ENERGY FUELS

Energy Fuels Resources (USA) Inc.
225 Union Blvd. Suite 600
Lakewood, CO, US, 80228
303 974 2140
www.energyfuels.com

February 27, 2013

VIA OVERNIGHT DELIVERY

Mr. Rusty Lundberg
Director of the Utah Division of Radiation Control
State of Utah Department of Environmental Quality
195 North 1950 West
P.O. Box 144850
Salt Lake City, UT 84116-4850

Dear Mr. Lundberg:

Re: State of Utah Radioactive Material License No. UT1900479
White Mesa Mill, Blanding, Utah
Semi-Annual Effluent Monitoring Report for Period
July 1, 2012 through December 31, 2012

As required by Utah Administrative Code, R 313-24-4 (incorporating by reference 10 CFR 40.65 (subpart1)), and License Condition 11.3A of State of Utah Radioactive Materials License No. UT1900479, enclosed is the Semi-Annual Effluent Monitoring Report for the White Mesa Mill for the period July 1, 2012 through December 31, 2012.

If you have any questions regarding this report, please contact the undersigned at (303) 389-4132.

Yours very truly,

JoAnn Tischler

ENERGY FUELS RESOURCES (USA) INC.
Jo Ann Tischler
Manager, Compliance and Licensing

cc: David C. Frydenlund
Harold R. Roberts
David E. Turk
Katherine A. Weinel
Central Files

White Mesa Uranium Mill
Radioactive Materials License UT900479
Semi-Annual Effluent Monitoring Report
(July through December 2012)

Prepared For:
Utah Department of Environmental Quality
Division of Radiation Control

Prepared by:

Energy Fuels Resources (USA) Inc.
225 Union Boulevard, Suite 600
Lakewood, CO 80228

February 27, 2013

Table of Contents

LIST OF TABLES

INDEX OF TABS

WHITE MESA URANIUM MILL
SEMI-ANNUAL EFFLUENT REPORT, JULY THROUGH DECEMBER 2012

1.0 INTRODUCTION

The White Mesa Mill (the "Mill") has established monitoring programs to evaluate compliance with effluent limitations and to assess the potential for release of radioactive material into the local environment. These monitoring programs were developed and implemented at the time of Mill construction, operated with appropriate adaptation over time, and are consistent with the Mill's State of Utah Radioactive Materials License No. UT1900479 (the "License") and guidelines developed by the United States Nuclear Regulatory Commission ("NRC") (NRC Regulatory Guide 4.14, *Radiological Effluent and Environmental Monitoring at Uranium Mills-Rev. 1, ML003739941)*, 1980).

Under these programs, the Mill monitors the following environmental media and conditions:

a) Airborne particulate radionuclide concentrations obtained from the following sampling stations:

- North, east and south of the Mill Site: BHV-1 and BHV-2 (north), BHV-5 (east), and BHV-4 (south). BHV-1 serves as a surrogate for the nearest resident (BHV-1 is approximately 1.2 miles north of the Mill, but approximately 0.4 miles closer to the Mill than the nearest resident);
- A background location distant to and west of the Mill (BHV-3), which was monitored for airborne particulate up until November, 1995, at which time background was established, but is no longer monitored for air particulate; and
- A station specifically requested by the White Mesa Ute Community south of the Mill Site (BVH-6);

b) External (direct) gamma radiation measured at air monitoring stations BHV-1, BHV-2, BHV-3, BHV-4, BHV-5 and BHV-6;

c) Vegetation at three site periphery locations, for uptake of radiation;

d) Stack release rates from the Mill's air emissions sources;

e) Surface water at Cottonwood Creek and, when flowing, Westwater Creek, both located west of the Mill;

f) Soil radionuclide activity obtained near the air particulate monitoring stations, during the third quarter of each year;

g) Groundwater (up and down gradient) of the Mill facility; and[1]

h) Seeps and springs in the vicinity of the Mill.[1]

This semi-annual effluent report provides the results of the specific monitoring and sampling activities that were undertaken during the subject reporting period.

2.0 ENVIRONMENTAL AIR PARTICULATE SAMPLING

2.1 Program Overview

The environmental airborne particulate monitoring program at the Mill utilizes four air sampling stations. Four high-volume continuous air sampling stations (BHV-1, BHV-2, BHV-4, and BHV-5) are required by the License. These sampling stations serve as sentinels for airborne particulate which could potentially emanate from the Mill site. In addition to its general site monitoring function, BHV-1 also serves as a conservative surrogate for concentrations at the nearest resident, because it is located approximately 1.2 miles north of the Mill just south of the nearest resident but between the Mill and that resident.

With regard to background monitoring, the Mill previously operated a continuous high-volume air sampling station (BHV-3) which was located approximately 3.5 miles west of the Mill site. With the approval of NRC, this station (BHV-3) was removed from the active air monitoring program in November 1995. At that time, NRC determined that a sufficient air monitoring data base had been compiled at BHV-3 to establish a representative airborne radionuclide background for the Mill. It should be noted, however, that while air sampling was discontinued at this location, gamma measurements and soil sampling continue at BHV-3.

In addition to the environmental air sampling locations described above, an additional station (BHV-6) was installed at the request of the White Mesa Ute Community. This station began operation in July of 1999 and provides airborne particulate information in the southerly direction between the Mill and the White Mesa Ute Community.

2.2 Sampling Protocol and Analytical Results

Airborne particulate monitors are operated continuously at each of the high-volume air sampling stations referenced above except BHV-3, as noted above. Particulate sample collection filters are gathered by site technicians weekly in accordance with the Mill's environmental air sampling procedures and are composited on a quarterly basis for laboratory analyses. The collected filters are analyzed for Unat activity, Th-230 activity, Ra-226 activity, and Pb-210 activity. Fugitive dust standards for the facility are limited by the Mill's State of Utah Air Approval Order, which sets a 20% visual opacity

---

[1] Groundwater sampling and seeps and springs sampling are reported separately pursuant to the Mill's State of Utah Ground Water Discharge Permit No. UGW370004, and are not included with this report.

standard. The specific locations of the Mill's airborne particulate monitoring stations are depicted on the figure entitled High Volume Air Monitoring Stations included as Attachment A. Station BHV-3, which is no longer sampled for air particulate, is located approximately 3.5 miles west of the Mill facility and is not indicated on that Figure.

The analytical results of radionuclide particulate sampling for each monitoring station operated during this reporting period are provided in Attachment B under separate sampling station attachment tabs (Tabs 1-6). Each Tab contains graphical illustrations of the radionuclide concentrations in log-scale presentation format. The graphs display reported data over time since the 1981 inception of the Mill's environmental air particulate monitoring program. The actual analytical results (and associated QA/QC information) reported by the laboratory for the reporting period are provided under Attachment C. In addition to the analyses for radionuclides, particulate loading is determined for each filter and composited as a quarterly mass-loading estimate for review purposes only. Graphs showing particulate loading at each station and the underlying data are included as Attachment D.

It should be noted that for BHV-6 the first 2 sampling periods of April 2012 have been omitted from particulate loading on the graph in Attachment D. The timer on the airborne particulate monitoring station at BHV-6 malfunctioned, and the data are considered invalid due to the inability to measure the time sampled. The timer was replaced prior to the third sampling period and all other measurements are valid.

It should be noted that for graphical illustration purposes, values reported at zero, values reported at less than the prescribed detection limit ($< 1 \times 10^{-16}$ uCi/ml) and missing values were plotted as 1×10^{-16} uCi/ml concentrations. Where other "less than" values were indicated (i.e., where detection limits for the data varied from 1×10^{-16} uCi/ml), the detection limit concentration was utilized for plotting the data point. This graphing convention is not utilized to formulate station average information, nor is it intended as a precedent for data treatment. Rather, the intent is to provide a conservative viewable depiction of site airborne radionuclide information. This is considered to be a conservative approach because the actual concentration below the detection limit cannot be determined and, as a result, the plotted point will be at the same or a higher concentration than the actual activity concentration of the collected sample.

2.3 General Observations

The results of environmental air monitoring for this semi-annual period indicate that for all radionuclides at all monitoring stations airborne radionuclide particulate activity concentrations were well below regulatory Effluent Concentration Limits ("ECL's") and the Mill's ALARA goals, which are set at 25% of the ECLs.

It is noteworthy and expected that Pb-210 concentrations are elevated when compared to the other parent radionuclide concentrations (i.e. U-nat, Th-230 and Ra-226). This phenomenon is due to the well-established controlling effect experienced worldwide as a result of the ubiquitous presence of radon in the earth's atmosphere. Accordingly, elevated Pb-210 presence in disequilibrium with parent radionuclides measured here is not associated with uranium milling operations. Rn-222 emanates as a decay-chain progeny of the Ra-226 contained in the soil of the earth's crust and is dispersed generally throughout the earth's atmosphere. The electrically charged short and long-lived decay products of Rn-222 attach to ambient dust particles found naturally in the atmosphere and are carried with the air. Pb-210 is the longest lived of these decay products and is the decay product of the shorter-lived radon progeny. As such, it accumulates as an electrical attachment on the natural ambient dust in the atmosphere and is generally measured at elevated activity when compared to local decay-chain parent radionuclide activity, regardless of uranium milling activity. At the Mill's BHV air monitoring stations, all dust (ambient natural and mill derived) is collected by the sample filter. Because of the natural elevation of Pb-210 accumulated as an attachment to the naturally occurring ambient dust particles collected by the air sampling equipment, Pb-210 is commonly elevated and in disequilibrium when compared to parent radionuclide activity, regardless of the Mill's presence. By way of illustration, average ground-level concentrations have been reported for selected States (NCRP Report 94, 1992) and are summarized in Table 1 below, demonstrating elevated Pb-210 activity where no uranium milling operations are located nearby. Pb-210 activity concentrations can be expected to be even higher for locations in the western U.S. where uranium ore bodies are commonly located. In April 1977, prior to Mill construction and Mill operations, air particulate Pb-210 was measured at the Mill site to be 1.3E-14 uCi/ml (13.0E-3 pCi/m^3)[2]

Table 1- NCRP Report 94-Global Pb-210 Concentration Example

State	Pb-210 Concentration	
	uBq/M^3	uCi/ml
California	600	1.6E-14
Illinois	1500	4.1E-14
Ohio	300	8.1E-15
Massachusetts	700	1.9E-14

2.4 Site Specific Sampling Data

The results of airborne particulate monitoring for the period (without background subtraction) are provided by sampling station and radionuclide in Tables 2 through 5 below. Along with these data, the tables present comparative ECL's and the ECL percentage measured at each of the monitoring stations sampled during the period. A review of these data supports the conclusion that airborne particulate is well controlled at the Mill. In all cases, the measured activity concentrations were well within the ECL, as well as the Mill's ALARA goal (i.e. 25% of the ECL). Lower Limits of Detection

---

[2] See the *Environmental Report, White Mesa Uranium Project, San Juan County, Utah for Energy Fuels Nuclear, Inc.* prepared by Dames & Moore, January 30, 1978, Section 2.9.1.1

consistent with NRC Regulatory Guide 4.14 were maintained by the Mill's contract analytical laboratory for this reporting period.

In fact, the data obtained since program inception in 1981 indicates that only one individual quarterly measurement (Th-230 at BHV-5 for the 2nd Quarter of 1996) has ever exceeded the ECL at the Mill. With regard to that particular single measurement, while it is important to consider and evaluate an individual measurement exceeding the ECL, for public dose estimation purposes, it is the average annual concentration that is of primary significance. In that instance, the average annual concentration of Th-230 for BHV-5 in 1996 was well below the ECL. Data obtained since program inception in 1981 also indicate that, with very few exceptions, the gross (background inclusive) measurements do not exceed the site's ALARA goal (i.e. only nine of the several thousand total gross radionuclide determinations to date exceeded the Mill's self-imposed 25% ALARA goal).

