
Line Fit Starting No.:	1	Min 1 to
Line Fit Ending No.:	3	Max 3
Entrapped Air Correct.:	N	Y or N
Specify Output Units:	7	1 to 9
K(h):	5.29E-06	cm./sec.
Basic Time Lag (min.):	1384.76	
Correlation Coefficient:	0.9652	



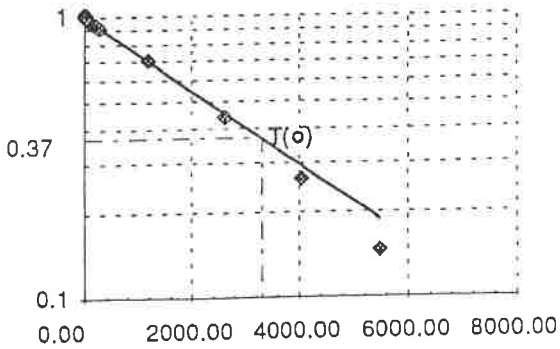
Meas. No.	Time minutes	Field Meas. feet	Drawdown/up feet	Line Fit To LN(Hi/H-HO)	Regression To LN(Hi/H-HO)
1)	1.00	89.08	3.08	0.0000	0.1251
2)	1455.00	87.46	1.46	-0.7465	-1.0563
3)	2440.00	86.40	0.40	-2.0412	-1.8566

Hvorslev's Method for Calculating Hydraulic Conductivity

Project Name: White Mesa
Client Name: Energy Fuels
User Name:

Project No.:
Run Date:
Identification: WMMW-22

Test Type:	7	1 to 7
Riser Pipe Diameter:	0.6562	feet
Intake Diam.:	0.6562	feet
Intake Length:	16	feet
Water Table Depth:	76	feet
Line Fit Starting No.:	1	Min 1 to
Line Fit Ending No.:	7	Max 10
Entrapped Air Correct.:	N	Y or N
Specify Output Units:	7	1 to 9
K(h):	2.02E-06	cm./sec.
Basic Time Lag (min.):	3295.72	
Correlation Coefficient:	0.9967	



Meas. No.	Time minutes	Field Meas. feet	Drawdown/up feet	Line Fit To LN(Hi/H-HO)	Regression To LN(Hi/H-HO)
1)	1.00	100.00	24.00	0.0000	0.0037
2)	15.00	100.50	24.50	0.0206	-0.0006
3)	80.00	99.55	23.55	-0.0189	-0.0204
4)	130.00	98.95	22.95	-0.0447	-0.0356
5)	195.00	98.54	22.54	-0.0628	-0.0554
6)	280.00	98.00	22.00	-0.0870	-0.0813
7)	1185.00	92.85	16.85	-0.3537	-0.3569
8)	2625.00	86.48	10.48	-0.8286	-0.7954
9)	4065.00	82.32	6.32	-1.3343	-1.2340
10)	5490.00	79.50	3.50	-1.9253	-1.6679

Appendix E

Assessment of the Effectiveness of Using Existing Monitoring Wells for GWDP Detection Monitoring at the White Mesa Uranium Mill, September 25, 2001, Hydo Geo Chem, Inc.

White Mesa Mill

International Uranium (USA) Corporation
1050 17th Street, Suite 950
Denver, Colorado 80265

INTERNATIONAL
URANIUM (USA)
CORPORATION

Independence Plaza, Suite 950 • 1050 Seventeenth Street • Denver, CO 80265 • 303 628 7798 (main) • 303 389 4125 (fax)

September 25, 2001

VIA OVERNIGHT MAIL

Mr. William J. Sinclair
Director, Division of Radiation Control
Utah Department of Environmental Quality
P.O. Box 144850
168 North 1950 West
Salt Lake City, UT 84114-4850

Re: Groundwater Discharge Permit Application for the White Mesa Mill

Dear Mr. Sinclair:

Enclosed you will find a copy of the report on "Assessment of the Effectiveness of Using Existing Monitoring Wells for GWDP Detection Monitoring at the White Mesa Uranium Mill". This report has been prepared by Hydo Geo Chem, Inc. in response to the request from the Division of Radiation Control (DRC) that we confirm the effectiveness of the existing monitor well network to detect potential impact to the perched groundwater at the White Mesa Mill site.

We look forward to discussing this report with you during our meeting scheduled for next Thursday.

If you have any immediate questions, please feel free to contact me at (303) 389-4160.

Very truly yours,

Harold R. Roberts
Vice President – Corporate Development

cc/att: Larry Mize, UDEQ Division of Water Quality
Loren Morton, UDEQ Division of Radiation Control
R. William von Till, NRC
Michelle R. Rehmann, IUSA
Stewart J. Smith, Hydro Geo Chem
Roman Pyrih

cc w/out att: Dianne Nielson, UDEQ
Dave Arrioti, S.E. Utah Health Department
Ron F. Hochstein, IUSA
David C. Frydenlund, IUSA

ASSESSMENT OF THE EFFECTIVENESS OF USING EXISTING MONITORING WELLS FOR GWDP DETECTION MONITORING AT THE WHITE MESA URANIUM MILL BLANDING, UTAH

Prepared by:
Hydro Geo Chem, Inc.
51 West Wetmore, Suite 101
Tucson, AZ 85705

Prepared for:
International Uranium (USA) Corporation
1015 17th Street, Suite 950
Denver, CO 80265

September 25, 2001

Submitted to:
Utah Department of Environmental Quality
Division of Radiation Control

6 Simulated Perched Zone Concentration of Conservative Solute Approximately 50 Years After Impacting Perched Water, Hypothetical 0.1 GPM "Point Source" Leak at Base of Tailings Cell, White Mesa Uranium Mill Site
7 Simulated Perched Zone Concentration of Conservative Solute Approximately 100 Years After Impacting Perched Water, Hypothetical 0.1 GPM "Point Source" Leak at Base of Tailings Cell, White Mesa Uranium Mill Site
8 Simulated Perched Zone Concentration of Conservative Solute Approximately 200 Years After Impacting Perched Water, Hypothetical 0.1 GPM "Point Source" Leak at Base of Tailings Cell, White Mesa Uranium Mill Site

APPENDIX

A Description of TRACRN

EXECUTIVE SUMMARY

This Assessment was performed to evaluate the effectiveness of using existing point of compliance (POC) monitoring wells, and other existing monitoring wells, as groundwater discharge permit (GWDP) detection monitoring wells to detect potential impacts to perched groundwater that would result in the event that any seepage were to occur from tailings cells at International Uranium (USA) Corporation's ("IUSA's") White Mesa Uranium Mill (the "Mill") near Blanding, Utah. This assessment was performed consistent with guidance published by the U.S. Environmental Protection Agency (U.S. EPA), which states that monitoring wells should be placed laterally along the downgradient edge of waste management units to intercept potential pathways for contaminant migration (EPA RCRA Ground-Water Monitoring: Draft Technical Guidance, November 1992). The EPA states that the local ground-water flow direction and gradient are the major factors in determining the lateral placement of point of compliance wells. In relatively homogeneous, isotropic settings, well placement can be based on general aquifer characteristics (e.g., direction and rate of groundwater flow) and potential contaminant fate and transport characteristics (e.g., advection, dispersion). In addition, EPA notes that if known preferential pathways exist that can control migration, these would also need to be considered.

This Assessment was pursuant to the Utah Department of Environmental Quality's ("UDEQ's") request that IUSA consider adding more wells to the existing monitoring network, which currently consists of six POC wells at or near the downgradient edge of the tailings cells. These six wells were approved for ongoing quarterly detection monitoring purposes in 1997, after the Mill reported that 16 years of data gathered from as many as 23 wells had indicated no impacts from operations to the perched groundwater zone monitored by these wells. This

Assessment included consideration of the site hydrogeology and tailings cell construction in evaluating potential pathways for any seepage, should it occur, and use of a numerical flow and transport model to evaluate the potential impact on perched water from hypothetical "point source" leaks at the base of a tailings cell. The modeling performed herein assumes generally homogeneous, anisotropic conditions at the site, (horizontal permeability > vertical permeability), based on a review of available hydrogeologic information, which has previously been submitted to UDEQ. Consideration of point source leaks is very conservative, because they are highly unlikely to develop; rather, any seepage that might occur is most likely to be diffuse (i.e., a small volumetric rate spread out areally) based on tailings cell construction. Site hydrogeologic properties would tend to enhance this effect by increasing the lateral spreading of any seepage. The more diffuse the seepage, the more spread out areally the potential impact, and the less closely spaced monitoring wells need to be to reliably detect any impacts to groundwater. The use of additional existing downgradient monitoring wells for detection monitoring and the possibility of constructing new wells at downgradient locations and locations between existing tailings cells was also considered.

Based on this Assessment, the following conclusions were reached:

1. Potential seepage from tailings cells, if it were to occur, is most likely to be diffuse (spread out areally) and therefore any impacts to perched water would be spread out areally and be detectable by existing monitoring wells;

2. "Point source" leaks are highly unlikely to develop based on tailings cell construction. However, simulations indicate that hypothetical large "point source" leaks (>0.1 gpm) would be detectable in a timely fashion by existing POC monitoring wells. Hypothetical small "point source" leaks (<0.1 gpm) may potentially go undetected by existing wells, but any impacts to perched water would take longer to develop and would be smaller in magnitude. These are not considered to be a significant concern for this site.

3. The existing POC monitoring well network is currently considered adequate for GWDP detection monitoring. However, adding some of the other existing downgradient monitoring wells to the network is not unreasonable, and would address UDEQ's request for additional monitoring points;

4. Adding a well or wells to the west of the tailings cells may be justified in the future because of potential development of a more westerly groundwater gradient, and;

5. Installing additional wells between existing tailing cells is not recommended because they would be unlikely to distinguish between adjacent upgradient and downgradient cells. They are also not recommended because of the potential for new wells to create additional pathways to groundwater, the need for abandonment of the wells prior to site closure, and the potential to compromise the existing natural and man-made barriers to seepage.

Based on these conclusions, the following recommendations are made regarding the GWDP detection monitoring network:

1. In addition to the current POC wells, add MW-2, MW-3, MW-16, and MW-20 to the network for GWDP detection monitoring. (MW-9 and MW-21 are dry, making these wells unsuitable. MW-16 may be used temporarily until installation of Tailings Cell 4B.)

2. Evaluate the need for adding a well or wells southwest of the tailings cells (southwest of MW-2) if future water level monitoring indicates development of a more westerly hydraulic gradient beneath the tailings cells.

1. INTRODUCTION

This report provides an assessment of the effectiveness of using existing point of compliance (POC) monitoring wells, and other existing monitoring wells, to detect potential impacts to perched water that may arise if seepage were to occur from tailings cells at International Uranium (USA) Corporation's ("IUSA's") White Mesa Uranium Mill located south of Blanding, Utah, as part of the Mill's Groundwater Discharge Permit ("GWDP") detection monitoring program. IUSA agreed in a March 24, 2000 letter to the Utah Department of Environmental Quality ("UDEQ") to perform the following tasks:

1. Review the existing monitoring well network to determine which of the wells contain water and could be used to expand the quarterly monitoring program, and consider the feasibility of installing any additional wells between the existing tailings cells, and;

2. Perform calculations to assess the effectiveness of the existing downgradient perched monitoring wells in monitoring the perched groundwater beneath the upgradient system of tailing cells.

Task 1 is addressed in Section 2 of this report and Task 2 in Section 3 of this report. This report addresses the placement of downgradient monitoring wells. Background wells, and establishing background or baseline water quality for the Mill, are addressed in separate reports.

U. S. Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA) Guidance was applied in assessing the adequacy of using existing POC wells or other existing monitoring wells for GWDP monitoring. According to the U.S. EPA RCRA Ground-Water Monitoring: Draft Technical Guidance (U.S. EPA, Office of Solid Waste,

November 1992)(EPA Draft Guidance), the location of both background and downgradient monitoring wells must comply with the requirements of 40 CFR Section 264.97.

The EPA Draft Guidance indicates that the number and location of monitoring wells must allow for the detection of contamination when hazardous waste or hazardous constituents have migrated from the waste management area to the uppermost aquifer, in accordance with 40 CFR Section 264.97(a)(3). At the Mill, IUSA has adopted a more conservative approach than required in Section 264.97; namely, IUSA voluntarily monitors a perched groundwater zone which previous investigators have characterized as not meeting the definition of being an aquifer, due to it's low yield and naturally poor water quality. However, this perched groundwater zone is the first available groundwater for monitoring potential releases at the Mill site, and monitoring in this zone provides very early detection relative to the regional aquifer. The regional aquifer, which is in the Entrada-Navajo sandstone, is a confined unit located more than 1,300 feet below ground surface, and is separated from the perched zone by approximately 1,200 feet of low permeability shales, mudstones, and claystones.

The EPA Draft Guidance states that "there is no required minimum number of wells at permitted facilities; the owner/operator is simply required to install a 'sufficient' number of wells to allow for determination of background water quality and the water quality at the point of compliance". The Guidance further recommends that the hydrogeological setting and the identification of potential pathways are crucial to the proper placement of monitoring wells. This report has evaluated monitoring well placement relative to criteria set forth in the EPA

Draft Guidance to assess well placement; including location of wells relative to the waste management units; lateral placement; and vertical placement.

2. MONITORING WELL NETWORK FOR GWDP DETECTION MONITORING

2.1 Review of Existing Monitoring Well Network

Groundwater monitoring wells at the site are completed in the perched water zone that occurs at average depths ranging from approximately 95 to more than 100 feet below land surface (bls). The perched water zone is generally of low quality and does not yield water readily to wells because of the generally low permeability of the hosting formation (Burro Canyon Sandstone) and the small saturated thickness. Due to the low yield, monitoring wells are typically screened across the entire saturated thickness of the perched zone, with the base of the screened intervals at or below the top of the Brushy Basin Shale, a very low permeability unit that supports the perched water at the site. Interbedded shales and claystones occur locally within the sandstones above and within the perched water zone. A complete description of the site hydrogeology is provided in TITAN, 1994.

Groundwater flow in the perched zone is generally south to southwest beneath the Mill property, and southwest beneath the tailings cells. A water level contour map based on measurements collected in March 2001 (provided in Figure 1) illustrates the south to southwesterly perched zone hydraulic gradient beneath the site.

Currently, wells that are monitored to detect any potential impact to the perched zone from tailings cells at the site under the Mill's Nuclear Regulatory Commission (NRC) approved detection monitoring program (as a condition of the Mill's Source Materials License), include six

POC wells: MW-5, MW-11, MW-12, MW-14, MW-15 and MW-17 (Figure 1). These wells are located at or near the downgradient edge of the cluster of tailings cells at the site, except for MW-11, which is located between cells 3 and 4A. The locations of these wells at or near the downgradient edge of the tailings cell cluster, which constitutes a regulated waste management area, is consistent with EPA Draft guidance. Prior to approval of the POC program in 1997, the Mill obtained groundwater samples from up to 23 different wells. None of the groundwater monitoring data gathered over the previous 16 years indicated that Mill operations had resulted in any impact to perched groundwater. As a result of the absence of any evidence for groundwater impact, and the conclusions of a study by TITAN, 1994, the monitoring program required under the NRC license was revised, and the NRC approved reducing the number of wells used for quarterly detection monitoring to the above six.

Including the existing POC wells in the network for GWDP detection monitoring is the first and most practicable option. Recommendations regarding addition of other existing wells to the network for GWDP detection monitoring is provided in section 2.2. Drilling of new wells for GWDP monitoring, either between existing cells, or along the downgradient edge of the cell cluster, is not recommended, for the reasons discussed in section 2.3.

2.2 Existing Wells and Criteria to Select Additional Existing Monitoring Wells for the GWDP Network

A number of existing perched monitoring wells that are not currently part of the POC quarterly monitoring program are located generally downgradient of the tailings cells and could

potentially be used as GWDP detection monitoring wells. Although the existing POC wells are currently considered adequate for GWDP detection monitoring based on EPA Draft Guidance, adding some of these other existing wells to the monitoring network is considered here at the request of UDEQ, and as a result of recently observed increases in water levels in selected wells east and northeast of the tailings cells. Another option to enhance the existing monitoring well network would be construction of one or more new wells located either 1) along the downgradient edge of the tailings cell cluster, or 2) between existing tailings cells.

Existing wells located generally downgradient of the tailings cell cluster include MW-2, MW-3, MW-9, MW-16, MW-20 and MW-21 (Figure 1). The criteria to be used to select wells for possible inclusion in the GWDP detection monitoring program include:

1) presence of measurable water column in the wells, and
2) location with respect to near term future tailings cell expansion.

Based on criterion # 1, MW-9 and MW-21 cannot be used because they are dry. MW-16 can be used temporarily because it lies downgradient of Cell 3, but is within the footprint of future Cell 4B, and therefore will have to be abandoned when Cell 4B is constructed. The remaining wells, MW-2, MW-3, and MW-20 could also potentially be used as GWDP detection monitoring wells.

2.3 Feasibility of Constructing Additional Monitoring Wells

The current and proposed GWDP detection monitoring wells, detailed in the previous Sections, are all located downgradient of or along the downgradient edge of the tailings cell cluster except for MW-11, which is located between cells 3 and 4A. Locating the wells at the downgradient edge of the cluster is consistent with the EPA Draft Guidance and is also reasonable, because the entire cluster constitutes a waste management area, and the wells are located generally downgradient of all the tailings cells comprising the waste management area.

Wells could potentially be constructed:

1) between existing wells at the downgradient edge of the cell cluster;
2) between existing cells within the cluster, or;
3) at additional downgradient locations between existing wells recommended to be added to the GWDP detection monitoring program.

Constructing wells between existing wells at the downgradient edge of the tailings cell cluster could potentially enhance the timely detection of any impacts related to seepage from the tailings cells. However, as will be discussed in Section 3, the existing POC well spacing is likely adequate considering factors relating to tailings cell construction and the hydrogeology of the site.

Constructing additional downgradient wells within the footprint of future tailings cell expansion is not recommended because they would need to be abandoned at the time of tailings cell expansion.

Constructing wells between the existing tailings cells is also not recommended. The benefit of adding additional wells between tailings cells cannot be demonstrated, whereas the disadvantages of installing additional wells between tailings cells can be defined. The rationale for constructing wells between existing tailings cells would be to monitor cells individually for potential leaks. However, should an impact to perched water be detected at a well located between tailings cells, the source of the impact could not be definitively attributed to a leak at the downgradient portion of the upgradient cell, or the upgradient portion of the downgradient cell, due to lateral dispersion within the perched zone, and due to spreading within the vadose zone, especially if interbedded shales or claystones were present.

In addition, such wells would:

1) create additional potential pathways to groundwater;
2) have to be properly closed and abandoned prior to site closure;
3) compromise the existing natural and man-made barriers to seepage, and;
4) compromise site closure due to the potential pathways created.

Furthermore, because the existing wells are located generally downgradient of all the tailings cells, they are already placed for detection of any potential releases from upgradient tailings cells.

In the future, constructing additional wells between existing wells that are proposed to be added to the GWDP detection monitoring program may become justified on the west side of the tailings cell cluster, because recent water level monitoring indicates the groundwater gradient beneath some of the tailings cells may be changing to a more westerly direction. In particular, adding a well to the southwest of the tailings cell cluster (south/southwest of MW-2) may be

justified in the future, depending on the results of future water level monitoring at the site. The need for such a well will be evaluated based on the results of continuing water level monitoring of existing wells at the site.

Additional wells may also need to be installed in the future to monitor the downgradient edge of any future tailings cells constructed to the south of cells 3 and 4A. The exact locations of these wells would depend on the footprint of the tailings cells to be constructed, the groundwater gradients existing at that time, and future planned tailings cell expansion areas.

3. ASSESSMENT OF THE EFFECTIVENESS OF THE CURRENT POC WELLS

The effectiveness of the current network of POC wells at the site for detection of potential perched groundwater impacts from tailings cell seepage will depend primarily on the rate and areal distribution of potential seepage from the ponds and the hydrogeologic properties of the bedrock underlying the cells that hosts the perched groundwater beneath the site. The rate and areal distribution of any seepage from the cells will be affected by the geometry of the base of the cells, the materials used to construct the liner and drain layer (drain layers are part of the leak detection system present in cells 1-I, 2 and 3), and the interaction between the drain or liner materials and the bedrock. Because perched groundwater is approximately 95 to 100 feet bls, and the tailings cells are excavated 20 to 25 feet below grade, any seepage originating at the base of the cells would have to travel downward through approximately 70 feet of unsaturated sandstone before reaching the perched groundwater zone.

Hydrogeologic investigations at the site have shown that groundwater movement is primarily through intergranular porosity and is not controlled by secondary features such as fractures. Video logs and drill core collected from borings at the site yielded evidence of very few fractures, and these were observed to be hairline and closed or filled with natural cementing materials such as gypsum, and would, therefore, not effect groundwater movement. These investigations have also shown that permeabilities are generally low (10^{-3} to 10^{-7} cm/s) and average approximately 6.6×10^{-5} cm/s in the horizontal direction within the perched water zone beneath the tailings cells. The vertical permeability of the perched zone has not been measured, but due to the layering of the Burro Canyon sandstone hosting the perched water, and the interbedded shales and claystones that occur locally, the

vertical permeability is likely one or two orders of magnitude lower than the horizontal permeability. This relationship of horizontal to vertical permeability would also be true of the overlying Dakota sandstone.

3.1 Overview of Tailings Cell Construction

The tailings cells were installed over a prepared surface that was designed to 1) maintain integrity of the synthetic pond liner placed over it, and 2) channel any liquids passing through the liner towards a leak detection and drain system installed beneath the liner. Surface preparation included excavating the bedrock surface to the design grade that slopes toward the midpoint of the downslope dike in each cell.

3.1.1 Cells 1-I, 2, and 3

The liner in Tailings Cells 1-I, 2 and 3 consists of PVC. Material separating the synthetic liner from bedrock is composed of 6 to 12 inches of well-graded medium to coarse sand (Knight-Piesold, 1998) which has a high permeability relative to bedrock, and functions as a drain layer to pass any liquids present towards the leak detection pipes. Leak detection pipes in Cells 1-I, 2 and 3 were installed at the toe of the dike face.

The general construction of Tailings Cells 1-I, 2 and 3 has the following implications with regard to any liquids that may pass through the synthetic liners of the cells:

1) liquids will flow downslope within the drain layer, which has a high permeability relative to bedrock, towards the leak detection pipes,

2) ponding of liquids within the drain layer is unlikely because of the slope and the high permeability of the drain layer relative to bedrock,

3) the drain layer will act to spread liquids passing through the liner, even from hypothetical "point source" discharges, because of the slope and high permeability of the drain layer relative to bedrock, and, therefore,

4) seepage of any fluids from the drain layer into bedrock is likely to be diffuse, that is, distributed over a large areal extent.

Furthermore, if a leak in the liner should occur near the downgradient edge of a tailings cell, liquids would tend to spread along the toe of the dike, in a direction generally perpendicular to perched groundwater flow beneath the cells. This spreading would tend to occur because slopes are generally parallel to the dike at the downgradient edge of the cells.

3.1.2 Cell 4A

Cell 4A was constructed with a 12-inch thick compacted clay base, overlain by geotextile and HDPE synthetic liners. Leak detection pipes were installed in gravel-filled trenches cut into the clay base layer. The trenches are lined with PVC liner to maintain the integrity of the clay base as a solution barrier.

The clay subbase overlying bedrock was designed to provide an additional barrier to downward seepage of liquids to bedrock in Cell 4A, and the sloping leak detection/drain laterals to reduce the potential for ponding in the trenches beneath the HDPE liner. Since its original installation, however, the HDPE liner has been exposed to and subjected to damage from the elements. Because of this, the cell has not been actively used as a tailings storage cell, and the

synthetic liner is scheduled for replacement with a double synthetic liner incorporating a drainage net between the liners, in addition to the existing clay base.

Both the original design and construction, and the planned modifications to cell 4A, are conducive to diffuse seepage of any liquids passing through the primary liner(s), because of the unlikelihood of ponding within the lined, sloping drainage trenches filled with high permeability gravel, and the presence of the compacted clay subbase.

3.1.3 Effect of Tailings Material

In all tailings cells, the fine-grained nature of the tailings material, which has a low permeability to liquids once settling has occurred, will restrict the magnitude of any potential leaks due to potential liner failure. As tailings are added to the cells, and materials overlying the liner become more compacted, the permeability of these materials will be further reduced, and will further limit the magnitude of any potential leaks.

3.2 Location and Spacing of Monitoring Wells

A monitoring well network at a regulated facility must be designed to detect any groundwater impacts from the facility in a timely fashion. The RCRA Draft Guidance (Section 1) recommends that wells be placed at the downgradient edge of the facility and that the spacing be determined based on site-specific characteristics that would include hydrogeologic properties of the underlying materials.

The monitoring well spacing will also naturally depend on the areal extent of any expected impacts from the regulated facility. The more areally extensive an expected impact, the fewer monitoring wells are needed to reliably detect the occurrence of an impact, although more may be needed in the event that an impact were to be detected, to delineate the extent of the impact.

For example, at a site where a regulated facility consisted of an evaporation pond where relatively uniform seepage was occurring from the base of the pond, resulting in a source to groundwater over an area with roughly the footprint of the pond, then only one monitoring well would be needed at the downgradient edge of the pond for timely detection of an impact, no matter how large the pond. The less diffuse and uniform the seepage, and the smaller the area of potential groundwater impact, the more wells that would be needed to ensure detection. Furthermore, if groundwater velocities beneath the facility were high, so that contaminants could be carried quickly downgradient from the area of initial impact, more wells may be required to ensure that contaminants do not move too far downgradient before detection. Conversely, at sites where groundwater velocities are low, fewer monitoring wells are justified, because contaminants would move slowly, and could be intercepted in a timely fashion even after a long period of migration.

At the White Mesa Mill Site, the tailings cell construction characteristics are generally conducive to diffuse seepage (should any occur), via the mechanisms detailed in Knight-Piesold, 1998. These characteristics, in conjunction with hydrogeologic properties that include low groundwater velocities due to low permeability materials, layering of the geologic materials, and

presence of low permeability shales and claystones, are consistent with a less dense monitoring well network.

3.3 Evaluation of Current Monitoring Well Spacing

POC monitoring wells at the White Mesa site are located at the downgradient edge of the facility and are spaced approximately 500 to 800 feet apart (along the direction perpendicular to perched groundwater flow). Because of the likelihood that potential seepage at the site, should it occur, would be diffuse, and because of low groundwater flow velocities resulting from low permeability materials at the site, this spacing is considered adequate for timely detection of any groundwater impact related to seepage from the tailings ponds. This also holds true for any leaks that might potentially occur in the primary liner at the downgradient edge of the ponds, where liquids would tend to spread laterally within the drain layer in a direction generally perpendicular to perched groundwater flow beneath the tailings ponds, as discussed in Section 3.1.

To test the adequacy of the well spacing under hypothetical conditions of a less areally-extensive potential "leak" at the base of the cells, a numerical flow and transport model was constructed using TRACRN (Travis and Birdsell, 1998). TRACRN is a 3-dimensional finite difference computer code developed at Los Alamos National Laboratories that is capable of simulating the flow of both gas and liquid, and solute transport, under conditions of variable liquid saturation. A description of the mathematical basis of TRACRN is provided in Appendix A.

Grid cells specified in the model were uniformly 40 feet wide in the direction perpendicular to groundwater flow, and 200 feet wide in the direction parallel to groundwater flow, with the exception of the grid cell in which the source was specified, which was 100 feet wide in the direction of groundwater flow. Ten layers of variable thickness were represented in the model. The perched water zone was represented in the bottom 2 layers, each 10 feet thick. This is the approximate average saturated thickness of the perched zone beneath the tailings cells, and is conservatively thick with regard to the downgradient edge of the cells. The top layer in the model was 1 foot thick and was designed to represent the drain layer beneath the synthetic pond liner. All side boundaries in the model were spaced far enough so as not to interfere with the flow and transport solution. All model boundaries were specified no-flow except the upgradient and downgradient boundaries, which were specified constant head. This is appropriate because the side boundaries are parallel to groundwater flow.

The following conditions were represented in the model:

1) a uniform groundwater gradient of 0.016 foot/foot (ft/ft),

2) a 20-foot thick saturated zone (initial),

3) a depth to groundwater of 95 feet,

4) a "leak" (source) depth of 25 feet (approximate base of tailings cells), specified in one node to approximate a "point source" leak in the liner,

5) horizontal and vertical bedrock permeabilities of 6.6×10^{-5} and 6.6×10^{-6} cm/s, respectively,

6) specified dispersivities of 200 feet in the downgradient direction, 20 feet in the direction perpendicular to flow, and 1 foot in the vertical direction.

The specified horizontal permeability is the geometric mean of the results of pump tests conducted at the nine monitoring wells closest to the tailing cells. The vertical hydraulic conductivity was specified as an order of magnitude less than the horizontal to represent anisotropy due to the layering of the materials and the locally interbedded shales and claystones that occur. The selected dispersivities are based on those reported in Gelhar, Welty and Rehfeldt, 1993, which are based on evaluation of a large number of field studies, and indicate that longitudinal (downgradient) dispersivity should be approximately an order of magnitude less than the scale of the flow field, and the lateral (cross-gradient) dispersivity an order of magnitude less than the longitudinal dispersivity. Because the scale of the perched groundwater flow field beneath the tailings cells (which are thousands of feet in lateral dimension) is thousands of feet, longitudinal dispersivities of hundreds of feet and lateral dispersivities of tens of feet are reasonable. This is conservative with respect to Bear, 1979, who recommends a transverse dispersivity of one-third the longitudinal value, which would result in a much greater amount of lateral spreading than produced using the recommendations of Gelhar, et al.

Model parameters are summarized in Table 1. Unsaturated flow parameters are based on information provided for sands and sandstones in Brooks and Corey, 1983, and on measurements reported in TITAN, 1994. The source strength in the simulations was specified as a constant mass flow rate with a solute concentration of 1.0. The solute was assumed to be conservative (non-reacting and non-sorbing). Multiplying the model-derived concentration by the concentration of the conservative constituent in the tailings solution yields the predicted increase in the concentration of that constituent above background.

Two "point" source leak strengths at the base of a tailings cell were simulated:

1) 1 gpm and

2) 0.1 gpm

Results of the simulations are provided in Figures 2 through 8, which show the predicted perched groundwater concentrations at various times after a leak hypothetically located at the downgradient edge of cell 3 between wells MW-5 and MW-12 impacts perched groundwater. A leak of 1 gpm would affect a large area of perched groundwater and would create a significant groundwater mound as shown in Figure 5. An impact of this magnitude would be detected by the current monitoring well network within 20 years after initial impact even if it occurred midway between existing wells. A leak of 0.1 gpm would affect a smaller region and have less significant impact on perched groundwater but would be detectable at existing wells. "Point source" leaks smaller than 0.1 gpm occurring between the existing POC wells could potentially go undetected for a longer period of time with the current monitoring well network, but any impacts to perched water would take longer to develop and would be smaller in magnitude.

Although these simulations are based on the assumption that a "point source" leak could exist, the possibility of impacts to perched water by such a mechanism is so remote that arguing the need for more monitoring wells based on this assumption is not compelling. The results of the simulations do demonstrate, however, the robustness of the existing POC well network to detect potential perched water impacts over a reasonable range of scenarios of potential tailings cell seepage.

4. CONCLUSIONS

Based on a review of tailings cell construction, the hydrogeology of the site, and numerical flow and transport modeling, the following conclusions were reached:

1 Potential seepage from tailing cells, if it were to occur, is most likely to be diffuse (spread out areally) and therefore any impacts to perched water would be spread out areally and be detectable by existing monitoring wells;

2 "Point source" leaks are highly unlikely to develop based on tailings cell construction. However, simulations indicate that hypothetical large "point source" leaks (>0.1 gpm), would be detectable in a timely fashion by existing POC monitoring wells. Hypothetical small "point source" leaks (<0.1 gpm) may potentially go undetected by existing wells, but any impacts to perched water would take longer to develop and would be smaller in magnitude. These are not considered to be a significant concern for this site.

3 The existing POC monitoring well network is currently considered adequate for GWDP detection monitoring. However, adding some of the other existing downgradient monitoring wells to the network is not unreasonable, and would address UDEQ's request for additional monitoring points;

4 Adding a well or wells to the west of the tailings cells may be justified in the future because of potential development of a more westerly groundwater gradient, and;

5 Installing additional wells between existing tailing cells is not recommended because they would be unlikely to distinguish between adjacent upgradient and downgradient cells. They are also not recommended because of the potential for new wells to create additional pathway to groundwater, the need for abandonment of the wells prior to site closure, and the potential to compromise the existing natural and man-made barriers to seepage.

Based on these conclusions, the following recommendations are made regarding the GWDP detection monitoring network:

In addition to the current POC wells, add MW-2, MW-3, MW-16 (temporarily), and MW-20 to the network for GWDP detection monitoring. (MW-9 and MW-21 are dry, making these wells unsuitable. MW-16 may be used temporarily until installation of cell 4B.)

Evaluate the need for adding a well or wells southwest of the tailings cells (southwest of MW-2) if future water level monitoring indicates development of a more westerly hydraulic gradient beneath the cells.

5. REFERENCES

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TABLE 1

PARAMETERS SPECIFIED IN THE NUMERICAL MODEL

Material Property	Sandstone	Drain Layer
Horizontal permeability(cm/s)	6.6×10^{-5}	1×10^{-2}
Vertical permeability (cm/s)	6.6×10^{-6}	1×10^{-3}
Porosity	0.19	0.25
Bubbling pressure (dyn/cm^2)	3.0×10^{4}	3.0×10^{4}
Pore size distribution coefficient	5.0	5.0
Irreducible liquid saturation	0.20	0.20
Constrictivity coefficient	0.10	0.10
Dispersivity: downgradient, crossgradient and vertical (ft)	200, 20, 1	200, 20, 1

Solute Parameters

Aqueous diffusion coefficient (cm^2)	1×10^{-5}

APPENDIX A

APPENDIX A

DESCRIPTION OF TRACRN

This appendix contains a copy of portions of a report entitled "TRACRN 1.0: A Model of Flow and Transport for the Yucca Mountain Project-Model Description and User's Manual" by B.J. Travis and K.H. Birdsell, (Los Alamos National Laboratory TWS-ESS-5/10-88-08). Although TRACRN was developed specifically to solve problems of gas and water movement in support of the Yucca Mountain nuclear waste isolation project, it is a general-purpose program suitable for application to a wide variety of environment simulations involving gas and water movement. The following pages describe the mathematical basis for the simulation of air and water flow, and transport in both phases.