Table 2- Air Monitoring Station Results U-Nat (Comparison to Limits) 3rd and 4th Quarters 2012

Monitoring Station	3rd Qtr. Result (uCi/ml)	4th Qtr. Result (uCi/ml)	Effluent Concentration Limit (ECL) (uCi/ml)	Average Percent ECL
BHV1	1.06E-15	6.86E-16	9.00E-14	9.70E-01
BHV2	3.13E-16	2.76E-16	9.00E-14	3.27E-01
BHV4	4.05E-15	2.32E-15	9.00E-14	3.54E+00
BHV5	6.73E-15	4.50E-15	9.00E-14	6.24E+00
BHV6	6.63E-15	3.83E-15	9.00E-14	5.81E+00

Table 3- Air Monitoring Station Results Th-230 (Comparison to Limits) 3rd and 4th Quarters 2012

Monitoring Station	3rd Qtr. Result (uCi/ml)	4th Qtr. Result (uCi/ml)	Effluent Concentration Limit (ECL) (uCi/ml)	Average Percent ECL
BHV1	2.11E-16	1.27E-16	2.00E-14	8.45E-01
BHV2	4.13E-17	5.41E-17	2.00E-14	2.39E-01
BHV4	8.33E-16	5.89E-16	2.00E-14	3.56E+00
BHV5	2.59E-15	1.62E-15	2.00E-14	1.05E+01
BHV6	1.31E-15	1.18E-15	2.00E-14	6.23E+00

Table 4- Air Monitoring Station Results Ra-226 (Comparison to Limits) 3rd and 4th Quarters 2012

Monitoring Station	3rd Qtr. Result (uCi/ml)	4th Qtr. Result (uCi/ml)	Effluent Concentration Limit (ECL) (uCi/ml)	Average Percent ECL
BHV1	2.34E-16	1.38E-16	9.00E-13	2.07E-02
BHV2	3.04E-17	7.05E-17	9.00E-13	5.61E-03
BHV4	5.43E-16	3.75E-16	9.00E-13	5.10E-02
BHV5	2.43E-15	1.79E-15	9.00E-13	2.34E-01
BHV6	1.22E-15	9.30E-16	9.00E-13	1.19E-01

Table 5- Air Monitoring Station Results Pb-210 (Comparison to Limits) 3rd and 4th Quarters 2012

Monitoring Station	3rd Qtr. Result (uCi/ml)	4th Qtr. Result (uCi/ml)	Effluent Concentration Limit (ECL) (uCi/ml)	Average Percent ECL
BHV1	1.13E-14	1.54E-14	6.00E-13	2.23E+00
BHV2	1.03E-14	1.48E-14	6.00E-13	2.09E+00
BHV4	1.21E-14	1.56E-14	6.00E-13	2.31E+00
BHV5	1.30E-14	1.74E-14	6.00E-13	2.53E+00
BHV6	1.34E-14	1.60E-14	6.00E-13	2.45E+00

2.5 Radon-222

Due to the unavailability of monitoring equipment to detect the revised 10 CFR Part 20 standard, and with the approval of NRC, Radon 222 monitoring at BHV stations was discontinued in 1995. Instead, compliance with these limits and the requirements of R313-15-301 is demonstrated by a calculation, authorized by the NRC and as contemplated by R313-15-302(2)(a). A copy of the Technical Evaluation Report evidencing such approval was enclosed with correspondence to the Division of Radiation Control ("DRC") on July 28, 2008.

This calculation is performed by use of the MILDOS code for estimating environmental radiation doses for uranium recovery operations (Strenge and Bender 1981) and more recently in 2003 by use of the updated MILDOS AREA code (Argonne 1998). The analysis under both the MILDOS and MILDOS AREA codes assumes the Mill to be processing high grade Arizona Strip ores at full capacity, and calculates the concentrations of radioactive dust and radon at individual receptor locations around the Mill.

The MILDOS and MILDOS AREA codes calculate the combined Total Effective Dose Equivalent ("TEDE") from all relevant pathways, including both air particulate and radon, at a number of locations including the nearest residence (the individual likely to receive the highest dose from the licensed operation), approximately 1.6 miles north of the Mill. These calculations reveal projected doses to the individual likely to receive the highest dose from the licensed operations to be well below the 100 mrem regulatory limit in R313-15-301(1)(a) for all pathways, including air particulate and radon, and well below the ALARA goal of 10 mrem/yr for air emissions excluding radon as set out in R313-15-101(4). MILDOS AREA modeling was recently conducted in support of the Mill's 2007 License Renewal Application, utilizing the MILDOS-AREA code (Version 2.20β), to estimate the dose commitments at various receptor locations for processing of Colorado Plateau ore (0.25% U_3O_8 and 1.5% V_2O_5) and Arizona Strip ore (0.637% U_3O_8). The process rate was assumed to be at full capacity of 730,000 tons per year (an average of 2,000 tons per day) with an average uranium recovery yield of 94%. That modeling showed a TEDE of 2 mrem per year at the nearest resident (3 mrem per year at the nearest potential residence, being the location of BHV-1 at the northern property boundary of the Mill site), which included the dose from all radionuclide sources, including radon. The modeled dose from radon itself was therefore a fraction of TEDE and well within the regulatory limits.

3.0 EXTERNAL RADIATION (DIRECT GAMMA)

Gamma exposure rate estimates were measured for the reporting period utilizing passive integrating devices, optically stimulated luminescence dosimeters ("OSLs"). These dosimeters were located at each of the Mill's high-volume air sampling stations (BHV-1, BHV-2, BHV-4, BHV-5 and BHV-6) and at the designated background monitoring station (BHV-3). Measurements obtained from location BHV-3 have been designated as background due to BHV-3's remoteness from the Mill site (i.e. BHV-3 is located approximately 3.5 miles west of the Mill site). The results of the environmental OSL measurements and semi-annual cumulative above-background data are provided in Table 6 below. In addition, measurement data obtained at these locations are graphically presented at Attachment E to this report.

Table 6- Environmental Optically Stimulated Luminescence Dosimeter Measurements (Gamma)

Monitoring Station	3rd Qtr Result (mrem)	4th Qtr Result (mrem)	3rd Qtr Result Less Background (mrem)	4th Qtr Result Less Background (mrem)	Cumulative Semi-Annual Estimate* (mrem)
BHV1	32.6	34.8	1.7	5.3	7.0
BHV2	31.3	32.1	0.4	2.6	3.0
BHV3	30.9	29.5	0.0	0.0	0.0
BHV4	31.4	33.3	0.5	3.8	4.3
BHV5	34.5	33.4	3.6	3.9	7.5
BHV6	32.0	30.2	1.1	0.7	1.8

*Negative values treated as zero for cumulative dose

The results for this period indicate that above background measurements for stations BHV-1, BHV-2, BHV-4, BHV-5 and BHV-6 are within regulatory limits. BHV-1 is at the location of the nearest potential residence. The nearest actual residence is approximately 0.4 miles north of BHV-1. The annual individual member of the public limit is 100 mrem/yr for combined internal and external exposure.

4.0 VEGETATION SAMPLES

Vegetation samples are collected at three locations around the Mill property. The sampling locations are: 1) northeast, 2) northwest and 3) southwest of the Mill facility. The U.S. Nuclear Regulatory Commission ("NRC") Regulatory Guide 4.14 requires that three samples be collected during the grazing season, without specifying exact months or times during the season. During the 2012 grazing season, three sets of samples were collected on April 11, 2012, June 11, 2012, and November 6, 2012. The data from the April and June sampling were included in the January through June 2012 Semi-Annual Effluent Report ("SAER") which was submitted to the DRC on August 22, 2012. Data from the November sampling event are included in this report.

Graphical log-scale presentation of the vegetation sampling results, together with the analytical results reported by the Mill's contract laboratory (including QA/QC information) for this sampling period, are included at Attachment F of this report. The 2012 data results are within the variation of previous sampling episodes.

5.0 STACK SAMPLING

Under Section 5.0 of Tab 1.4 of the Mill's *Environmental Protection Manual,* Revision: EFR-3, 12/12 (the "*Environmental Protection Manual*") gas stack samples are collected at the Mill in accordance with the calendar year schedule shown below:

Table 7 – Stack Sampling Requirements

Frequency	Feed Stack (Grizzly Baghouse)	Stack for Yellowcake Dryer	Packaging (Yellowcake Baghouse)
Quarterly	None	If operating, U-nat	If operating, U-nat
Semi-annually	If operating, U-nat, Th-230	If operating, U-nat, Th-230, Ra-226, Pb-210	If operating, U-nat, Th-230, Ra-226, Pb-210

The north yellowcake dryer and yellowcake baghouse operated during the 3rd quarter of 2012. The south yellowcake dryer, yellowcake baghouse, and grizzly baghouse operated during the 4th quarter of 2012.

The analytical results of stack sampling conducted for the 1st and 2nd quarters of 2012, as well as for the 3rd and 4th quarters of 2012, are provided in Table 8 below, indicating the uCi/cc concentration in the stack emissions and the stack's radionuclide release rate (uCi/sec) for U-Nat, Th-230, Ra-226 and Pb-210 at each of the stacks sampled. The actual analytical results reported by the laboratory for the 3rd and 4th quarters of 2012 are provided in Attachment G to this report.

It is also important to note that stack effluent concentrations are not comparable to environmental air sampling station ECL's for regulatory compliance purposes. The ECL is a limit that applies to the receptor locations and is not applicable to effluents from mill processes on the Mill site. These stack release data are more appropriately utilized for dose modeling purposes, and dose modeling is not computed for semi-annual reporting purposes.

Table 8- Stack Effluent Concentrations and Release Rates

	U-Nat u/Ci/cc	U-Nat. uCi/sec	Th-230 uCi/cc	Th-230 uCi/sec	Ra-226 uCi/cc	Ra-226 uCi/sec	Pb-210 uCi/cc	Pb-210 uCi/sec
1st Qtr, 2012								
North YC Dryer, Run 1	9.71E-09	5.59E-03	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
North YC Dryer, Run 2	1.27E-08	7.53E-03	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
Yellowcake Baghouse	6.33E-10	6.25E-04	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
2nd Qtr, 2012								
North YC Dryer, Run 1	1.12E-08	5.60E-03	1.54E-13	7.72E-08	1.37E-14	6.84E-09	3.25E-12	1.63E-06
North YC Dryer, Run 2	1.13E-08	6.75E-03	2.45E-12	1.47E-06	2.13E-14	1.28E-08	2.27E-12	1.36E-06
Yellowcake Baghouse	3.04E-09	3.32E-03	1.15E-11	1.25E-05	7.80E-14	8.50E-08	3.64E-13	3.97E-07
Grizzly Baghouse	*Not Running	*Not Running	*Not Running	*Not Running	Not Required	Not Required	Not Required	Not Required
3rd Qtr, 2012								
North YC Dryer, Run 1	8.46E-09	5.51E-03	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
North YC Dryer, Run 2	6.56E-09	4.49E-03	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
Yellowcake Baghouse	1.19E-09	1.71E-03	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
4th Qtr, 2012**								
South YC Dryer, Run 1	1.28E-09	1.19E-03	2.46E-13	2.29E-07	1.44E-14	1.35E-08	4.15E-13	3.88E-07
South YC Dryer, Run 2	6.28E-10	6.08E-04	2.07E-13	2.00E-07	1.05E-14	1.01E-08	3.53E-13	3.42E-07
Yellowcake Baghouse	2.93E-09	4.81E-03	1.60E-12	2.62E-06	4.52E-14	7.43E-08	5.01E-13	8.24E-07
Grizzly Baghouse	2.38E-11	1.13E-05	2.17E-13	1.04E-07	Not Required	Not Required	Not Required	Not Required

*Grizzly Baghouse was not operating during the 1st or 2nd quarter of 2012, because the Mill's alternate feed circuit was running and no ore was being ground.

**The North Yellowcake Dryer was not in operation during the 4th quarter of 2012.

6.0 SURFACE WATER MONITORING

Under the License, Part 11.2 B surface water samples are required to be obtained annually from Westwater Canyon and semi-annually from Cottonwood Creek. Sediment samples from Westwater Canyon are taken in place of the Westwater Canyon surface water sample in the event that surface water is not available for sampling. Westwater Canyon surface water was not sampled in the third or fourth quarter 2012 because no water was present during this reporting period. However, as required, a sediment sample was collected. The results of the sediment sample are discussed in Section 7 below, and the analytical data is included in Attachment I of this report.