B. Mathematical Model

1. Governing Equations. The equations that comprise the TRACRN model are the mass and chemical species conservation equations, a reduced form of the momenta equations, and an equation of state plus several constitutive relations. The notation used throughout this report is given in Table I. Conservation of mass for the gas component is

$$\partial_t(\epsilon\rho_g\sigma_g) + \nabla\cdot(\rho_g\overline{u}_g) = \epsilon\dot{S}_g \tag{1}$$

and for the liquid component is

$$\partial_t(\epsilon\sigma_\ell\rho_\ell) + \nabla\cdot(\rho_\ell\overline{u}_\ell) = \epsilon\dot{S}_\ell \quad . \tag{2}$$

For isothermal systems in which water vapor is neglected, no diffusion or dispersion of water or air occurs. Equations (1) and (2) cover conditions of flow ranging from fully water saturated to fully air saturated.

The momenta conservation equations are solved in a reduced form known as Forchheimer's equations

$$\left[1 + \frac{1}{(1-\epsilon)}\frac{L\rho_i\,|\,\overline{u}_i\,|}{85.7\mu_i}\right]\overline{u}_i = -\frac{k_i}{\mu_i}(\nabla P_i + \rho_i\vec{g}) \ , \tag{3}$$

where the subscript i refers to a gas or liquid phase. This form neglects the acceleration term and uses a phenomenological treatment of inertial terms and viscous drag. At low Reynolds number (<10), this expression reduces to the well-known Darcy equation; at higher Reynolds number, the nonlinear term in Eq. (3) becomes important. Equation (3) gives excellent agreement (Dullien 1979) with steady, single phase flow data for Reynolds numbers up to about 100. Reynolds numbers much higher than a few hundred are rarely encountered in most flows through porous, permeable geomedia. We assume Eq. (3) is approximately valid for transient two-phase flow.

TABLE I. Notation Used In TRACRN (cont'd)

Parameter	Description	Units
$\hat{g}$	gravity acceleration	$(cm \cdot s^{-2})$
f	gas saturation (σ_g)	
k	permeability	(darcys on input, converted to cm^2 internally)
m_{ij}	coordinate system metric	
t	time	(s)
$\vec{u}$	mass velocity	$(cm \cdot s^{-1})$
$\vec{V}$	pore velocity $= \vec{u}/\varepsilon$	$(cm \cdot s^{-1})$
$\vec{x}$	spatial coordinate vector	(cm)
α	weighting factor for donor differencing of relative permeabilities	
α_c	coefficient for donor differencing of the transport equation	
α_v	curve fitting parameter in the van Genuchten relation for capillary pressure	(cm^{-1})
β	matrix compressibility	$(cm^2/dyne)$
γ	fluid compressibility	$(cm^2/dyne)$
ε	porosity	
λ	ln(2)/half-life of tracer	(s^{-1})
λ_v	curve fitting parameter in the van Genuchten/Mualem relations for relative permeability and capillary pressure	
μ	viscosity	$(gm \cdot cm^{-1} \cdot s^{-1})$
ρ	density	$(gm \cdot cm^{-3})$
σ	saturation	
$\sigma_{\ell o}$	irreducible water saturation	
τ	pore-size index	
τ_c	constrictivity	
Ω	volume	(cm^3)
	(Subscripts)	
acc	acceptor cell	
don	donor cell	
f	refers to total fluid	
g	refers to gas phase	
i	refers to phase	
ijk	cell index number	
ℓ	refers to liquid phase	
m	refers to matrix	
o	reference property	
o	cell face index	

$$\partial_t(\varepsilon\sigma_i\rho_i C_\alpha) + \nabla\cdot(\rho_i\overline{u}_i C_\alpha) = \nabla\cdot(\varepsilon\sigma_i\tau_c D_{\alpha i}\rho_i\nabla C_\alpha)$$
$$+\varepsilon C_\alpha \dot{S}_i + \nabla\cdot\left[\varepsilon\sigma_i\overline{\overline{D}}_\alpha\nabla(\rho_i C_\alpha)\right]$$
$$-\varepsilon\lambda_\alpha\sigma_i\rho_i C_\alpha + \varepsilon\lambda_{\alpha-1}\sigma_i\rho_i\frac{C_{\alpha-1}}{M_{\alpha-1}}M_\alpha$$
$$-\rho_i\rho_m\left(K_{d\alpha}(\partial_t C_\alpha + \lambda_\alpha C_\alpha) - \lambda_{\alpha-1}C_{\alpha-1}\frac{M_\alpha}{M_{\alpha-1}}\right) \quad , \qquad (6)$$

where $K_{d\alpha}$ is an equilibrium sorption coefficient.

In Eqs. (4) and (6) a velocity-dependent dispersion tensor $\overline{\overline{D}}_\alpha$ is used. Dispersion is a very complicated process. Measurements of dispersivity in the field show time and length scale effects. Some of this is simply related to scales of heterogeneity in the field geology and could, in principle, be computed by TRACRN. However, there appears to be a further effect that requires a better model (Gelhar 1986). Until a consensus is reached on the nature of that model, the current dispersion form will remain.

The conservation equations, Eqs. (1) through (6), involve quantities ($\rho_\ell, \rho_g, \sigma_\ell, \sigma_g$, C_α, $\overrightarrow{u}_g$, $\overrightarrow{u}_\ell$, S_α) that represent local volume averages. The averages are obtained by integrating the continuum conservation equations over small representative volumes (small compared with the scale of the problem at hand but large compared with the individual flow paths between the matrix grains). It is assumed that the concept of "representative elementary volume" is at least approximately valid for most soils and rocks. This averaging is necessary because our present mathematics cannot provide a practical means of solving the continuum equations at arbitrary points in such a complex system as a soil. Details of the averaging process and of the assumptions underlying Eqs. (1) through (6) can be found in Bear (1972).

An implicit assumption in Eqs. (4), (5), and (6) is that as a tracer moves into a small region of porous material from a neighboring region, the tracer is uniformly distributed throughout the pores and channels in that small region. This might not hold in all situations because fluid moves faster through the larger pores and channels. This will be a valid assumption if the characteristic diffusion time, say $t_D \simeq L^2/D_\alpha$, is about the same size as the characteristic residence time $\simeq \Delta x/V$ where Δx is the scale size of the region (or a computational grid size) and V is the pore velocity. In other words, if $V \leq \Delta x \cdot D_\alpha/L^2$ then the assumption is valid. For many soils and rocks, the characteristic pore size L will be a millimeter or less, and the condition will be satisfied for many instances. Another constraint exists. The flow law (given in Eq. (3)) is valid for Reynolds number $\leq$100, that is, $\frac{LV\rho}{\mu} \leq 100$, or $V \leq \frac{100\mu}{\rho L} \cong \frac{1}{L}$. This is usually not as restrictive as the former condition, however. Some tracer species, such as benzene and other organics, are volatile

equations, (2) use of the van Genuchten (1978) and Mualem (1976) expressions, or (3) user supplied tables.

Brooks and Corey (1964) have derived expressions for k_i that give good agreement to data for many materials. They express the dependence of k_i on saturation with

$$k_\ell = k \cdot k_{\ell r}, \quad k_{\ell r} = \sigma_{\ell e}^{(3+2/\tau)} \quad . \tag{13}$$

and

$$k_g = k \cdot k_{gr}, \quad k_{gr} = (1 - \sigma_{\ell e})^2 \left[1 - \sigma_{\ell e}^{(1+2/\tau)}\right] \quad , \tag{14}$$

where k_ℓ is the liquid permeability, k_g is the permeability of the gas phase, k is the saturated permeability, and

$$\sigma_{\ell e} = \frac{(\sigma_\ell - \sigma_0)}{(1 - \sigma_0)} \quad . \tag{15}$$

Here σ_0 is the "irreducible" wetting saturation; that is, the minimum saturation at which continuous flow of the liquid phase can be maintained. It is a material property and depends on the soil or rock matrix pore structure and size. τ, the pore-size distribution index, is also a material property. Plots of k_{gr} and $k_{\ell r}$ are given in Figs. 1 and 2 respectively for different values of τ.

A second approach is to combine van Genuchten's relationship between saturation and matric potential (capillary pressure) with Mualem's equation for permeability as a function of matric potential, to produce an equation for permeability as a function of saturation:

$$k_\ell = k \cdot k_{\ell r}, \quad k_{\ell r} = \sqrt{\sigma_{\ell e}}\left\{1 - (1 - \sigma_{\ell e}^{1/\lambda_v})^{\lambda_v}\right\}^2 \tag{16}$$

$$k_g = k \cdot k_{gr}, \quad k_{gr} = 1 - k_{\ell r} \quad . \tag{17}$$

Eq. (16) is the composite of Mualem's and van Genuchten's equations for water permeability. Eq. (17) is an approximation to air permeability (Mualem only described liquid phase permeability).

Alternatively, k_i can be represented as a tabular function of saturation if the forms of Eqs. (13) and (14) or (16) and (17) are not convenient for a particular application, or if saturated air permeability is significantly different from saturated water permeability. The permeability k can be anisotropic as long as the principal axes of the permeability tensor coincide with the coordinate axes. [However, for anisotropic media, the form used for the

As with relative permeabilities, there are three options for P_c: (1) a Brooks-Corey (1964) model, (2) a van Genuchten (1978) equation, or (3) user supplied tables. Brooks and Corey (1964), on the basis of a large number of drainage experiments, found that capillary pressure could be represented well by the expression

$$P_c = P_b \ \sigma_{\ell c}^{-1/\tau} \quad , \tag{21}$$

where τ and P_b are material constants. Our convention is that P_c is ≥ 0; τ is called the "pore-size distribution index"; P_b, the bubbling pressure, is the minimum value of P_c on the drainage curve just before P_c drops to zero. P_c increases without limit as $\sigma_{\ell c} \rightarrow 0$ in Eq. (21). We limit P_c by not allowing $\sigma_{\ell c}$ to decrease below 10^{-2}; physically, this corresponds to limiting the smallest pore size that contributes to P_c. For $\sigma_{\ell c} < 0.01$, we artificially define P_c to increase linearly to a value at $\sigma_\ell = 0$ which is two times the value of P_c at $\sigma_{\ell c} = 0.01$. Table II (Brooks and Corey 1964) gives some typical values for the material parameters P_b, τ, and σ_0.

TABLE II

TYPICAL VALUES FOR MATERIAL PROPERTIES

	P_b (bars)	τ	σ_0 ..Swi
Fine sand	0.0310	7.30	0.50
"Volcanic" sand	0.0756	1.82	0.20
Glass beads	0.0414	3.70	0.15
Silt loam	0.0162	2.29	0.60

In the second option, van Genuchten's relation is used for P_c, i.e.,

$$P_c = \frac{\rho g}{\alpha_v} \left\{ \sigma_{\ell c}^{-1/\lambda_v} - 1 \right\}^{(1-\lambda_v)} \quad . \tag{22}$$

The third option requires the user to supply a table of P_c vs σ_g for those materials for which (21) or (22) are not applicable.

An additional requirement is that

$$\sigma_g + \sigma_\ell = 1 \quad . \tag{23}$$

Porosity ϵ is allowed to vary with pressure. Dynamic changes in porosity can have a dramatic effect on flow because storage capacity and permeability are generally quite sensitive to changes in porosity. A simple linear relation is used:

$$\tau = \tau(\vec{x}),\ \sigma_{\ell 0} = \sigma_{\ell 0}(\vec{x}),\ P_b = P_b(\vec{x}),\ k = k(\vec{x}),\ \rho_m = \rho_m(\vec{x}) \tag{31}$$

and

$$Q_{1\alpha} = Q_{1\alpha}(\vec{x}),\ Q_{2\alpha} = Q_{2\alpha}(\vec{x}),\ L = L(\vec{x}),\ S_{m\alpha} = S_{m\alpha}(\vec{x}),\ C_{0\alpha} = C_{0\alpha}(\vec{x}) \quad . \tag{32}$$

These are all indicated and defined in the list of namelist input variables.

Boundary conditions on all boundaries have the form

$$s(X_B)G(t) + r(X_B)\frac{\partial G}{\partial n} = f(t, X_B) \quad . \tag{33}$$

where G represents P_g, P_ℓ, σ_g, σ_ℓ or C_α; X_B represents points on the boundary; $\frac{\partial}{\partial n}$ represents the derivative normal to the boundary; $s = 0$ or 1, $r = 1$ or 0, at each boundary point as specified by the user; and $f(t, X_B)$ is an arbitrary user-supplied function. At time $= 0$, the spatial distribution of C_α, σ_g and P are required also.

Equations (1) through (33) constitute the TRACRN model. They allow calculation of transient, fully two-phase flow with tracer transport in a heterogeneous material that is nonuniform, porous, and permeable. This equation set is solved numerically as described in Sec. 3 below.

3. Numerical Model. The TRACRN code was written with flexibility and ease of use in mind. Equations (1) through (33) are solved for one, two, or three dimensions using either Cartesian or cylindrical coordinates. We assume a unique, well-behaved solution to Eqs. (1) through (33) exists for all physically reasonable boundary conditions and initial conditions. This confidence results from experience with many problems where the numerical solution of the difference equations matches closely one of the few analytic solutions available or agrees with experimental data. Moreover, the fact that solutions agree with experimental data gives us confidence that Eqs. (1) through (33) reasonably approximate the true physical situation for many applications.

The region of interest is represented by a computational mesh of cells or zones. Figure 3 shows examples of a Cartesian and a cylindrical mesh with a corresponding single finite difference cell. The rows, columns, and layers of cells need not be equally spaced. Some variables (pressure, density, concentration, and saturation) are evaluated at cell centers; others (velocity and permeability components) are evaluated at cell interfaces. Different numbering systems are used in TRACRN for 3-dimensional and 2-dimensional

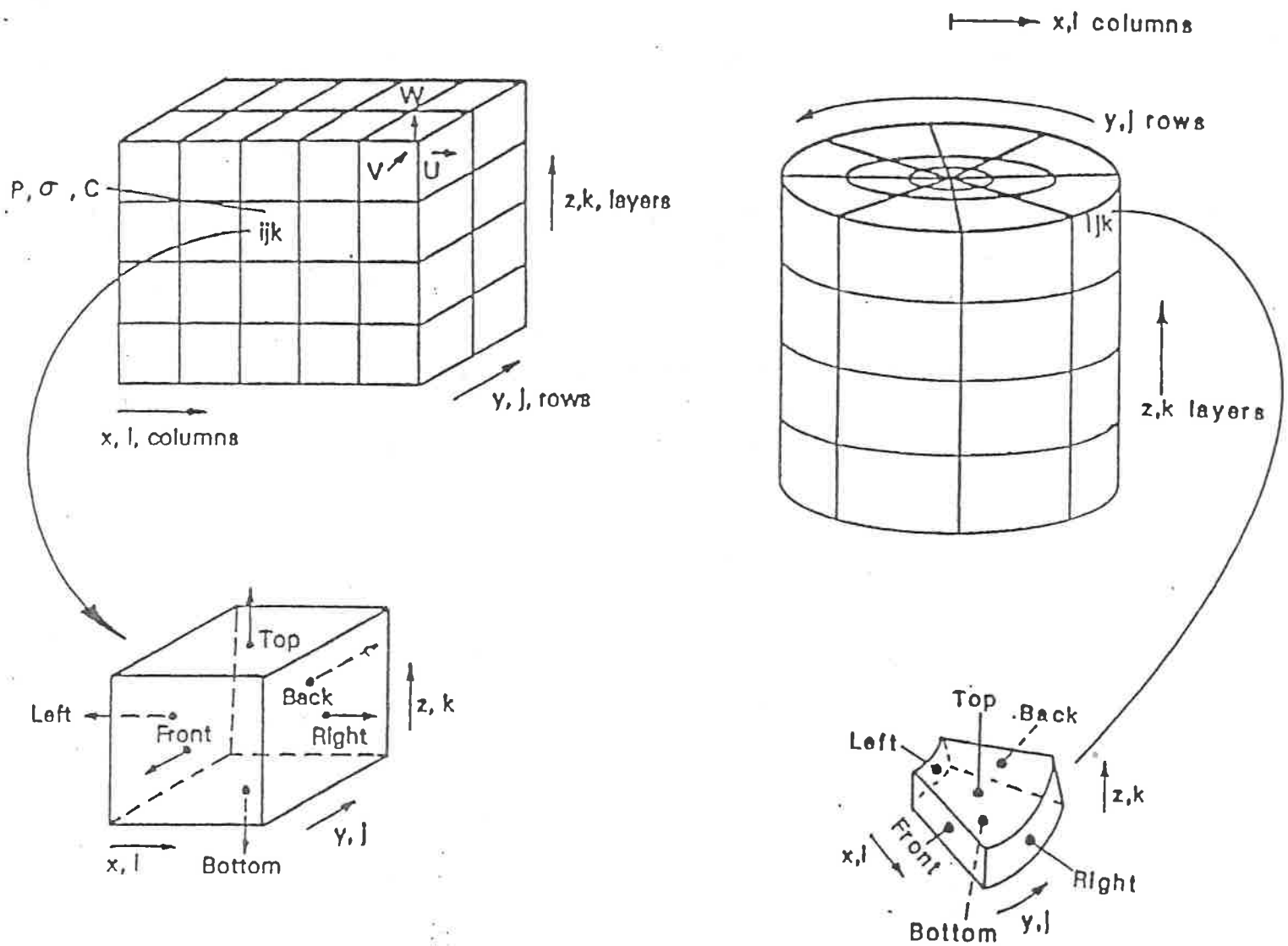

Fig. 3. Typical computational mesh in Cartesian coordinates, and cylindrical coordinates.

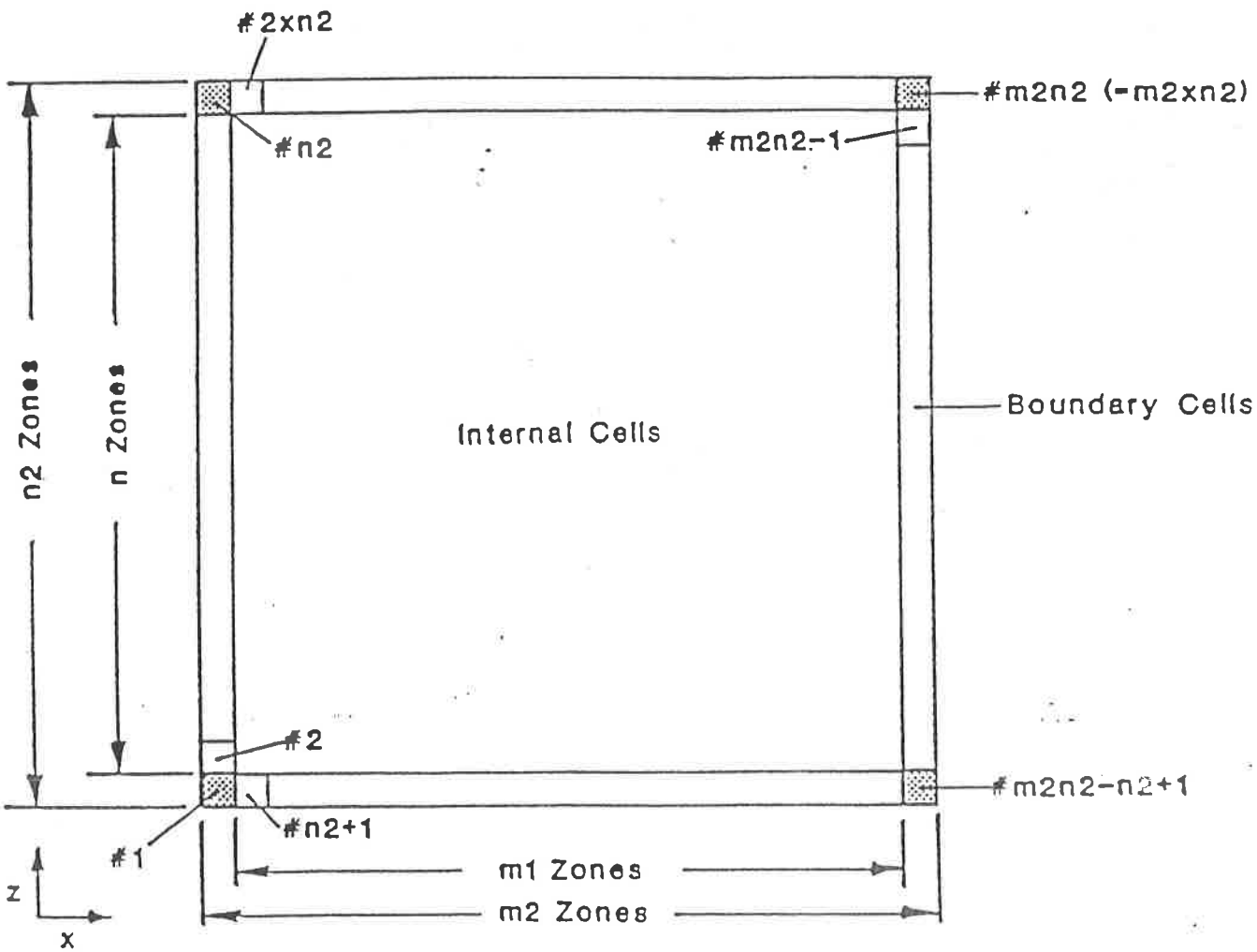

Fig. 5. Typical 2-dimensional rectangular grid.

$$- \epsilon_o \dot{S}_\ell \Delta\Omega_{ijk} - \frac{\rho_{\ell o}}{\mu_\ell} \sum_{q=1}^{6} \Delta A_{q_{ijk}} < \overline{\rho}_\ell >_q \overline{k}_q \Big(\alpha k_{\ell r_{den}}^{(n+1,s+1)}$$

$$+ (1-\alpha) k_{\ell r_{acc}}^{(n+1,s+1)} \Big)_q \left(\frac{P_{\ell_q}^{(n+1,s+1)} - P_\ell^{(n+1,s+1)}}{\Delta x_q} + \frac{g}{2} \rho_\ell^{(n+1,s+1)} \hat{z} \right)_{ijk} \quad (42)$$

where the superscript represents the quantity value at the $s+1^{th}$ iteration. An exact solution of the finite difference Eq. (41) would result in $R_{\ell_{ijk}}^{(n+1)} = 0$ for every cell (ijk). Because of the iterative nature of our solution to (41), we will ordinarily not be able to achieve this. However, use of the Newton-Raphson iteration with a good starting guess for the solution will allow us to reduce $\mid R_{\ell_{ijk}} \mid$ to a small value in every cell (ijk) in only a few iterations. The procedure is simple in principle – expand $R_{\ell_{ijk}}^{n+1,s+1}$ in a Taylor series around $P_\ell^{(n+1,s)}, \sigma_\ell^{(n+1,s)}$, keep only 1st order terms, and solve the resulting matrix equation, and repeat for successive iterations until $\mid R_{\ell_{ijk}}^{(n+1,s+1)} \mid <$ tolerance for every (ijk). (See section e.)

$$R_{\ell_{ijk}}^{(n+1,s+1)} \approx R_{\ell_{ijk}}^{(n+1,s)} + \sum_w \frac{\partial R_{\ell_{ijk}}^{(n+1,s)}}{\partial P_{\ell w}} \delta P_{\ell w}^{(n+1,s+1)} + \sum_w \frac{\partial R_{\ell_{ijk}}^{(n+1,s)}}{\partial \sigma_{\ell w}} \delta \sigma_{\ell w}^{(n+1,s+1)}$$

$$= R_{\ell_{ijk}}^{(n+1,s)} + \sum_w \left(\frac{\partial R}{\partial P_{\ell w}} - \frac{\partial R}{\partial \sigma_{\ell w}} \frac{d\sigma_{\ell w}}{dP_c} \right)_{ijk}^{(n+1,s)} \delta P_{\ell w}^{(n+1,s+1)}$$

$$= R_{ijk}^{(n+1,s)} + \sum_w \left(\frac{dR_\ell}{dP_\ell} \right)_{ijkw}^{(n+1,s)} \delta P_{\ell_w}^{(n+1,s+1)} \quad (43)$$

where subscript w ranges over all the cell faces. The term involving $\delta\sigma_\ell$ was removed by making use of the relation $P_c(\sigma_\ell) = P_g - P_\ell$ which implies that $\delta\sigma_\ell = \frac{d\sigma_\ell}{dP_c}(\delta P_g - \delta P_\ell) = \frac{d\sigma_\ell}{dP_c}\delta P_\ell$ since here it is assumed that δP_g=0. We then solve

$$[A]\{\delta P_\ell\} = \{b_p\}_\ell \ , \ P_\ell^{(n+1,s+1)} = P_\ell^{(n+1,s+1)} + \delta P_\ell^{(n+1,s+1)} \ , \quad (44)$$

where

$$\{b_p\}_\ell = -R_{ijk}^{(n+1,s)} \ , \ [A] = \left(\frac{\partial R_{ijk}}{\partial P_w} \right)^{(n+1)} \ . \quad (45)$$

The derivative of R with respect to P is defined numerically as follows (now the subscript of ijk is replaced by a single subscript v which ranges between 1 and N where N = total number of cells):

and

$$\overline{u}_g = -\frac{k_g}{\mu_g}(\nabla P_g + \rho_g \hat{g}) \tag{50}$$

Using a fully implicit, backward time finite differencing leads to an equation similar to Eq. (41):

$$\left(\sigma_g^{(n+1)}\overline{\epsilon}^{(n+1)}P_g^{(n+1)} - \sigma_g^{(n)}\overline{\epsilon}^{(n)}P_g^{(n)}\right)_{ijk}\left(\frac{\epsilon_o \Delta\Omega}{\Delta t}\right)_{ijk} - \sum_{q=1}^{6}\frac{k_{gq}}{\mu_g}\left(\frac{P_{gq}^2 - P_g^2}{2\Delta x_q} + \frac{B_g g}{2}(P_g + P_{gq})^2\right)_{ijk}^{(n+1)} \Delta A_q = \epsilon_o \frac{\dot{S}_g}{B_g}\Delta\Omega_{ijk} \tag{51}$$

As before, Eq. (51) is nonlinear for P_g, air pressure, and must be solved iteratively. A residual is defined

$$R_{gijk}^{(n+1,s+1)} = \left(\sigma_g^{(n+1,s+1)}\overline{\epsilon}^{(n+1,s+1)}P_g^{(n+1,s+1)} - \sigma_g^{(n)}\overline{\epsilon}^{(n)}P_g^{(n)}\right)_{ijk}\frac{(\epsilon_o\Delta\Omega)_{ijk}}{\Delta t} - \epsilon_o\frac{\dot{S}_g}{B_g\Delta\Omega_{ijk}} - \sum_{q=1}^{6}\Delta A_q\frac{k_{gq}}{\mu_g}\left(\frac{P_{gq}^2 - P_g^2}{2\Delta x_q} + \frac{B_g}{2}(P_g + P_{gq})^2\right)_{ijk}^{(n+1,s+1)} \tag{52}$$

where $k_{gq} = (\alpha k_{gr_{den}} + (1-\alpha)k_{gr_{acc}})\overline{k}_q$ and where k_{gq} is the effective permeability at interface q in cell (ijk). k_{gq} is a function of saturation, so may vary spatially, but will not vary temporally because for this option (IFLOW=1), the water phase doesn't move (i.e., $\sigma_g^{(n+1)} = \sigma_g^{(n)}$).

As before, R is expanded in a Taylor series and truncated after the 1st derivative terms.

$$R_{gi}^{(n+1,s+1)} \cong R_{gi}^{(n+1,s)} + \sum_j \frac{\partial R_{gi}}{\partial P_{gj}}^{(n+1,s)}\delta P_g^{(n+1,s+1)} + \sum_j \frac{\partial R_{ai}}{\partial \sigma_{gj}}\delta\sigma_{gj}^{(n+1,s+1)}$$
$$= R_{gi}^{(n+1,s)} + \sum_j \frac{\partial R_{gi}}{\partial P_{gj}}^{(n+1,s)}\delta P_{gj}^{(n+1,s+1)} \tag{53}$$

(We are assuming $\delta\sigma_g = 0$ here.)

We want $R_{gi}^{(n+1,s+1)} = 0$. So (53) becomes

Accurate solution of the transport equation for solutes in 1- or 2-phase porous flow can be a difficult goal to achieve. For moderate to high Peclet number $\left(P_e = \frac{LV}{D}\right)$ situations, very steep concentration fronts typically develop. Numerical resolution of such steep profiles requires either (1) very small mesh subdivisions, (2) high order approximations, or (3) a moving mesh with a region of fine divisions which follow the steep portions of the concentration field. TRACRN uses several approaches depending on the particular transport processes being considered. There is an option to use an implicit, fast finite difference solution for transport of adsorbing, radioactive species. This option uses a simple backward-time, variable donor cell space differencing. Dispersion cannot have its full tensor form, but only diagonal terms. This method is especially efficient for transport through a steady velocity field.

Under this option (ISOLVC=1), a numerical solution of Eq. (12) is obtained. Transport by advection, diffusion and dispersion are allowed, along with equilibrium, reversible sorption and radioactive decay. Transport in both phases is possible via Henry's law. Dispersion is limited to option three, i.e., the dispersion tensor's only non-zero entries are on the diagonal and are user-supplied. The numerical solution is computed by a simple, backward-time, weighted donor finite difference approximation to Eq. (12), namely,

$$\left[(A_H C_\ell)^{n+1}_{ijk} - (A_H C_\ell)^{n}_{ijk}\right]\frac{\Delta\Omega_{ijk}}{\Delta t} + \sum_{q=1}^{6}\left[< B_H >^{n+1}_q \Delta A_q (\alpha_c C_{\ell_{ijk}} + (1-\alpha_c) C_{\ell_q})^{n+1}(-1)^q\right]_{ijk}$$

$$= \sum_{q=1}^{6}(C^{n+1}_{\ell_q} - C^{n+1}_{\ell ijk})\frac{\Delta A_q}{\Delta x_q} D^{n+1}_{H_q} + \epsilon \dot{S} C_{\ell ijk}\Delta\Omega_{ijk} - \lambda A^{n+1}_{H_{ijk}} C^{n+1}_{\ell ijk}\Delta\Omega_{ijk} \qquad (57)$$

where q ranges over the cell faces of cell ijk, and

$$A_H = \epsilon(\sigma_\ell \rho_\ell + \sigma_g K_H) + (1-\epsilon)\rho_s K_d \ , \qquad (58)$$

$$B_H = \rho_\ell \vec{u}_\ell + K_H \vec{u}_g \ , \qquad (59)$$

$$D_H = \epsilon \tau_c(\rho_\ell \sigma_\ell D_\ell + K_H D_g) \ , \qquad (60)$$

and α_c (CDONOR) ranges from 0.5 (centered space differencing) to 0 (pure donor). The quantities $A_{H_{ijk}}, B_{H_{ijk}}$ and $D_{H_{ijk}}$ are evaluated after the flow variables (pressure, saturation and velocity) have been updated.

Equation (57) represents a set of linear algebraic equations for the concentration at each cell center, and can be written as

$$[A_c]\{C^{n+1}_\ell\} = \{b_c\} \qquad (61)$$

particles, so that even at low liquid saturations, binding sites and particles will be in contact with liquid. For airborne tracers, Eq. (62) may require modification because the sorption terms may not reflect the degree of contact between the gas phase and matrix grains for partially saturated conditions.

In Eq. (63), the flux term J_α is given by

$$J_\alpha = \sum_m \varepsilon\sigma_i \left\{ D_\alpha \rho_i \frac{C_\alpha - C_{\alpha m}}{\Delta X_m} + \left[\bar{\bar{D}}_\alpha \nabla(\rho_i C_\alpha)\right]_m \right\} \frac{\Delta A}{\Delta\Omega}(-1)^m - \sum_m \langle \rho_i C_\alpha \rangle_m (-1)^m \times \frac{u_{im}^{n+1}}{\Delta\Omega} \Delta A_m \ . \tag{64}$$

The first summation on the right side of Eq. (64) is straightforward. The last term in Eq. (64) deserves comment. First, the velocities u_{im} are supplied by the flow part of the model. Second, the manner in which the tracer density at zone interfaces $\langle \rho_i C_\alpha \rangle_m$ is calculated can have a strong influence on the overall accuracy of the numerical solution. For example, a pure donor treatment of $\langle \rho_i C_\alpha \rangle_m$ would produce significant smearing of sharp concentration fronts (which typically occur for high Peclet number flows). The user has the option of specifying a donor type differencing scheme or a higher order method via input variable CDONOR.

The higher order representation used here for the $\langle \rho_i C_\alpha \rangle_m$ term at high Peclet number is fairly simple but appears to be capable of resolving sharp concentration fronts. It is similar to techniques that have recently appeared in the literature (Douglas and Russell 1982; Larson 1982). The flux term $\langle \rho_i C_\alpha \rangle_m$ is determined for each interface in three steps.

(1) From $\vec{u}_{im}$, determine $\bar{x}_m = \vec{x}_m - \frac{\vec{u}_{im}}{\epsilon}\Delta t$.

(2) Determine shape of the concentration front. If local Peclet number Pe < 100, use an approximate polynomial fit. If Pe > 100, use "sharp" donor approach [described in (2) below]

(3) Integrate $\int_{\bar{x}_m}^{\vec{x}_m} \frac{\rho_i C_\alpha(\vec{x}) V_i(\vec{x})}{|x_m - \bar{x}_m|} d\vec{x}$ to obtain $\langle \rho_i C_\alpha \rangle_m u_{im}$.

For one-dimensional transport, this is easy to describe. Figure 6 shows a typical, large Peclet number concentration profile superimposed on a finite difference mesh. Consider the flux across the interface at x_R. The three steps for this instance are listed below.

(1) Calculate $\bar{x} = x_R - V_R \Delta t$.

(2) Determine $\mathrm{Pe} = \frac{LV_R}{D}$. If Pe < 100, use a polynomial fit for C between x_L and x_R. If Pe > 100 and if $C_L > C > C_R$ or $C_L < C < C_R$, determine x_C from $C_L(x_C - x_L) + C_R(x_R - x_C) = C(x_R - x_L)$.

(3) Then integrate $\int_{\bar{x}}^{x_R} \frac{\rho_i C_\alpha(x) V_i(x)}{|x_R - \bar{x}|} dx$ to obtain $\langle \rho_i C_\alpha \rangle_R u_R$.

guaranteeing that there will be too much numerical diffusion. Rather than using a donor-type spatial differencing to offset the time truncation negative diffusion term, we estimate directly the magnitude of the time truncation term and subtract it for each mesh cell at each time step. (We could use a higher order differencing for the time derivative, but this would increase memory storage requirements.) This is illustrated for the case of transport in a saturated, homogeneous medium with steady uniform water flow. The procedure is identical for the more general cases.