The Mill's *Environmental Protection Manual* requires that Cottonwood Creek be sampled for total dissolved solids ("TDS") and total suspended solids ("TSS") quarterly, and the License, Part 11.2 B requires that Cottonwood Creek be sampled for dissolved and suspended radionuclides including Gross Alpha, Unat, Ra-226, Th-230 semi-annually. In accordance with these requirements, Cottonwood Creek was sampled for TDS, TSS, and all radionuclides during the 3rd quarter. Surface water was not collected from Cottonwood Creek during the 4th quarter of 2012, because there was no surface water present during the quarter.

The field data sheets for the surface water sampling events, along with graphs showing historic results are included as Attachment H. The results of this sampling indicate that surface water results remain low and within the range of typical background.

7.0 SOIL SAMPLING

Under Tab 4.1 of the Mill's *Environmental Protection Manual*, surface soils are required to be sampled at the Mill's air monitoring stations (BHV-1, BHV-2, BHV-3, BHV-4, BHV-5 and BHV-6) once per year during August or as soon as possible thereafter, but no later than September 30 of each year. In accordance with the Mill's *Environmental Protection Manual*, surface soils were collected in August 2012. All soil samples were analyzed, on a dry basis, for Ra-226 and U-nat.

Annual soil samples were collected at the six air monitoring stations. The results of these samplings indicate that soils at the air monitoring stations and at Westwater Canyon remain low and within the range of typical background. A graphical presentation of historical results for soils at the air monitoring stations, together with analytical sample results for the August 2012 sampling are provided in Attachment I.

8.0 METEOROLOGICAL MONITORING

As in prior reporting periods, an independent contractor has prepared the White Mesa Mill Semi-annual Meteorological Monitoring Report for the period of July through December 2012. This information is retained at the Mill site for agency review.

9.0 SIGNATURE

This Report was prepared by Energy Fuels Resources (USA) Inc. on February 27, 2013.

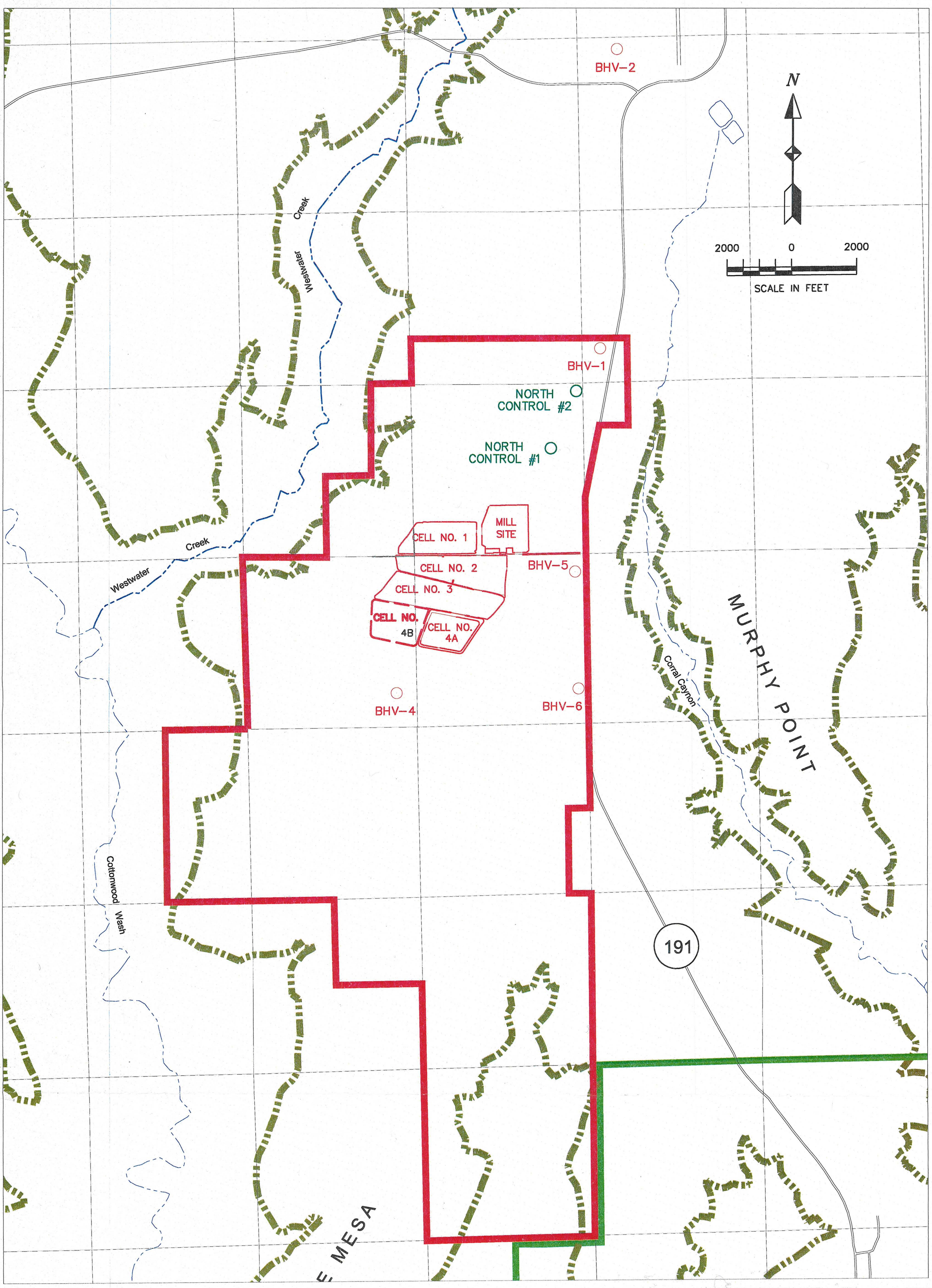
Energy Fuels Resources (USA) Inc.

By:

David C. Frydenlund
Senior Vice President, General Counsel and Corporate Secretary

ATTACHMENT A

HIGH VOLUME AIR MONITORING STATIONS



🟥 Property Boundary

🟩 Reservation Boundary

▬ Canyon Rim

○ Air Monitor Stations

Energy Fuels Resources (USA) Inc.

Project: WHITE MESA MILL

County: SAN JUAN
State: UT
Location:

REVISIONS	
Date	By
11/09	dls
1/13/11	BM
1/27/11	BM
3/2/12	GM

High Volume Air Monitoring Stations

Scale: as shown
Date: JAN 2011
figure 2.3–1_air monitorin .dw
Author: HRR
Drafted By: B. Munkhbaatar