The transport equation, then, is

$$\frac{\partial C}{\partial t} + \nabla \cdot (uC) = D\nabla^2 C \tag{65}$$

and our finite difference form is

$$\frac{C_i^{n+1} - C_i^n}{\Delta t} + \frac{u}{2}\sum_{q=1}^{6}(C_i + C_{i+q})\Delta A_q(-1)^q = D\sum_{q=1}^{6}(C_{i+q} - C_i)\frac{\Delta A_q}{\Delta x_q} \ . \tag{66}$$

To determine the truncation error, we expand terms in Eq. (66) in a Taylor series around C_i^n

$$\left[\frac{\partial C}{\partial t}\right]^n + \frac{\Delta t}{2}\left[\frac{\partial^2 C}{\partial t^2}\right]^n + \left[\nabla \cdot (uC)\right]^n + O(\Delta x^2, \Delta t^2) = D\left[\nabla^2 C\right]^n \tag{67}$$

So, to lowest order the differential equation that our difference equation (66) is approximating is not Eq. (65) but actually

$$\frac{\partial C}{\partial t} + \nabla \cdot (uC) = D\nabla^2 C - \frac{\Delta t}{2}\left(\frac{\partial^2 C}{\partial t^2}\right) \tag{68}$$

which approaches Eq. (65) as $\Delta t \to 0$. To estimate the last term in Eq. (68), we differentiate Eq. (65) to get

$$\begin{aligned}\frac{\partial^2 C}{\partial t^2} &= -\nabla \cdot \left(u\frac{\partial C}{\partial t}\right) + D\nabla^2\frac{\partial C}{\partial t} \\ &\approx -\nabla \cdot u(-\nabla \cdot uC + D\nabla^2 C) \\ &\approx \nabla \cdot \left[u\nabla \cdot (uC)\right]\end{aligned} \tag{69}$$

which we then substitute into (68) to get

$$\frac{\partial C}{\partial t} + \nabla \cdot (\overline{u}C) = D\nabla^2 C - \frac{\Delta t}{2}\nabla \cdot \left[u \cdot (\nabla \cdot uC)\right]^n \tag{70}$$

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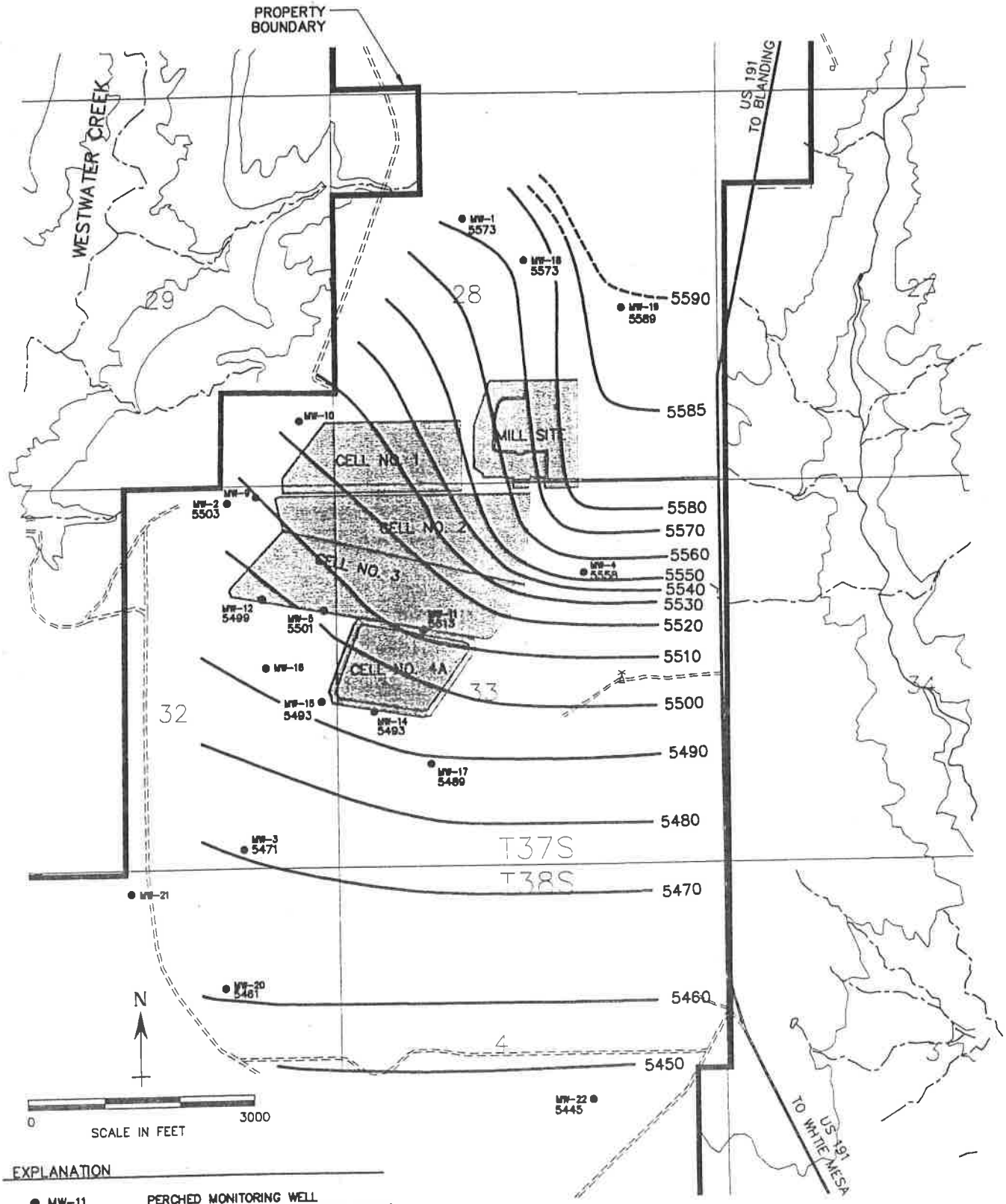
FIGURES



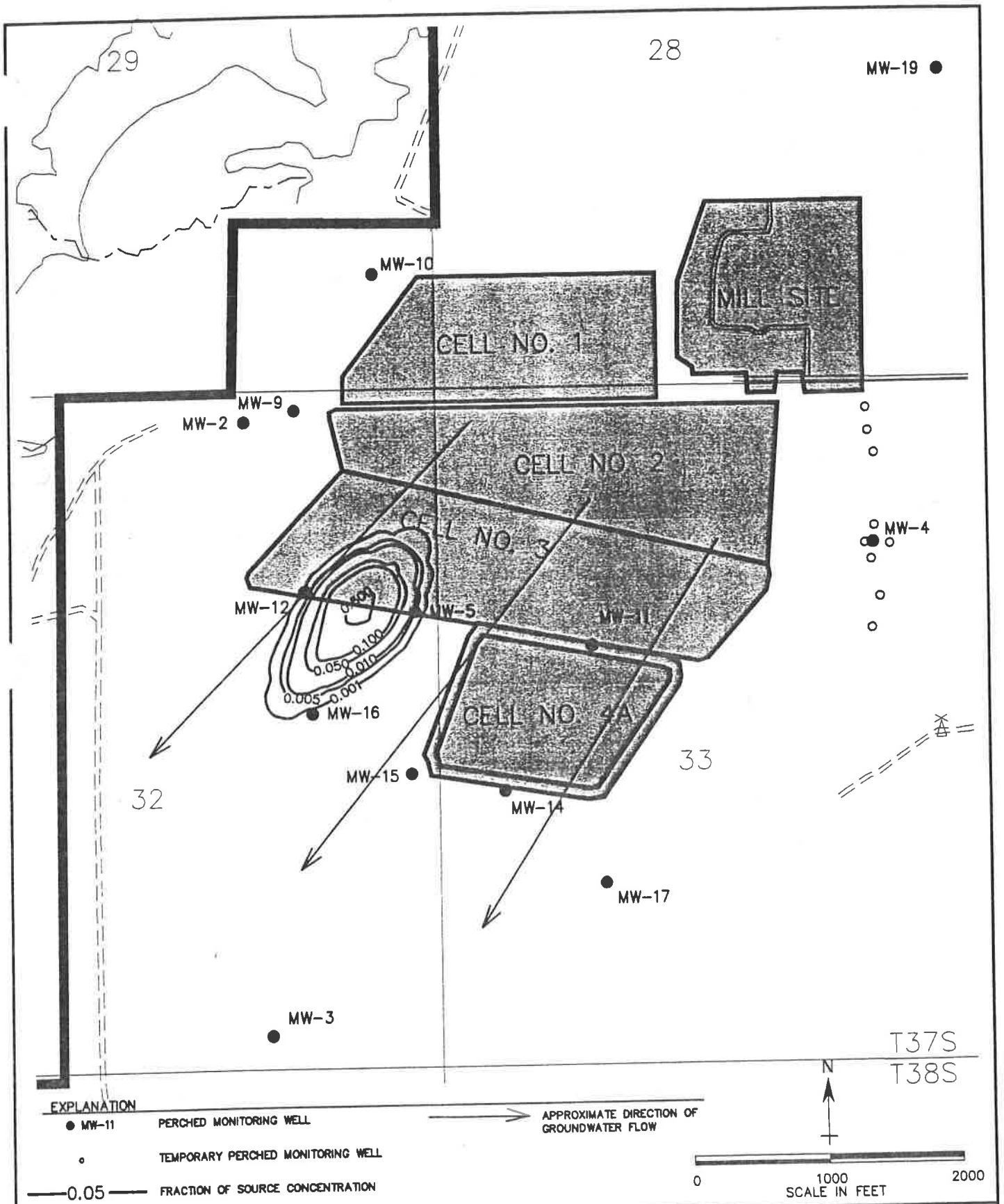
EXPLANATION

● MW-11 PERCHED MONITORING WELL SHOWING WATER LEVEL IN FEET (AMSL)

-----5585 WATER LEVEL CONTOUR, DASHED WHERE UNCERTAIN

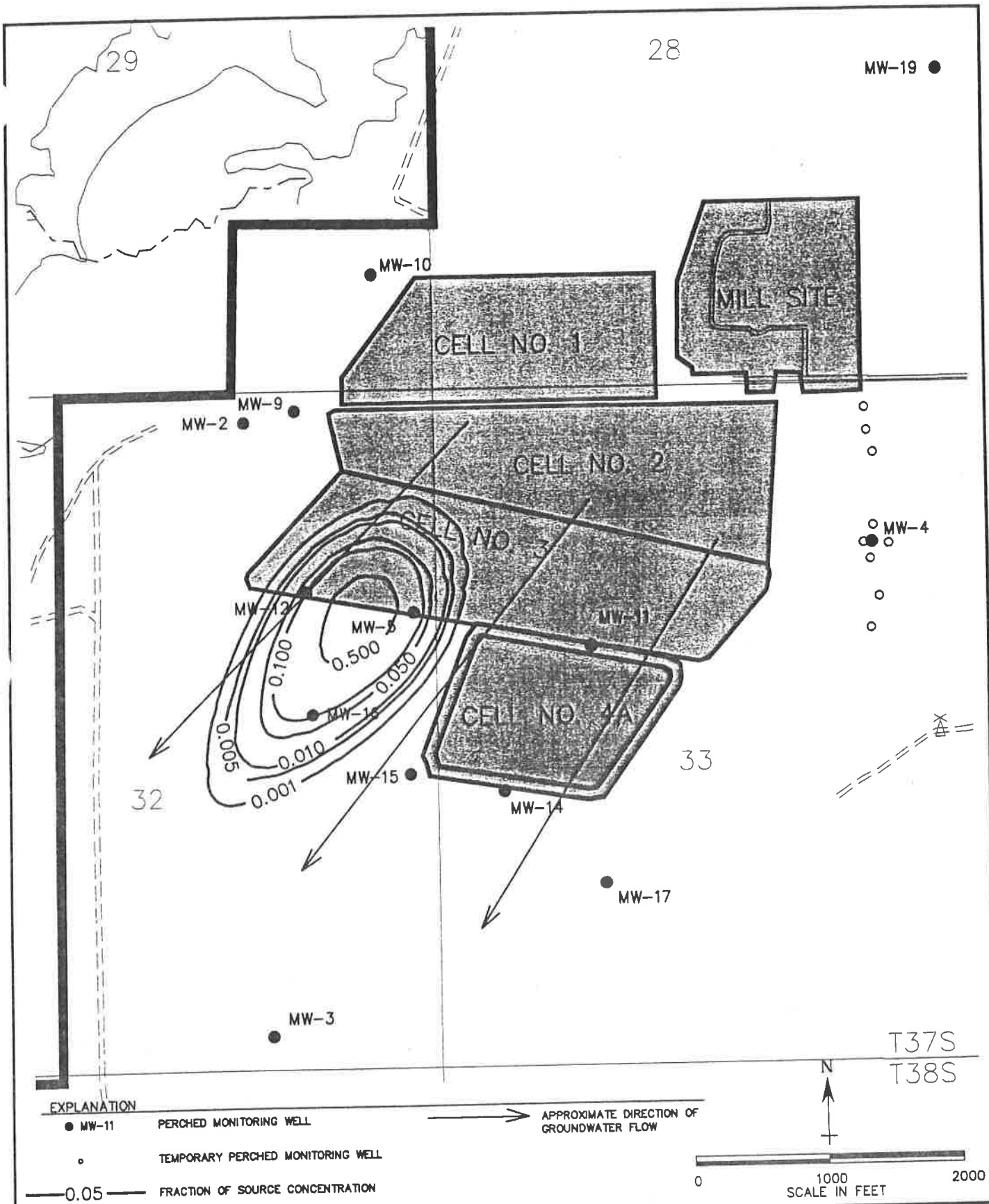
WATER LEVEL CONTOUR MAP
MARCH, 2001
WHITE MESA URANIUM MILL SITE

Approved	Date	Revised	Date	Reference:	FIG.
SS	6/20/01			71800021	1



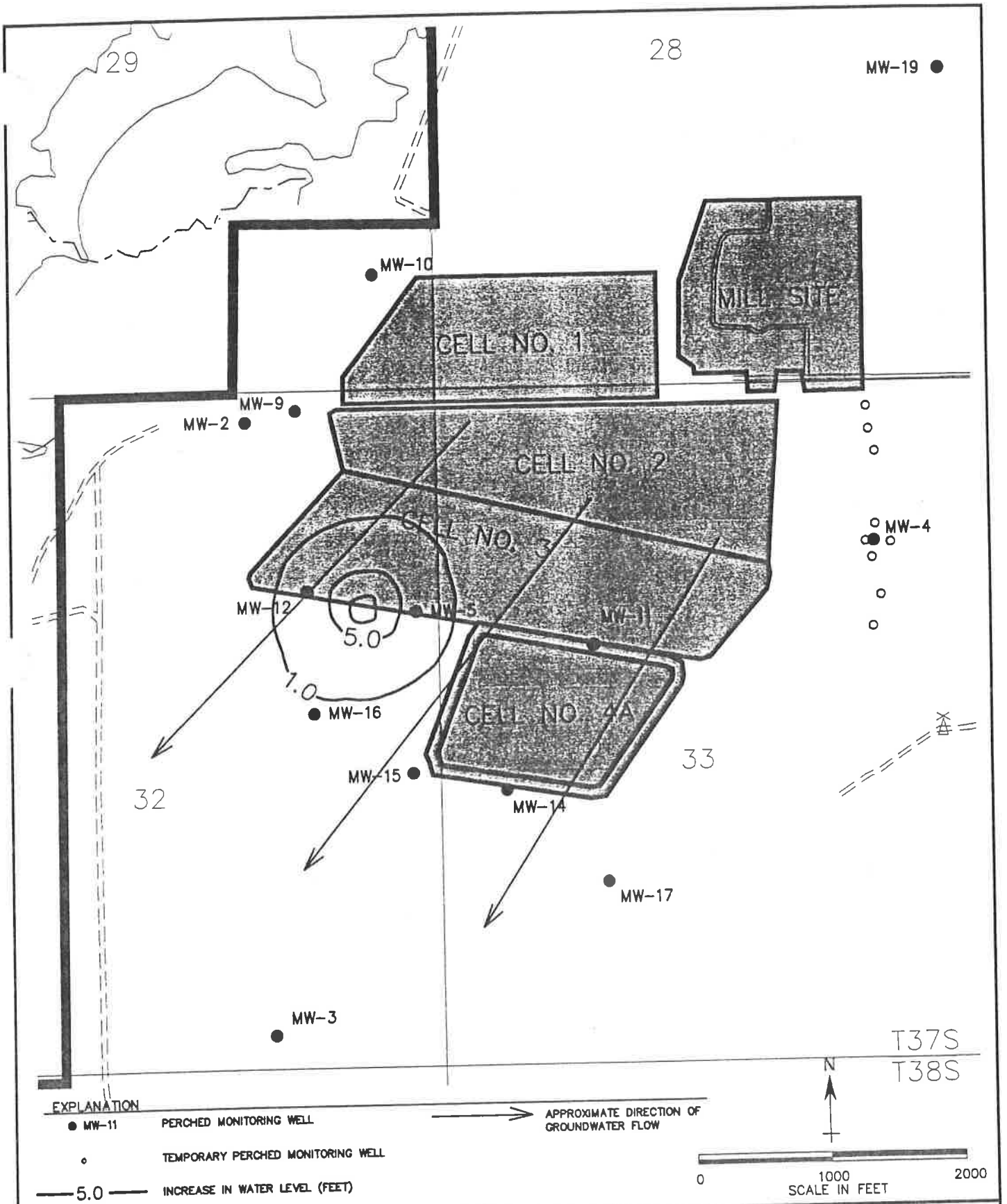
SIMULATED PERCHED ZONE CONCENTRATION OF CONSERVATIVE SOLUTE APPROXIMATELY 20 YEARS AFTER IMPACTING PERCHED WATER HYPOTHETICAL 1.0 GPM "POINT SOURCE" LEAK AT BASE OF TAILINGS CELL WHITE MESA URANIUM MILL SITE

Approved	Date	Revised	Date	Reference:	FIG.
SS	7/19/01			71800029	2



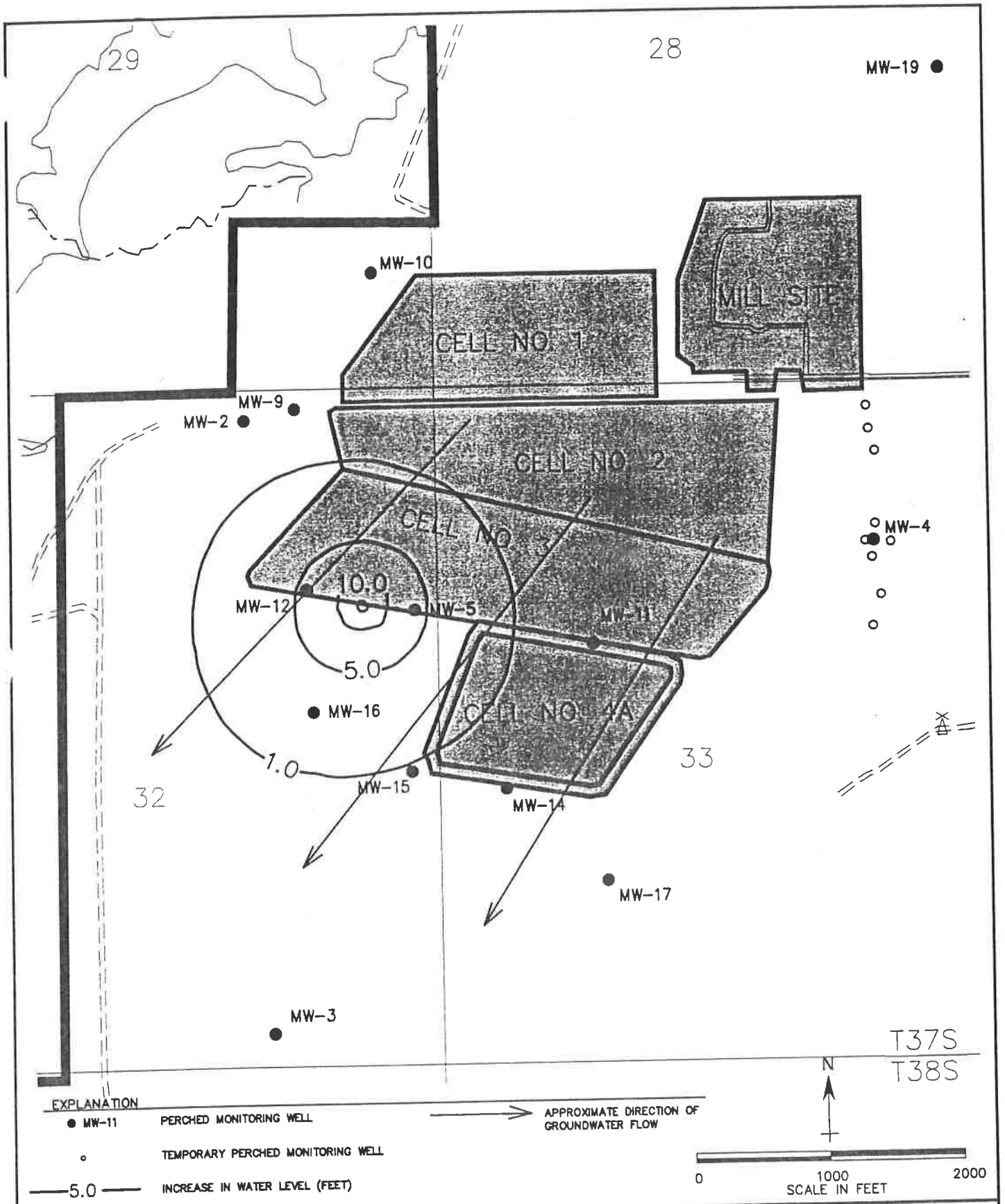
SIMULATED PERCHED ZONE CONCENTRATION OF CONSERVATIVE SOLUTE APPROXIMATELY 50 YEARS AFTER IMPACTING PERCHED WATER HYPOTHETICAL 1.0 GPM "POINT SOURCE" LEAK AT BASE OF TAILINGS CELL WHITE MESA URANIUM MILL SITE

Approved	Date	Revised	Date	Reference:	FIG.
SS	7/19/01			71800028	3



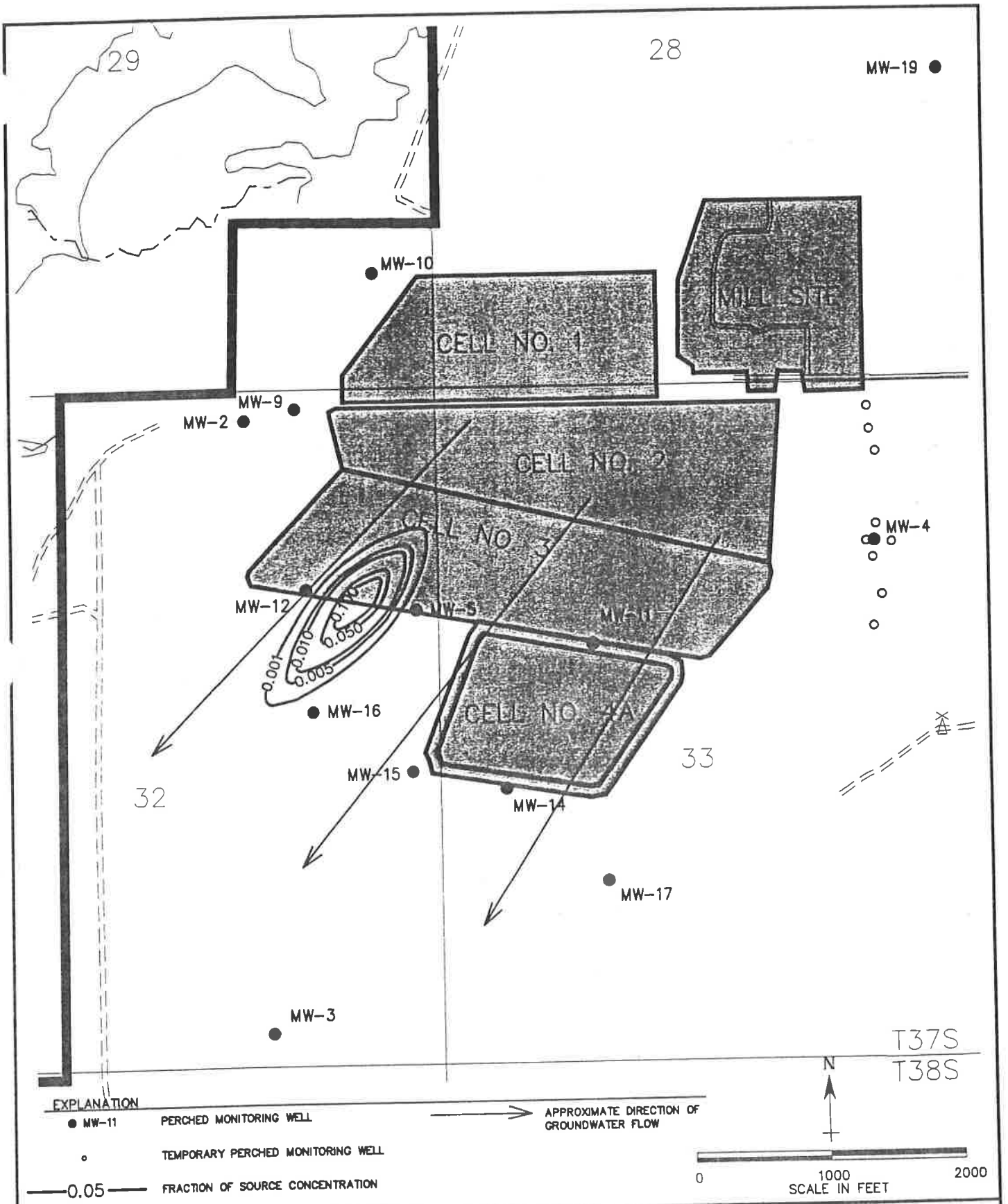
SIMULATED INCREASE IN PERCHED WATER LEVEL APPROXIMATELY 20 YEARS AFTER IMPACTING PERCHED WATER
HYPOTHETICAL 1.0 GPM 'POINT SOURCE' LEAK AT BASE OF TAILINGS CELL
WHITE MESA URANIUM MILL SITE

Approved	Date	Revised	Date	Reference:	FIG.
SS	7/19/01			71800031	4



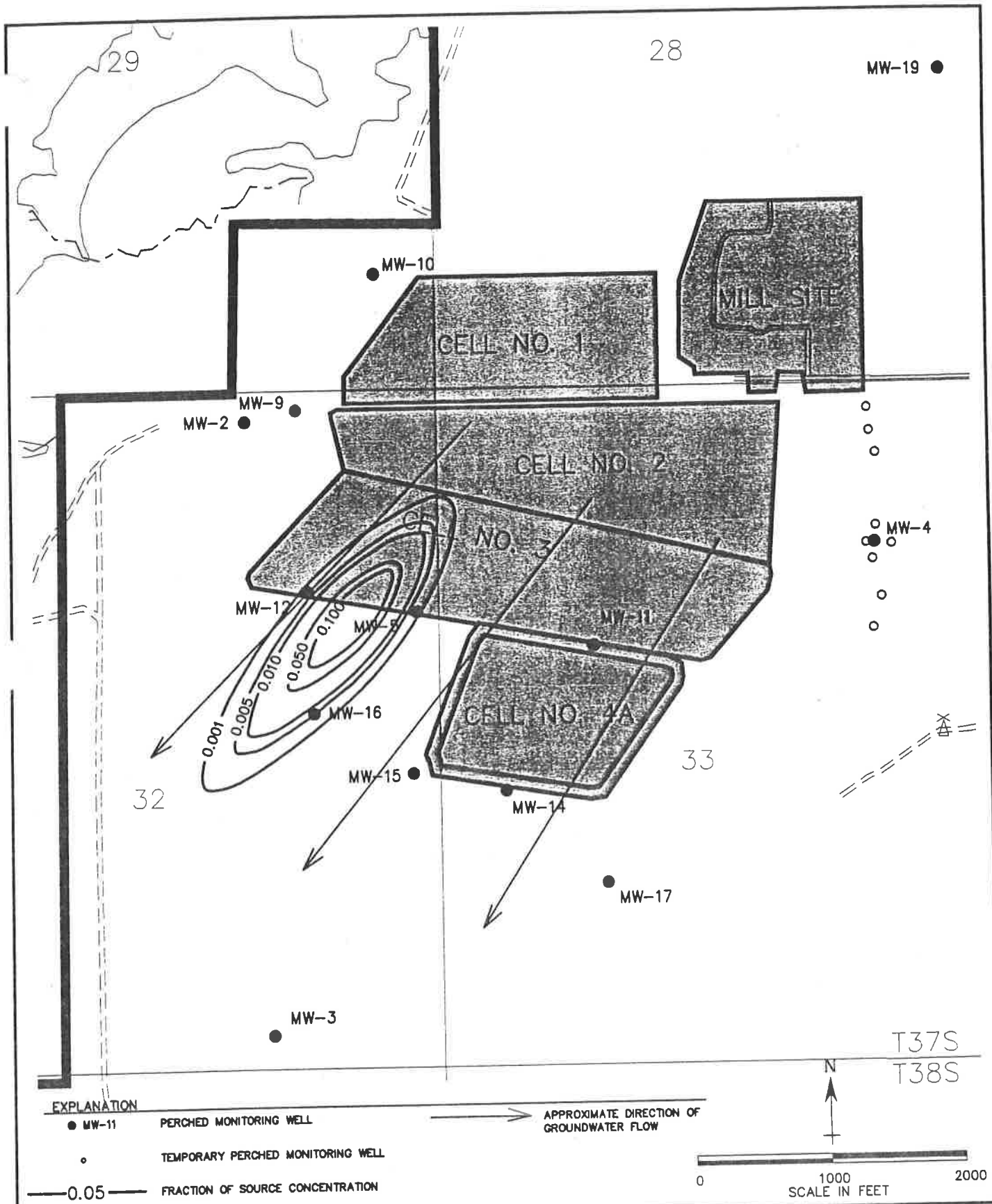
SIMULATED INCREASE IN PERCHED WATER LEVEL APPOXIMATELY 50 YEARS AFTER IMPACTING PERCHED WATER HYPOTHETICAL 1.0 GPM 'POINT SOURCE' LEAK AT BASE OF TAILINGS CELL WHITE MESA URANIUM MILL SITE

Approved	Date	Revised	Date	Reference:	FIG.
SS	7/19/01			71800030	5



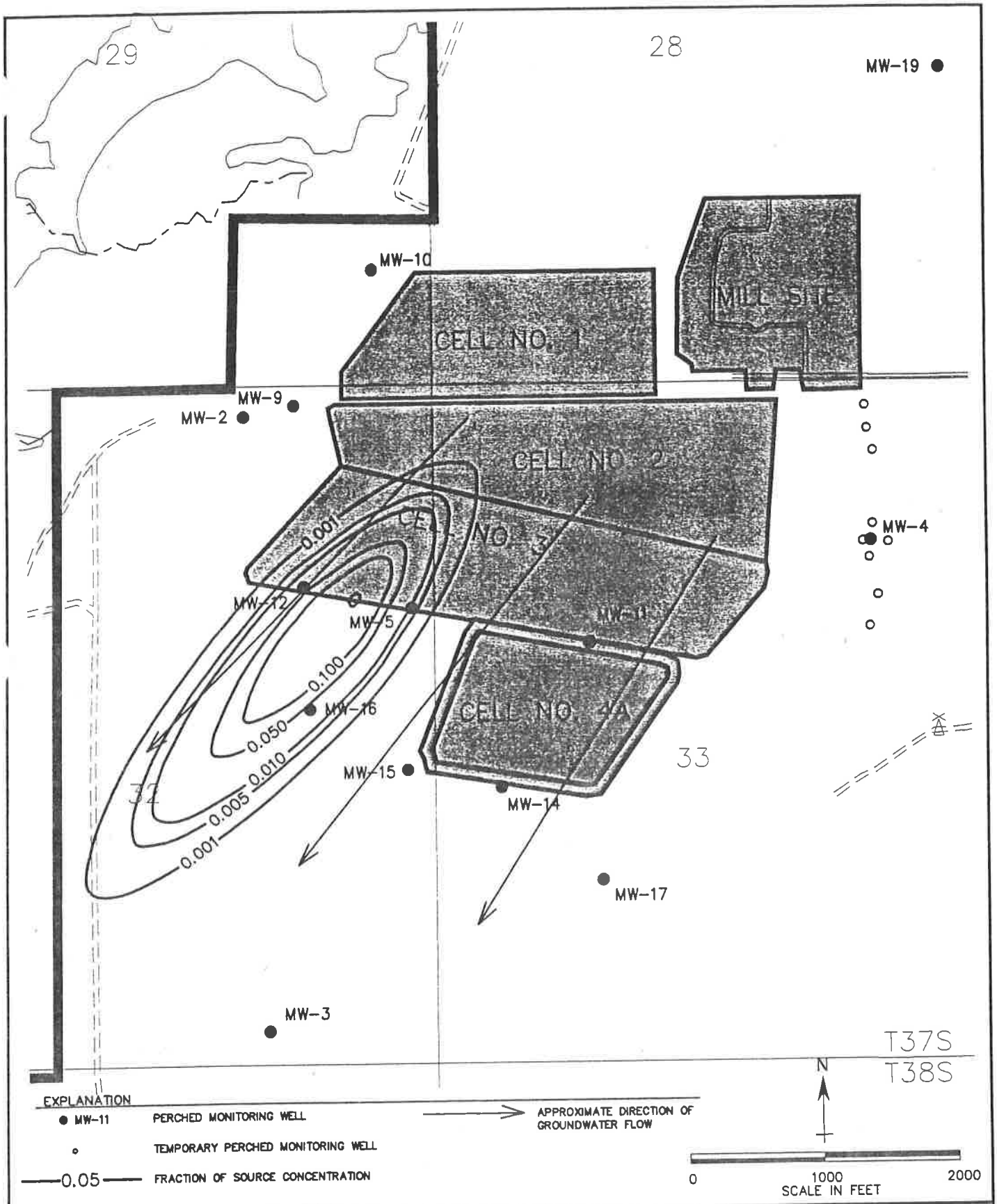
SIMULATED PERCHED ZONE CONCENTRATION OF CONSERVATIVE SOLUTE APPROXIMATELY 50 YEARS AFTER IMPACTING PERCHED WATER HYPOTHETICAL 0.1 GPM "POINT SOURCE" LEAK AT BASE OF TAILINGS CELL WHITE MESA URANIUM MILL SITE

Approved	Date	Revised	Date	Reference:	FIG.
SS	7/19/01			71800027	6



SIMULATED PERCHED ZONE CONCENTRATION OF CONSERVATIVE SOLUTE APPROXIMATELY 100 YEARS AFTER IMPACTING PERCHED WATER HYPOTHETICAL 0.1 GPM "POINT SOURCE" LEAK AT BASE OF TAILINGS CELL WHITE MESA URANIUM MILL SITE

Approved	Date	Revised	Date	Reference:	FIG.
SS	7/19/01			71800025	7



SIMULATED PERCHED ZONE CONCENTRATION OF CONSERVATIVE SOLUTE APPROXIMATELY 200 YEARS AFTER IMPACTING PERCHED WATER HYPOTHETICAL 0.1 GPM 'POINT SOURCE' LEAK AT BASE OF TAILINGS CELL WHITE MESA URANIUM MILL SITE

Approved	Date	Revised	Date	Reference:	FIG.
SS	7/19/01			71800026	8

Appendix F

1999 – 2002 Monitor Well Split Sampling Data

White Mesa Mill

International Uranium (USA) Corporation
1050 17th Street, Suite 950
Denver, Colorado 80265

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 1

TARGET COMPOUNDS	UNITS	Sample Event May,1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Non-Metals					
Total Dissolved Solids	mg/L	NA	1,270	1,360	1,120
Total Suspended Solids	mg/L	173.0	25.7	22.0	2.8
Conductivity	micro-mho/cm	NA	1,675	1,740	1,680
Alkalinity	mg/L	NA	260	251	250
Hardness	mg/L	NA	554	639	594
pH	s.u.	NA	8.20	NA	8.17
Turbidity	NTU	53.4	22.9	15.8	18.8
Major Ions					
Calcium	mg/L	141	138	158	147
Magnesium	mg/L	53.2	50.8	59.2	55.1
Sodium	mg/L	164	156	158	NA
Potassium	mg/L	5.7	5.9	6.0	NA
Carbon Dioxide as CO2	mg/L	NA	NA	6.4	< 10
Carbonate	mg/L	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate	mg/L	316	317	306	304
Hydroxide	mg/L	NA	< 1.0	< 1.0	< 1.0
Sulfate	mg/L	645	608	691	662
Chloride	mg/L	12.7	15.2	17.3	13.6
Fluoride	mg/L	0.31	0.34	0.30	0.30
Miscellaneous					
Ammonium as N	mg/L	0.40	0.42	0.41	0.49
Nitrate + Nitrite as N	mg/L	< 0.10	< 0.10	< 0.10	< 0.10
Phosphorus	mg/L	NA	< 1.0	< 0.10	< 0.057
Trace Metals					
Aluminum	mg/L	0.006	< 0.03	< 0.10	< 0.10
Antimony	mg/L	< 0.001	< 0.003	< 0.01	< 0.01
Arsenic	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Barium	mg/L	0.016	0.009	< 0.10	< 0.10
Beryllium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Cadmium	mg/L	< 0.001	< 0.001	< 0.005	< 0.005
Chromium	mg/L	< 0.001	< 0.005	< 0.05	< 0.05
Copper	mg/L	0.003	< 0.012	< 0.01	< 0.01
Iron	mg/L	1.6	20	< 0.05	NA
Lead	mg/L	< 0.001	< 0.003	< 0.05	< 0.05
Manganese	mg/L	0.289	0.014	0.17	0.22
Mercury	mg/L	< 0.001	< 0.0002	< 0.001	< 0.001
Molybdenum	mg/L	0.002	0.002	< 0.10	< 0.10
Nickel	mg/L	0.005	0.010	< 0.05	< 0.05
Selenium	mg/L	< 0.001	0.052	< 0.001	< 0.001
Silver	mg/L	< 0.001	< 0.002	< 0.01	< 0.01
Thallium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Vanadium	mg/L	< 0.001	< 0.03	< 0.10	< 0.10
Zinc	mg/L	0.011	< 0.03	< 0.01	< 0.01
Radionuclides					
Gross Alpha (total)	pCi/L	< 2.0	< 1.6	< 1.0	3.7
Gross Beta (total)	pCi/L	10.9	< 3.3	NA	5.7

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 1

TARGET COMPOUNDS	UNITS	Sample Event May,1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Radium - 226 (total)	pCi/L	1.0	0.8	NA	NA
Radium - 228 (total)	pCi/L	< 1.0	3.2	NA	NA
Uranium (total)	mg/L	0.0004	< 0.0003	0.0004	< 0.001

Volatile Organic Compounds

Dichlorodifluoromethane	microg/L	ND	ND	ND	ND
Chloromethane	microg/L	ND	ND	ND	ND
Vinyl chloride (Chloroethene)	microg/L	ND	ND	ND	ND
Bromomethane	microg/L	ND	ND	ND	ND
Chloroethane	microg/L	ND	ND	ND	ND
Trichlorofluoromethane	microg/L	ND	ND	ND	ND
1,1 - Dichloroethene	microg/L	ND	ND	ND	ND
Methylene chloride (Dichloromethane)	microg/L	ND	ND	ND	ND
trans - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
1,1 - Dichloroethane	microg/L	ND	ND	ND	ND
2 - Butanone (MEK), Methyl ethyl ketone	microg/L	ND	ND	ND	ND
cis - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
Bromochloromethane	microg/L	ND	ND	ND	ND
Chloroform (Trichloromethane)	microg/L	ND	ND	ND	ND
2,2 - Dichloropropane	microg/L	ND	ND	ND	ND
1,1,1 - Trichloroethane	microg/L	ND	ND	ND	ND
1,2 - Dichloroethane	microg/L	ND	ND	ND	ND
1,1 - Dichloropropene	microg/L	ND	ND	ND	ND
Carbon tetrachloride (Tetrachloromethane)	microg/L	ND	ND	ND	ND
Benzene	microg/L	ND	ND	ND	ND
Dibromomethane	microg/L	ND	ND	ND	ND
1,2 - Dichloropropane	microg/L	ND	ND	ND	ND
Trichloroethene	microg/L	ND	ND	ND	ND
Bromodichloromethane	microg/L	ND	ND	ND	ND
cis - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
trans - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
1,1,2 - Trichloroethane	microg/L	ND	ND	ND	ND
Tetrahydrofuran	microg/L	NA	NA	18	NA
Toluene	microg/L	ND	ND	ND	ND
1,2 - Dibromoethane	microg/L	ND	ND	ND	ND
1,3 - Dichloropropane	microg/L	ND	ND	ND	ND
Dibromochloromethane	microg/L	ND	ND	ND	ND
Tetrachloroethene	microg/L	ND	ND	ND	ND
1,1,1,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
Chlorobenzene	microg/L	ND	ND	ND	ND
Ethylbenzene	microg/L	ND	ND	ND	ND
m.p -Xylenes (1,3 - & !,4 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
Bromoform (Tribromomethane)	microg/L	ND	ND	ND	ND
Styrene (Ethenylbenzene)	microg/L	ND	ND	ND	ND
o - Xylene (1,2 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
1,1,2,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
1,2,3 - Trichlorpropane	microg/L	ND	ND	ND	ND
Isopropylbenzene (1-Methylethylbenzene)	microg/L	ND	ND	ND	ND
Bromobenzene	microg/L	ND	ND	ND	ND
n - Propylbenzene	microg/L	ND	ND	ND	ND
2 - Chlorotoluene	microg/L	ND	ND	ND	ND
4 - Chlorotoluene	microg/L	ND	ND	ND	ND
1,3,5 - Trimethylbenzene	microg/L	ND	ND	ND	ND
tert - Butylbenzene	microg/L	ND	ND	ND	ND
1,2,4 - Trimethylbenzene	microg/L	ND	ND	ND	ND
sec - Butylbenzene	microg/L	ND	ND	ND	ND

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 1

TARGET COMPOUNDS	UNITS	Sample Event May,1999	Nov/Dec 2000	Nov 2001	Sept. 2002
1,3 - Dichlorobenzene	microg/L	ND	ND	ND	ND
1,4 - Dichlorobenzene	microg/L	ND	ND	ND	ND
4 - Isopropyltoluene	microg/L	ND	ND	ND	ND
1,2 - Dichlorobenzene	microg/L	ND	ND	ND	ND
n - Butylbenzene	microg/L	ND	ND	ND	ND
1,2 - Dibromo - 3 - chloropropane	microg/L	ND	ND	ND	ND
1,2,4 - Trichlorobenzene	microg/L	ND	ND	ND	ND
Naphthalene	microg/L	ND	ND	ND	ND
Hexachlorobutadiene	microg/L	ND	ND	ND	ND
Trichlorobenzene	microg/L	ND	ND	ND	ND

* Estimated Value. Present, but less than limit of quantification
NA - Not Analyzed
ND - Not Detected

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW -2

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Non-Metals					
Total Dissolved Solids	mg/L	NA	3,130	3,150	3,150
Total Suspended Solids	mg/L	8.8	<4.0	77.0	1.2
Conductivity	micro-mho/cm	NA	3,720	3,600	3,850
Alkalinity	mg/L	NA	326	319	320
Hardness	mg/L	NA	1,081	1,200	1,260
pH	s.u.	NA	7.92	NA	8.11
Turbidity	NTU	0.73	0.40	30.0	0.26
Major Ions					
Calcium	mg/L	323	298	336	338
Magnesium	mg/L	88.4	81.8	86.5	102.0
Sodium	mg/L	469	440	549	NA
Potassium	mg/L	10.1	9.8	10.3	NA
Carbon Dioxide as CO2	mg/L	NA	NA	6.9	< 10
Carbonate	mg/L	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate	mg/L	401	398	389	390
Hydroxide	mg/L	NA	< 1.0	< 1.0	< 1.0
Sulfate	mg/L	1,800	1,710	1,800	1,860
Chloride	mg/L	5.6	9.1	10.7	6.6
Fluoride	mg/L	0.29	0.33	0.30	0.30
Miscellaneous					
Ammonium as N	mg/L	< 0.05	< 0.05	< 0.05	0.08
Nitrate + Nitrite as N	mg/L	0.12	< 0.10	< 0.10	< 0.10
Phosphorus	mg/L	NA	< 1.0	< 0.10	< 0.057
Trace Metals					
Aluminum	mg/L	0.005	< 0.03	< 0.10	< 0.10
Antimony	mg/L	< 0.001	< 0.003	< 0.01	< 0.01
Arsenic	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Barium	mg/L	0.018	0.013	< 0.10	< 0.10
Beryllium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Cadmium	mg/L	< 0.001	< 0.001	< 0.005	< 0.005
Chromium	mg/L	< 0.001	< 0.005	< 0.05	< 0.05
Copper	mg/L	0.005	0.026	< 0.01	< 0.01
Iron	mg/L	0.01	20	< 0.05	NA
Lead	mg/L	< 0.001	< 0.003	< 0.05	< 0.05
Manganese	mg/L	0.001	0.395	< 0.01	< 0.01
Mercury	mg/L	< 0.001	< 0.0002	< 0.001	< 0.001
Molybdenum	mg/L	0.001	0.001	< 0.10	< 0.10
Nickel	mg/L	0.012	0.020	< 0.05	< 0.05
Selenium	mg/L	0.007	0.004	0.004	0.003
Silver	mg/L	< 0.001	< 0.002	< 0.01	< 0.01
Thallium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Vanadium	mg/L	< 0.001	< 0.03	< 0.10	< 0.10
Zinc	mg/L	0.014	< 0.03	0.02	< 0.01
Radionuclides					
Gross Alpha (total)	pCi/L	< 5.0	< 3.8	<1.0	8.1
Gross Beta (total)	pCi/L	22.9	< 7.6	NA	82.4

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW -2

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Radium - 226 (total)	pCi/L	1.0	0.4	NA	NA
Radium - 228 (total)	pCi/L	< 1.0	2.1	NA	NA
Uranium (total)	mg/L	0.0100	0.0009	0.0089	0.012

Volatile Organic Compounds

Dichlorodifluoromethane	microg/L	ND	ND	ND	ND
Chloromethane	microg/L	ND	ND	ND	ND
Vinyl chloride (Chloroethene)	microg/L	ND	ND	ND	ND
Bromomethane	microg/L	ND	ND	ND	ND
Chloroethane	microg/L	ND	ND	ND	ND
Trichlorofluoromethane	microg/L	ND	ND	ND	ND
1,1 - Dichloroethene	microg/L	ND	ND	ND	ND
Methylene chloride (Dichloromethane)	microg/L	ND	ND	ND	ND
trans - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
1,1 - Dichloroethane	microg/L	ND	ND	ND	ND
2 - Butanone (MEK). Methyl ethyl ketone	microg/L	ND	ND	ND	ND
cis - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
Bromochloromethane	microg/L	ND	ND	ND	ND
Chloroform (Trichloromethane)	microg/L	ND	ND	ND	ND
2,2 - Dichloropropane	microg/L	ND	ND	ND	ND
1,1,1 - Trichloroethane	microg/L	ND	ND	ND	ND
1,2 - Dichloroethane	microg/L	ND	ND	ND	ND
1,1 - Dichloropropene	microg/L	ND	ND	ND	ND
Carbon tetrachloride (Tetrachloromethane)	microg/L	ND	ND	ND	ND
Benzene	microg/L	ND	ND	ND	ND
Dibromomethane	microg/L	ND	ND	ND	ND
1,2 - Dichloropropane	microg/L	ND	ND	ND	ND
Trichloroethene	microg/L	ND	ND	ND	ND
Bromodichloromethane	microg/L	ND	ND	ND	ND
cis - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
trans - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
1,1,2 - Trichloroethane	microg/L	ND	ND	ND	ND
Tetrahydrofuran	microg/L	NA	NA	19	NA
Toluene	microg/L	ND	ND	ND	ND
1,2 - Dibromoethane	microg/L	ND	ND	ND	ND
1,3 - Dichloropropane	microg/L	ND	ND	ND	ND
Dibromochloromethane	microg/L	ND	ND	ND	ND
Tetrachloroethene	microg/L	ND	ND	ND	ND
1,1,1,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
Chlorobenzene	microg/L	ND	ND	ND	ND
Ethylbenzene	microg/L	ND	ND	ND	ND
m.p -Xylenes (1,3 - & !,4 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
Bromoform (Tribromomethane)	microg/L	ND	ND	ND	ND
Styrene (Ethenylbenzene)	microg/L	ND	ND	ND	ND
o - Xylene (1,2 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
1,1,2,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
1,2,3 - Trichlorpropane	microg/L	ND	ND	ND	ND
Isopropylbenzene (1-Methylethylbenzene)	microg/L	ND	ND	ND	ND
Bromobenzene	microg/L	ND	ND	ND	ND
n - Propylbenzene	microg/L	ND	ND	ND	ND
2 - Chlorotoluene	microg/L	ND	ND	ND	ND
4 - Chlorotoluene	microg/L	ND	ND	ND	ND
1,3,5 - Trimethylbenzene	microg/L	ND	ND	ND	ND
tert - Butylbenzene	microg/L	ND	ND	ND	ND
1,2,4 - Trimethylbenzene	microg/L	ND	ND	ND	ND
sec - Butylbenzene	microg/L	ND	ND	ND	ND

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW -2

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
1,3 - Dichlorobenzene	microg/L	ND	ND	ND	ND
1,4 - Dichlorobenzene	microg/L	ND	ND	ND	ND
4 - Isopropyltoluene	microg/L	ND	ND	ND	ND
1,2 - Dichlorobenzene	microg/L	ND	ND	ND	ND
n - Butylbenzene	microg/L	ND	ND	ND	ND
1,2 - Dibromo - 3 - chloropropane	microg/L	ND	ND	ND	ND
1,2,4 - Trichlorobenzene	microg/L	ND	ND	ND	ND
Naphthalene	microg/L	ND	ND	ND	ND
Hexachlorobutadiene	microg/L	ND	ND	ND	ND
Trichlorobenzene	microg/L	ND	ND	ND	ND

* Estimated Value. Present, but less than limit of quantification
NA - Not Analyzed
ND - Not Detected

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 3

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Non-Metals					
Total Dissolved Solids	mg/L	NA	5,320	5,380	5,410
Total Suspended Solids	mg/L	8.0	6.7	41.0	7.9
Conductivity	micro-mho/cm	NA	5,870	5,710	7,320
Alkalinity	mg/L	NA	491	440	430
Hardness	mg/L	NA	1,981	2,140	2,200
pH	s.u.	NA	7.66	NA	7.90
Turbidity	NTU	2.64	9.15	22.6	0.24
Major Ions					
Calcium	mg/L	435	434	470	480
Magnesium	mg/L	240	218	235	243
Sodium	mg/L	756	807	882	NA
Potassium	mg/L	21.4	19.9	20.2	NA
Carbon Dioxide as CO2	mg/L	NA	NA	11.8	15.0
Carbonate	mg/L	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate	mg/L	491	598	537	524
Hydroxide	mg/L	NA	< 1.0	< 1.0	< 1.0
Sulfate	mg/L	3,250	2,920	3,230	3,090
Chloride	mg/L	60.5	62.0	82.5	61.4
Fluoride	mg/L	0.50	0.46	0.40	0.50
Miscellaneous					
Ammonium as N	mg/L	0.28	0.23	0.39	0.63
Nitrate + Nitrite as N	mg/L	0.38	0.17	0.20	< 0.10
Phosphorus	mg/L	NA	<1.0	< 0.10	< 0.057
Trace Metals					
Aluminum	mg/L	0.003	0.070	< 0.10	< 0.10
Antimony	mg/L	< 0.001	< 0.003	< 0.01	< 0.01
Arsenic	mg/L	0.001	0.001	0.001	0.002
Barium	mg/L	0.008	0.025	< 0.10	< 0.10
Beryllium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Cadmium	mg/L	0.002	< 0.001	< 0.005	< 0.005
Chromium	mg/L	< 0.001	< 0.005	< 0.05	< 0.05
Copper	mg/L	0.006	0.006	< 0.01	< 0.01
Iron	mg/L	0.06	20	< 0.05	NA
Lead	mg/L	< 0.001	< 0.003	< 0.05	< 0.05
Manganese	mg/L	2.02	0.016	2.04	2.01
Mercury	mg/L	< 0.001	< 0.0002	< 0.001	< 0.001
Molybdenum	mg/L	< 0.001	0.005	< 0.10	< 0.10
Nickel	mg/L	0.038	0.010	< 0.05	< 0.05
Selenium	mg/L	0.013	0.026	0.009	0.011
Silver	mg/L	< 0.001	< 0.002	< 0.01	< 0.01
Thallium	mg/L	0.002	< 0.001	< 0.01	< 0.01
Vanadium	mg/L	< 0.001	< 0.03	< 0.10	< 0.10
Zinc	mg/L	0.046	< 0.03	< 0.01	< 0.01
Radionuclides					
Gross Alpha (total)	pCi/L	< 11.0	< 11.3	1.2	46.6
Gross Beta (total)	pCi/L	< 22.0	< 22.9	NA	122

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 3

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Radium - 226 (total)	pCi/L	0.60	0.40	NA	NA
Radium - 228 (total)	pCi/L	< 1.0	2.3	NA	NA
Uranium (total)	mg/L	0.0413	0.0160	0.0534	0.046

Volatile Organic Compounds

Dichlorodifluoromethane	microg/L	ND	ND	ND	ND
Chloromethane	microg/L	ND	ND	ND	ND
Vinyl chloride (Chloroethene)	microg/L	ND	ND	ND	ND
Bromomethane	microg/L	ND	ND	ND	ND
Chloroethane	microg/L	ND	ND	ND	ND
Trichlorofluoromethane	microg/L	ND	ND	ND	ND
1,1 - Dichloroethene	microg/L	ND	ND	ND	ND
Methylene chloride (Dichloromethane)	microg/L	ND	ND	ND	ND
trans - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
1,1 - Dichloroethane	microg/L	ND	ND	ND	ND
2 - Butanone (MEK), Methyl ethyl ketone	microg/L	ND	ND	ND	ND
cis - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
Bromochloromethane	microg/L	ND	ND	ND	ND
Chloroform (Trichloromethane)	microg/L	ND	ND	ND	ND
2,2 - Dichloropropane	microg/L	ND	ND	ND	ND
1,1,1 - Trichloroethane	microg/L	ND	ND	ND	ND
1,2 - Dichloroethane	microg/L	ND	ND	ND	ND
1,1 - Dichloropropene	microg/L	ND	ND	ND	ND
Carbon tetrachloride (Tetrachloromethane)	microg/L	ND	ND	ND	ND
Benzene	microg/L	ND	ND	ND	ND
Dibromomethane	microg/L	ND	ND	ND	ND
1,2 - Dichloropropane	microg/L	ND	ND	ND	ND
Trichloroethene	microg/L	ND	ND	ND	ND
Bromodichloromethane	microg/L	ND	ND	ND	ND
cis - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
trans - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
1,1,2 - Trichloroethane	microg/L	ND	ND	ND	ND
Tetrahydrofuran	microg/L	NA	NA	130	NA
Toluene	microg/L	ND	ND	ND	ND
1,2 - Dibromoethane	microg/L	ND	ND	ND	ND
1,3 - Dichloropropane	microg/L	ND	ND	ND	ND
Dibromochloromethane	microg/L	ND	ND	ND	ND
Tetrachloroethene	microg/L	ND	ND	ND	ND
1,1,1,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
Chlorobenzene	microg/L	ND	ND	ND	ND
Ethylbenzene	microg/L	ND	ND	ND	ND
m,p -Xylenes (1,3 - & !,4 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
Bromoform (Tribromomethane)	microg/L	ND	ND	ND	ND
Styrene (Ethenylbenzene)	microg/L	ND	ND	ND	ND
o - Xylene (1,2 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
1,1,2,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
1,2,3 - Trichlorpropane	microg/L	ND	ND	ND	ND
Isopropylbenzene (1-Methylethylbenzene)	microg/L	ND	ND	ND	ND
Bromobenzene	microg/L	ND	ND	ND	ND
n - Propylbenzene	microg/L	ND	ND	ND	ND
2 - Chlorotoluene	microg/L	ND	ND	ND	ND
4 - Chlorotoluene	microg/L	ND	ND	ND	ND
1,3,5 - Trimethylbenzene	microg/L	ND	ND	ND	ND
tert - Butylbenzene	microg/L	ND	ND	ND	ND
1,2,4 - Trimethylbenzene	microg/L	ND	ND	ND	ND
sec - Butylbenzene	microg/L	ND	ND	ND	ND

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 3

TARGET COMPOUNDS	UNITS	Sample Event			
		May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
1,3 - Dichlorobenzene	microg/L	ND	ND	ND	ND
1,4 - Dichlorobenzene	microg/L	ND	ND	ND	ND
4 - Isopropyltoluene	microg/L	ND	ND	ND	ND
1,2 - Dichlorobenzene	microg/L	ND	ND	ND	ND.
n - Butylbenzene	microg/L	ND	ND	ND	ND
1,2 - Dibromo - 3 - chloropropane	microg/L	ND	ND	ND	ND
1,2,4 - Trichlorobenzene	microg/L	ND	ND	ND	ND
Naphthalene	microg/L	ND	ND	ND	ND
Hexachlorobutadiene	microg/L	ND	ND	ND	ND
Trichlorobenzene	microg/L	ND	ND	ND	ND

* Estimated Value. Present, but less than limit of quantification
NA - Not Analyzed
ND - Not Detected

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 4

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Non-Metals					
Total Dissolved Solids	mg/L	NA	3,200	3,090	2,520
Total Suspended Solids	mg/L	26.7	4.3	4.0	2.7
Conductivity	micro-mho/cm	NA	3,480	3,270	3,220
Alkalinity	mg/L	NA	334	326	311
Hardness	mg/L	NA	1,993	2,070	1,630
pH	s.u.	NA	8.09	NA	7.95
Turbidity	NTU	44.7	3.85	7.93	0.39
Major Ions					
Calcium	mg/L	494	422	446	354
Magnesium	mg/L	231	228	232	181
Sodium	mg/L	160	137	124	NA
Potassium	mg/L	11.0	10.3	10.1	NA
Carbon Dioxide as CO2	mg/L	NA		15.1	< 10
Carbonate	mg/L	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate	mg/L	416	407	397	379
Hydroxide	mg/L	NA	< 1.0	< 1.0	< 1.0
Sulfate	mg/L	1,920	1,880	1,670	1,480
Chloride	mg/L	215.0	175.0	110.0	69.4
Fluoride	mg/L	0.23	0.25	0.20	0.30
Miscellaneous					
Ammonium as N	mg/L	0.06	0.06	< 0.05	0.12
Nitrate + Nitrite as N	mg/L	10.3	9.37	8.0	8.45
Phosphorus	mg/L	NA	< 1.0	< 0.10	< 0.057
Trace Metals					
Aluminum	mg/L	0.003	< 0.03	< 0.10	< 0.10
Antimony	mg/L	< 0.001	< 0.003	< 0.01	< 0.01
Arsenic	mg/L	0.001	0.001	< 0.001	0.001
Barium	mg/L	0.009	0.013	< 0.10	< 0.10
Beryllium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Cadmium	mg/L	< 0.001	< 0.001	< 0.005	< 0.005
Chromium	mg/L	< 0.001	< 0.005	< 0.05	< 0.05
Copper	mg/L	0.007	0.019	< 0.01	< 0.01
Iron	mg/L	8.86	1,510	0.14	NA
Lead	mg/L	< 0.001	< 0.003	< 0.05	< 0.05
Manganese	mg/L	0.059	0.548	0.03	< 0.10
Mercury	mg/L	< 0.001	< 0.0002	< 0.001	< 0.001
Molybdenum	mg/L	0.002	0.003	< 0.10	< 0.10
Nickel	mg/L	0.005	< 0.01	< 0.05	< 0.05
Selenium	mg/L	0.040	0.005	0.054	0.060
Silver	mg/L	< 0.001	< 0.002	< 0.01	< 0.01
Thallium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Vanadium	mg/L	< 0.001	< 0.03	< 0.10	< 0.10
Zinc	mg/L	0.011	< 0.03	< 0.01	< 0.01
Radionuclides					
Gross Alpha (total)	pCi/L	< 5.0	13.9	< 1.0	8.3
Gross Beta (total)	pCi/L	126	28.3	NA	60.2

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 4

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Radium - 226 (total)	pCi/L	0.8	< 0.2	NA	NA
Radium - 228 (total)	pCi/L	< 1.0	2.3	NA	NA
Uranium (total)	mg/L	0.0285	0.035	0.0268	0.023

Volatile Organic Compounds

Dichlorodifluoromethane	microg/L	ND	ND	ND	ND
Chloromethane	microg/L	ND	ND	ND	ND
Vinyl chloride (Chloroethene)	microg/L	ND	ND	ND	ND
Bromomethane	microg/L	ND	ND	ND	ND
Chloroethane	microg/L	ND	ND	ND	ND
Trichlorofluoromethane	microg/L	ND	ND	ND	ND
1,1 - Dichloroethene	microg/L	ND	ND	ND	ND
Methylene chloride (Dichloromethane)	microg/L	ND	ND	ND	ND
trans - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
1,1 - Dichloroethane	microg/L	ND	ND	ND	ND
2 - Butanone (MEK), Methyl ethyl ketone	microg/L	ND	ND	ND	ND
cis - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
Bromochloromethane	microg/L	ND	ND	ND	ND
Chloroform (Trichloromethane)	microg/L	4,520	6,470	5,200	6,000
2,2 - Dichloropropane	microg/L	ND	ND	ND	ND
1,1,1 - Trichloroethane	microg/L	ND	ND	ND	ND
1,2 - Dichloroethane	microg/L	ND	ND	ND	ND
1,1 - Dichloropropene	microg/L	ND	ND	ND	ND
Carbon tetrachloride (Tetrachloromethane)	microg/L	ND	ND	ND	ND
Benzene	microg/L	ND	ND	ND	ND
Dibromomethane	microg/L	ND	ND	ND	ND
1,2 - Dichloropropane	microg/L	ND	ND	ND	ND
Trichloroethene	microg/L	ND	ND	ND	ND
Bromodichloromethane	microg/L	ND	ND	ND	ND
cis - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
trans - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
1,1,2 - Trichloroethane	microg/L	ND	ND	ND	ND
Tetrahydrofuran	microg/L	NA	NA	ND	NA
Toluene	microg/L	ND	ND	ND	ND
1,2 - Dibromoethane	microg/L	ND	ND	ND	ND
1,3 - Dichloropropane	microg/L	ND	ND	ND	ND
Dibromochloromethane	microg/L	ND	ND	ND	ND
Tetrachloroethene	microg/L	ND	ND	ND	ND
1,1,1,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
Chlorobenzene	microg/L	ND	ND	ND	ND
Ethylbenzene	microg/L	ND	ND	ND	ND
m.p -Xylenes (1,3 - & !,4 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
Bromoform (Tribromomethane)	microg/L	ND	ND	ND	ND
Styrene (Ethenylbenzene)	microg/L	ND	ND	ND	ND
o - Xylene (1,2 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
1,1,2,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
1,2,3 - Trichlorpropane	microg/L	ND	ND	ND	ND
Isopropylbenzene (1-Methylethylbenzene)	microg/L	ND	ND	ND	ND
Bromobenzene	microg/L	ND	ND	ND	ND
n - Propylbenzene	microg/L	ND	ND	ND	ND
2 - Chlorotoluene	microg/L	ND	ND	ND	ND
4 - Chlorotoluene	microg/L	ND	ND	ND	ND
1,3,5 - Trimethylbenzene	microg/L	ND	ND	ND	ND
tert - Butylbenzene	microg/L	ND	ND	ND	ND
1,2,4 - Trimethylbenzene	microg/L	ND	ND	ND	ND
sec - Butylbenzene	microg/L	ND	ND	ND	ND

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 4

TARGET COMPOUNDS	UNITS	Sample Event			
		May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
1,3 - Dichlorobenzene	microg/L	ND	ND	ND	ND
1,4 - Dichlorobenzene	microg/L	ND	ND	ND	ND
4 - Isopropyltoluene	microg/L	ND	ND	ND	ND
1,2 - Dichlorobenzene	microg/L	ND	ND	ND	ND
n - Butylbenzene	microg/L	ND	ND	ND	ND
1,2 - Dibromo - 3 - chloropropane	microg/L	ND	ND	ND	ND
1,2,4 - Trichlorobenzene	microg/L	ND	ND	ND	ND
Naphthalene	microg/L	ND	ND	ND	ND
Hexachlorobutadiene	microg/L	ND	ND	ND	ND
Trichlorobenzene	microg/L	ND	ND	ND	ND

* Estimated Value. Present, but less than limit of quantification
NA - Not Analyzed
ND - Not Detected

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 5

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Non-Metals					
Total Dissolved Solids	mg/L	NA	2,160	2,030	1,970
Total Suspended Solids	mg/L	27.9	32.8	5.0	238.0
Conductivity	micro-mho/cm	NA	2,910	2,720	3,030
Alkalinity	mg/L	NA	312	307	307
Hardness	mg/L	NA	522	484	540
pH	s.u.	NA	8.06	NA	8.00
Turbidity	NTU	16.3	17.2	5.96	1.04
Major Ions					
Calcium	mg/L	126	142	132	146
Magnesium	mg/L	36.8	40.6	37.6	42.5
Sodium	mg/L	425	440	388	NA
Potassium	mg/L	7.0	7.6	7.1	NA
Carbon Dioxide as CO2	mg/L	NA	< 10	4.8	< 10
Carbonate	mg/L	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate	mg/L	372	381	374	375
Hydroxide	mg/L	NA	< 1.0	< 1.0	< 1.0
Sulfate	mg/L	982	1,140	1,090	1,210
Chloride	mg/L	49.9	57.4	67.9	52.5
Fluoride	mg/L	0.91	0.94	0.90	0.90
Miscellaneous					
Ammonium as N	mg/L	0.44	0.50	0.59	0.87
Nitrate + Nitrite as N	mg/L	0.30	< 0.10	< 0.10	< 0.10
Phosphorus	mg/L	NA	< 1.0	< 0.10	< 0.057
Trace Metals					
Aluminum	mg/L	0.003	< 0.10	< 0.10	< 0.10
Antimony	mg/L	< 0.001	< 0.05	< 0.01	< 0.01
Arsenic	mg/L	0.003	0.002	0.002	0.001
Barium	mg/L	0.019	< 0.10	< 0.10	< 0.10
Beryllium	mg/L	< 0.001	< 0.01	< 0.01	< 0.01
Cadmium	mg/L	< 0.001	< 0.005	< 0.005	< 0.005
Chromium	mg/L	< 0.001	< 0.05	< 0.05	< 0.05
Copper	mg/L	0.003	< 0.01	< 0.01	< 0.01
Iron	mg/L	0.02	0.18	0.18	NA
Lead	mg/L	< 0.001	< 0.05	< 0.05	< 0.05
Manganese	mg/L	0.003	0.26	0.25	0.32
Mercury	mg/L	0.002	< 0.001	< 0.001	< 0.001
Molybdenum	mg/L	< 0.001	< 0.10	< 0.10	< 0.10
Nickel	mg/L	< 0.001	< 0.05	< 0.05	< 0.05
Selenium	mg/L	< 0.001	0.004	0.002	0.002
Silver	mg/L	< 0.001	< 0.01	< 0.01	< 0.01
Thallium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Vanadium	mg/L	< 0.001	< 0.10	< 0.10	< 0.10
Zinc	mg/L	0.006	< 0.01	< 0.01	< 0.01
Radionuclides					
Gross Alpha (total)	pCi/L	< 4.0	8.0	< 1.0	< 1.0
Gross Beta (total)	pCi/L	63.9	< 5.7	NA	< 2.0

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 5

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Radium - 226 (total)	pCi/L	0.3	0.6	NA	NA
Radium - 228 (total)	pCi/L	< 1.0	< 1.0	NA	NA
Uranium (total)	mg/L	0.0004	0.0015	0.0008	< 0.001