ATTACHMENT B

BHV AIR SAMPLING GRAPHS AND DATA TABLES

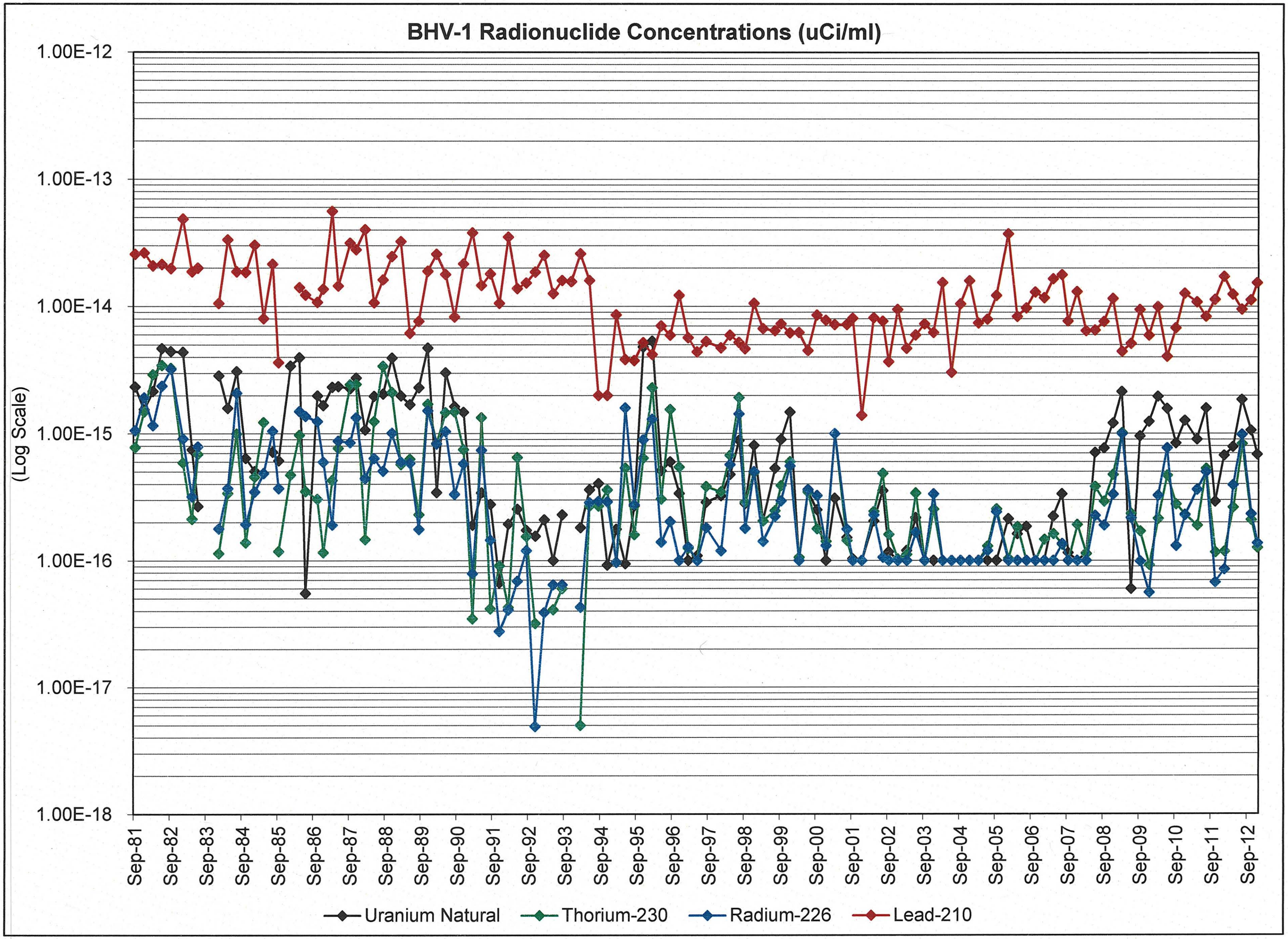
TAB 1

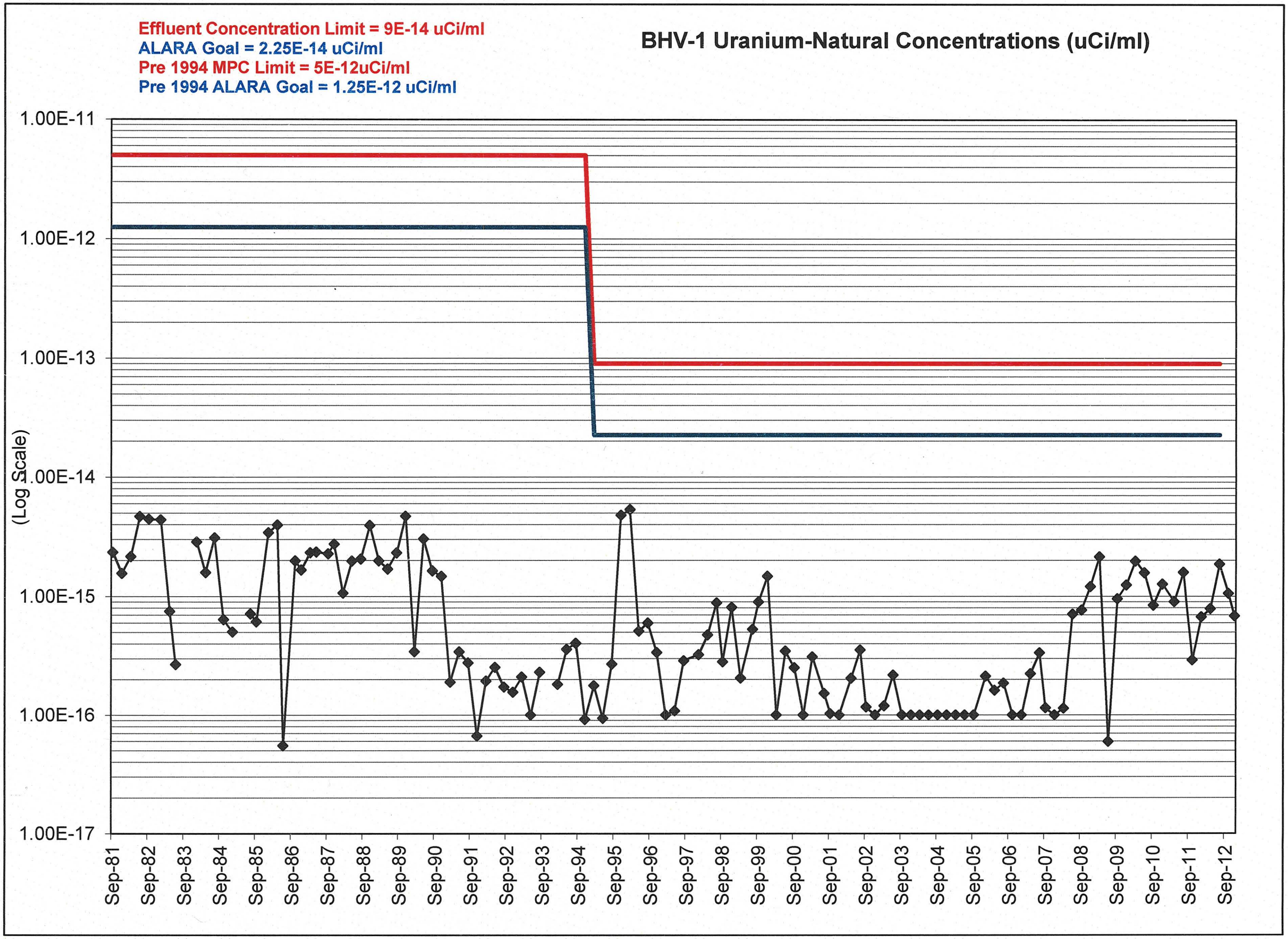
BHV-1 AIR SAMPLING GRAPHS AND DATA TABLE

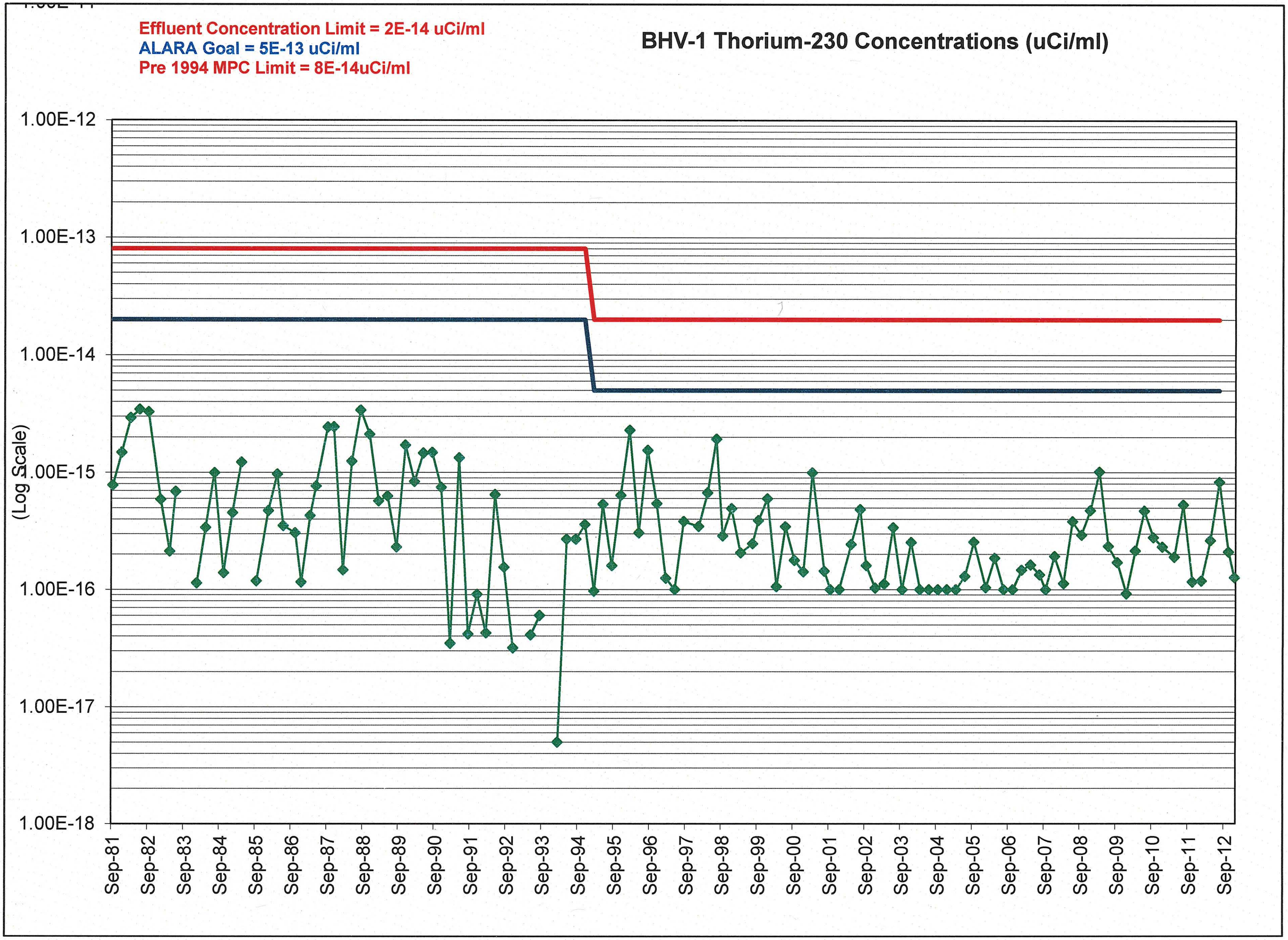
Date	Effluent Concentration Limit =	9E-14 uCi/ml	BHV-1U	Effluent Concentration Limit =	2E-14 uCi/ml	BHV-1T	Effluent Concentration Limit =	9E-13 uCi/ml	BHV-1R	Effluent Concentration Limit =	6E-13 uCi/ml	BHV-1PB
	ALARA Goal =	2.25E-14 uCi/ml		ALARA Goal =	5E-13 uCi/ml		ALARA Goal =	2.25E-13 uCi/ml		ALARA Goal =	1.5E-13 uCi/ml	
	Pre 1994 MPC Limit =	5E-12 uCi/ml		Pre 1994 MPC Limit =	8E-14 uCi/ml		Pre 1994 MPC Limit =	2E-12 uCi/ml		Pre 1994 MPC Limit =	4E-12 uCi/ml	
	Pre 1994 ALARA GOAL =	1.25E-12 uCi/ml					Pre 1994 ALARA GOAL =	5E-13 uCi/ml		Pre 1994 ALARA GOAL =	1E-12 uCi/ml	
	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A
9/28/1981	2.35E-15	5.00E-12	1.25E-12	7.82E-16	8.00E-14	2.00E-14	1.06E-15	2.00E-12	5.00E-13	2.57E-14	4.00E-12	1.00E-12
12/14/1981	1.56E-15	5.00E-12	1.25E-12	1.49E-15	8.00E-14	2.00E-14	1.93E-15	2.00E-12	5.00E-13	2.64E-14	4.00E-12	1.00E-12
3/29/1982	2.16E-15	5.00E-12	1.25E-12	2.93E-15	8.00E-14	2.00E-14	1.16E-15	2.00E-12	5.00E-13	2.09E-14	4.00E-12	1.00E-12
6/30/1982	4.69E-15	5.00E-12	1.25E-12	3.46E-15	8.00E-14	2.00E-14	2.38E-15	2.00E-12	5.00E-13	2.14E-14	4.00E-12	1.00E-12
9/27/1982	4.45E-15	5.00E-12	1.25E-12	3.29E-15	8.00E-14	2.00E-14	3.23E-15	2.00E-12	5.00E-13	1.99E-14	4.00E-12	1.00E-12
1/3/1983	4.39E-15	5.00E-12	1.25E-12	5.91E-16	8.00E-14	2.00E-14	9.14E-16	2.00E-12	5.00E-13	4.87E-14	4.00E-12	1.00E-12
4/4/1983	7.51E-16	5.00E-12	1.25E-12	2.13E-16	8.00E-14	2.00E-14	3.20E-16	2.00E-12	5.00E-13	1.88E-14	4.00E-12	1.00E-12
6/30/1983	2.68E-16	5.00E-12	1.25E-12	6.92E-16	8.00E-14	2.00E-14	7.92E-16	2.00E-12	5.00E-13	2.00E-14	4.00E-12	1.00E-12
10/3/1983		5.00E-12	1.25E-12		8.00E-14	2.00E-14	0.00E+00	2.00E-12	5.00E-13		4.00E-12	1.00E-12
1/3/1984	2.87E-15	5.00E-12	1.25E-12	1.14E-16	8.00E-14	2.00E-14	1.79E-16	2.00E-12	5.00E-13	1.06E-14	4.00E-12	1.00E-12
4/2/1984	1.59E-15	5.00E-12	1.25E-12	3.40E-16	8.00E-14	2.00E-14	3.71E-16	2.00E-12	5.00E-13	3.34E-14	4.00E-12	1.00E-12
7/2/1984	3.10E-15	5.00E-12	1.25E-12	1.00E-15	8.00E-14	2.00E-14	2.09E-15	2.00E-12	5.00E-13	1.88E-14	4.00E-12	1.00E-12
10/1/1984	6.42E-16	5.00E-12	1.25E-12	1.39E-16	8.00E-14	2.00E-14	1.94E-16	2.00E-12	5.00E-13	1.85E-14	4.00E-12	1.00E-12
1/2/1985	5.06E-16	5.00E-12	1.25E-12	4.56E-16	8.00E-14	2.00E-14	3.49E-16	2.00E-12	5.00E-13	3.03E-14	4.00E-12	1.00E-12
4/1/1985	0.00E+00	5.00E-12	1.25E-12	1.23E-15	8.00E-14	2.00E-14	4.88E-16	2.00E-12	5.00E-13	8.06E-15	4.00E-12	1.00E-12
7/1/1985	7.17E-16	5.00E-12	1.25E-12		8.00E-14	2.00E-14	1.05E-15	2.00E-12	5.00E-13	2.15E-14	4.00E-12	1.00E-12
9/30/1985	6.13E-16	5.00E-12	1.25E-12	1.18E-16	8.00E-14	2.00E-14	3.71E-16	2.00E-12	5.00E-13	3.64E-15	4.00E-12	1.00E-12
1/2/1986	3.42E-15	5.00E-12	1.25E-12	4.74E-16	8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
4/1/1986	3.98E-15	5.00E-12	1.25E-12	9.74E-16	8.00E-14	2.00E-14	1.50E-15	2.00E-12	5.00E-13	1.41E-14	4.00E-12	1.00E-12
6/30/1986	5.51E-17	5.00E-12	1.25E-12	3.52E-16	8.00E-14	2.00E-14	1.37E-15	2.00E-12	5.00E-13	1.23E-14	4.00E-12	1.00E-12
10/27/1986	1.99E-15	5.00E-12	1.25E-12	3.06E-16	8.00E-14	2.00E-14	1.25E-15	2.00E-12	5.00E-13	1.08E-14	4.00E-12	1.00E-12
12/15/1986	1.67E-15	5.00E-12	1.25E-12	1.16E-16	8.00E-14	2.00E-14	5.98E-16	2.00E-12	5.00E-13	1.37E-14	4.00E-12	1.00E-12
3/16/1987	2.33E-15	5.00E-12	1.25E-12	4.30E-16	8.00E-14	2.00E-14	1.92E-16	2.00E-12	5.00E-13	5.59E-14	4.00E-12	1.00E-12
5/11/1987	2.36E-15	5.00E-12	1.25E-12	7.69E-16	8.00E-14	2.00E-14	8.76E-16	2.00E-12	5.00E-13	1.45E-14	4.00E-12	1.00E-12
9/9/1987	2.27E-15	5.00E-12	1.25E-12	2.44E-15	8.00E-14	2.00E-14	8.51E-16	2.00E-12	5.00E-13	3.14E-14	4.00E-12	1.00E-12
11/2/1987	2.75E-15	5.00E-12	1.25E-12	2.46E-15	8.00E-14	2.00E-14	1.34E-15	2.00E-12	5.00E-13	2.79E-14	4.00E-12	1.00E-12
2/16/1988	1.07E-15	5.00E-12	1.25E-12	1.47E-16	8.00E-14	2.00E-14	4.44E-16	2.00E-12	5.00E-13	4.01E-14	4.00E-12	1.00E-12
5/18/1988	1.98E-15	5.00E-12	1.25E-12	1.25E-15	8.00E-14	2.00E-14	6.40E-16	2.00E-12	5.00E-13	1.07E-14	4.00E-12	1.00E-12
8/15/1988	2.06E-15	5.00E-12	1.25E-12	3.41E-15	8.00E-14	2.00E-14	5.08E-16	2.00E-12	5.00E-13	1.62E-14	4.00E-12	1.00E-12
11/14/1988	3.94E-15	5.00E-12	1.25E-12	2.12E-15	8.00E-14	2.00E-14	1.01E-15	2.00E-12	5.00E-13	2.47E-14	4.00E-12	1.00E-12
2/13/1989	1.99E-15	5.00E-12	1.25E-12	5.73E-16	8.00E-14	2.00E-14	5.99E-16	2.00E-12	5.00E-13	3.23E-14	4.00E-12	1.00E-12
5/15/1989	1.70E-15	5.00E-12	1.25E-12	6.32E-16	8.00E-14	2.00E-14	5.86E-16	2.00E-12	5.00E-13	6.16E-15	4.00E-12	1.00E-12
8/14/1989	2.31E-15	5.00E-12	1.25E-12	2.31E-16	8.00E-14	2.00E-14	1.77E-16	2.00E-12	5.00E-13	7.65E-15	4.00E-12	1.00E-12
11/13/1989	4.72E-15	5.00E-12	1.25E-12	1.71E-15	8.00E-14	2.00E-14	1.52E-15	2.00E-12	5.00E-13	1.89E-14	4.00E-12	1.00E-12
2/12/1990	3.44E-16	5.00E-12	1.25E-12	8.39E-16	8.00E-14	2.00E-14	8.31E-16	2.00E-12	5.00E-13	2.57E-14	4.00E-12	1.00E-12
5/14/1990	3.03E-15	5.00E-12	1.25E-12	1.47E-15	8.00E-14	2.00E-14	1.04E-15	2.00E-12	5.00E-13	1.79E-14	4.00E-12	1.00E-12
8/13/1990	1.64E-15	5.00E-12	1.25E-12	1.49E-15	8.00E-14	2.00E-14	3.34E-16	2.00E-12	5.00E-13	8.27E-15	4.00E-12	1.00E-12
11/12/1990	1.48E-15	5.00E-12	1.25E-12	7.50E-16	8.00E-14	2.00E-14	5.80E-16	2.00E-12	5.00E-13	2.16E-14	4.00E-12	1.00E-12
2/11/1991	1.90E-16	5.00E-12	1.25E-12	3.48E-17	8.00E-14	2.00E-14	7.91E-17	2.00E-12	5.00E-13	3.79E-14	4.00E-12	1.00E-12
5/13/1991	3.42E-16	5.00E-12	1.25E-12	1.34E-15	8.00E-14	2.00E-14	7.39E-16	2.00E-12	5.00E-13	1.46E-14	4.00E-12	1.00E-12
8/12/1991	2.77E-16	5.00E-12	1.25E-12	4.17E-17	8.00E-14	2.00E-14	1.45E-16	2.00E-12	5.00E-13	1.80E-14	4.00E-12	1.00E-12
11/11/1991	6.65E-17	5.00E-12	1.25E-12	9.13E-17	8.00E-14	2.00E-14	2.77E-17	2.00E-12	5.00E-13	1.06E-14	4.00E-12	1.00E-12
2/10/1992	1.94E-16	5.00E-12	1.25E-12	4.28E-17	8.00E-14	2.00E-14	4.08E-17	2.00E-12	5.00E-13	3.51E-14	4.00E-12	1.00E-12
5/11/1992	2.54E-16	5.00E-12	1.25E-12	6.49E-16	8.00E-14	2.00E-14	6.86E-17	2.00E-12	5.00E-13	1.38E-14	4.00E-12	1.00E-12
8/10/1992	1.73E-16	5.00E-12	1.25E-12	1.55E-16	8.00E-14	2.00E-14	1.20E-16	2.00E-12	5.00E-13	1.53E-14	4.00E-12	1.00E-12
11/9/1992	1.56E-16	5.00E-12	1.25E-12	3.19E-17	8.00E-14	2.00E-14	4.90E-18	2.00E-12	5.00E-13	1.86E-14	4.00E-12	1.00E-12
2/9/1993	2.10E-16	5.00E-12	1.25E-12		8.00E-14	2.00E-14	3.89E-17	2.00E-12	5.00E-13	2.52E-14	4.00E-12	1.00E-12
5/10/1993	1.00E-16	5.00E-12	1.25E-12	4.11E-17	8.00E-14	2.00E-14	6.43E-17	2.00E-12	5.00E-13	1.26E-14	4.00E-12	1.00E-12
8/10/1993	2.30E-16	5.00E-12	1.25E-12	6.00E-17	8.00E-14	2.00E-14	6.43E-17	2.00E-12	5.00E-13	1.60E-14	4.00E-12	1.00E-12
11/8/1993		5.00E-12	1.25E-12		8.00E-14	2.00E-14	0.00E+00	2.00E-12	5.00E-13	1.57E-14	4.00E-12	1.00E-12
2/7/1994	1.82E-16	5.00E-12	1.25E-12	5.00E-18	8.00E-14	2.00E-14	4.30E-17	2.00E-12	5.00E-13	2.59E-14	4.00E-12	1.00E-12
5/9/1994	3.60E-16	5.00E-12	1.25E-12	2.70E-16	8.00E-14	2.00E-14	2.87E-16	2.00E-12	5.00E-13	1.60E-14	4.00E-12	1.00E-12
8/9/1994	4.04E-16	5.00E-12	1.25E-12	2.70E-16	8.00E-14	2.00E-14	2.94E-16	2.00E-12	5.00E-13	2.00E-15	4.00E-12	1.00E-12
11/7/1994	9.18E-17	5.00E-12	1.25E-12	3.60E-16	8.00E-14	2.00E-14	2.91E-16	2.00E-12	5.00E-13	2.00E-15	4.00E-12	1.00E-12

Date	Effluent Concentration Limit =	9E-14 uCi/ml	BHV-1U	Effluent Concentration Limit =	2E-14 uCi/ml	BHV-1T	Effluent Concentration Limit =	9E-13 uCi/ml	BHV-1R	Effluent Concentration Limit =	6E-13 uCi/ml	BHV-1PB
	ALARA Goal =	2.25E-14 uCi/ml		ALARA Goal =	5E-13 uCi/ml		ALARA Goal =	2.25E-13 uCi/ml		ALARA Goal =	1.5E-13 uCi/ml	
	Pre 1994 MPC Limit =	5E-12 uCi/ml		Pre 1994 MPC Limit =	8E-14 uCi/ml		Pre 1994 MPC Limit =	2E-12 uCi/ml		Pre 1994 MPC Limit =	4E-12 uCi/ml	
	Pre 1994 ALARA GOAL =	1.25E-12 uCi/ml					Pre 1994 ALARA GOAL =	5E-13 uCi/ml		Pre 1994 ALARA GOAL =	1E-12 uCi/ml	
	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A
2/7/1995	1.77E-16	9.00E-14	2.25E-14	9.70E-17	2.00E-14	5.00E-15	9.70E-17	9.00E-13	2.25E-13	8.60E-15	6.00E-13	1.50E-13
5/9/1995	9.40E-17	9.00E-14	2.25E-14	5.36E-16	2.00E-14	5.00E-15	1.60E-15	9.00E-13	2.25E-13	3.84E-15	6.00E-13	1.50E-13
8/9/1995	2.70E-16	9.00E-14	2.25E-14	1.60E-16	2.00E-14	5.00E-15	2.76E-16	9.00E-13	2.25E-13	3.76E-15	6.00E-13	1.50E-13
11/11/1995	4.80E-15	9.00E-14	2.25E-14	6.41E-16	2.00E-14	5.00E-15	8.93E-16	9.00E-13	2.25E-13	5.20E-15	6.00E-13	1.50E-13
2/5/1996	5.34E-15	9.00E-14	2.25E-14	2.30E-15	2.00E-14	5.00E-15	1.30E-15	9.00E-13	2.25E-13	4.20E-15	6.00E-13	1.50E-13
5/6/1996	5.11E-16	9.00E-14	2.25E-14	3.06E-16	2.00E-14	5.00E-15	1.40E-16	9.00E-13	2.25E-13	7.03E-15	6.00E-13	1.50E-13
8/5/1996	5.99E-16	9.00E-14	2.25E-14	1.55E-15	2.00E-14	5.00E-15	2.03E-16	9.00E-13	2.25E-13	5.94E-15	6.00E-13	1.50E-13
11/6/1996	3.38E-16	9.00E-14	2.25E-14	5.45E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.22E-14	6.00E-13	1.50E-13
2/6/1997	1.00E-16	9.00E-14	2.25E-14	1.25E-16	2.00E-14	5.00E-15	1.28E-16	9.00E-13	2.25E-13	5.68E-15	6.00E-13	1.50E-13
5/5/1997	1.09E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	4.39E-15	6.00E-13	1.50E-13
8/11/1997	2.88E-16	9.00E-14	2.25E-14	3.83E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	5.29E-15	6.00E-13	1.50E-13
1/5/1998	3.24E-16	9.00E-14	2.25E-14	3.47E-16	2.00E-14	5.00E-15	1.19E-16	9.00E-13	2.25E-13	4.73E-15	6.00E-13	1.50E-13
4/28/1998	4.75E-16	9.00E-14	2.25E-14	6.73E-16	2.00E-14	5.00E-15	5.69E-16	9.00E-13	2.25E-13	5.94E-15	6.00E-13	1.50E-13
7/31/1998	8.84E-16	9.00E-14	2.25E-14	1.93E-15	2.00E-14	5.00E-15	1.43E-15	9.00E-13	2.25E-13	5.22E-15	6.00E-13	1.50E-13
9/28/1998	2.81E-16	9.00E-14	2.25E-14	2.89E-16	2.00E-14	5.00E-15	1.80E-16	9.00E-13	2.25E-13	4.64E-15	6.00E-13	1.50E-13
12/28/1998	8.08E-16	9.00E-14	2.25E-14	4.93E-16	2.00E-14	5.00E-15	5.01E-16	9.00E-13	2.25E-13	1.06E-14	6.00E-13	1.50E-13
3/29/1999	2.06E-16	9.00E-14	2.25E-14	2.06E-16	2.00E-14	5.00E-15	1.42E-16	9.00E-13	2.25E-13	6.69E-15	6.00E-13	1.50E-13
7/3/1999	5.31E-16	9.00E-14	2.25E-14	2.47E-16	2.00E-14	5.00E-15	2.23E-16	9.00E-13	2.25E-13	6.44E-15	6.00E-13	1.50E-13
9/27/1999	8.98E-16	9.00E-14	2.25E-14	3.90E-16	2.00E-14	5.00E-15	2.96E-16	9.00E-13	2.25E-13	7.29E-15	6.00E-13	1.50E-13
12/28/1999	1.48E-15	9.00E-14	2.25E-14	6.00E-16	2.00E-14	5.00E-15	5.57E-16	9.00E-13	2.25E-13	6.19E-15	6.00E-13	1.50E-13
3/27/2000	1.00E-16	9.00E-14	2.25E-14	1.06E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.23E-15	6.00E-13	1.50E-13
6/26/2000	3.47E-16	9.00E-14	2.25E-14	3.46E-16	2.00E-14	5.00E-15	3.62E-16	9.00E-13	2.25E-13	4.50E-15	6.00E-13	1.50E-13
9/26/2000	2.51E-16	9.00E-14	2.25E-14	1.78E-16	2.00E-14	5.00E-15	3.25E-16	9.00E-13	2.25E-13	8.55E-15	6.00E-13	1.50E-13
12/26/2000	1.00E-16	9.00E-14	2.25E-14	1.42E-16	2.00E-14	5.00E-15	1.31E-16	9.00E-13	2.25E-13	7.77E-15	6.00E-13	1.50E-13
3/26/2001	3.10E-16	9.00E-14	2.25E-14	1.00E-15	2.00E-14	5.00E-15	1.00E-15	9.00E-13	2.25E-13	7.19E-15	6.00E-13	1.50E-13
7/29/2001	1.52E-16	9.00E-14	2.25E-14	1.44E-16	2.00E-14	5.00E-15	1.77E-16	9.00E-13	2.25E-13	7.21E-15	6.00E-13	1.50E-13
9/24/2001	1.03E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	8.09E-15	6.00E-13	1.50E-13
12/31/2001	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.39E-15	6.00E-13	1.50E-13
4/1/2002	2.05E-16	9.00E-14	2.25E-14	2.44E-16	2.00E-14	5.00E-15	2.29E-16	9.00E-13	2.25E-13	8.15E-15	6.00E-13	1.50E-13
7/1/2002	3.55E-16	9.00E-14	2.25E-14	4.85E-16	2.00E-14	5.00E-15	1.06E-16	9.00E-13	2.25E-13	7.65E-15	6.00E-13	1.50E-13
9/30/2002	1.17E-16	9.00E-14	2.25E-14	1.61E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	3.68E-15	6.00E-13	1.50E-13
12/30/2002	1.00E-16	9.00E-14	2.25E-14	1.03E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	9.46E-15	6.00E-13	1.50E-13
3/31/2003	1.20E-16	9.00E-14	2.25E-14	1.12E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	4.68E-15	6.00E-13	1.50E-13
6/30/2003	2.18E-16	9.00E-14	2.25E-14	3.40E-16	2.00E-14	5.00E-15	1.67E-16	9.00E-13	2.25E-13	5.96E-15	6.00E-13	1.50E-13
9/29/2003	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	7.28E-15	6.00E-13	1.50E-13
12/29/2003	1.00E-16	9.00E-14	2.25E-14	2.54E-16	2.00E-14	5.00E-15	3.35E-16	9.00E-13	2.25E-13	6.25E-15	6.00E-13	1.50E-13
3/29/2004	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.54E-14	6.00E-13	1.50E-13
6/27/2004	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	3.04E-15	6.00E-13	1.50E-13
9/27/2004	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.05E-14	6.00E-13	1.50E-13
12/27/2004	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.59E-14	6.00E-13	1.50E-13
3/28/2005	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	7.42E-15	6.00E-13	1.50E-13
6/29/2005	1.00E-16	9.00E-14	2.25E-14	1.30E-16	2.00E-14	5.00E-15	1.20E-16	9.00E-13	2.25E-13	7.94E-15	6.00E-13	1.50E-13
9/26/2005	1.00E-16	9.00E-14	2.25E-14	2.56E-16	2.00E-14	5.00E-15	2.42E-16	9.00E-13	2.25E-13	1.22E-14	6.00E-13	1.50E-13
1/3/2006	2.13E-16	9.00E-14	2.25E-14	1.04E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	3.73E-14	6.00E-13	1.50E-13
4/3/2006	1.62E-16	9.00E-14	2.25E-14	1.86E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	8.36E-15	6.00E-13	1.50E-13
7/3/2006	1.86E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	9.77E-15	6.00E-13	1.50E-13
10/2/2006	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.30E-14	6.00E-13	1.50E-13
1/1/2007	1.00E-16	9.00E-14	2.25E-14	1.47E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.17E-14	6.00E-13	1.50E-13
4/2/2007	2.23E-16	9.00E-14	2.25E-14	1.63E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.65E-14	6.00E-13	1.50E-13
7/2/2007	3.35E-16	9.00E-14	2.25E-14	1.34E-16	2.00E-14	5.00E-15	1.36E-16	9.00E-13	2.25E-13	1.78E-14	6.00E-13	1.50E-13
9/30/2007	1.15E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	7.68E-15	6.00E-13	1.50E-13
12/31/2007	1.00E-16	9.00E-14	2.25E-14	1.93E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
3/31/2008	1.14E-16	9.00E-14	2.25E-14	1.13E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.44E-15	6.00E-13	1.50E-13
6/30/2008	7.09E-16	9.00E-14	2.25E-14	3.83E-16	2.00E-14	5.00E-15	2.27E-16	9.00E-13	2.25E-13	6.52E-15	6.00E-13	1.50E-13