Volatile Organic Compounds

Dichlorodifluoromethane	microg/L	ND	ND	ND	ND
Chloromethane	microg/L	ND	ND	ND	ND
Vinyl chloride (Chloroethene)	microg/L	ND	ND	ND	ND
Bromomethane	microg/L	ND	ND	ND	ND
Chloroethane	microg/L	ND	ND	ND	ND
Trichlorofluoromethane	microg/L	ND	ND	ND	ND
1,1 - Dichloroethene	microg/L	ND	ND	ND	ND
Methylene chloride (Dichloromethane)	microg/L	ND	ND	ND	ND
trans - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
1,1 - Dichloroethane	microg/L	ND	ND	ND	ND
2 - Butanone (MEK), Methyl ethyl ketone	microg/L	ND	ND	ND	ND
cis - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
Bromochloromethane	microg/L	ND	ND	ND	ND
Chloroform (Trichloromethane)	microg/L	ND	ND	ND	ND
2,2 - Dichloropropane	microg/L	ND	ND	ND	ND
1,1,1 - Trichloroethane	microg/L	ND	ND	ND	ND
1,2 - Dichloroethane	microg/L	ND	ND	ND	ND
1,1 - Dichloropropene	microg/L	ND	ND	ND	ND
Carbon tetrachloride (Tetrachloromethane)	microg/L	ND	ND	ND	ND
Benzene	microg/L	ND	ND	ND	ND
Dibromomethane	microg/L	ND	ND	ND	ND
1,2 - Dichloropropane	microg/L	ND	ND	ND	ND
Trichloroethene	microg/L	ND	ND	ND	ND
Bromodichloromethane	microg/L	ND	ND	ND	ND
cis - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
trans - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
1,1,2 - Trichloroethane	microg/L	ND	ND	ND	ND
Tetrahydrofuran	microg/L	NA	NA	10	NA
Toluene	microg/L	ND	ND	ND	ND
1,2 - Dibromoethane	microg/L	ND	ND	ND	ND
1,3 - Dichloropropane	microg/L	ND	ND	ND	ND
Dibromochloromethane	microg/L	ND	ND	ND	ND
Tetrachloroethene	microg/L	ND	ND	ND	ND
1,1,1,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
Chlorobenzene	microg/L	ND	ND	ND	ND
Ethylbenzene	microg/L	ND	ND	ND	ND
m.p -Xylenes (1,3 - & !,4 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
Bromoform (Tribromomethane)	microg/L	ND	ND	ND	ND
Styrene (Ethenylbenzene)	microg/L	ND	ND	ND	ND
o - Xylene (1,2 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
1,1,2,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
1,2,3 - Trichlorpropane	microg/L	ND	ND	ND	ND
Isopropylbenzene (1-Methylethylbenzene)	microg/L	ND	ND	ND	ND
Bromobenzene	microg/L	ND	ND	ND	ND
n - Propylbenzene	microg/L	ND	ND	ND	ND
2 - Chlorotoluene	microg/L	ND	ND	ND	ND
4 - Chlorotoluene	microg/L	ND	ND	ND	ND
1,3,5 - Trimethylbenzene	microg/L	ND	ND	ND	ND
tert - Butylbenzene	microg/L	ND	ND	ND	ND
1,2,4 - Trimethylbenzene	microg/L	ND	ND	ND	ND
sec - Butylbenzene	microg/L	ND	ND	ND	ND

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 5

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
1,3 - Dichlorobenzene	microg/L	ND	ND	ND	ND
1,4 - Dichlorobenzene	microg/L	ND	ND	ND	ND
4 - Isopropyltoluene	microg/L	ND	ND	ND	ND
1,2 - Dichlorobenzene	microg/L	ND	ND	ND	ND
n - Butylbenzene	microg/L	ND	ND	ND	ND
1,2 - Dibromo - 3 - chloropropane	microg/L	ND	ND	ND	ND
1,2,4 - Trichlorobenzene	microg/L	ND	ND	ND	ND
Naphthalene	microg/L	ND	ND	ND	ND
Hexachlorobutadiene	microg/L	ND	ND	ND	ND
Trichlorobenzene	microg/L	ND	ND	ND	ND

* Estimated Value. Present, but less than limit of quantification
NA - Not Analyzed
ND - Not Detected

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 11

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Non-Metals					
Total Dissolved Solids	mg/L	NA	2,130	2,100	1,850
Total Suspended Solids	mg/L	6.3	6.9	11.0	14.5
Conductivity	micro-mho/cm	NA	2,960	2,880	2,990
Alkalinity	mg/L	NA	314	308	305
Hardness	mg/L	NA	361	352	351
pH	s.u.	NA	8.23	NA	8.25
Turbidity	NTU	3.33	2.71	5.32	8.22
Major Ions					
Calcium	mg/L	43.7	94	91.9	90.8
Magnesium	mg/L	12.9	30.6	29.8	30.1
Sodium	mg/L	530	487	574	NA
Potassium	mg/L	5.9	7.6	7.0	NA
Carbon Dioxide as CO2	mg/L	NA	< 10	5.7	< 10
Carbonate	mg/L	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate	mg/L	377	382	375	372
Hydroxide	mg/L	NA	< 1.0	< 1.0	< 1.0
Sulfate	mg/L	945	1,140	1,150	1,160
Chloride	mg/L	32.8	37.3	42.4	33.1
Fluoride	mg/L	0.51	0.51	0.50	0.50
Miscellaneous					
Ammonium as N	mg/L	0.50	< 0.05	0.62	0.59
Nitrate + Nitrite as N	mg/L	0.12	< 0.10	< 0.10	< 0.10
Phosphorus	mg/L	NA	< 1.0	< 0.10	< 0.057
Trace Metals					
Aluminum	mg/L	0.007	NA	< 0.10	< 0.10
Antimony	mg/L	< 0.001	NA	< 0.01	< 0.01
Arsenic	mg/L	< 0.001	NA	< 0.001	< 0.001
Barium	mg/L	0.010	NA	< 0.10	< 0.10
Beryllium	mg/L	< 0.001	NA	< 0.01	< 0.01
Cadmium	mg/L	< 0.001	NA	< 0.005	< 0.005
Chromium	mg/L	< 0.001	NA	< 0.05	< 0.05
Copper	mg/L	0.003	NA	< 0.01	< 0.01
Iron	mg/L	0.03	NA	< 0.05	NA
Lead	mg/L	< 0.001	NA	< 0.05	< 0.05
Manganese	mg/L	0.066	NA	0.10	0.10
Mercury	mg/L	< 0.001	NA	< 0.001	< 0.001
Molybdenum	mg/L	0.003	NA	< 0.10	< 0.10
Nickel	mg/L	0.002	NA	< 0.05	< 0.05
Selenium	mg/L	0.002	NA	0.003	0.003
Silver	mg/L	< 0.001	NA	< 0.01	< 0.01
Thallium	mg/L	< 0.001	NA	< 0.01	< 0.01
Vanadium	mg/L	< 0.001	NA	< 0.10	< 0.10
Zinc	mg/L	0.005	NA	< 0.01	< 0.01
Radionuclides					
Gross Alpha (total)	pCi/L	< 4.0	< 2.8	< 1.0	< 1.0
Gross Beta (total)	pCi/L	< 7.0	< 5.7	NA	11.0

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 11

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Radium - 226 (total)	pCi/L	0.4	< 0.2	NA	NA
Radium - 228 (total)	pCi/L	< 1.0	2.4	NA	NA
Uranium (total)	mg/L	0.0007	0.0022	0.0017	0.001

Volatile Organic Compounds

Dichlorodifluoromethane	microg/L	ND	ND	ND	ND
Chloromethane	microg/L	ND	ND	ND	ND
Vinyl chloride (Chloroethene)	microg/L	ND	ND	ND	ND
Bromomethane	microg/L	ND	ND	ND	ND
Chloroethane	microg/L	ND	ND	ND	ND
Trichlorofluoromethane	microg/L	ND	ND	ND	ND
1,1 - Dichloroethene	microg/L	ND	ND	ND	ND
Methylene chloride (Dichloromethane)	microg/L	ND	ND	ND	ND
trans - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
1,1 - Dichloroethane	microg/L	ND	ND	ND	ND
2 - Butanone (MEK), Methyl ethyl ketone	microg/L	ND	ND	ND	ND
cis - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
Bromochloromethane	microg/L	ND	ND	ND	ND
Chloroform (Trichloromethane)	microg/L	ND	ND	ND	ND
2,2 - Dichloropropane	microg/L	ND	ND	ND	ND
1,1,1 - Trichloroethane	microg/L	ND	ND	ND	ND
1,2 - Dichloroethane	microg/L	ND	ND	ND	ND
1,1 - Dichloropropene	microg/L	ND	ND	ND	ND
Carbon tetrachloride (Tetrachloromethane)	microg/L	ND	ND	ND	ND
Benzene	microg/L	ND	ND	ND	ND
Dibromomethane	microg/L	ND	ND	ND	ND
1,2 - Dichloropropane	microg/L	ND	ND	ND	ND
Trichloroethene	microg/L	ND	ND	ND	ND
Bromodichloromethane	microg/L	ND	ND	ND	ND
cis - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
trans - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
1,1,2 - Trichloroethane	microg/L	ND	ND	ND	ND
Tetrahydrofuran	microg/L	NA	NA	ND	NA
Toluene	microg/L	ND	ND	ND	2.0
1,2 - Dibromoethane	microg/L	ND	ND	ND	ND
1,3 - Dichloropropane	microg/L	ND	ND	ND	ND
Dibromochloromethane	microg/L	ND	ND	ND	ND
Tetrachloroethene	microg/L	ND	ND	ND	ND
1,1,1,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
Chlorobenzene	microg/L	ND	ND	ND	ND
Ethylbenzene	microg/L	ND	ND	ND	ND
m,p -Xylenes (1,3 - & !,4 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
Bromoform (Tribromomethane)	microg/L	ND	ND	ND	ND
Styrene (Ethenylbenzene)	microg/L	ND	ND	ND	ND
o - Xylene (1,2 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
1,1,2,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
1,2,3 - Trichloropropane	microg/L	ND	ND	ND	ND
Isopropylbenzene (1-Methylethylbenzene)	microg/L	ND	ND	ND	ND
Bromobenzene	microg/L	ND	ND	ND	ND
n - Propylbenzene	microg/L	ND	ND	ND	ND
2 - Chlorotoluene	microg/L	ND	ND	ND	ND
4 - Chlorotoluene	microg/L	ND	ND	ND	ND
1,3,5 - Trimethylbenzene	microg/L	ND	ND	ND	ND
tert - Butylbenzene	microg/L	ND	ND	ND	ND
1,2,4 - Trimethylbenzene	microg/L	ND	ND	ND	ND
sec - Butylbenzene	microg/L	ND	ND	ND	ND

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 11

TARGET COMPOUNDS	UNITS	Sample Event			
		May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
1,3 - Dichlorobenzene	microg/L	ND	ND	ND	ND
1,4 - Dichlorobenzene	microg/L	ND	ND	ND	ND
4 - Isopropyltoluene	microg/L	ND	ND	ND	ND
1,2 - Dichlorobenzene	microg/L	ND	ND	ND	ND
n - Butylbenzene	microg/L	ND	ND	ND	ND
1,2 - Dibromo - 3 - chloropropane	microg/L	ND	ND	ND	ND
1,2,4 - Trichlorobenzene	microg/L	ND	ND	ND	ND
1,2,3 - Trichlorobenzene	microg/L	ND	ND	ND	ND
Naphthalene	microg/L	ND	ND	ND	ND
Hexachlorobutadiene	microg/L	ND	ND	ND	ND
Trichlorobenzene	microg/L	ND	ND	ND	ND

* Estimated Value. Present, but less than limit of quantification
NA - Not Analyzed
ND - Not Detected

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 12

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Non-Metals					
Total Dissolved Solids	mg/L	NA	3,860	3,900	3,740
Total Suspended Solids	mg/L	41.7	58.7	48.0	23.9
Conductivity	micro-mho/cm	NA	4,030	3,970	4,250
Alkalinity	mg/L	NA	346	342	255
Hardness	mg/L	NA	2,135	2,270	2,170
pH	s.u.	NA	7.96	NA	7.90
Turbidity	NTU	21.30	28.70	31.0	13.0
Major Ions					
Calcium	mg/L	474	499	531	506
Magnesium	mg/L	216	216	228	220
Sodium	mg/L	277	248	229	NA
Potassium	mg/L	12.2	11.8	11.7	NA
Carbon Dioxide as CO2	mg/L	NA	< 10	8.9	< 10
Carbonate	mg/L	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate	mg/L	416	422	417	311
Hydroxide	mg/L	NA	< 1.0	< 1.0	< 1.0
Sulfate	mg/L	2,090	2,000	2,190	2,140
Chloride	mg/L	58.8	57.0	81.2	57.3
Fluoride	mg/L	0.33	0.34	0.30	0.30
Miscellaneous					
Ammonium as N	mg/L	0.09	0.13	0.05	0.29
Nitrate + Nitrite as N	mg/L	0.15	0.12	< 0.10	< 0.10
Phosphorus	mg/L	NA	< 1.0	< 0.10	< 0.057
Trace Metals					
Aluminum	mg/L	0.004	< 0.10	< 0.10	< 0.10
Antimony	mg/L	< 0.001	< 0.05	< 0.01	< 0.01
Arsenic	mg/L	< 0.001	0.001	< 0.001	< 0.001
Barium	mg/L	0.005	< 0.10	< 0.10	< 0.10
Beryllium	mg/L	< 0.001	< 0.01	< 0.01	< 0.01
Cadmium	mg/L	< 0.001	< 0.005	< 0.005	< 0.005
Chromium	mg/L	< 0.001	< 0.05	< 0.05	< 0.05
Copper	mg/L	0.003	< 0.01	< 0.01	< 0.01
Iron	mg/L	0.02	0.05	< 0.05	NA
Lead	mg/L	< 0.001	< 0.05	< 0.05	< 0.05
Manganese	mg/L	0.017	0.31	0.33	0.44
Mercury	mg/L	0.003	< 0.001	< 0.001	< 0.001
Molybdenum	mg/L	< 0.001	< 0.10	< 0.10	< 0.10
Nickel	mg/L	0.001	< 0.05	< 0.05	< 0.05
Selenium	mg/L	< 0.001	0.013	0.017	0.015
Silver	mg/L	< 0.001	< 0.01	< 0.01	< 0.01
Thallium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Vanadium	mg/L	< 0.001	< 0.10	< 0.10	< 0.10
Zinc	mg/L	0.014	< 0.01	< 0.01	< 0.01
Radionuclides					
Gross Alpha (total)	pCi/L	< 5.0	< 5.7	< 1.0	12.9
Gross Beta (total)	pCi/L	< 11.0	< 11.5	NA	11.9

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 12

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Radium - 226 (total)	pCi/L	0.3	0.8	NA	NA
Radium - 228 (total)	pCi/L	< 1.0	4.9	NA	NA
Uranium (total)	mg/L	0.0009	0.021	0.0179	0.019

Volatile Organic Compounds

Dichlorodifluoromethane	microg/L	ND	ND	ND	ND
Chloromethane	microg/L	ND	ND	ND	ND
Vinyl chloride (Chloroethene)	microg/L	ND	ND	ND	ND
Bromomethane	microg/L	ND	ND	ND	ND
Chloroethane	microg/L	ND	ND	ND	ND
Trichlorofluoromethane	microg/L	ND	ND	ND	ND
1,1 - Dichloroethene	microg/L	ND	ND	ND	ND
Methylene chloride (Dichloromethane)	microg/L	ND	ND	ND	ND
trans - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
1,1 - Dichloroethane	microg/L	ND	ND	ND	ND
2 - Butanone (MEK), Methyl ethyl ketone	microg/L	ND	ND	ND	ND
cis - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
Bromochloromethane	microg/L	ND	ND	ND	ND
Chloroform (Trichloromethane)	microg/L	ND	ND	ND	ND
2,2 - Dichloropropane	microg/L	ND	ND	ND	ND
1,1,1 - Trichloroethane	microg/L	ND	ND	ND	ND
1,2 - Dichloroethane	microg/L	ND	ND	ND	ND
1,1 - Dichloropropene	microg/L	ND	ND	ND	ND
Carbon tetrachloride (Tetrachloromethane)	microg/L	ND	ND	ND	ND
Benzene	microg/L	ND	ND	ND	ND
Dibromomethane	microg/L	ND	ND	ND	ND
1,2 - Dichloropropane	microg/L	ND	ND	ND	ND
Trichloroethene	microg/L	ND	ND	ND	ND
Bromodichloromethane	microg/L	ND	ND	ND	ND
cis - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
trans - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
1,1,2 - Trichloroethane	microg/L	ND	ND	ND	ND
Tetrahydrofuran	microg/L	NA	NA	21	NA
Toluene	microg/L	ND	ND	ND	ND
1,2 - Dibromoethane	microg/L	ND	ND	ND	ND
1,3 - Dichloropropane	microg/L	ND	ND	ND	ND
Dibromochloromethane	microg/L	ND	ND	ND	ND
Tetrachloroethene	microg/L	ND	ND	ND	ND
1,1,1,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
Chlorobenzene	microg/L	ND	ND	ND	ND
Ethylbenzene	microg/L	ND	ND	ND	ND
m,p -Xylenes (1,3 - & !,4 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
Bromoform (Tribromomethane)	microg/L	ND	ND	ND	ND
Styrene (Ethenylbenzene)	microg/L	ND	ND	ND	ND
o - Xylene (1,2 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
1,1,2,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
1,2,3 - Trichloropropane	microg/L	ND	ND	ND	ND
Isopropylbenzene (1-Methylethylbenzene)	microg/L	ND	ND	ND	ND
Bromobenzene	microg/L	ND	ND	ND	ND
n - Propylbenzene	microg/L	ND	ND	ND	ND
2 - Chlorotoluene	microg/L	ND	ND	ND	ND
4 - Chlorotoluene	microg/L	ND	ND	ND	ND
1,3,5 - Trimethylbenzene	microg/L	ND	ND	ND	ND
tert - Butylbenzene	microg/L	ND	ND	ND	ND
1,2,4 - Trimethylbenzene	microg/L	ND	ND	ND	ND
sec - Butylbenzene	microg/L	ND	ND	ND	ND

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 12

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
1,3 - Dichlorobenzene	microg/L	ND	ND	ND	ND
1,4 - Dichlorobenzene	microg/L	ND	ND	ND	ND
4 - Isopropyltoluene	microg/L	ND	ND	ND	ND
1,2 - Dichlorobenzene	microg/L	ND	ND	ND	ND
n - Butylbenzene	microg/L	ND	ND	ND	ND
1,2 - Dibromo - 3 - chloropropane	microg/L	ND	ND	ND	ND
1,2,4 - Trichlorobenzene	microg/L	ND	ND	ND	ND
1,2,3 - Trichlorobenzene	microg/L	ND	ND	ND	ND
Naphthalene	microg/L	ND	ND	ND	ND
Hexachlorobutadiene	microg/L	ND	ND	ND	ND
Trichlorobenzene	microg/L	ND	ND	ND	ND

* Estimated Value. Present, but less than limit of quantification
NA - Not Analyzed
ND - Not Detected

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 13

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Non-Metals					
Total Dissolved Solids	mg/L	NA	NA	NA	2,130
Total Suspended Solids	mg/L	NA	NA	NA	13.8
Conductivity	micro-mho/cm	NA	NA	NA	3,010
Alkalinity	mg/L	NA	NA	NA	305
Hardness	mg/L	NA	NA	NA	354
pH	s.u.	NA	NA	NA	8.25
Turbidity	mg/L	NA	NA	NA	8.12
Major Ions					
Calcium	mg/L	NA	NA	NA	91.9
Magnesium	mg/L	NA	NA	NA	30.3
Sodium	mg/L	NA	NA	NA	NA
Potassium	mg/L	NA	NA	NA	NA
Carbon Dioxide as CO2	mg/L	NA	NA	NA	< 10
Carbonate	mg/L	NA	NA	NA	< 1.0
Bicarbonate	mg/L	NA	NA	NA	372
Hydroxide	mg/L	NA	NA	NA	< 1.0
Sulfate	mg/L	NA	NA	NA	1,160
Chloride	mg/L	NA	NA	NA	33.0
Fluoride	mg/L	NA	NA	NA	0.50
Miscellaneous					
Ammonium as N	mg/L	NA	NA	NA	0.64
Nitrate + Nitrite as N	mg/L	NA	NA	NA	< 0.10
Phosphorus	mg/L	NA	NA	NA	< 0.057
Trace Metals					
Aluminum	mg/L	NA	NA	NA	< 0.10
Antimony	mg/L	NA	NA	NA	< 0.01
Arsenic	mg/L	NA	NA	NA	< 0.001
Barium	mg/L	NA	NA	NA	< 0.10
Beryllium	mg/L	NA	NA	NA	< 0.01
Cadmium	mg/L	NA	NA	NA	< 0.005
Chromium	mg/L	NA	NA	NA	< 0.05
Copper	mg/L	NA	NA	NA	< 0.01
Iron	mg/L	NA	NA	NA	NA
Lead	mg/L	NA	NA	NA	< 0.05
Manganese	mg/L	NA	NA	NA	0.10
Mercury	mg/L	NA	NA	NA	< 0.001
Molybdenum	mg/L	NA	NA	NA	< 0.10
Nickel	mg/L	NA	NA	NA	< 0.05
Selenium	mg/L	NA	NA	NA	0.002
Silver	mg/L	NA	NA	NA	< 0.01
Thallium	mg/L	NA	NA	NA	< 0.01
Vanadium	mg/L	NA	NA	NA	< 0.10
Zinc	mg/L	NA	NA	NA	< 0.01
Radionuclides					
Gross Alpha (total)	pCi/L	NA	NA	NA	< 1.0

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 13

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Gross Beta (total)	pCi/L	NA	NA	NA	77.2
Radium - 226 (total)	pCi/L	NA	NA	NA	NA
Radium - 228 (total)	pCi/L	NA	NA	NA	NA
Uranium (total)	mg/L	NA	NA	NA	0.001

Volatile Organic Compounds

Dichlorodifluoromethane	microg/L	NA	NA	NA	ND
Chloromethane	microg/L	NA	NA	NA	ND
Vinyl chloride (Chloroethene)	microg/L	NA	NA	NA	ND
Bromomethane	microg/L	NA	NA	NA	ND
Chloroethane	microg/L	NA	NA	NA	ND
Trichlorofluoromethane	microg/L	NA	NA	NA	ND
1,1 - Dichloroethene	microg/L	NA	NA	NA	ND
Methylene chloride (Dichloromethane)	microg/L	NA	NA	NA	ND
trans - 1,2 - Dichloroethene	microg/L	NA	NA	NA	ND
1,1 - Dichloroethane	microg/L	NA	NA	NA	ND
2 - Butanone (MEK), Methyl ethyl ketone	microg/L	NA	NA	NA	ND
cis - 1,2 - Dichloroethene	microg/L	NA	NA	NA	ND
Bromochloromethane	microg/L	NA	NA	NA	ND
Chloroform (Trichloromethane)	microg/L	NA	NA	NA	ND
2,2 - Dichloropropane	microg/L	NA	NA	NA	ND
1,1,1 - Trichloroethane	microg/L	NA	NA	NA	ND
1,2 - Dichloroethane	microg/L	NA	NA	NA	ND
1,1 - Dichloropropene	microg/L	NA	NA	NA	ND
Carbon tetrachloride (Tetrachloromethane)	microg/L	NA	NA	NA	ND
Benzene	microg/L	NA	NA	NA	ND
Dibromomethane	microg/L	NA	NA	NA	ND
1,2 - Dichloropropane	microg/L	NA	NA	NA	ND
Trichloroethene	microg/L	NA	NA	NA	ND
Bromodichloromethane	microg/L	NA	NA	NA	ND
cis - 1,3 - Dichloropropene	microg/L	NA	NA	NA	ND
trans - 1,3 - Dichloropropene	microg/L	NA	NA	NA	ND
1,1,2 - Trichloroethane	microg/L	NA	NA	NA	ND
Tetrahydrofuran	microg/L	NA	NA	NA	NA
Toluene	microg/L	NA	NA	NA	2.1
1,2 - Dibromoethane	microg/L	NA	NA	NA	ND
1,3 - Dichloropropane	microg/L	NA	NA	NA	ND
Dibromochloromethane	microg/L	NA	NA	NA	ND
Tetrachloroethene	microg/L	NA	NA	NA	ND
1,1,1,2 - Tetrachloroethane	microg/L	NA	NA	NA	ND
Chlorobenzene	microg/L	NA	NA	NA	ND
Ethylbenzene	microg/L	NA	NA	NA	ND
m.p -Xylenes (1,3 - & !,4 - Dimethylbenzene)	microg/L	NA	NA	NA	ND
Bromoform (Tribromomethane)	microg/L	NA	NA	NA	ND
Styrene (Ethenylbenzene)	microg/L	NA	NA	NA	ND
o - Xylene (1,2 - Dimethylbenzene)	microg/L	NA	NA	NA	ND
1,1,2,2 - Tetrachloroethane	microg/L	NA	NA	NA	ND
1,2,3 - Trichloropropane	microg/L	NA	NA	NA	ND
Isopropylbenzene (1-Methylethylbenzene)	microg/L	NA	NA	NA	ND
Bromobenzene	microg/L	NA	NA	NA	ND
n - Propylbenzene	microg/L	NA	NA	NA	ND
2 - Chlorotoluene	microg/L	NA	NA	NA	ND
4 - Chlorotoluene	microg/L	NA	NA	NA	ND
1,3,5 - Trimethylbenzene	microg/L	NA	NA	NA	ND
tert - Butylbenzene	microg/L	NA	NA	NA	ND

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 13

TARGET COMPOUNDS	UNITS	Sample Event			
		May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
1,2,4 - Trimethylbenzene	microg/L	NA	NA	NA	ND
sec - Butylbenzene	microg/L	NA	NA	NA	ND
1,3 - Dichlorobenzene	microg/L	NA	NA	NA	ND
1,4 - Dichlorobenzene	microg/L	NA	NA	NA	ND
4 - Isopropyltoluene	microg/L	NA	NA	NA	ND
1,2 - Dichlorobenzene	microg/L	NA	NA	NA	ND
n - Butylbenzene	microg/L	NA	NA	NA	ND
1,2 - Dibromo - 3 - chloropropane	microg/L	NA	NA	NA	ND
1,2,4 - Trichlorobenzene	microg/L	NA	NA	NA	ND
1,2,3 - Trichlorobenzene	microg/L	NA	NA	NA	ND
Naphthalene	microg/L	NA	NA	NA	ND
Hexachlorobutadiene	microg/L	NA	NA	NA	ND
Trichlorobenzene	microg/L	NA	NA	NA	ND

* Estimated Value. Present, but less than limit of quantification
NA - Not Analyzed
ND - Not Detected

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 14

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Non-Metals					
Total Dissolved Solids	mg/L	NA	3,590	3,650	3,720
Total Suspended Solids	mg/L	96.1	11.9	8.0	3.6
Conductivity	micro-mho/cm	NA	3,860	3,790	4,060
Alkalinity	mg/L	NA	380	382	378
Hardness	mg/L	NA	1,868	2,010	1,920
pH	s.u.	NA	7.96	NA	7.82
Turbidity	NTU	45.9	3.42	2.76	1.52
Major Ions					
Calcium	mg/L	477	494	527	505
Magnesium	mg/L	159	154	168	161
Sodium	mg/L	330	289	257	NA
Potassium	mg/L	10.9	10.8	11.4	NA
Carbon Dioxide as CO2	mg/L	NA	< 10	24.0	14.0
Carbonate	mg/L	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate	mg/L	458	463	466	461
Hydroxide	mg/L	NA	< 1.0	< 1.0	< 1.0
Sulfate	mg/L	2,170	1,900	2,030	2,110
Chloride	mg/L	33.6	22.2	26.5	18.4
Fluoride	mg/L	0.18	0.20	0.20	0.20
Miscellaneous					
Ammonium as N	mg/L	0.11	0.06	0.06	0.36
Nitrate + Nitrite as N	mg/L	0.25	< 0.10	< 0.10	< 0.10
Phosphorus	mg/L	NA	< 1.0	< 0.10	< 0.057
Trace Metals					
Aluminum	mg/L	0.014	< 0.10	< 0.10	< 0.10
Antimony	mg/L	< 0.001	< 0.05	< 0.01	< 0.01
Arsenic	mg/L	< 0.001	0.001	< 0.001	< 0.001
Barium	mg/L	0.013	< 0.10	< 0.10	< 0.10
Beryllium	mg/L	< 0.001	< 0.01	< 0.01	< 0.01
Cadmium	mg/L	0.002	< 0.005	< 0.005	< 0.005
Chromium	mg/L	< 0.001	< 0.05	< 0.05	< 0.05
Copper	mg/L	0.004	< 0.01	< 0.01	< 0.01
Iron	mg/L	1.11	< 0.03	< 0.05	NA
Lead	mg/L	< 0.001	< 0.05	< 0.05	< 0.05
Manganese	mg/L	2.00	1.68	1.71	2.06
Mercury	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Molybdenum	mg/L	0.005	< 0.10	< 0.10	< 0.10
Nickel	mg/L	0.016	< 0.05	< 0.05	< 0.05
Selenium	mg/L	0.002	0.005	0.003	0.002
Silver	mg/L	< 0.001	< 0.01	< 0.01	< 0.01
Thallium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Vanadium	mg/L	< 0.001	< 0.10	< 0.10	< 0.10
Zinc	mg/L	0.009	< 0.01	0.02	< 0.010
Radionuclides					
Gross Alpha (total)	pCi/L	12.9	27.5	< 1.0	23.2
Gross Beta (total)	pCi/L	< 11.0	< 11.5	NA	110

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 14

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Radium - 226 (total)	pCi/L	0.4	< 0.2	NA	NA
Radium - 228 (total)	pCi/L	< 1.0	3.8	NA	NA
Uranium (total)	mg/L	0.0703	0.076	0.01790	0.072

Volatile Organic Compounds

Dichlorodifluoromethane	microg/L	ND	ND	ND	ND
Chloromethane	microg/L	ND	ND	ND	ND
Vinyl chloride (Chloroethene)	microg/L	ND	ND	ND	ND
Bromomethane	microg/L	ND	ND	ND	ND
Chloroethane	microg/L	ND	ND	ND	ND
Trichlorofluoromethane	microg/L	ND	ND	ND	ND
1,1 - Dichloroethene	microg/L	ND	ND	ND	ND
Methylene chloride (Dichloromethane)	microg/L	ND	ND	ND	ND
trans - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
1,1 - Dichloroethane	microg/L	ND	ND	ND	ND
2 - Butanone (MEK), Methyl ethyl ketone	microg/L	ND	ND	ND	ND
cis - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
Bromochloromethane	microg/L	ND	ND	ND	ND
Chloroform (Trichloromethane)	microg/L	ND	ND	ND	ND
2,2 - Dichloropropane	microg/L	ND	ND	ND	ND
1,1,1 - Trichloroethane	microg/L	ND	ND	ND	ND
1,2 - Dichloroethane	microg/L	ND	ND	ND	ND
1,1 - Dichloropropene	microg/L	ND	ND	ND	ND
Carbon tetrachloride (Tetrachloromethane)	microg/L	ND	ND	ND	ND
Benzene	microg/L	ND	ND	ND	ND
Dibromomethane	microg/L	ND	ND	ND	ND
1,2 - Dichloropropane	microg/L	ND	ND	ND	ND
Trichloroethene	microg/L	ND	ND	ND	ND
Bromodichloromethane	microg/L	ND	ND	ND	ND
cis - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
trans - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
1,1,2 - Trichloroethane	microg/L	ND	ND	ND	ND
Tetrahydrofuran	microg/L	NA	NA	ND	NA
Toluene	microg/L	ND	ND	ND	ND
1,2 - Dibromoethane	microg/L	ND	ND	ND	ND
1,3 - Dichloropropane	microg/L	ND	ND	ND	ND
Dibromochloromethane	microg/L	ND	ND	ND	ND
Tetrachloroethene	microg/L	ND	ND	ND	ND
1,1,1,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
Chlorobenzene	microg/L	ND	ND	ND	ND
Ethylbenzene	microg/L	ND	ND	ND	ND
m.p -Xylenes (1,3 - & !,4 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
Bromoform (Tribromomethane)	microg/L	ND	ND	ND	ND
Styrene (Ethenylbenzene)	microg/L	ND	ND	ND	ND
o - Xylene (1,2 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
1,1,2,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
1,2,3 - Trichloropropane	microg/L	ND	ND	ND	ND
Isopropylbenzene (1-Methylethylbenzene)	microg/L	ND	ND	ND	ND
Bromobenzene	microg/L	ND	ND	ND	ND
n - Propylbenzene	microg/L	ND	ND	ND	ND
2 - Chlorotoluene	microg/L	ND	ND	ND	ND
4 - Chlorotoluene	microg/L	ND	ND	ND	ND
1,3,5 - Trimethylbenzene	microg/L	ND	ND	ND	ND
tert - Butylbenzene	microg/L	ND	ND	ND	ND
1,2,4 - Trimethylbenzene	microg/L	ND	ND	ND	ND
sec - Butylbenzene	microg/L	ND	ND	ND	ND

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 14

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
1,3 - Dichlorobenzene	microg/L	ND	ND	ND	ND
1,4 - Dichlorobenzene	microg/L	ND	ND	ND	ND
4 - Isopropyltoluene	microg/L	ND	ND	ND	ND
1,2 - Dichlorobenzene	microg/L	ND	ND	ND	ND
n - Butylbenzene	microg/L	ND	ND	ND	ND
1,2 - Dibromo - 3 - chloropropane	microg/L	ND	ND	ND	ND
1,2,4 - Trichlorobenzene	microg/L	ND	ND	ND	ND
1,2,3 - Trichlorobenzene	microg/L	ND	ND	ND	ND
Naphthalene	microg/L	ND	ND	ND	ND
Hexachlorobutadiene	microg/L	ND	ND	ND	ND
Trichlorobenzene	microg/L	ND	ND	ND	ND

* Estimated Value. Present, but less than limit of quantification
NA - Not Analyzed
ND - Not Detected

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 15

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Non-Metals					
Total Dissolved Solids	mg/L	NA	NA	3,920	3,310
Total Suspended Solids	mg/L	53.2	NA	62.0	35.5
Conductivity	micro-mho/cm	NA	NA	4,190	4,580
Alkalinity	mg/L	NA	NA	343	311
Hardness	mg/L	NA	NA	1,850	1,820
pH	s.u.	NA	NA	NA	8.08
Turbidity	NTU	27.1	NA	30.9	9.63
Major Ions					
Calcium	mg/L	408	NA	455	448
Magnesium	mg/L	139	NA	174	171
Sodium	mg/L	477	NA	377	NA
Potassium	mg/L	9.6	NA	10.8	NA
Carbon Dioxide as CO2	mg/L	NA	NA	10.5	< 10
Carbonate	mg/L	< 1.0	NA	< 1.0	< 1.0
Bicarbonate	mg/L	443	NA	419	379
Hydroxide	mg/L	NA	NA	< 1.0	< 1.0
Sulfate	mg/L	2,100	NA	2,180	2,290
Chloride	mg/L	46.1	NA	57.1	40.7
Fluoride	mg/L	0.28	NA	0.30	0.30
Miscellaneous					
Ammonium as N	mg/L	0.06	0.05	< 0.05	0.09
Nitrate + Nitrite as N	mg/L	0.23	0.14	0.2	2.07
Phosphorus	mg/L	NA	< 1.0	< 0.10	< 0.057
Trace Metals					
Aluminum	mg/L	0.010	NA	< 0.10	< 0.10
Antimony	mg/L	< 0.001	NA	< 0.01	< 0.01
Arsenic	mg/L	0.002	NA	< 0.001	< 0.001
Barium	mg/L	0.013	NA	< 0.10	< 0.10
Beryllium	mg/L	< 0.001	NA	< 0.01	< 0.01
Cadmium	mg/L	< 0.001	NA	< 0.005	< 0.005
Chromium	mg/L	< 0.001	NA	< 0.05	< 0.05
Copper	mg/L	0.005	NA	< 0.01	< 0.01
Iron	mg/L	0.01	NA	< 0.05	NA
Lead	mg/L	< 0.001	NA	< 0.05	< 0.05
Manganese	mg/L	0.138	NA	0.08	< 0.01
Mercury	mg/L	< 0.001	NA	< 0.001	< 0.001
Molybdenum	mg/L	0.001	NA	< 0.10	< 0.10
Nickel	mg/L	0.015	NA	< 0.05	< 0.05
Selenium	mg/L	0.059	NA	0.092	0.075
Silver	mg/L	< 0.001	NA	< 0.01	< 0.01
Thallium	mg/L	< 0.001	NA	< 0.01	< 0.01
Vanadium	mg/L	< 0.001	NA	< 0.10	< 0.10
Zinc	mg/L	0.003	NA	< 0.01	< 0.01
Radionuclides					
Gross Alpha (total)	pCi/L	13.0	25.8	< 1.0	16.8
Gross Beta (total)	pCi/L	39.7	23.4	NA	74.3