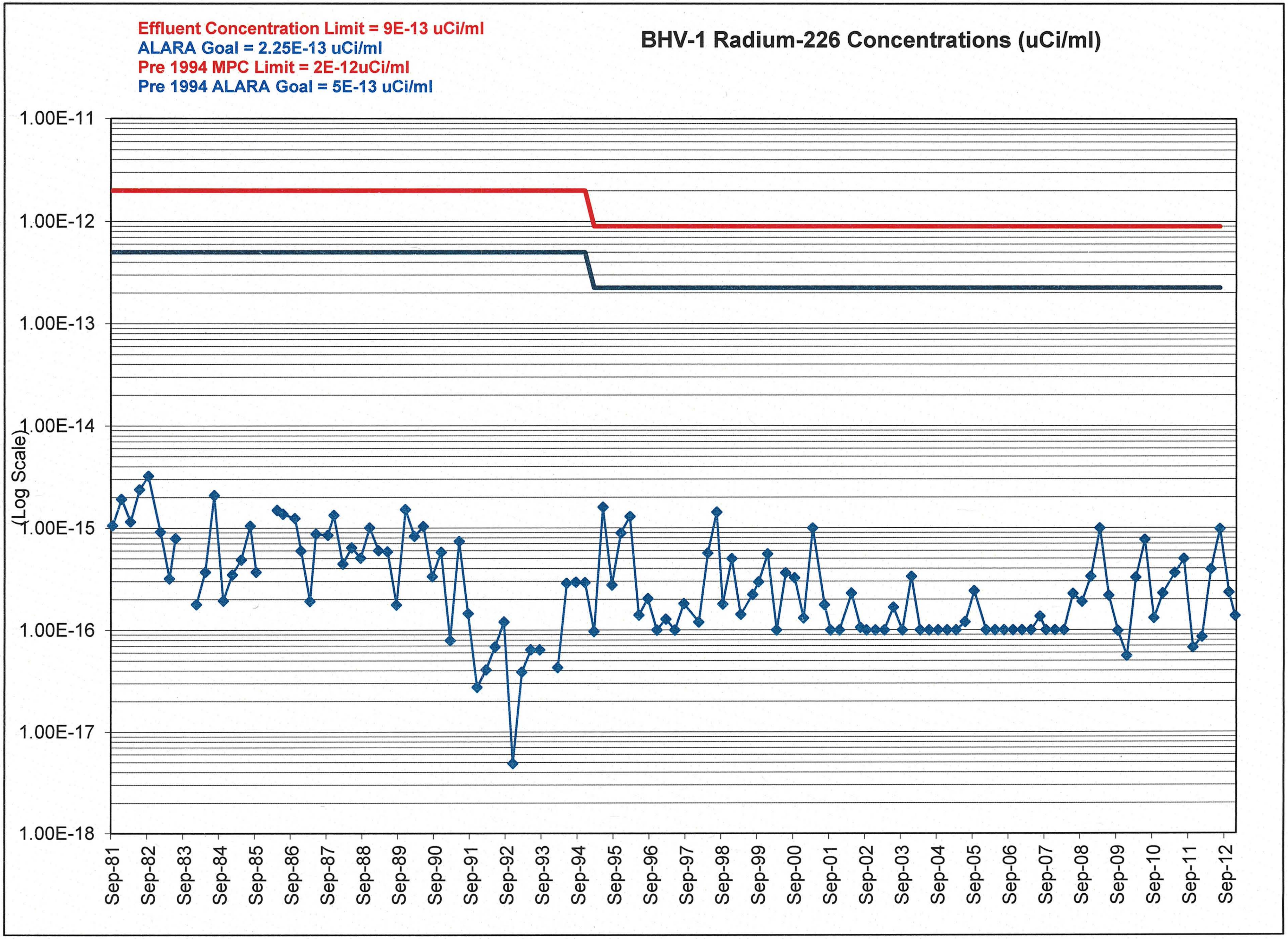
Date	**Effluent Concentration Limit =**	**9E-14 uCi/ml**	**BHV-1U**	**Effluent Concentration Limit =**	**2E-14 uCi/ml**	**BHV-1T**	**Effluent Concentration Limit =**	**9E-13 uCi/ml**	**BHV-1R**	**Effluent Concentration Limit =**	**6E-13 uCi/ml**	**BHV-1PB**
	ALARA Goal =	**2.25E-14 uCi/ml**		**ALARA Goal =**	**5E-13 uCi/ml**		**ALARA Goal =**	**2.25E-13 uCi/ml**		**ALARA Goal =**	**1.5E-13 uCi/ml**	
	Pre 1994 MPC Limit =	**5E-12 uCi/ml**		**Pre 1994 MPC Limit =**	**8E-14 uCi/ml**		**Pre 1994 MPC Limit =**	**2E-12 uCi/ml**		**Pre 1994 MPC Limit =**	**4E-12 uCi/ml**	
	Pre 1994 ALARA GOAL =	**1.25E-12 uCi/ml**					**Pre 1994 ALARA GOAL =**	**5E-13 uCi/ml**		**Pre 1994 ALARA GOAL =**	**1E-12 uCi/ml**	
	Conc	**EFC**	**EFC A**	**Conc**	**EFC**	**EFC A**	**Conc**	**EFC**	**EFC A**	**Conc**	**EFC**	**EFC A**
9/30/2008	7.69E-16	9.00E-14	2.25E-14	2.94E-16	2.00E-14	5.00E-15	1.90E-16	9.00E-13	2.25E-13	7.64E-15	6.00E-13	1.50E-13
12/31/2008	1.21E-15	9.00E-14	2.25E-14	4.76E-16	2.00E-14	5.00E-15	3.34E-16	9.00E-13	2.25E-13	1.16E-14	6.00E-13	1.50E-13
3/15/2009	2.14E-15	9.00E-14	2.25E-14	1.02E-15	2.00E-14	5.00E-15	1.00E-15	9.00E-13	2.25E-13	4.44E-15	6.00E-13	1.50E-13
6/15/2009	5.97E-17	9.00E-14	2.25E-14	2.35E-16	2.00E-14	5.00E-15	2.18E-16	9.00E-13	2.25E-13	5.13E-15	6.00E-13	1.50E-13
9/15/2009	9.55E-16	9.00E-14	2.25E-14	1.71E-16	2.00E-14	5.00E-15	9.87E-17	9.00E-13	2.25E-13	9.47E-15	6.00E-13	1.50E-13
12/15/2009	1.24E-15	9.00E-14	2.25E-14	9.25E-17	2.00E-14	5.00E-15	5.60E-17	9.00E-13	2.25E-13	5.95E-15	6.00E-13	1.50E-13
3/31/2010	1.97E-15	9.00E-14	2.25E-14	2.15E-16	2.00E-14	5.00E-15	3.27E-16	9.00E-13	2.25E-13	1.00E-14	6.00E-13	1.50E-13
6/30/2010	1.58E-15	9.00E-14	2.25E-14	4.71E-16	2.00E-14	5.00E-15	7.70E-16	9.00E-13	2.25E-13	4.07E-15	6.00E-13	1.50E-13
9/30/2010	8.42E-16	9.00E-14	2.25E-14	2.80E-16	2.00E-14	5.00E-15	1.31E-16	9.00E-13	2.25E-13	6.80E-15	6.00E-13	1.50E-13
12/31/2010	1.27E-15	9.00E-14	2.25E-14	2.32E-16	2.00E-14	5.00E-15	2.30E-16	9.00E-13	2.25E-13	1.27E-14	6.00E-13	1.50E-13
4/4/2011	9.01E-16	9.00E-14	2.25E-14	1.90E-16	2.00E-14	5.00E-15	3.64E-16	9.00E-13	2.25E-13	1.09E-14	6.00E-13	1.50E-13
7/4/2011	1.59E-15	9.00E-14	2.25E-14	5.31E-16	2.00E-14	5.00E-15	4.99E-16	9.00E-13	2.25E-13	8.38E-15	6.00E-13	1.50E-13
10/3/2011	2.92E-16	9.00E-14	2.25E-14	1.17E-16	2.00E-14	5.00E-15	6.76E-17	9.00E-13	2.25E-13	1.14E-14	6.00E-13	1.50E-13
1/3/2012	6.73E-16	9.00E-14	2.25E-14	1.19E-16	2.00E-14	5.00E-15	8.58E-17	9.00E-13	2.25E-13	1.73E-14	6.00E-13	1.50E-13
4/3/2012	7.87E-16	9.00E-14	2.25E-14	2.64E-16	2.00E-14	5.00E-15	3.95E-16	9.00E-13	2.25E-13	1.25E-14	6.00E-13	1.50E-13
7/2/2012	1.86E-15	9.00E-14	2.25E-14	8.33E-16	2.00E-14	5.00E-15	9.85E-16	9.00E-13	2.25E-13	9.55E-15	6.00E-13	1.50E-13
10/1/2012	1.06E-15	9.00E-14	2.25E-14	2.11E-16	2.00E-14	5.00E-15	2.34E-16	9.00E-13	2.25E-13	1.13E-14	6.00E-13	1.50E-13
12/31/2012	6.86E-16	9.00E-14	2.25E-14	1.27E-16	2.00E-14	5.00E-15	1.38E-16	9.00E-13	2.25E-13	1.54E-14	6.00E-13	1.50E-13

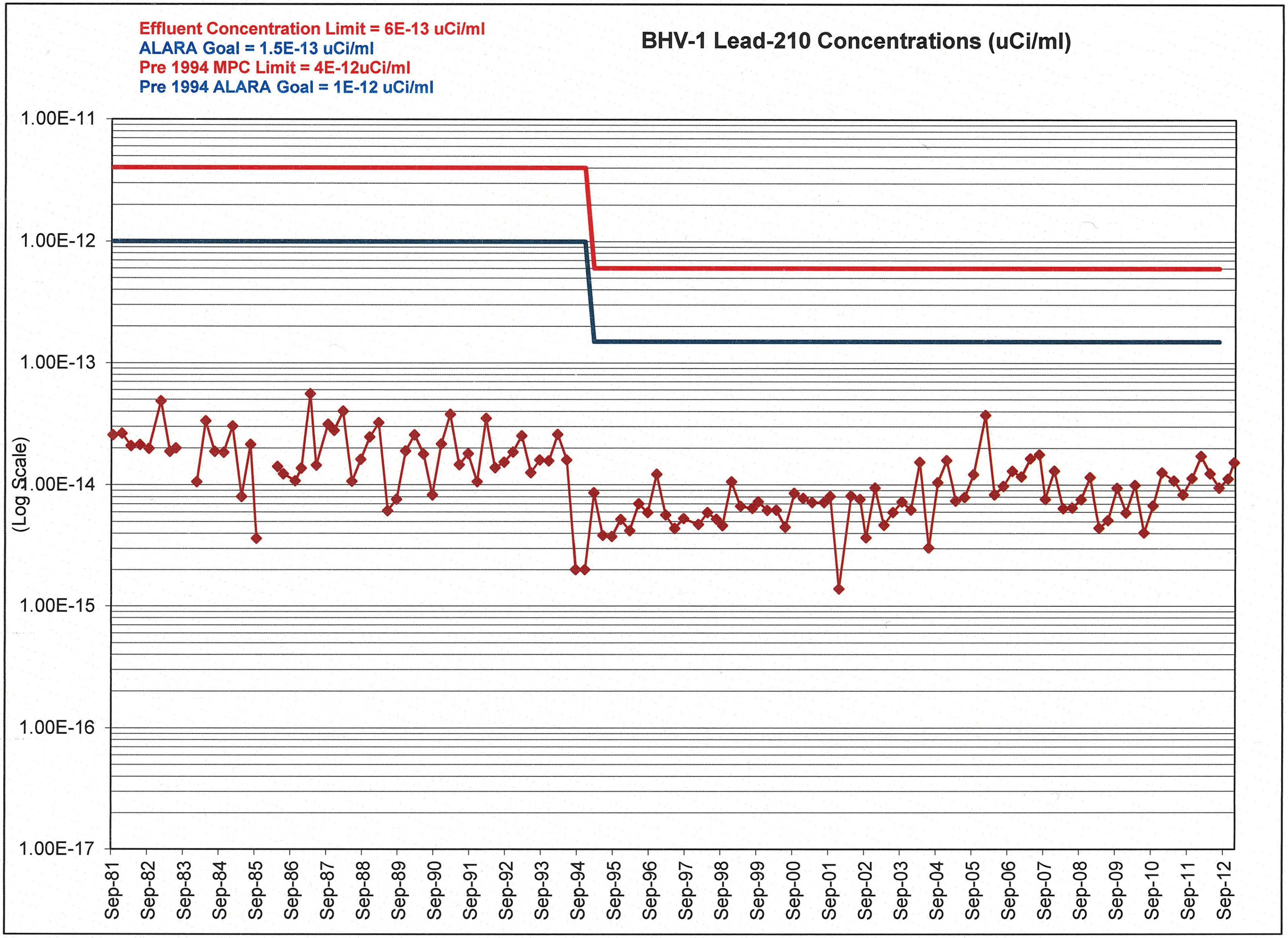

BHV-1 Radionuclide Concentrations (uCi/ml)
(Log Scale)
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
1.00E-18
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12
Uranium Natural
Thorium-230
Radium-226
Lead-210


Effluent Concentration Limit = 9E-14 uCi/ml
ALARA Goal = 2.25E-14 uCi/ml
Pre 1994 MPC Limit = 5E-12uCi/ml
Pre 1994 ALARA Goal = 1.25E-12 uCi/ml
BHV-1 Uranium-Natural Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12



BHV-1 Thorium-230 Concentrations (uCi/ml)


BHV-1 Radium-226 Concentrations (uCi/ml)
Effluent Concentration Limit = 9E-13 uCi/ml
ALARA Goal = 2.25E-13 uCi/ml
Pre 1994 MPC Limit = 2E-12uCi/ml
Pre 1994 ALARA Goal = 5E-13 uCi/ml
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
1.00E-18
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12


Effluent Concentration Limit = 6E-13 uCi/ml
ALARA Goal = 1.5E-13 uCi/ml
Pre 1994 MPC Limit = 4E-12uCi/ml
Pre 1994 ALARA Goal = 1E-12 uCi/ml
BHV-1 Lead-210 Concentrations (uCi/ml)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
(Log Scale)
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12