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 15

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Radium - 226 (total)	pCi/L	0.4	< 0.2	NA	NA
Radium - 228 (total)	pCi/L	< 1.0	2.5	NA	NA
Uranium (total)	mg/L	0.0492	0.053	0.0507	0.049

Volatile Organic Compounds

Dichlorodifluoromethane	microg/L	ND	ND	ND	ND
Chloromethane	microg/L	ND	ND	ND	ND
Vinyl chloride (Chloroethene)	microg/L	ND	ND	ND	ND
Bromomethane	microg/L	ND	ND	ND	ND
Chloroethane	microg/L	ND	ND	ND	ND
Trichlorofluoromethane	microg/L	ND	ND	ND	ND
1,1 - Dichloroethene	microg/L	ND	ND	ND	ND
Methylene chloride (Dichloromethane)	microg/L	ND	ND	ND	ND
trans - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
1,1 - Dichloroethane	microg/L	ND	ND	ND	ND
2 - Butanone (MEK), Methyl ethyl ketone	microg/L	ND	ND	ND	ND
cis - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
Bromochloromethane	microg/L	ND	ND	ND	ND
Chloroform (Trichloromethane)	microg/L	ND	ND	ND	ND
2,2 - Dichloropropane	microg/L	ND	ND	ND	ND
1,1,1 - Trichloroethane	microg/L	ND	ND	ND	ND
1,2 - Dichloroethane	microg/L	ND	ND	ND	ND
1,1 - Dichloropropene	microg/L	ND	ND	ND	ND
Carbon tetrachloride (Tetrachloromethane)	microg/L	ND	ND	ND	ND
Benzene	microg/L	ND	ND	ND	ND
Dibromomethane	microg/L	ND	ND	ND	ND
1,2 - Dichloropropane	microg/L	ND	ND	ND	ND
Trichloroethene	microg/L	ND	ND	ND	ND
Bromodichloromethane	microg/L	ND	ND	ND	ND
cis - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
trans - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
1,1,2 - Trichloroethane	microg/L	ND	ND	ND	ND
Tetrahydrofuran	microg/L	NA	NA	ND	NA
Toluene	microg/L	ND	ND	ND	ND
1,2 - Dibromoethane	microg/L	ND	ND	ND	ND
1,3 - Dichloropropane	microg/L	ND	ND	ND	ND
Dibromochloromethane	microg/L	ND	ND	ND	ND
Tetrachloroethene	microg/L	ND	ND	ND	ND
1,1,1,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
Chlorobenzene	microg/L	ND	ND	ND	ND
Ethylbenzene	microg/L	ND	ND	ND	ND
m,p -Xylenes (1,3 - & !,4 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
Bromoform (Tribromomethane)	microg/L	ND	ND	ND	ND
Styrene (Ethenylbenzene)	microg/L	ND	ND	ND	ND
o - Xylene (1,2 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
1,1,2,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
1,2,3 - Trichloropropane	microg/L	ND	ND	ND	ND
Isopropylbenzene (1-Methylethylbenzene)	microg/L	ND	ND	ND	ND
Bromobenzene	microg/L	ND	ND	ND	ND
n - Propylbenzene	microg/L	ND	ND	ND	ND
2 - Chlorotoluene	microg/L	ND	ND	ND	ND
4 - Chlorotoluene	microg/L	ND	ND	ND	ND
1,3,5 - Trimethylbenzene	microg/L	ND	ND	ND	ND
tert - Butylbenzene	microg/L	ND	ND	ND	ND
1,2,4 - Trimethylbenzene	microg/L	ND	ND	ND	ND
sec - Butylbenzene	microg/L	ND	ND	ND	ND

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 15

TARGET COMPOUNDS	UNITS	Sample Event			
		May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
1,3 - Dichlorobenzene	microg/L	ND	ND	ND	ND
1,4 - Dichlorobenzene	microg/L	ND	ND	ND	ND
4 - Isopropyltoluene	microg/L	ND	ND	ND	ND
1,2 - Dichlorobenzene	microg/L	ND	ND	ND	ND
n - Butylbenzene	microg/L	ND	ND	ND	ND
1,2 - Dibromo - 3 - chloropropane	microg/L	ND	ND	ND	ND
1,2,4 - Trichlorobenzene	microg/L	ND	ND	ND	ND
1,2,3 - Trichlorobenzene	microg/L	ND	ND	ND	ND
Naphthalene	microg/L	ND	ND	ND	ND
Hexachlorobutadiene	microg/L	ND	ND	ND	ND
Trichlorobenzene	microg/L	ND	ND	ND	ND

* Estimated Value. Present, but less than limit of quantification
NA - Not Analyzed
ND - Not Detected

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 17

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Non-Metals					
Total Dissolved Solids	mg/L	NA	4,290	4,670	4,690
Total Suspended Solids	mg/L	123.0	104.0	12.0	8.7
Conductivity	micro-mho/cm	NA	4,940	4,850	5,320
Alkalinity	mg/L	NA	394	392	398
Hardness	mg/L	NA	1,867	2,100	1,980
pH	s.u.	NA	7.96	NA	7.91
Turbidity	NTU	53.7	36.80	3.45	2.31
Major Ions					
Calcium	mg/L	370	403	458	427
Magnesium	mg/L	178	209	233	221
Sodium	mg/L	573	586	661	NA
Potassium	mg/L	12.2	12.2	13.8	NA
Carbon Dioxide as CO2	mg/L	NA	NA	18.2	12.0
Carbonate	mg/L	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate	mg/L	480	481	478	485
Hydroxide	mg/L	NA	< 1.0	< 1.0	< 1.0
Sulfate	mg/L	2,470	2,520	2,860	2,740
Chloride	mg/L	35.5	29.7	43.1	27.8
Fluoride	mg/L	0.27	0.35	0.30	0.30
Miscellaneous					
Ammonium as N	mg/L	0.22	0.09	0.05	0.20
Nitrate + Nitrite as N	mg/L	< 0.10	< 0.10	< 0.10	< 0.10
Phosphorus	mg/L	NA	< 1.0	< 0.10	< 0.057
Trace Metals					
Aluminum	mg/L	0.004	< 0.03	< 0.10	< 0.10
Antimony	mg/L	< 0.001	< 0.003	< 0.01	< 0.01
Arsenic	mg/L	< 0.001	0.001	< 0.001	< 0.001
Barium	mg/L	0.015	0.009	< 0.10	< 0.10
Beryllium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Cadmium	mg/L	< 0.001	< 0.001	< 0.005	< 0.005
Chromium	mg/L	< 0.001	< 0.005	< 0.05	< 0.05
Copper	mg/L	0.005	< 0.012	< 0.01	< 0.01
Iron	mg/L	0.02	20	< 0.05	NA
Lead	mg/L	< 0.001	< 0.003	< 0.05	< 0.05
Manganese	mg/L	0.735	0.022	0.50	0.68
Mercury	mg/L	< 0.001	< 0.0002	< 0.001	< 0.001
Molybdenum	mg/L	0.002	0.002	< 0.10	< 0.10
Nickel	mg/L	0.015	< 0.01	< 0.05	< 0.05
Selenium	mg/L	0.002	0.055	0.003	0.003
Silver	mg/L	< 0.001	< 0.002	< 0.01	< 0.01
Thallium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Vanadium	mg/L	< 0.001	< 0.03	< 0.10	< 0.10
Zinc	mg/L	0.010	< 0.03	< 0.01	< 0.01
Radionuclides					
Gross Alpha (total)	pCi/L	18.9	12.7	1.2	23.5
Gross Beta (total)	pCi/L	< 22.0	< 11.5	NA	93.4

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 17

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Radium - 226 (total)	pCi/L	0.5	0.8	NA	NA
Radium - 228 (total)	pCi/L	2.7	3.0	NA	NA
Uranium (total)	mg/L	0.0361	0.044	0.0403	0.040

Volatile Organic Compounds

Dichlorodifluoromethane	microg/L	ND	ND	ND	ND
Chloromethane	microg/L	ND	ND	ND	ND
Vinyl chloride (Chloroethene)	microg/L	ND	ND	ND	ND
Bromomethane	microg/L	ND	ND	ND	ND
Chloroethane	microg/L	ND	ND	ND	ND
Trichlorofluoromethane	microg/L	ND	ND	ND	ND
1,1 - Dichloroethene	microg/L	ND	ND	ND	ND
Methylene chloride (Dichloromethane)	microg/L	ND	ND	ND	ND
trans - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
1,1 - Dichloroethane	microg/L	ND	ND	ND	ND
2 - Butanone (MEK), Methyl ethyl ketone	microg/L	ND	ND	ND	ND
cis - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
Bromochloromethane	microg/L	ND	ND	ND	ND
Chloroform (Trichloromethane)	microg/L	ND	3.79	ND	ND
2,2 - Dichloropropane	microg/L	ND	ND	ND	ND
1,1,1 - Trichloroethane	microg/L	ND	ND	ND	ND
1,2 - Dichloroethane	microg/L	ND	ND	ND	ND
1,1 - Dichloropropene	microg/L	ND	ND	ND	ND
Carbon tetrachloride (Tetrachloromethane)	microg/L	ND	ND	ND	ND
Benzene	microg/L	ND	ND	ND	ND
Dibromomethane	microg/L	ND	ND	ND	ND
1,2 - Dichloropropane	microg/L	ND	ND	ND	ND
Trichloroethene	microg/L	ND	ND	ND	ND
Bromodichloromethane	microg/L	ND	ND	ND	ND
cis - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
trans - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
1,1,2 - Trichloroethane	microg/L	ND	ND	ND	ND
Tetrahydrofuran	microg/L	NA	NA	ND	NA
Toluene	microg/L	ND	ND	ND	ND
1,2 - Dibromoethane	microg/L	ND	ND	ND	ND
1,3 - Dichloropropane	microg/L	ND	ND	ND	ND
Dibromochloromethane	microg/L	ND	ND	ND	ND
Tetrachloroethene	microg/L	ND	ND	ND	ND
1,1,1,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
Chlorobenzene	microg/L	ND	ND	ND	ND
Ethylbenzene	microg/L	ND	ND	ND	ND
m,p -Xylenes (1,3 - & !,4 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
Bromoform (Tribromomethane)	microg/L	ND	ND	ND	ND
Styrene (Ethenylbenzene)	microg/L	ND	ND	ND	ND
o - Xylene (1,2 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
1,1,2,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
1,2,3 - Trichloropropane	microg/L	ND	ND	ND	ND
Isopropylbenzene (1-Methylethylbenzene)	microg/L	ND	ND	ND	ND
Bromobenzene	microg/L	ND	ND	ND	ND
n - Propylbenzene	microg/L	ND	ND	ND	ND
2 - Chlorotoluene	microg/L	ND	ND	ND	ND
4 - Chlorotoluene	microg/L	ND	ND	ND	ND
1,3,5 - Trimethylbenzene	microg/L	ND	ND	ND	ND
tert - Butylbenzene	microg/L	ND	ND	ND	ND
1,2,4 - Trimethylbenzene	microg/L	ND	ND	ND	ND
sec - Butylbenzene	microg/L	ND	ND	ND	ND

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 17

TARGET COMPOUNDS	UNITS	Sample Event			
		May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
1,3 - Dichlorobenzene	microg/L	ND	ND	ND	ND
1,4 - Dichlorobenzene	microg/L	ND	ND	ND	ND
4 - Isopropyltoluene	microg/L	ND	ND	ND	ND
1,2 - Dichlorobenzene	microg/L	ND	ND	ND	ND
n - Butylbenzene	microg/L	ND	ND	ND	ND
1,2 - Dibromo - 3 - chloropropane	microg/L	ND	ND	ND	ND
1,2,4 - Trichlorobenzene	microg/L	ND	ND	ND	ND
1,2,3 - Trichlorobenzene	microg/L	ND	ND	ND	ND
Naphthalene	microg/L	ND	ND	ND	ND
Hexachlorobutadiene	microg/L	ND	ND	ND	ND
Trichlorobenzene	microg/L	ND	ND	ND	ND

* Estimated Value. Present, but less than limit of quantification
NA - Not Analyzed
ND - Not Detected

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 18

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Non-Metals					
Total Dissolved Solids	mg/L	NA	2,770	2,460	2,350
Total Suspended Solids	mg/L	18.2	34.3	35.0	123.0
Conductivity	micro-mho/cm	NA	3,060	2,750	3,180
Alkalinity	mg/L	NA	337	312	332
Hardness	mg/L	NA	1,530	1,350	1,650
pH	s.u.	NA	7.92	NA	7.92
Turbidity	NTU	5.47	13.0	15.80	27.3
Major Ions					
Calcium	mg/L	421	467	422	491
Magnesium	mg/L	81.1	88.3	71.7	102
Sodium	mg/L	184	180	155	NA
Potassium	mg/L	6.2	7.0	7.8	NA
Carbon Dioxide as CO2	mg/L	NA	NA	18.7	< 10
Carbonate	mg/L	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate	mg/L	398	411	380	405
Hydroxide	mg/L	NA	< 1.0	< 1.0	< 1.0
Sulfate	mg/L	1,340	1,600	1,380	1,590
Chloride	mg/L	35.1	47.3	47.6	40.0
Fluoride	mg/L	0.40	0.37	0.30	0.30
Miscellaneous					
Ammonium as N	mg/L	0.06	0.08	0.22	0.17
Nitrate + Nitrite as N	mg/L	< 0.10	< 0.10	< 0.10	< 0.10
Phosphorus	mg/L	NA	< 1.0	< 0.10	< 0.057
Trace Metals					
Aluminum	mg/L	0.004	< 0.03	< 0.10	< 0.10
Antimony	mg/L	< 0.001	< 0.003	< 0.01	< 0.01
Arsenic	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Barium	mg/L	0.019	0.015	< 0.10	< 0.10
Beryllium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Cadmium	mg/L	< 0.001	< 0.001	< 0.005	< 0.005
Chromium	mg/L	< 0.001	< 0.005	< 0.05	< 0.05
Copper	mg/L	0.004	< 0.012	< 0.01	< 0.01
Iron	mg/L	0.01	20	0.44	NA
Lead	mg/L	< 0.001	< 0.003	< 0.05	< 0.05
Manganese	mg/L	0.214	0.664	0.35	0.11
Mercury	mg/L	< 0.001	< 0.0002	< 0.001	< 0.001
Molybdenum	mg/L	< 0.001	0.002	< 0.10	< 0.10
Nickel	mg/L	0.004	< 0.01	< 0.05	< 0.05
Selenium	mg/L	0.002	0.011	0.002	0.004
Silver	mg/L	< 0.001	< 0.002	< 0.01	< 0.01
Thallium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Vanadium	mg/L	< 0.001	< 0.03	< 0.10	< 0.10
Zinc	mg/L	0.017	< 0.03	< 0.01	< 0.01
Radionuclides					
Gross Alpha (total)	pCi/L	6.7	12.0	< 1.0	7.7
Gross Beta (total)	pCi/L	21.6	< 7.6	NA	50.2

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 18

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Radium - 226 (total)	pCi/L	0.8	0.4	NA	NA
Radium - 228 (total)	pCi/L	2.9	2.7	NA	NA
Uranium (total)	mg/L	0.0261	0.034	0.0336	0.040

Volatile Organic Compounds

Dichlorodifluoromethane	microg/L	ND	ND	ND	ND
Chloromethane	microg/L	ND	ND	ND	ND
Vinyl chloride (Chloroethene)	microg/L	ND	ND	ND	ND
Bromomethane	microg/L	ND	ND	ND	ND
Chloroethane	microg/L	ND	ND	ND	ND
Trichlorofluoromethane	microg/L	ND	ND	ND	ND
1,1 - Dichloroethene	microg/L	ND	ND	ND	ND
Methylene chloride (Dichloromethane)	microg/L	ND	ND	ND	ND
trans - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
1,1 - Dichloroethane	microg/L	ND	ND	ND	ND
2 - Butanone (MEK), Methyl ethyl ketone	microg/L	ND	ND	ND	ND
cis - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
Bromochloromethane	microg/L	ND	ND	ND	ND
Chloroform (Trichloromethane)	microg/L	ND	ND	ND	ND
2,2 - Dichloropropane	microg/L	ND	ND	ND	ND
1,1,1 - Trichloroethane	microg/L	ND	ND	ND	ND
1,2 - Dichloroethane	microg/L	ND	ND	ND	ND
1,1 - Dichloropropene	microg/L	ND	ND	ND	ND
Carbon tetrachloride (Tetrachloromethane)	microg/L	ND	ND	ND	ND
Benzene	microg/L	ND	ND	ND	ND
Dibromomethane	microg/L	ND	ND	ND	ND
1,2 - Dichloropropane	microg/L	ND	ND	ND	ND
Trichloroethene	microg/L	ND	ND	ND	ND
Bromodichloromethane	microg/L	ND	ND	ND	ND
cis - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
trans - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
1,1,2 - Trichloroethane	microg/L	ND	ND	ND	ND
Tetrahydrofuran	microg/L	NA	NA	ND	NA
Toluene	microg/L	ND	ND	ND	4.0
1,2 - Dibromoethane	microg/L	ND	ND	ND	ND
1,3 - Dichloropropane	microg/L	ND	ND	ND	ND
Dibromochloromethane	microg/L	ND	ND	ND	ND
Tetrachloroethene	microg/L	ND	ND	ND	ND
1,1,1,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
Chlorobenzene	microg/L	ND	ND	ND	ND
Ethylbenzene	microg/L	ND	ND	ND	ND
m,p -Xylenes (1,3 - & !,4 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
Bromoform (Tribromomethane)	microg/L	ND	ND	ND	ND
Styrene (Ethenylbenzene)	microg/L	ND	ND	ND	ND
o - Xylene (1,2 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
1,1,2,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
1,2,3 - Trichloropropane	microg/L	ND	ND	ND	ND
Isopropylbenzene (1-Methylethylbenzene)	microg/L	ND	ND	ND	ND
Bromobenzene	microg/L	ND	ND	ND	ND
n - Propylbenzene	microg/L	ND	ND	ND	ND
2 - Chlorotoluene	microg/L	ND	ND	ND	ND
4 - Chlorotoluene	microg/L	ND	ND	ND	ND
1,3,5 - Trimethylbenzene	microg/L	ND	ND	ND	ND
tert - Butylbenzene	microg/L	ND	ND	ND	ND
1,2,4 - Trimethylbenzene	microg/L	ND	ND	ND	ND
sec - Butylbenzene	microg/L	ND	ND	ND	ND

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 18

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
1,3 - Dichlorobenzene	microg/L	ND	ND	ND	ND
1,4 - Dichlorobenzene	microg/L	ND	ND	ND	ND
4 - Isopropyltoluene	microg/L	ND	ND	ND	ND
1,2 - Dichlorobenzene	microg/L	ND	ND	ND	ND
n - Butylbenzene	microg/L	ND	ND	ND	ND
1,2 - Dibromo - 3 - chloropropane	microg/L	ND	ND	ND	ND
1,2,4 - Trichlorobenzene	microg/L	ND	ND	ND	ND
1,2,3 - Trichlorobenzene	microg/L	ND	ND	ND	ND
Naphthalene	microg/L	ND	ND	ND	ND
Hexachlorobutadiene	microg/L	ND	ND	ND	ND
Trichlorobenzene	microg/L	ND	ND	ND	ND

* Estimated Value. Present, but less than limit of quantification
NA - Not Analyzed
ND - Not Detected

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 19

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Non-Metals					
Total Dissolved Solids	mg/L	NA	3,420	2,790	2,690
Total Suspended Solids	mg/L	151.0	18.6	38.0	14.6
Conductivity	micro-mho/cm	NA	3,810	3,130	3,210
Alkalinity	mg/L	NA	211	220	221
Hardness	mg/L	NA	1,555	1,380	1,120
pH	s.u.	NA	8.07	NA	8.11
Turbidity	mg/L	68.0	6.48	13.4	4.13
Major Ions					
Calcium	mg/L	438	392	351	290
Magnesium	mg/L	117	140	122	95.2
Sodium	mg/L	423	367	251	NA
Potassium	mg/L	9.7	7.8	7.4	NA
Carbon Dioxide as CO2	mg/L	NA	NA	5.1	< 10
Carbonate	mg/L	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate	mg/L	244	257	268	269
Hydroxide	mg/L	NA	< 1.0	< 1.0	< 1.0
Sulfate	mg/L	2,070	2,080	1,570	1,540
Chloride	mg/L	76.2	80.4	87.9	60.3
Fluoride	mg/L	0.81	0.93	0.90	1.00
Miscellaneous					
Ammonium as N	mg/L	< 0.05	< 0.05	< 0.05	0.11
Nitrate + Nitrite as N	mg/L	1.36	2.01	2.50	2.38
Phosphorus	mg/L	NA	< 1.0	< 0.10	< 0.057
Trace Metals					
Aluminum	mg/L	0.013	< 0.03	< 0.10	< 0.10
Antimony	mg/L	< 0.001	< 0.003	< 0.01	< 0.01
Arsenic	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Barium	mg/L	0.036	0.017	< 0.10	< 0.10
Beryllium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Cadmium	mg/L	< 0.001	< 0.001	< 0.005	< 0.005
Chromium	mg/L	< 0.001	< 0.005	< 0.05	< 0.05
Copper	mg/L	0.005	< 0.012	< 0.01	< 0.01
Iron	mg/L	0.01	1,650	< 0.05	NA
Lead	mg/L	< 0.001	< 0.003	< 0.05	< 0.05
Manganese	mg/L	0.002	0.239	< 0.01	< 0.01
Mercury	mg/L	< 0.001	< 0.0002	< 0.001	< 0.001
Molybdenum	mg/L	0.005	0.001	< 0.10	< 0.10
Nickel	mg/L	0.015	< 0.01	< 0.05	< 0.05
Selenium	mg/L	0.017	0.003	0.022	0.022
Silver	mg/L	< 0.001	< 0.002	< 0.01	< 0.01
Thallium	mg/L	< 0.001	< 0.001	< 0.01	< 0.01
Vanadium	mg/L	< 0.001	< 0.03	< 0.10	< 0.10
Zinc	mg/L	0.01	< 0.03	< 0.01	< 0.01
Radionuclides					
Gross Alpha (total)	pCi/L	< 5.0	15.4	1.3	12.2
Gross Beta (total)	pCi/L	34.9	< 11.5	NA	75.2

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 19

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Radium - 226 (total)	pCi/L	0.6	0.7	NA	NA
Radium - 228 (total)	pCi/L	< 1.0	3.5	NA	NA
Uranium (total)	mg/L	0.0204	0.024	0.0192	0.0180

Volatile Organic Compounds

Dichlorodifluoromethane	microg/L	ND	ND	ND	ND
Chloromethane	microg/L	ND	ND	ND	ND
Vinyl chloride (Chloroethene)	microg/L	ND	ND	ND	ND
Bromomethane	microg/L	ND	ND	ND	ND
Chloroethane	microg/L	ND	ND	ND	ND
Trichlorofluoromethane	microg/L	ND	ND	ND	ND
1,1 - Dichloroethene	microg/L	ND	ND	ND	ND
Methylene chloride (Dichloromethane)	microg/L	ND	ND	ND	ND
trans - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
1,1 - Dichloroethane	microg/L	ND	ND	ND	ND
2 - Butanone (MEK), Methyl ethyl ketone	microg/L	ND	ND	ND	ND
cis - 1,2 - Dichloroethene	microg/L	ND	ND	ND	ND
Bromochloromethane	microg/L	ND	ND	ND	ND
Chloroform (Trichloromethane)	microg/L	ND	ND	ND	ND
2,2 - Dichloropropane	microg/L	ND	ND	ND	ND
1,1,1 - Trichloroethane	microg/L	ND	ND	ND	ND
1,2 - Dichloroethane	microg/L	ND	ND	ND	ND
1,1 - Dichloropropene	microg/L	ND	ND	ND	ND
Carbon tetrachloride (Tetrachloromethane)	microg/L	ND	ND	ND	ND
Benzene	microg/L	ND	ND	ND	ND
Dibromomethane	microg/L	ND	ND	ND	ND
1,2 - Dichloropropane	microg/L	ND	ND	ND	ND
Trichloroethene	microg/L	ND	ND	ND	ND
Bromodichloromethane	microg/L	ND	ND	ND	ND
cis - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
trans - 1,3 - Dichloropropene	microg/L	ND	ND	ND	ND
1,1,2 - Trichloroethane	microg/L	ND	ND	ND	ND
Tetrahydrofuran	microg/L	NA	NA	ND	NA
Toluene	microg/L	ND	ND	ND	ND
1,2 - Dibromoethane	microg/L	ND	ND	ND	ND
1,3 - Dichloropropane	microg/L	ND	ND	ND	ND
Dibromochloromethane	microg/L	ND	ND	ND	ND
Tetrachloroethene	microg/L	ND	ND	ND	ND
1,1,1,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
Chlorobenzene	microg/L	ND	ND	ND	ND
Ethylbenzene	microg/L	ND	ND	ND	ND
m.p -Xylenes (1,3 - & !,4 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
Bromoform (Tribromomethane)	microg/L	ND	ND	ND	ND
Styrene (Ethenylbenzene)	microg/L	ND	ND	ND	ND
o - Xylene (1,2 - Dimethylbenzene)	microg/L	ND	ND	ND	ND
1,1,2,2 - Tetrachloroethane	microg/L	ND	ND	ND	ND
1,2,3 - Trichloropropane	microg/L	ND	ND	ND	ND
Isopropylbenzene (1-Methylethylbenzene)	microg/L	ND	ND	ND	ND
Bromobenzene	microg/L	ND	ND	ND	ND
n - Propylbenzene	microg/L	ND	ND	ND	ND
2 - Chlorotoluene	microg/L	ND	ND	ND	ND
4 - Chlorotoluene	microg/L	ND	ND	ND	ND
1,3,5 - Trimethylbenzene	microg/L	ND	ND	ND	ND
tert - Butylbenzene	microg/L	ND	ND	ND	ND
1,2,4 - Trimethylbenzene	microg/L	ND	ND	ND	ND
sec - Butylbenzene	microg/L	ND	ND	ND	ND

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 19

TARGET COMPOUNDS	UNITS	Sample Event			
		May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
1,3 - Dichlorobenzene	microg/L	ND	ND	ND	ND
1,4 - Dichlorobenzene	microg/L	ND	ND	ND	ND
4 - Isopropyltoluene	microg/L	ND	ND	ND	ND
1,2 - Dichlorobenzene	microg/L	ND	ND	ND	ND
n - Butylbenzene	microg/L	ND	ND	ND	ND
1,2 - Dibromo - 3 - chloropropane	microg/L	ND	ND	ND	ND
1,2,4 - Trichlorobenzene	microg/L	ND	ND	ND	ND
1,2,3 - Trichlorobenzene	microg/L	ND	ND	ND	ND
Naphthalene	microg/L	ND	ND	ND	ND
Hexachlorobutadiene	microg/L	ND	ND	ND	ND
Trichlorobenzene	microg/L	ND	ND	ND	ND

* Estimated Value. Present, but less than limit of quantification
NA - Not Analyzed
ND - Not Detected

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 23

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Non-Metals					
Total Dissolved Solids	mg/L	NA	NA	NA	NA
Total Suspended Solids	mg/L	NA	NA	NA	NA
Conductivity	micro-mho/cm	NA	NA	NA	NA
Alkalinity	mg/L	NA	NA	NA	NA
Hardness	mg/L	NA	NA	NA	NA
pH	s.u.	NA	NA	NA	NA
Turbidity	mg/L	NA	NA	NA	NA
Major Ions					
Calcium	mg/L	NA	NA	NA	NA
Magnesium	mg/L	NA	NA	NA	NA
Sodium	mg/L	NA	NA	NA	NA
Potassium	mg/L	NA	NA	NA	NA
Carbon Dioxide as CO2	mg/L	NA	NA	NA	NA
Carbonate	mg/L	NA	NA	NA	NA
Bicarbonate	mg/L	NA	NA	NA	NA
Hydroxide	mg/L	NA	NA	NA	NA
Sulfate	mg/L	NA	NA	NA	NA
Chloride	mg/L	NA	NA	NA	NA
Fluoride	mg/L	NA	NA	NA	NA
Miscellaneous					
Ammonium as N	mg/L	NA	NA	NA	NA
Nitrate + Nitrite as N	mg/L	NA	NA	NA	NA
Phosphorus	mg/L	NA	NA	NA	NA
Trace Metals					
Aluminum	mg/L	NA	NA	NA	NA
Antimony	mg/L	NA	NA	NA	NA
Arsenic	mg/L	NA	NA	NA	NA
Barium	mg/L	NA	NA	NA	NA
Beryllium	mg/L	NA	NA	NA	NA
Cadmium	mg/L	NA	NA	NA	NA
Chromium	mg/L	NA	NA	NA	NA
Copper	mg/L	NA	NA	NA	NA
Iron	mg/L	NA	NA	NA	NA
Lead	mg/L	NA	NA	NA	NA
Manganese	mg/L	NA	NA	NA	NA
Mercury	mg/L	NA	NA	NA	NA
Molybdenum	mg/L	NA	NA	NA	NA
Nickel	mg/L	NA	NA	NA	NA
Selenium	mg/L	NA	NA	NA	NA
Silver	mg/L	NA	NA	NA	NA
Thallium	mg/L	NA	NA	NA	NA
Vanadium	mg/L	NA	NA	NA	NA
Zinc	mg/L	NA	NA	NA	NA
Radionuclides					
Gross Alpha (total)	pCi/L	NA	NA	NA	NA
Gross Beta (total)	pCi/L	NA	NA	NA	NA

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 23

TARGET COMPOUNDS	UNITS	Sample Event May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
Radium - 226 (total)	pCi/L	NA	NA	NA	NA
Radium - 228 (total)	pCi/L	NA	NA	NA	NA
Uranium (total)	mg/L	NA	NA	NA	NA

Volatile Organic Compounds

Dichlorodifluoromethane	microg/L	NA	ND	NA	NA
Chloromethane	microg/L	NA	ND	NA	NA
Vinyl chloride (Chloroethene)	microg/L	NA	ND	NA	NA
Bromomethane	microg/L	NA	ND	NA	NA
Chloroethane	microg/L	NA	ND	NA	NA
Trichlorofluoromethane	microg/L	NA	ND	NA	NA
1,1 - Dichloroethene	microg/L	NA	ND	NA	NA
Methylene chloride (Dichloromethane)	microg/L	NA	ND	NA	NA
trans - 1,2 - Dichloroethene	microg/L	NA	ND	NA	NA
1,1 - Dichloroethane	microg/L	NA	ND	NA	NA
2 - Butanone (MEK), Methyl ethyl ketone	microg/L	NA	ND	NA	NA
cis - 1,2 - Dichloroethene	microg/L	NA	ND	NA	NA
Bromochloromethane	microg/L	NA	ND	NA	NA
Chloroform (Trichloromethane)	microg/L	NA	ND	NA	NA
2,2 - Dichloropropane	microg/L	NA	ND	NA	NA
1,1,1 - Trichloroethane	microg/L	NA	ND	NA	NA
1,2 - Dichloroethane	microg/L	NA	ND	NA	NA
1,1 - Dichloropropene	microg/L	NA	ND	NA	NA
Carbon tetrachloride (Tetrachloromethane)	microg/L	NA	ND	NA	NA
Benzene	microg/L	NA	ND	NA	NA
Dibromomethane	microg/L	NA	ND	NA	NA
1,2 - Dichloropropane	microg/L	NA	ND	NA	NA
Trichloroethene	microg/L	NA	ND	NA	NA
Bromodichloromethane	microg/L	NA	ND	NA	NA
cis - 1,3 - Dichloropropene	microg/L	NA	ND	NA	NA
trans - 1,3 - Dichloropropene	microg/L	NA	ND	NA	NA
1,1,2 - Trichloroethane	microg/L	NA	ND	NA	NA
Tetrahydrofuran	microg/L	NA	NA	NA	NA
Toluene	microg/L	NA	ND	NA	NA
1,2 - Dibromoethane	microg/L	NA	ND	NA	NA
1,3 - Dichloropropane	microg/L	NA	ND	NA	NA
Dibromochloromethane	microg/L	NA	ND	NA	NA
Tetrachloroethene	microg/L	NA	ND	NA	NA
1,1,1,2 - Tetrachloroethane	microg/L	NA	ND	NA	NA
Chlorobenzene	microg/L	NA	ND	NA	NA
Ethylbenzene	microg/L	NA	ND	NA	NA
m.p -Xylenes (1,3 - & !,4 - Dimethylbenzene)	microg/L	NA	ND	NA	NA
Bromoform (Tribromomethane)	microg/L	NA	ND	NA	NA
Styrene (Ethenylbenzene)	microg/L	NA	ND	NA	NA
o - Xylene (1,2 - Dimethylbenzene)	microg/L	NA	ND	NA	NA
1,1,2,2 - Tetrachloroethane	microg/L	NA	ND	NA	NA
1,2,3 - Trichloropropane	microg/L	NA	ND	NA	NA
Isopropylbenzene (1-Methylethylbenzene)	microg/L	NA	ND	NA	NA
Bromobenzene	microg/L	NA	ND	NA	NA
n - Propylbenzene	microg/L	NA	ND	NA	NA
2 - Chlorotoluene	microg/L	NA	ND	NA	NA
4 - Chlorotoluene	microg/L	NA	ND	NA	NA
1,3,5 - Trimethylbenzene	microg/L	NA	ND	NA	NA
tert - Butylbenzene	microg/L	NA	ND	NA	NA
1,2,4 - Trimethylbenzene	microg/L	NA	ND	NA	NA
sec - Butylbenzene	microg/L	NA	ND	NA	NA

International Uranium (USA) Corporation
Monitor Well Split Sampling Data
Monitor Well WMMMW - 23

TARGET COMPOUNDS	UNITS	Sample Event			
		May, 1999	Nov/Dec 2000	Nov 2001	Sept. 2002
1,3 - Dichlorobenzene	microg/L	NA	ND	NA	NA
1,4 - Dichlorobenzene	microg/L	NA	ND	NA	NA
4 - Isopropyltoluene	microg/L	NA	ND	NA	NA
1,2 - Dichlorobenzene	microg/L	NA	ND	NA	NA
n - Butylbenzene	microg/L	NA	ND	NA	NA
1,2 - Dibromo - 3 - chloropropane	microg/L	NA	ND	NA	NA
1,2,4 - Trichlorobenzene	microg/L	NA	ND	NA	NA
1,2,3 - Trichlorobenzene	microg/L	NA	ND	NA	NA
Naphthalene	microg/L	NA	ND	NA	NA
Hexachlorobutadiene	microg/L	NA	ND	NA	NA
Trichlorobenzene	microg/L	NA	ND	NA	NA

* Estimated Value. Present, but less than limit of quantification
NA - Not Analyzed
ND - Not Detected

Appendix G

An Intensive Cultural Resource Inventory Conducted on the White Mesa, San Juan County, UT, December 7, 1977, Richard A. Thompson, Southern Utah State College

White Mesa Mill

International Uranium (USA) Corporation
1050 17th Street, Suite 950
Denver, Colorado 80265

AN INTENSIVE CULTURAL RESOURCE INVENTORY CONDUCTED ON WHITE MESA, SAN JUAN COUNTY, UTAH

submitted to the
Bureau of Land Management

and to the
Antiquities Section of the
Utah Division of State History

in behalf of

Energy Fuels Nuclear, Inc.
Denver, Colorado

by
Richard A. Thompson
Southern Utah State College

with ceramic analysis by
Alan Spencer
Brigham Young University

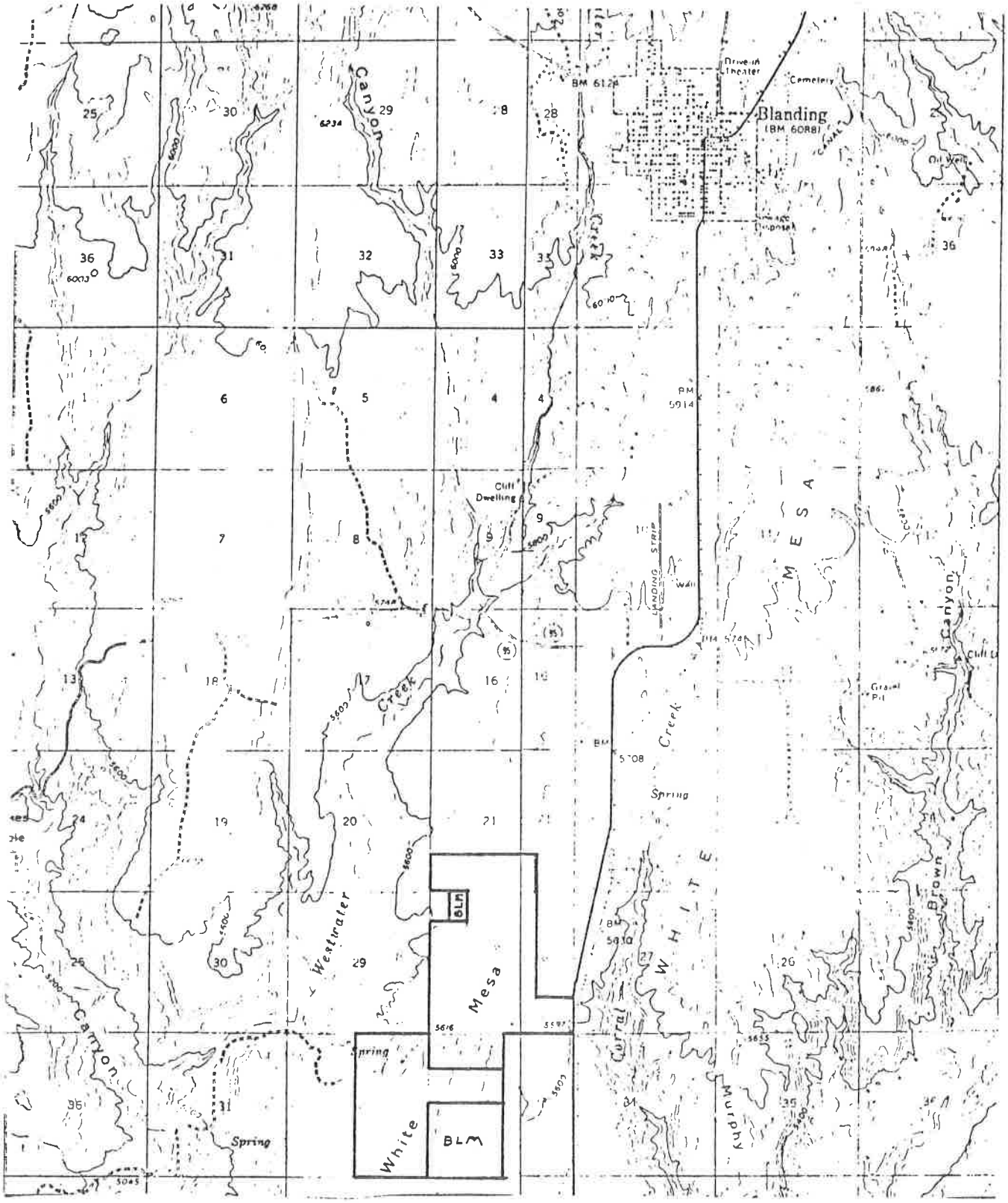
December 7, 1977
International Learning and Research, Inc.
Cedar City, Utah

AN INTENSIVE CULTURAL RESOURCE INVENTORY CONDUCTED ON WHITE MESA, SAN JUAN COUNTY, UTAH

This report summarizes the fundings of an intensive archeological survey conducted on 1260 acres of land extending over parts of Sections 21, 28, 32, and 33 of T37S, R22~~W~~E (SLM) on White Mesa. The tract is eight miles south of Blanding in San Juan Co., Utah. Although the greater part of the project area is privately owned, 180 acres are lands administered by the Bureau of Land Management. The project area is marked on the map to be found on page 2.

The survey was undertaken at the request of Energy Fuels Nuclear, Inc. of Denver, Colorado and it was authorized by Department of the Interior Antiquities Permit No. 77-Ut-066, and by Utah State Antiquities Permit No. 257. The writer directed the work in the field as the research representative of International Learning and Research, Inc., of Cedar City, Utah. Others participating in the project included Barbara Burden, Jan Crofts, Patricia Davis, Timothy Olson, Charles Sivley, Alan Spencer, Patricia Spencer, and Georgia Thompson.

Survey teams varied from four to six workers with the size depending on the number of workers available on any given day. In addition to the writer, Alan Spencer of Brigham Young University served as a crew leader.


Blanding
(BM 6088)
Drive-in Theater
Cemetery
Oil Well
Sewage Disposal
Canyon
Creek
Cliff Dwelling
LANDING STRIP
MESA
WHITE
Spring
Westwater
Mesa
White
BLM
Curral
Murphy
Brown
Canyon
Gravel Pit

Recognized standards for intensive survey work were maintained at all times and the method employed was the same for all teams. The procedure was facilitated greatly by the ready identification of key section corner markers and by the felicitous placement of a number of fences in the project area.

Beginning at the section corner, each crew leader established the line of march by sighting with a tripod-mounted Brunton compass with appropriate correction from magnetic to true north. Landmarks were noted in order to aid in maintaining the proper alignment. Once this had been done, the leader took a position 7.5 meters from the corner on a line at right angles to the line of march and toward the center of the unit to be surveyed. The other crew members then positioned themselves along this line at 15 meter intervals. The crew would thus be prepared to cover the ground in transects which were 15 meters wide for each worker. A four member team would thus cover a transect 60 meters wide with each worker being responsible for the ground extending 7.5 meters to the right and to the left of his line of march.

As crews walked a transect, leaders recorded the distance covered by counting their paces and using a mechanical counter to note the distance covered at 10 or 20 meter intervals as seemed most appropriate. At periodic intervals which varied with the terrain, the leader then called for flagging the course. The worker at the opposite end of the line would them affix flagging to a convenient bush.

While landmarks were useful in maintaining alignments, the leader and the flagger made repeated checks either with an oil-damped compass or with a hand-held Brunton. On all subsequent traverses across the area, the procedure remained essentially the same until the entire unit had been covered by a series of contiguous transects.

Every site located was subjected to an intensive surface examination by the entire team. The purpose was to determine the limits of the site, to assess the nature of the cultural debris, to detect the presence of structures where they could be identified and, where diagnostic materials could be found, to collect a sample suitable for establishing the cultural and the temporal position of the site. Crew leaders were responsible for the completion of the site forms while another crew member took both black and white and color transparency photographs as the crew leader requested.

In so far as the project area is concerned, White Mesa is covered with a layer of sandy but stabilized aeolian soil which has a relief of no more than some 25 meters (80 ft.) which is manifest in gently rolling ridges and knolls. The soil is underlain by the Dakota Sandstone and, in places, the still lower Burro Canyon Formation, undifferentiated, reaches the base of the soil layer. The Burro Canyon Formation produces a green shale that was noted at many sites where it appears to have been employed in the manufacture of some kinds of flaked stone artifacts. The mean elevation of the project area is about 1710 meters (5600 ft.).

Cottonwood Canyon, which marks the western boundary of White Mesa, may have contained water during much of the year in prehistoric times. While it could thus have been a valuable source of water, USGS maps mark a spring just west of the NE corner of the NE 1/4 of Sec. 32. This spring proves to be the closest source of water for all sites in the project area. Other springs as well as the available water in Cottonwood Canyon were doubtless used, but this spring appears at present to have been the most convenient source of water for this entire area.

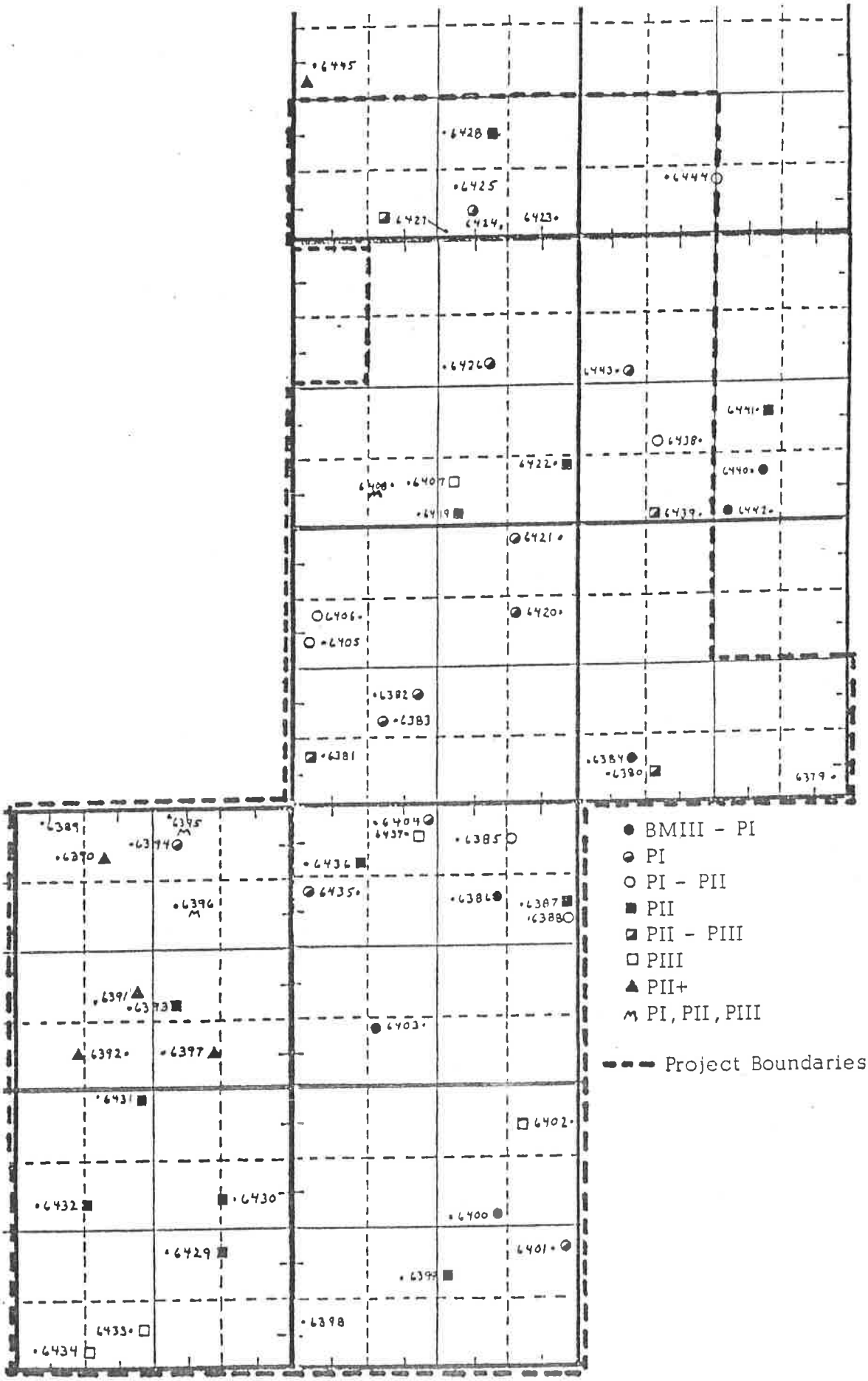
Limited stands of juniper and pinon exist, or have existed, in the northwest corner of the northeast quarter of Sec. 32, in the northwest corner of Sec. 28, and in the western part of much of Sec. 21. The balance of the project area, and of surrounding land as well, has been covered with a rather dense stand of sage. All of the privately owned land has, however, been railed and all of the private land in the project portions of Secs. 32 and 33 as well as in the southern three quarters of Sec. 28 has been seeded with a large drill as well. The northern quarter of Sec. 28 and the southern quarter of Sec. 21 have not been seeded. Basically, however, the natural vegetation cover appears to have been sage brush in association with some grass, snake weed, rabbit brush, salt bush, and an occasional prickley pear.

When the ceramic collections had been washed, catalogued, and labeled, Alan Spencer undertook the ceramic analysis with the aid of a binocular microscope. Once the sherds were identified, their temporal values were assigned on the basis of the dates projects in Breternitz,

Rohn and Morris (1974). The combination of the dates assigned to various ceramic types found at a given site were then used to fix its probable position in time. All sites were identified as having an affiliation with the San Juan Anasazi. The counts for all diagnostic sherds are included in the narrative site descriptions that are included in an appendix to this paper.

A total of 57 sites were recorded during the survey. Of this number, four were found in areas outside the project area under circumstances which led one team to extend its coverage beyond unfenced boundaries. These sites will, however, be included in this discussion. All sites, together with symbols indicating their temporal positions, are plotted on the locational chart on the following page.

In the absence of Lino Gray sherds it proved impossible to separate Basket Maker III sites from Pueblo I sites since Chapin Gray covers the entire period from 575 to 900 A.D. In a number of cases, however, Pueblo I could be isolated on the basis of the presence of Moccasin Gray in association with Chapin Gray and Chapin B/W. This paper follows Fike and Lindsay (1976) in making no attempt to consider sites classed as PI/PII or as PII/PIII as multicomponent sites. Distinctions cannot be made at these points without excavation and there is also reason to view these ceramic associations as representative of a transitional period rather than of two distinct phases.



White Mesa Project, San Juan Co., Utah
Secs. 21, 28, 32, and 33, T37S, R22E SLM

The following list thus provides a breakdown of the sites recorded by the survey in their temporal positions. The numbers are those given the sites in the standard Smithsonian trinomial system. The first two elements of that system have been deleted for clarity.

BMIII/PI	6384, 6386, 6400, 6403, 6440, 6442	6
PI	6382, 6383, 6394, 6401, 6404, 6420	11
	6421, 6424, 6426, 6435, 6443	
PI/PII	6385, 6388, 6405, 6406, 6438, 6444	6
PII	6387, 6393, 6399, 6419, 6422, 6428	12
	6429, 6431, 6432, 6436, 6439, 6441	
PII/PIII	6380, 6381, 6427, 6439	4
PIII	6402, 6407, 6433, 6434, 6437	5
PII+	6390, 6391, 6392, 6397, 6445	5
Multicomp.	6395, 6396, 6408	3
Unident.	6379, 6389, 6398, 6423, 6425	5

Following statements made above, it will be noted that only three sites have been classed as multicomponent. The designation is based on the fact that the ceramic collections from each of these argues an occupation extending from Pueblo I through Pueblo II and into Pueblo III. Additionally, five sites have been termed PII+. This means that collections made or observed at these locations were lacking diagnostic material but that at least a few corrugated body sherds were noted. This would indicate that the site would have been used or occupied no earlier than 900 A.D. but that it might be at some time after that date.

Finally, there are five sites which, although thought to have a San Juan Anasazi cultural affiliation, are listed as having an undetermined temporal position. Four of these produced a very small number of plain ware sherds. The sherds themselves could not be identified. The fifth site lacked any ceramic evidence but contained an ovoid outline of vertical slabs measuring 1.0 by 1.5 meters. The absence of ceramics and

the configuration of the structure might justify a Basket Maker II designation. This was not done, however, in view of the fact that the site produced no cultural debris of any kind. There is the further fact that 42Sa6427 produced ceramics indicative of the PII - PIII transition and a pothole which revealed a slab-lined granary.

Any attempt to elicit patterns from limited survey data must steer a cautious course between the excessive reticence which comes from a recognition of the incomplete nature of the information available and the enthusiasm for suggestive clues which may, too easily, lead to dogmatic statements based on tenuous evidence. The darkest shadow cast over this attempt is the lack of reliable data concerning the length of time that sites were occupied. At the same time, however, a study of the site counts for each of the temporal periods is suggestive.

Fike and Lindsay use a modification of the puebloan chronology derived from Jennings. In terms of the Christian calendar, their dates for each period are as follows:

BMIII	450 - 750
PI	750 - 950
PII	850 -1100
PIII	1100 -1300

A modification of this may be suggested to fit the observed data on White Mesa which would include the transitional periods:

BMIII/PI	575 - 850
PI	750 - 850
PI/PII	850 - 950
PII	950 - 1100
PII/PIII	1100 - 1150
PIII	1150 - 1250

Using this chronology in a most tentative manner, the BMIII/PI period of 275 years witnesses the occupation of the area by six sites. The PI period of 100 years, however, sees 11 sites in the project area while the PI/PII transitional period of 100 years finds only 6 sites on the mesa. In the 150 years of PII, some 12 sites are located in the same area while the PII/PIII transition finds four sites in an apparent 50 year period. In the 100 years of PIII, only 5 sites are known for the area.

Despite the fact that there is a strong possibility of some distortion in the calculations of the time involved between late BMIII and PII, and allowing for the fact that the multicomponent sites have not been taken into account, a trend would seem to emerge. Settlement on White Mesa reached a peak at perhaps 800 A.D. and the occupation remained at substantially that level, despite the apparent decline seen in these figures for the PI/PII transition, until some time near the end of PII or in the PII/PIII transition after which, the population density declined sharply and it may be assumed that the mesa was substantially abandoned by about 1250 A.D.

Fike and Lindsay expressed the view that PII patterns of settlement persist on White Mesa well into the accepted PIII era and that there is no nucleation of settlement such as reported for PIII in other parts of southeastern Utah. Certainly this survey found none of the "pure" PIII sites to be large. They are, in fact, quite small. The greater size of the multicomponent sites is, quite possibly, more a function of the total length of occupation, whether continuous or spasmodic, than it is of an

increased number of persons in the terminal PIII period. Even if there were more people resident in the multicomponent sites in the final period, none of these three sites are large enough to represent the kind of aggregation generally considered characteristic of the larger PIII sites. They remain, in other words, characteristically PII.

Were it not for an accidental discovery on the final day of the field work, this paper would have persisted in seeing the absence of nucleation while remaining happily forgetful of the perils of cultural generalizations based up projects confined to modern legal boundaries. In this instance, a survey team working the western edge of Sec. 28 arrived at the northeastern corner of the NW 1/4 of the SW 1/4 of the NW 1/4 of the section. A project marker was found to verify the location. Directly to the north, in the abrupt and deep entrenchment of a tributary to Cottonwood Canyon, was a massive masonry wall between 6 and 10 meters high and sheltered in a larger overhang. Additional masonry structures were observed in other shelters to the northeast. It is unfortunate that the press of time precluded a visit to these sites and it cannot be verified that they are PIII structures. There would appear, however, to be a good possibility that they are. Although these sites are locally known, a records search shows that they remain unrecorded. The important fact is, however, that they leave open the question of the role of settlement on the mesa top. Certainly this and other sites known or yet to be recorded in Cottonwood Canyon may well represent PIII nucleated settlements of people who were still farming the top of White Mesa.

These observations bring into sharper focus the question of the function of all of the sites recorded on White Mesa. The field work in this project was handicapped by the fact that so much of the area had been railed of its sage brush cover and subsequently subjected to the disturbance of seed drills. While this type of activity would not seem to have caused disturbance in great depth, its effect on the surface features of small sites has been devastating.

Despite these limitations, however, the survey crews recorded evidence of structures at 31 of the 57 sites. At 12 sites depressions are reported with diameter ranges of from 5 to 15 meters while an additional 23 sites report evidence of other, presumably surface, structural forms. At 8 sites depressions are combined with surface structures. In all cases, the depressions should be regarded as indicating permanent use or residence for it is apparent that these will be either pit houses or kivas. Following Brew's findings at Alkalai Ridge (1946) some 15 miles east of the project area, no kiva should be anticipated with a diameter greater than 5 meters while pit houses may attain diameters as great as 18 meters.

The dimensions of most of the apparent surface structures built of stone suggest that they were used primarily for storage. The only exception to this, in terms of direct observation, is at 42Sa6441 where a PII room block measuring 12 by 3 meters is recorded. With the possible exception of two sites, the existence of structures cannot be precluded in the 26 locations where surface indications are lacking. It is well known that the archeologist finds that he must excavate precisely because all of the cultural data contained within a site is not manifest on the surface.

Further, there is nothing more than a very rough and low degree of correlation between the extent of cultural debris on the surface and the presence or absence of structures below the surface.

It would appear likely, then, that many of the smaller sites, both with and without surface indications of structures may well be what Haury (Willey, 1956, 7) has called the "farm house." He believes that the isolated one or two room structure is a concommitant aspect of nucleation and goes so far as to suggest that none of these are likely to be found dating from any point earlier than 1000 A.D. and that most come somewhat later in time, primarily in PIII and, in some areas in PIV.

It may well be, therefore, that White Mesa sites may reflect PIII nucleation trends rather more than Fike and Lindsay or, it must be admitted, this writer, have thought. Resolution of that issue requires much additional field investigation.

Recommendations

Federal statutes and administrative directives require that mitigating measures be taken to protect historic and prehistoric cultural resources either through programmed avoidance of sites or, where this is impractical, through excavation by professionally qualified archeologists. These requirements are imposed in all cases where federal lands are involved. Less well-known is the fact that the same regulations are applicable both in the case of firms using funds backed by federal guarantees or where some aspect of corporate activity requires federal licensing. In all cases, however, it is

the preference of both the federal government and of archeologists as a professional group, that sites be avoided and protected whenever this is possible. When the nature of proposed land-altering projects is such that avoidance is impossible, plans must be made to recover the largest body of data at the lowest reasonable cost.

It is the view of the writer that only six sites will not require mitigation. These are 42Sa6440, 6441, 6442, and 6445, which are outside the project area. Sites 42Sa6389 and 6390 seem certainly to represent secondary depositions of material. A careful examination of erosional channels in these sites failed to produce evidence of midden and it appears that these may safely be ignored.

While cost estimates for survey work can be calculated in advance with a good deal of precision, estimates of excavation costs must necessarily remain open-ended against the inevitable subsurface contingencies. The approach to be used and the schedule to be maintained must also bear a relationship to the program of the development. Will all of the land be disturbed early in the project or will expanded land use be a matter of increments at intervals over a number of years?

This report will make no estimate of cost outlays except to say that, if sites cannot be avoided and if the entire project area is to be placed in industrial use, the costs will be substantial. Under such circumstances, the methodologies used can have a very direct bearing on costs.

In most sites, for example, much time and money can be saved with a minimal loss of cultural resources if testing is initiated through trenching with a back hoe, provided, of course, that the work is supervised by a

competent archeologist. In this way the extent of the excavations that will be needed can be determined quickly and excavators will be guided to the most significant parts of each site without protracted exploratory hand excavation. There must, however, be no time lag between these tests and the start of excavations since the information revealed to archeologists will also be revealed to the vandals who have been exceptionally active in San Juan County for a good many years.

It is recommended that the developers facing mitigation requirements contact scholars and institutions with the longest record of survey and excavation in the San Juan Anasazi culture area. Each should be asked for estimates and for a recommended methodological approach to the project. It may be found that the use of more than one group would prove to be most advantageous. It does seem certain, however, that the greatest economy will be obtained by reaching agreement with an institution with experience in the area rather than accepting an apparently lower cost estimate from a group unfamiliar with the area and the culture.

At the present time the institutions with the greatest long-term experience in the area would include the Antiquities Section of the State Division of History, the University of Utah, Brigham Young University, the University of Colorado, San Jose State University, and Washington State University. This is not meant as an endorsement of any particular institution nor is it meant to exclude another group working in the area with which the writer is unfamiliar.

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APPENDIX

NARRATIVE SITE DESCRIPTIONS

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42Sa6379 - At an elevation of 1710 meters, the central and only feature of the site is an oval outline of vertical stone slabs measuring 1.0 by 1.5 meters. No evidence of activity is apparent on the surrounding surface. The site is on the upper part of the N bank of a wash which drains down to the NNW. The aeolian soil slopes down to the N with a floral cover dominated by sage brush in association with rabbit brush, Russian thistle and a single small juniper. The vertical slab form of the element points to a pueblo affiliation but a more precise assignment cannot be made. It should be noted that Bruce Louthan of the Moab District of the BLM reports that Matheny of BYU has found that features of this type frequently prove to be ventilator openings to pit houses for which there is no surface evidence. The possibility should be taken into account.

42Sa6380 - The distribution of cultural debris on this heavily disturbed aeolian soil extends over an area of at least 120 meters in diameter. The disturbance of the area may be related to the construction of the uranium ore receiving facility which is just to the E. Evidence of disturbance is supported by the fact that Russian thistle is the sole covering vegetation. With an elevation of 1710 meters, the area slopes down to the W at a gentle 3°. Analysis revealed the following diagnostic sherds: 4 Mesa Verde Corrugated rims (23 corrugated body sherds), 1 Mancos B/W, 9 McElmo B/W (9 white ware body sherds). Following dates suggested by Breternitz, the site should be classed as San Juan Anasazi, PII-PIII with the most likely dates of occupation coming at about 1100 to 1150 A.D.

42Sa6381 - The cultural debris of this site, primarily sherds, spreads over an area 50 meters in diameter. The area may have been enlarged somewhat during the process of chaining and seed-drilling. The aeolian soil slopes down to the NE at a gentle 2° while the present vegetation is composed of sage brush, salt bush, Russian thistle, rabbit brush, grass, and snake weed. The elevation is 1710 meters. A rather confined scatter of stone rubble suggests the possibility of a crescent or an "L" shaped structure open to the S or SE. Ceramic analysis reveals the following association of diagnostic sherds: 4 Mesa Merde Corrugated rims (71 corrugated body sherds), 4 Mancos B/W, 15 McElmo B/W, 105 Mesa Verde B/W (53 slipped white ware sherds), and 1 Deadmans B/R. Following dates offered by Breternitz, the site should be considered a San Juan Anasazi occupation during the PII-PIII period with the most likely dates calculated at 1100-1250 A.D.

42Sa6382 - This site is 40 meters in diameter and was found at an elevation of 1710 meters on aeolian soil that slopes down to the SE at 4°. The area has been railed of its original sage brush cover and the surface was even more disturbed by the use of a seed drill. The present vegetation includes

Russian thistle, grass, and rabbit brush. Analysis of the collected sherds produced the following diagnostic materials: 5 Chapin gray, 2 Mancos Corrugated rims (19 corrugated body sherds), 3 Chapin B/W, 8 Mancos B/W, 1 Abajo R/O, and 1 Deadmans B/R. Breternitz dates would argue a San Juan Anasazi occupation in late PI or early PII at some time around 900 A.D.

42Sa6383 - With an elevation of 1710 meters, the site area extends over a 60 meter diameter on the top of a low knoll which drops in all directions at about 6°. As the result of the railing of sage brush and the use of a seed drill, the aeolian soil now produces some grass and a good deal of Russian thistle. A graded road to three small powder magazines cuts across the middle of the site. In addition to ground stone fragments noted, the sherd collection produced the following diagnostic samples: 141 Chapin gray, 31 Moccasin gray, 13 Chapin B/W, and 4 Deadmans B/R. Using the Breternitz dates, the combination suggests a San Juan Anasazi' PI occupation between 800 and 900 A.D.

42Sa6384 - The site is situated on a slope that drops down to the W at 6° at an elevation of 1710 meters. A concentration of unmodified stone which may mark the original site area lies near the top of the slope. Below this stone is a limited scatter of sherds and flakes which may have been moved by runoff flow or by the activity of railing the sage and seeding with a drill. The cover is grass with a curious absence of Russian thistle. Within the 35 meter diameter of the site, a collection of sherds was made which reveals the following: 98 Chapin gray and 2 Chapin B/W. This argues for a San Juan Anasazi BMIII-PI occupation at some time between 575 and 900 A.D. if the Breternitz dates are accepted.

42Sa6385 - Situated on the 3° SE slope of a knoll, this site is 50 meters in diameter and is found at an elevation of 1710 meters. The area has been railed of its original sage brush cover and now the aeolian soil produces some grass. Russian thistle, and rabbit brush. While there was no evidence of structures, the sherd collection produced, after analysis, this breakdown of diagnostic items: 3 Chapin gray; 1 Moccasin gray; 2 Mesa Verde Corrugated rims, 4 Mancos Corrugated rims (96 corrugated body sherds), 1 Chapin B/W, 36 Mancos B/W, 5 Deadmans B/R, and 1 Bluff B/R. For such a collection, a reading of Breternitz argues a San Juan Anasazi PI-PII site use sometime between 875 and 1125 A.D.

42Sa6386 - A small site of 30 meters diameter was found near the crest of a low ridge with a 5° slope down to the N. The elevation is 1710 meters. The area has been railed and seeded with a drill. Grass is accompanied by Russian thistle and snake weed. The site area is marked by a scatter of unmodified stone which may indicate the remnants of a disturbed structure. A number of mano fragments were also noted. The

ceramic collection produced 55 Chapin gray and 3 Chapin B/W sherds which, according to Breternitz, would mean a BMIII-PI San Juan Anasazi occupation at some time between 575 and 900 A.D.

42Sa6387 - At an elevation of 1710 meters, this site was found to extend over an area 40 meters in diameter on ground that slopes down to the W at 6°. Since the original sage brush has been railed, the cover consists of grass, Russian thistle, and 2 small juniper trees. The sherd and lithic scatter also revealed a number of mano fragments. Ceramic analysis following Breternitz suggests a San Juan Anasazi occupation in Late PI-PII falling between 990 and 1000 A.D. Diagnostic ceramics supporting this include: 6 Chapin gray, 5 Mancos Corrugated rims (66 corrugated body sherds), 1 Chapin B/W, 5 Cortez B/W, 30 Mancos B/W and β Deadmans B/R.

42Sa6388 - This site was located on the slope of the same knoll as 42Sa6387 although clearly separate from it. Here the ground slopes to the SW at 5° and the site is 30 meters in diameter. The elevation is 1710 meters. Railing and seeding has removed any surface evidence of structures that may have existed. At present a sparse stand of grass covers the entire site. The analysis of diagnostic sherds recovered includes: 68 Chapin gray, 2 Mancos Corrugated rims (10 corrugated body sherds), 4 Chapin B/W, 4 Bluff B/R, and 2 Deadmans B/R. The Breternitz analysis points to a late PI and early PII San Juan Anasazi occupation between 875 and 925 A.D.

42Sa6389 - One of the few sites to be found in a juniper-pinon stand, this site measured 20 meters N-S and 40 meters E-W and was situated on a slope that falls to the NW at 5°. The vegetation consists of juniper and pinon with an understory of sage brush and rabbit brush. The elevation is 1710 meters. The cultural material is confined to 4 non-diagnostic plain ware sherds and to a thinly distributed assemblage of secondary flakes. Although there is a possibility that this material may be a secondary deposit, the site may tentatively be considered to indicate a San Juan Anasazi use at some time after about 600 A.D.

42Sa6390 - This site, located SE of 42Sa6389, is also S of a road that angles through the NW corner of the project area in the NW 1/4 of the NW 1/4 of the NE 1/4 of Section 32. This site, measuring 35 meters E-W and 50 meters N-S, is at an elevation of 1710 meters and is also on the same slope as the previously mentioned site. Here too, the cultural debris was found on a slope dropping to the NW at 8° in a stand of juniper and pinon with an undisturbed understory of sage brush accompanied by some rabbit brush. It is possible that the material from these two sites has drifted down from a low ridge to the SE where both railing and chaining are evident. The ridge top failed, however,

to show any indication of a site. In the site area a slab metate and 3 mano fragments were found. A small sherd collection produced 5 corrugated body sherds, 1 Chapin gray which may have come from a corrugated vessel, and 2 white ware sherds. It is thus possible only to postulate a San Juan Anasazi use of the area at some time after 900 A.D.

42Sa6391 - Grass, Russian thistle, and snake weed cover the 3° slope to the W on the aeolian soil of the site. With an elevation of 1710 meters, the site has an area 40 meters in diameter. Cultural materials occured as a very thin scatter of sherds, flakes, and ground stone fragments near the top of a very low ridge. Although no ceramic collection was made, painted, corrugated and B/R sherds were noted. These argue an Anasazi occupation of 900 A.D. or later.

42Sa6392 - At an elevation of 1710 meters, this site is 40 meters in diameter and is found in a very shallow, natural crescentic depression with an opening drainage falling at 3° to the W. The area has been railed and seeded and the aeolian soil now supports grass, snake weed, and some sage brush. The thin scatter of cultural materials included flakes, ground stone fragments, and a few sherds either painted or corrugated which suggests a San Juan Anasazi occupation some time after 900 A.D.

42Sa6393 - Measuring 50 meters in diameter, this site is at an elevation of 1710 meters and has a slope down to the W at 3°. The original sage brush cover has been railed and the aeolian ground seeded with the result that the present cover is composed of grass, some sage brush, prickley pear, and some thistle. Cultural materials include a notched ground axe head, mano fragments, cores and flakes. Sherds collected produced the following diagnostic items: 4 Mancos Corrugated rims (41 corrugated body sherds), 18 Mancos B/W, and 5 Deadmans B/R. Following Breternitz, this suggests a San Juan Anasazi occupation in PII times, probablu between 900 and 1000 A.D.

42Sa6394 - This site yielded the usual sherd and lithic assemblage but it differs from those recorded just before it in that, while the area has been railed, the seed drill was apparently not used and the darker soil of the site is thus more visible. The aeolian soil slopes down to the W at 6° while the vegetation includes Russian thistle, sage and some grass. The elevation is 1710 meters. Analysis of the sherds collected identifies 7 Chapin gray, 2 corrugated body sherds, and 7 Chapin B/W. A reading of Breternitz projects San Juan Anasazi use of the area between 850 and 900 A.D. - perhaps slightly later.

42Sa6395 - Located on the point of a very low ridge, the ground around this site slopes down to the SE, S and SW at 5°. As the site extends under the fence marking the N boundary of Section 32, it has apparently been railed but not seeded. With an area 100 meters in diameter, the

ground cover includes Russian thistle, sage, grass, and rabbit brush. The surface revealed a very heavy sherd scatter with ground stone fragments, secondary flakes, and cores. Mounded areas of heavy stone rubble suggest a square or circular structure at least 15 meters in diameter. It seems quite possible that the large depression at the center of this feature may be a kiva. The analysis of the sherd collection revealed 8 Chapin gray, 3 Mancos Corrugated rims, 5 Mesa Verde Corrugated rims, 6 Chapin B/G, 4 Cortez B/W, 11 Mancos B/W, 46 Mesa Verde B/W (56 white ware body sherds), 1 Deadmans B/R, 4 Abajo R/O, and 9 Tusayan polychrome. Breternitz supplies dates which would argue for a lengthy or for a multiple San Juan Anasazi occupation from PI to PIII times with dates ranging from no later than 900 to 1200 A.D.

42Sa6396 - This site was found near the top of a low ridge which had a slight slope down to the SE at 5°. The area has been railed and seeded with the result that the cover is now composed of sage, rabbit brush, thistle and grass. With an area measuring 50 meters in diameter and an elevation of 1710 meters, the central feature of the site is a circular depression 15 meters in diameter. A mounded area on the S, E, and W sides of the depressson suggests a square or a U shaped surface structure. A small concentration of cultural debris was noted on a low knoll 20 meters to the SW of the edge of the site. The ceramic collection revealed, when analyzed, the diagnostic sherds to include 62 Chapin Gray, 1 Mancos Corrugated rim (47 corrugated body sherds), 8 Chapin B/W, 1 Cortez B/W, 39 Mancos B/W, 4 Deadmans B/R and 3 Tusayan Polychrome. Breternitz would thus seem to indicate a long or a multiple San Juan Anasazi occupation from late PI to early PIII taking place within the minimum time span of 900 to 1150 A.D.

42Sa6397 - This site area measures 100 meters in diameter and is located at an elevation of 1710 meters. The aeolian soil slopes down to the NE and E at 3° and, as the result of railing and seeding, the present cover includes grass, some sage brush, rabbit brush, and some Russian thistle. No collection was made fom the thin flake and sherd scatter which probably has been "smeared" by the seed drill, but the plain corrugated, and painted sherds noted in the field suggests an early PII San Juan Anasazi use probably around 900 A.D.

42Sa6398 - This site with its 40 meter diameter was located in an undisturbed sage brush area where some grass grows in the interspaces. With an elevation of 1710 meters, the slope is to the NE at 4°. The site was characterized by a rather light scatter of sherds and flakes, a mano fragment and other ground stone fragments. No structural element could be identified. Although no collection was made, the sherds suggest, in the absence of the corrugated form, an occupation or use of the area some time between 800 and 900 A.D.

42Sa6399 - This rather nebulous site was found near the S end of a small ridge in an area of undisturbed sage, grass, and snake weed. With an elevation of 1710 meters and an area 40 meters in diameter, the surface of the aeolian soil slopes down at 6° in all directions except to the N. There is a good supply of potential building stone in the area although no structural features could be identified. The contours of the powdery soil suggest that some structures may exist. The ceramic collection was quite light but members of the survey team remarked that, in previous passes to the S, random sherds had been noted with some frequency. The analysis of sherds collected at the site reveal 3 Chapin Gray, 1 Mancos Corrugated rim (41 corrugated body sherds), 13 Mancos B/W, 6 McElmo B/W (12 white ware body sherds), and 2 Deadmans B/R. A reading of Breternitz suggests a PII San Juan Anasazi occupation that probably occured between 1000 and 1100 A.D.

42Sa6400 - This small site of only 15 meters diameter, slopes down to the E at 4°. The undisturbed aeolian soil supported an overstory of sage brush with snake weed and some grass as the understory. The elevation is 1710 meters. The limited scatter of sherds, flakes, and ground stone fragments, perhaps represents only the residue of materials that have largely been carried away by runoff. No structures were evident. The small sherd collection analyzed reveals 25 Chapin Gray, 5 Moccasin Gray, and 8 Chapin B/W. This would argue a San Juan Anasazi use in the PI period between 775 and 900 A.D.

42Sa6401 - A site was found on a low knoll with a 4° slope down in all directions save to the N. The aeolian soil was covered with sage, snakeweed, and some grass throughout its 20 meter diameter and beyond as well. With an elevation of 1710 meters, the site produced only limited cultural material. The fact that the 4 Chapin gray sherds were accompanied by a large corner-notched dart point would appear to suggest an occupation at around 575 A.D. While no evidence of structures was found, the presence of ground stone fragments argues something more than a casual use area.

42Sa6402 - At this location a light sherd and flake scatter covered an area 20 meters in diameter where the aeolian soil was covered with a rather open sage brush stand with a grass understory. The ground slopes down to the W at 5° while the elevation is 1710 meters. No structural evidence could be identified but the analysis of sherds recovered produced 6 Mesa Verde Corrugated rims (28 corrugated body sherds), 3 Mancos B/W, 4 McElmo B/W, and 5 Mesa Verde B/W. The combination suggests a PIII use between 1150 and 1250 A.D.

42Sa6403 - Located in an area that has been railed and seeded, this site is at an elevation of 1710 meters and has a vegetation cover of grass, snake weed, and Russian thistle. The aeolian soil slopes down to the

SE at 4°. A fair scatter of sherds, flakes and ground stone fragments extends over an area 30 meters in diameter. No structures could be identified but some mounded areas fully covered with soil and the presence of scatters of stone rubble suggest that structures do exist. The 15 Chapin Gray sherds that comprise the total site collection would indicate a San Juan Anasazi use of the site in either BMIII or PI times at some point in time between 575 and 900 A.D.

42Sa6404 - Measuring 40 meters in diameter, this site produced a limited assortment of flakes, a few ground stone fragments, and a modest ceramic collection. No structures were identified. With an elevation of 1710 meters, the ground slopes down to the E at 6°. The area has been railed and seeded and the cover includes grass, some sage, rabbit brush, and snake weed. The ceramic collection produced diagnostic sherds including 65 Chapin Gray, 4 Chapin B/W and 1 Mancos B/W. The Breternitz dates suggest a San Juan Anasazi use in late PI or early PII at some time close to 900 A.D.

42Sa6405 - The most visible feature at this site is a circular depresssion 5.5 meters in diameter. Other elements may exist but they could not be identified with assurance. Most of the cultural debris was found down to the SW of the site despite the fact that the slope in the site area is down to the NW at 5°. This suggests a trash area to the SW. The aeolian soil has been railed and seeded and the present cover includes sage, grass, Russian thistle, and snake weed. The elevation is 1710 meters. Cultural debris included sherds, secondary flakes, metate and mano fragments, and a few cores. A ceramic analysis produced 4 Chapin Gray, 1 Moccasin Gray, 1 Mancos Corrugated rim (13 corrugated body sherds), 6 Mancos B/W (3 white ware body sherds), 1 Abajo R/O, 1 Deadman s B/R and 48 unslipped red sherds. The Breternitz analysis suggests that the San Juan Anasazi used the site in PI-PII times between about 850 and 950 A.D.

42Sa6406 - This site, measuring 30 meters in diameter, was located at a point where the aeolian soil sloped down to the NW at 6°. The elevation is 1710 meters. The area has been railed and seeded and the present vegetative cover consists of sage brush, grass, and rabbit brush. Cultural materials involved a light scatter of flakes, ground stone fragments and sherds. No structural features could be identified. Ceramic analysis produced 123 Chapin Gray sherds and 2 corrugated body sherds. If the corrugated body sherds are significant, a late PI or an early PII San Juan Anasazi occupation is suggested although it could be earlier if the presence of the 2 corrugated sherds is fortuitous.

42Sa6407 - This small site was found just above a slope that drops to the NW at 5°. Measuring some 20 meters in diameter, the site and the surrounding area has been railed and seeded. Present cover includes

sage brush, grass, and 1 dead juniper. Near the dead tree a linear cluster of stone rubble running N-S, measures 3 meters long and 0.75 meters wide and may represent a surface storage element. A thin scatter of cultural debris included sherds, flakes, and ground stone fragments. Analysis of the sherds revealed 2 Chapin Gray, 2 Mesa Verde Corrugated rims (11 corrugated body sherds), 2 McElmo B/W, 7 Mesa Verde B/W (2 white ware body sherds). Discounting the 2 Chapin Gray sherds as possibly from a corrugated vessel, the Breternitz dates suggest a San Juan Anasazi occupation in PIII at some time between 1200 and 1300 A.D.

42Sa6408 - The central feature of this site is two circular depressions. The largest of these is 10 meters in diameter while, just to the NE, the other is 8 meters across. Mounded areas adjacent to the circles suggest L shaped surface structures with kivas, represented by the depressions, at the inner angles of the Ls. 20 meters downslope to the E was a large pot hole revealing some evidence of masonry not apparent near the depressions. The site is at an elevation of 1710 meters and has an overall diameter of 60 meters. It is not clear whether or not the area has been railed and seeded but the present cover includes sage brush, grass, snake weed, prickley pear, and a small juniper. Two ceramic collections were made. One was from the surface while the other is composed of sherds taken from the spoil dirt around the pot hole left by vandals. The surface collection produced, upon analysis, 6 Chapin Gray, 1 Moccasin Gray, 1 Mesa Verde Corrugated rim (40 corrugated body sherds), 1 Chapin B/W, 10 Mancos B/W, 7 McElmo B/W, 1 Bluff B/R and 1 Tusayan polychrome. The material left by vandals included 12 Chapin Gray, 1 Mancos Corrugated rim, 1 Mesa Verde Corrugated rim (78 corrugated body sherds), 15 Mancos B/W, 32 McElmo B/W, 1 Abajo R/O, and 10 Deadmans B/R. Following Breternitz, a San Juan Anasazi occupation or multiple occupation for a period ranging from PI through PIII is suggested for the years from about 850 to 1150 although this period might be contracted somewhat.

42Sa6419 - This site, 75 meters in diameter, sits on a low ridge that has been railed and chained and where the aeolian soil is now covered with a sage and grass association. At an elevation of 1710 meters, the surface slopes down to the N at 7°. Cultural debris appeared in the form of a fairly dense scatter of sherds, flakes, and ground stone fragments. Two stone clusters suggest wall elements but no rooms could be defined. A number of low, elongated mounds also suggest linear structural elements but their existance is not established. Ceramic analysis produced 37 Chapin Gray, 4 Mancos Corrugated rims (50 corrugated body sherds), 1 Chapin B/W, 59 Mancos B/W, 9 Deadmans B/R, and 1 Tusayan Polychrome. According to the Breternitz cslculations, this argues a San Juan Anasazi PII occupation at some time between 900 and 1100 A.D.

42Sa6420 - The sherds, flakes, and ground stone fragments of this small scatter appears to have been "smeared" by chaining and railing to a

diameter of some 40 meters. With a 1710 meter elevation, the surface slopes down both to the E and the W at 7° while the present cover for the aeolian soil is sage, grass, and rabbit brush. No structures were visible. Ceramic analysis, following Breternitz, produced 46 Chapin Gray, 1 Moccasin Gray, 7 corrugated body sherds, 2 Chapin B/W, and 1 Mancos B/W. This suggests an occupation of the San Juan Anasazi in late PI or early PII at about 900 A.D.

42Sa6421 - At a point where the aeolian surface soil slopes down to the E at 5° this site covers an area measuring 50 meters in diameter. The site does not appear to have been railed or seeded but the present vegetative cover is limited to sage brush and to grass. The elevation is 1710 meters. Cultural materials occur in the form of a medium dense sherd scatter along with flakes and ground stone fragments. Also noted was a dense scatter of stone rubble and the fact that the soil here was more powdery than sandy - suggesting an ash content. While there is no direct evidence of structures, the stone rubble makes them seem to be likely. Analysis of the ceramic collection produced 84 Chapin Gray, 3 corrugated body sherds, and 3 Chapin B/W. This argues a late PI San Juan Anasazi occupation around 900 A.D. although a discounting of the 3 corrugated sherds could push this back to an earlier time.

42Sa6422 - This small sherd and flake scatter was found on the SW slope of a low hill where the surface drops at 5°. The site is 20 meters in diameter and the cover is confined to sage and Russian thistle. The area has been heavily disturbed by railing although it does not appear to have been seeded. The elevation is 1710 meters. No structures were found but a small ceramic collection has produced 2 Mancos Corrugated rims (18 corrugated body sherds), 15 Mancos B/W (12 white ware body sherds), and 5 Deadmans B/R. The Breternitz dates suggest a PII San Juan Anasazi occupation at some time between 900 and 1000 A.D.

42Sa6423 - Again on ground that has been railed but not seeded, this site had a diameter of 30 meters on ground that slopes to the S at 4°. The aeolian soil is now covered by Russian thistle, grass, some sage, and 4 small juniper. The elevation is 1710 meters. A very thin scatter of sherds, flakes and ground stone fragments produced only plain ware sherds. Since no collection was made the site can only by ascribed to the San Juan Anasazi, probably in BMIII or PI times between 575 and 900 A.D. No structures were observed.

42Sa6424 - With an elevation of 1710 meters, this site covers an area 30 meters in diameter. The aeolian soil slopes down at 3° to the E, SE and S while the cover, after heavy distrubance by railing and seeding, is now composed of rabbit brush, Russian thistle, and some sage brush. An amorphous cluster of stone rubble may represent the remains of a small structure. A small sherd collection has been found to include 25 Chapin

Gray, 5 Mancos Gray, and 8 Chapin B/W. According to Breternitz, this should place the San Juan Anasazi occupation rather neatly in late PI between 875 and 900 A.D.

42Sa6425 - In an area disturbed by railing and seeding, the small sherd scatter covers an area with a diameter of 30 meters - which may represent a "smearing" by the seeding operation. The aeolian soil slopes down to the E at 3° while the present vegetation consists of sage brush, Russian thistle, grass, and some rabbit brush. Flakes and some ground stone fragments were noted, an occupation may, with caution, be postulated for the San Juan Anasazi between 575 and 900 A.D. either in BMIII or PI times.

42Sa6426 - This site covers an area with a diameter of 35 meters and is located on a ridge that drops down to the E, SE, and S at 7°. The cover is sage brush, rabbit brush, and several small juniper together with some grass. Although the area has not been railed, a vehicle track has beaten down the brush across the N end of the site. The elevation is 1710 meters. While no structures were identified with certainty, a cluster of stone rubble measuring 2 meters N-S and 1 meter wide was noted. There is a possibility that others may exist in the rather dense stand of brush. A light scatter of flakes and sherds accounted for the cultural debris. Analysis of the ceramics revealed 27 Chapin Gray, 1 Moccasin Gray, and 1 Chapin B/W. Dates suggested by Breternitz would thus fix a San Juan Anasazi PI occupation between 775 and 900 A.D.

42Sa6427 - This site was found near the E edge of a fairly level ridge top with the slope of the aeolian soil dropping to the E at 6°. The area may not have been railed and the present vegetation includes sage, grass, 1 juniper, and snake weed. With an elevation of 1710 meters, the site has a diameter of 75 meters and may be larger. Structural elements were only suggested on the surface but vandals had dug out a slab lined granary in the NW quarter of the site. This feature measures 3 meters long and nearly 2 meters wide. The digging produced a number of slab metates and manos. Additional pot hunting down the slope was visible but nothing could be determined as to the depth of the midden. Other mounded areas suggest but do not outline linear or L shaped surface structures. The ceramic collection produced 1 Mesa Verde Corrugated rim (54 corrugated body sherds), 2 Chapin B/W, 14 Mancos B/W, 15 McElmo B/W (11 white ware sherds), 1 Deadmans B/R and 1 Tusayan Polychrome. Breternitz dates thus suggest a PII-PIII San Juan Anasazi occupation for the period between 990 and 1150.

42Sa6428 - This small site produced a light sherd scatter among the heavier concentration of apparent stone rubble. A single piece of bruned clay is the only evidence of a structure - possibly although not necessarily jacal.

The elevation is 1710 meters and the site diameter is 20 meters. The slope is down to the NW at 7°. Although the site area has not been chained or railed, it has been a cattle "yarding" area because of the presence of a number of juniper. Other vegetation includes sage, grass, and snakeweed. Analysis of the small sherd collection produced 2 Chapin Gray, 11 corrugated body sherds, 2 Mancos B/W, and 1 Abajo R/O. Following Breternitz, an accounting for all of these sherds would postulate a late PI or an early PII San Juan Anasazi occupation between about 900 and 950 A.D.

42Sa6429 - With a diameter of 15 meters and an elevation of 1710 meters, the aeolian soil of this site area slopes down to the SE at a barely perceptable 1°. The ground has been railed and seeded and the present vegetation is restricted to grass and Russian thistle. The site is marked by a small block of from 1 to 3 rooms, apparently of coursed stone although burned clay fragments may also suggest the use of jacal. The analysis of the sherd collection following dates given by Breternitz produces 4 Mancos Corrugated rims (19 corrugated body sherds), 7 Mancos B/W (9 white ware sherds), 3 Deadmans B/R, and 1 McElmo B/W. This argues a PII occupation by the San Juan Anasazi between 900 and 1000 A.D.

42Sa6430 - Situated in an area that has been fully railed and seeded, this site is on a 3° slope to the SW with grass and Russian thistle forming the only cover for the aeolian soil. The elevation is 1710 meters and the site measures 35 meters by 30 meters. The principle cultural feature is a circular depression 5 meters in diameter. Although this is an apparent PII site, evidence of jacal suggests that this was a pit house. Cultural materials included primary and secondary flakes, a metate fragment and 3 hammerstones. A ceramic analysis of magerial collected produced 2 Chapin Gray, 2 Mancos Corrugated rims (40 corrugated body sherds), 30 Mancos B/W (21 white ware sherds), and 1 Deadmans B/R. This argues a San Juan Anasazi PII occupation between 900 and 1000 A.D.

42Sa6431 - With a 30 meter diameter, this site is located on aeolian soil that slopes to the SW at 3°. The area has been railed and seeded and the present vegetation is confined to Russian thistle and some grass. The elevation is 1710 meters. Cultural debris consists of primary and secondary flakes, a hammerstone, 1 mano and numerous ground stone fragments as well as sherds. Sherds collected have been analyzed to reveal 2 Chapin Gray, 1 Mancos Corrugated rim (16 corrugated body sherds), 16 Mancos B/W, and 3 Deadmans B/R. This would, according to Breternitz, argue a PII San Juan Anasazi occupation between 900 and 1000 A.D.

42Sa6432 - The central feature of this site is a depression 10 meters in diameter with a trash midden lying just to the SW of it. The site is on a small ridge of aeolian soil which slopes down to the SE at 2°. With an elevation of 1710 meters, the area has been railed and seeded and present vegetation is confined to 1 small juniper, Russian thistle, and some grass. Cultural debris included flakes, a hammerstone, a metate

fragment, and other ground stone fragments and sherds. Analysis of the sherds produced 46 Chapin Gray with an additional 14 sherds of the same type but of unusal thickness, 4 corrugated body sherds, and 6 Mancos B/W. While it does not quite accord with Breternitz, a PII San Juan Anasazi occupation is postulated for the period between 900 and 950 A.D.

42Sa6433 - A circular depression 5 meters in diameter is surrounded by midden that apparently represents trash deposits. The aeolian soil appears to be perfectly level, perhaps the result of railing and seeding. Present vegetation is limited to a sparse cover of grass. The site measures 10 meters in diameter and the elevation is 1710 meters. Cultural debris includes flakes, two manos, ground stone fragments, and sherds. Ceramic analysis revealed 13 corrugated body sherds, 26 Mesa Verde B/W and 29 white ware sherds. This rather simple assortment follows Breternitz to postulate a San Juan Anasazi PIII occupation between 1200 and 1300 A.D.

42Sa6434 - Again resting upon aeolian soil that appears to be quite level, this site is at an elevation of 1710 meters and has a diameter of 15 meters. The vegetation in the area is composed entirely of Russian thistle with some grass. Two contiguous depressions mark the focus of the site while cultural material includes both metate and mano fragments as well as other ground stone fragments, primary and secondary flakes, and a modest collection of sherds found to include 1 Mesa Verde Corrugated rim (6 corrugated body sherds), 1 Mancos B/W, 1 McElmo B/W, 4 Mesa Verde B/W and 5 white ware sherds. A study of Breternitz suggests a PIII San Juan Anasazi occupation between 1125 and 1225 A.D.

42Sa6435 - With a 20 meter diameter, this site is marked by a scatter of flakes and sherds with no evidence of structures. The site is on a low ridge with a slope to the E at 3°. The area has been railed and seeded and the present cover is given exclusively to Russian thistle. The elevation is 1710 meters. An analysis of the Sherds collected produced 5 Chapin Gray, 14 corrugated body sherds, 3 Chapin B/W, 10 Mancos B/W (11 white ware sherds), and 3 Deadmans B/R. This assortment argues a PI-PII occupation for the San Juan Anasazi between 875 and 1000 A.D.

42Sa6436 - Central to this site is a small structure of shaped stone comprising one or two rooms. The site is on aeolian soil sloping at 1° to the E. The area has been railed and seeded and the present cover is composed of Russian thistle with some salt bush. The site diameter is 15 meters and the elevation is 1710 meters. Primary and secondary flakes were accompanied by a few sherds. Although these were not collected, field identification of Mancos Corrugated and Mancos B/W assigns a PII San Juan Anasazi occupation of from about 990 to 1150 A.D.

42Sa6437 - This site, 30 meters in diameter at an elevation of 1710 meters, rests on aeolian soil that slopes down to the E at 2°. The site is just above a modern "root cellar". Stone rubble suggests a small structure apparently no more than 1 meter square. The area has been railed and seeded and present vegetation includes some sage brush and Russian thistle. Cultural materials were confined to primary and secondary flakes and sherds. The sherds include 6 corrugated body sherds, 2 Mancos B/W, 22 Mesa Verde B/W (7 white ware sherds) and 2 Deadmans B/R. The Breternitz study suggests a PIII occupation by the San Juan Anasazi between 1150 and 1300 or perhaps a bit later.

42Sa6438 - This site rests on a small knoll where the central feature is a depression 2 meters in diameter and 50 cm. deep. The ground slopes to the NE at a very gradual 1°. The area has been railed and seeded and the aeolian soil is presently covered with grass, sage, Russian thistle and one juniper. The site measures 40 meters by 30 meters and the elevation is 1710 meters. Cultural material observed includes primary and secondary flakes, mano and metate fragments, hammerstones, and sherds. The ceramic analysis reveals 31 Chapin Gray, 2 Moccasin Gray, 4 Chapin B/W, 49 Mancos B/W (9 slipped white ware), 6 Deadmans B/R, and 2 Tusayan Polychrome. Following the lead of Breternitz, this suggests a PI-PII San Juan Anasazi occupation for a period between 850 and 1050 or perhaps a bit later.

42Sa6439 - This site is located on aeolian soil with a slope of only 1° to the NW. The area has been railed and seeded and the present cover is confined to Russian thistle with some grass. At an elevation of 1710 meters and a site diameter of 30 meters, the central feature is a depression 8 meters in diameter and 75 cm. deep with a small block of from 1 to 3 rooms to the SE of the depression. The block is formed of coursed stone and measures 4 by 3 meters. Cultural material included a slab metate and a basin metate, mano fragments, primary and secondary flakes, hammerstones and sherds. Ceramic analysis identified 3 Chapin Gray, 3 Mesa Verde Corrugated rime (80 corrugated body sherds), 14 Mancos B/W, 33 Mesa Verde B/W (24 white ware sherds). If the Chapin Gray be considered undecorated parts of corrugated vessles, a PII-PIII San Juan Anasazi occupation can be postulated for a time about 1000 to 1300 A.D.

42Sa6440 - Located on aeolian soil with a slight 1° slope to the S, this site area has been railed and seeded and the present vegetation is limited to Russian thistle and some sage brush. The elevation is 1710 meters and the site is some 15 meters in diameter. The site reveals both some apparent building stone and burned adobe rubble. The rubble is evident both on the surface and in a pot hole dug by vandals. Cultural debris was confined to flakes, ground stone fragments and sherds. Sherds include 17 Chapin Gray, 3 Chapin B/W, and 2 white ware sherds. This argues, according to Breternitz, a BMIII-PI San Juan Anasazi occupation some time between 575 and 900 A.D.

42Sa6441 - The central feature at this site is a room block measuring 12 by 3 meters and apparently made of coursed stone though the structure is now seriously damaged as the result of railing and seeding. Some 5 meters W of the room block is a well-defined flaking area. The entire site is 35 meters in diameter. The vegetation is confined to Russian thistle and wolf berry. The aeolian soil of the site slopes at 2° to the SE and the elevation is 1710 meters. Cultural debris included primary and secondary flakes, a mano, ground stone fragments, and sherds. Sherds include 15 Chapin Gray, 18 corrugated body sherds, 3 Chapin B/W, 48 Mancos B/W (16 white ware sherds), 4 Deadman B/R, and 1 Tusayan Polychrome. According to Breternitz, this combination of sherds might be found between 900 and 1000 A.D. and thus a San Juan Anasazi PII occupation can be suggested.

42Sa6442 - With a slope of 2°, the aeolian soil of this site is covered with Russian thistle and some sage and grass as a result of railing and seeding. The site measures 15 meters in diameter with an elevation of 1710 meters. The primary feature of the site is the surface evidence of burned adobe which suggests a jacal structure. Cultural debris was confined to flakes and sherds. The sherds were, in turn, limited to 54 Chapin Gray and 1 Chapin B/W. The Breternitz study thus argues a BMIII-PI San Juan Anasazi occupation some time between 575 and 900 A.D.

42Sa6443 - A depression measuring 10 by 15 meters and surface evidence of burned adobe suggesting jacal form the central elements at this site which has a 25 meter diameter at an elevation of 1710 meters. The aeolian soil slopes to the SE at 3° and, as a result of railing and chaining, the vegetation here is confined to Russian thistle. Cultural debris is limited to flakes and to sherds which include 63 Chapin Gray, 1 Chapin B/W, and 1 Abajo R/O, an association which Breternitz would limit to the period between 700 and 900 A.D. so that a PI San Juan Anasazi occupation is postulated.

42Sa6444 - In an area railed and seeded, the site is on aeolian soil that slopes at a bare 1° to the SE. The elevation is 1710 meters and the vegetation is limited to Russian thistle and some grass. The site measures 50 meters in diameter and appears to represent two distinct components. In one portion of the site, structures appear to have been built of jacal and of coursed stone while in the second area, a pit structure seems to be indicated. In the area of the possible pit structure, Component A, the sherds include 50 Chapin Gray and 10 Chapin neck-banded, 1 Chapin B/W and 3 Deadmans B/R. This argues of PI occupation by San Juan Anasazi between 800 and 900 A.D. In component B where surface structures appear to have been built, the sherds include 24 Chapin Gray, 3 Mancos Corrugated rims (15 corrugated body sherds), 2 Chapin B/W, 16 Mancos B/W, and 15 Deadman B/R. Use of Breternitz here argues the San Juan Anasazi were present in PII times between 900 and 1100 A.D.

42Sa6445 - The principle feature of this site is a one room structure of coursed stone measuring 3 by 4 meters with walls 0.5 meters thick. Vandals have dug a pot hole in the S portion of the site which is 10 meters in diameter. The site is covered with juniper, pinon and sage. The aeolian soil slopes down to the SE at 2° while the elevation is 1710 meters. Very little cultural debris was present but Mancos Corrugated sherds were noted in the field and thus an occupation by the San Juan Anasazi is probably a PII manifestation although it can only be said that it was later than 900 A.D.

Appendix H

Background Radiological Environment

White Mesa Mill

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BACKGROUND RADIOLOGICAL ENVIRONMENT

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TABLE OF CONTENTS

Page No.

1.0 BASELINE RADIOLOGICAL ENVIRONMENT 1

2.0 THE WORLD 1

3.0 THE UNITED STATES 2

4.0 THE MILL SITE 3

5.0 REFERENCES 5

LIST OF TABLES

Page No.

4-1 Average Dose from Natural Background Radiation 3

4-2 Ambient Radon-222 Concentrations in Outdoor Air at Blanding Site 4

1.0 BASELINE RADIOLOGICAL ENVIRONMENT

All living things have always been exposed to ionizing radiation from a variety of natural background sources including cosmic and cosmogenic radiation from outer space; external radiation from terrestrial radionuclides such as uranium, thorium and potassium-40 that occur in the earth's crust, in building materials, in the air we breath, the food we eat, the water we drink and in our bodies.

Some exposures, such as that from potassium-40 are controlled by our body's metabolism and are relatively constant throughout the world, but exposures from sources such as uranium and thorium in soils and especially from radon in homes can vary greatly, by more than a factor of ten, depending on location.

In order to provide a context for exposures potentially attributable to radioactive emissions from processing of ores and alternate feeds at the Mill, this report provides some general background information on exposures to natural background radiation worldwide, in the United States and in the Colorado Plateau region of the Mill.

2.0 THE WORLD

In general terms, the breakdown of average natural background radiation doses to humans worldwide can be summarized as follows (UNSCEAR, 2000):

Cosmic and Cosmogenic	39 mrem/yr
Terrestrial	48 mrem/yr
Inhaled (Radon)	126 mrem/yr
Ingested	29 mrem/yr
Total (Average)	**242 mrem/yr (116 mrem/yr excluding radon)**

According to the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), the actual doses can vary considerably from the nominal values listed above, and around the world vary from this normal value, by more than a factor of 10 (UNSCEAR 2000). For example, the dose from cosmic and cosmogenic radiation varies with altitude. The higher the altitude, the less is the protection offered by the earth's atmosphere. The dose from external gamma radiation can vary greatly depending on the levels of uranium and thorium series radionuclides in the local soil. One example is the elevated gamma fields seen on natural sands containing heavy minerals as for example in regions around the Indian Ocean, in Brazil, and New Jersey. The high variability in indoor radon concentrations is a major source of the variation in natural background dose. The variability in the dose from radon arises from many factors including, variability in soil radium concentrations from place to place, variation both

over time and location in housing stock, heating and ventilating systems, and variations in individual habits.

The worldwide average ambient (i.e. outdoor) radon concentration is about 10 Bq/m^3 (UNSCEAR, 2000) and the world average concentration of uranium-238 and thorium- 232 in soils is about 25 Bq/kg (0.7 pCi/g) (U.S. Nuclear Regulatory Commission, 1994).

The definition of "background radiation" in 10 CFR 20.1003 specifically includes global fallout as it exists in the environment from the testing of nuclear explosive devices or from past nuclear accidents such as Chernobyl that contribute to background radiation and are not under the control of the licensee. The calculation of background radiation in this report is conservative because it does not include such fallout in background radiation for the Mill site. In addition, many people are exposed to ionizing radiation for medical purposes, according to UNSCEAR (2000), diagnostic medical examinations contribute a further 40 mrem per year per person on average. (It is important to note that this is a global average and that individual exposures would vary greatly.)

3.0 THE UNITED STATES

In the United States, nominal average levels of natural background radiation are as follows (National Council on Radiation Protection and Measurements (NCRP), 1987):

Cosmic and Cosmogenic	28 mrem/yr
Terrestrial	28 mrem/yr
Inhaled (Radon)	200 mrem/yr
Ingested	40 mrem/yr
Total (Average)	**296 mrem/yr (96 mrem/yr excluding radon)**

As shown above, in the United States, the average annual dose from natural background radiation is about 296 mrem/yr (including radon). The actual annual dose from natural background varies with region within the United States. For example, the average dose from external terrestrial radiation for a person living on the Colorado Plateau is in the order of 63 mrem/yr which is considerably higher than the average dose from terrestrial radiation for a person living in Florida, where the average annual dose from external terrestrial radiation only about 16 mrem/yr. (U.S. Nuclear Regulatory Commission, 1994; NCRP, 1987).

For comparison, the average amount of uranium-238 and thorium-232 in soil within the United States is about 37 Bq/kg (1 pCi/g).

TABLE 4-2
AMBIENT RADON-222 CONCENTRATIONS IN OUTDOOR AIR AT BLANDING SITE
(Dames & Moore, 1978)

Sampling Station	Rn-222 Concentration (pCi/m^3)	Rn-222 Concentrations (Bq/m^3)
DM-1	145 ± 55	5.4
DM-2	125 ± 26	4.6
DM-3	303 ± 123	11.22

If for present purposes, we follow the dose calculation procedure of UNSCEAR 2000 (para 153) and assume:

- nominal outdoor Rn-222 concentration of 10 Bq m^{-3};
- nominal indoor Rn-222 concentration of 95 Bq m^{-3};
- time outdoors of 1760 h/year;
- time indoors of 7,000 h/year;
- outdoor equilibrium factor of 0.6;
- indoor equilibrium factor of 0.4;

and UNSCEAR's dose conversion factor of 9 nSv (Bq hm^{-3})$^{-1}$ then the average annual dose from radon is estimated as:

$$outdoor\ 10\ \frac{Bq}{m^3} \times 0.6 \times 1{,}760 \times 9\ nSv\ (Bq\ hm^{-3})^{-1}$$
$$= 0.095\ mSv$$
$$= 9.5\ mrem$$

$$indoor\ 95\ \frac{Bq}{m^3} \times 0.4 \times 7{,}000\ h \times 9\ nSv\ (Bq\ hm^{-3})^{-1}$$
$$= 2.4\ mSv$$
$$= 240\ mrem$$

for a (nominal) annual average radon dose of about 250 mrem per year.

When the contribution from radon is added to other sources of natural background radiation dose (Table 4.1), the total annual dose from natural background radiation and radioactivity to a person living in the vicinity of the Mill was estimated to be about 400 mrem/yr, considerably higher than the national average.

5.0 REFERENCES

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