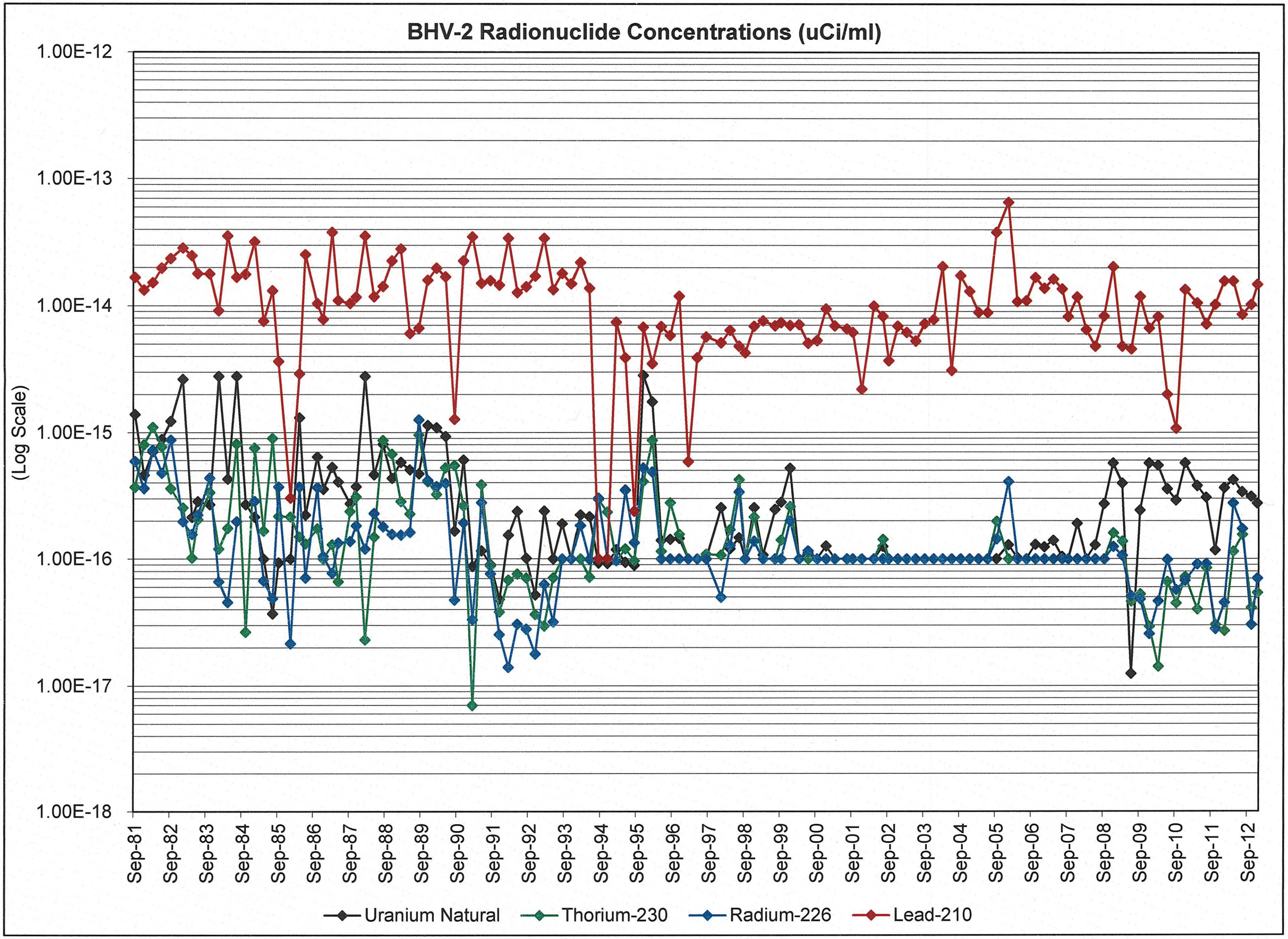
TAB 2

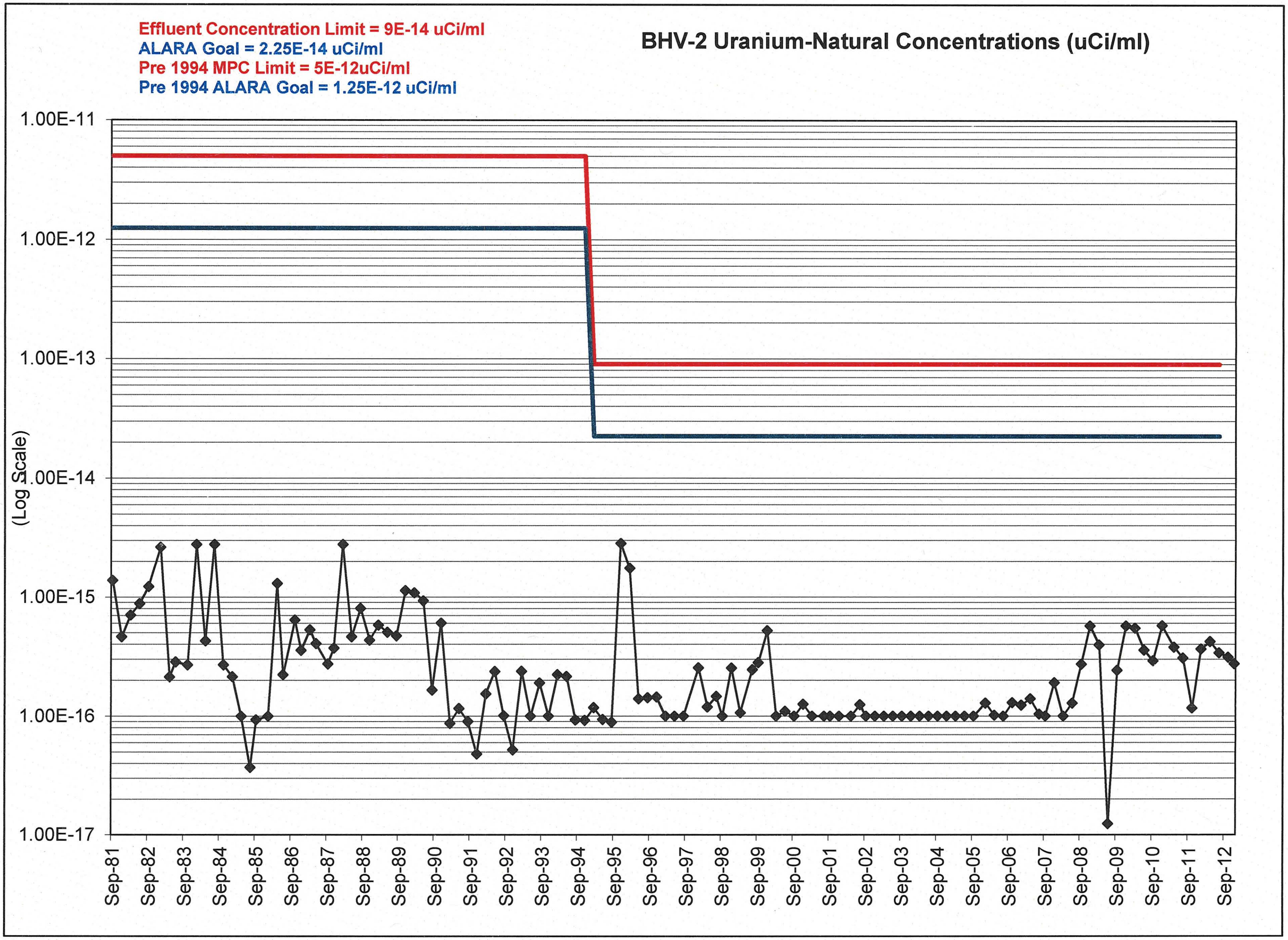
BHV-2 AIR SAMPLING GRAPHS AND DATA TABLE

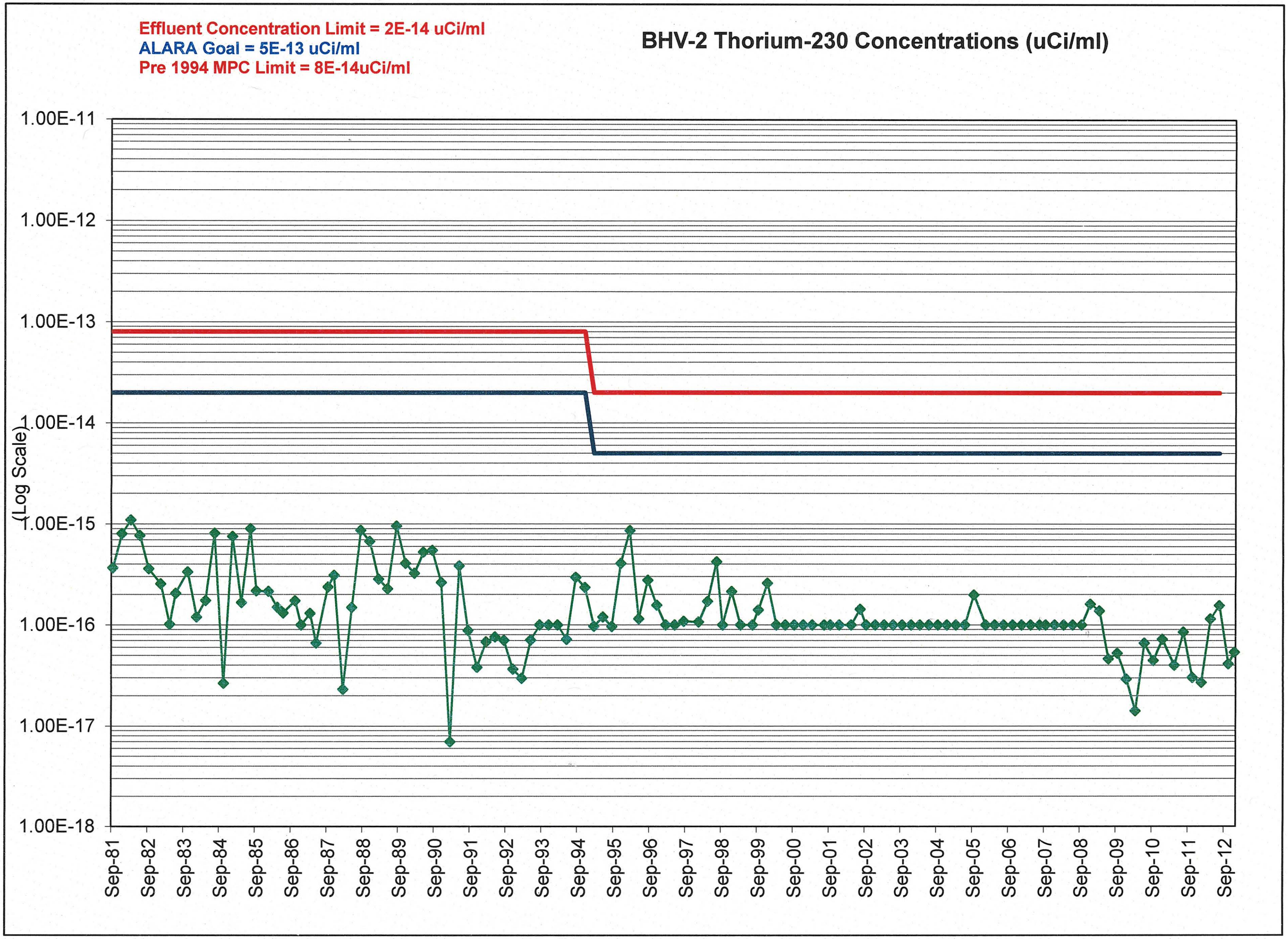
Date	Effluent Concentration Limit =	9E-14 uCi/ml	BHV-2U	Effluent Concentration Limit =	2E-14 uCi/ml	BHV-2T	Effluent Concentration Limit =	9E-13 uCi/ml	BHV-2R	Effluent Concentration Limit =	6E-13 uCi/ml	BHV-2PB
	ALARA Goal =	2.25E-14 uCi/ml		ALARA Goal =	5E-13 uCi/ml		ALARA Goal =	2.25E-13 uCi/ml		ALARA Goal =	1.5E-13 uCi/ml	
	Pre 1994 MPC Limit =	5E-12 uCi/ml		Pre 1994 MPC Limit =	8E-14 uCi/ml		Pre 1994 MPC Limit =	2E-12 uCi/ml		Pre 1994 MPC Limit =	4E-12 uCi/ml	
	Pre 1994 ALARA GOAL =	1.25E-12 uCi/ml					Pre 1994 ALARA GOAL =	5E-13 uCi/ml		Pre 1994 ALARA GOAL =	1E-12 uCi/ml	
	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A
9/28/1981	1.39E-15	5.00E-12	1.25E-12	3.69E-16	8.00E-14	2.00E-14	5.92E-16	2.00E-12	5.00E-13	1.67E-14	4.00E-12	1.00E-12
12/14/1981	4.62E-16	5.00E-12	1.25E-12	8.03E-16	8.00E-14	2.00E-14	3.62E-16	2.00E-12	5.00E-13	1.33E-14	4.00E-12	1.00E-12
3/29/1982	7.07E-16	5.00E-12	1.25E-12	1.10E-15	8.00E-14	2.00E-14	7.27E-16	2.00E-12	5.00E-13	1.52E-14	4.00E-12	1.00E-12
6/30/1982	8.84E-16	5.00E-12	1.25E-12	7.73E-16	8.00E-14	2.00E-14	4.78E-16	2.00E-12	5.00E-13	1.98E-14	4.00E-12	1.00E-12
9/27/1982	1.23E-15	5.00E-12	1.25E-12	3.60E-16	8.00E-14	2.00E-14	8.73E-16	2.00E-12	5.00E-13	2.35E-14	4.00E-12	1.00E-12
1/3/1983	2.64E-15	5.00E-12	1.25E-12	2.55E-16	8.00E-14	2.00E-14	1.98E-16	2.00E-12	5.00E-13	2.85E-14	4.00E-12	1.00E-12
4/4/1983	2.14E-16	5.00E-12	1.25E-12	1.02E-16	8.00E-14	2.00E-14	1.57E-16	2.00E-12	5.00E-13	2.48E-14	4.00E-12	1.00E-12
6/30/1983	2.85E-16	5.00E-12	1.25E-12	2.06E-16	8.00E-14	2.00E-14	2.24E-16	2.00E-12	5.00E-13	1.79E-14	4.00E-12	1.00E-12
10/3/1983	2.70E-16	5.00E-12	1.25E-12	3.36E-16	8.00E-14	2.00E-14	4.37E-16	2.00E-12	5.00E-13	1.78E-14	4.00E-12	1.00E-12
1/3/1984	2.78E-15	5.00E-12	1.25E-12	1.20E-16	8.00E-14	2.00E-14	6.64E-17	2.00E-12	5.00E-13	9.14E-15	4.00E-12	1.00E-12
4/2/1984	4.28E-16	5.00E-12	1.25E-12	1.75E-16	8.00E-14	2.00E-14	4.57E-17	2.00E-12	5.00E-13	3.55E-14	4.00E-12	1.00E-12
7/2/1984	2.78E-15	5.00E-12	1.25E-12	8.12E-16	8.00E-14	2.00E-14	1.98E-16	2.00E-12	5.00E-13	1.68E-14	4.00E-12	1.00E-12
10/1/1984	2.69E-16	5.00E-12	1.25E-12	2.66E-17	8.00E-14	2.00E-14	0.00E+00	2.00E-12	5.00E-13	1.77E-14	4.00E-12	1.00E-12
1/2/1985	2.15E-16	5.00E-12	1.25E-12	7.55E-16	8.00E-14	2.00E-14	2.87E-16	2.00E-12	5.00E-13	3.19E-14	4.00E-12	1.00E-12
4/1/1985	1.00E-16	5.00E-12	1.25E-12	1.67E-16	8.00E-14	2.00E-14	6.75E-17	2.00E-12	5.00E-13	7.56E-15	4.00E-12	1.00E-12
7/1/1985	3.70E-17	5.00E-12	1.25E-12	9.00E-16	8.00E-14	2.00E-14	4.90E-17	2.00E-12	5.00E-13	1.31E-14	4.00E-12	1.00E-12
9/30/1985	9.32E-17	5.00E-12	1.25E-12	2.18E-16	8.00E-14	2.00E-14	3.71E-16	2.00E-12	5.00E-13	3.64E-15	4.00E-12	1.00E-12
1/2/1986	1.00E-16	5.00E-12	1.25E-12	2.16E-16	8.00E-14	2.00E-14	2.15E-17	2.00E-12	5.00E-13	3.04E-16	4.00E-12	1.00E-12
4/1/1986	1.31E-15	5.00E-12	1.25E-12	1.50E-16	8.00E-14	2.00E-14	3.71E-16	2.00E-12	5.00E-13	2.90E-15	4.00E-12	1.00E-12
6/30/1986	2.23E-16	5.00E-12	1.25E-12	1.32E-16	8.00E-14	2.00E-14	7.09E-17	2.00E-12	5.00E-13	2.53E-14	4.00E-12	1.00E-12
10/27/1986	6.41E-16	5.00E-12	1.25E-12	1.74E-16	8.00E-14	2.00E-14	3.67E-16	2.00E-12	5.00E-13	1.04E-14	4.00E-12	1.00E-12
12/15/1986	3.56E-16	5.00E-12	1.25E-12	1.00E-16	8.00E-14	2.00E-14	1.05E-16	2.00E-12	5.00E-13	7.81E-15	4.00E-12	1.00E-12
3/16/1987	5.31E-16	5.00E-12	1.25E-12	1.30E-16	8.00E-14	2.00E-14	7.74E-17	2.00E-12	5.00E-13	3.80E-14	4.00E-12	1.00E-12
5/11/1987	4.06E-16	5.00E-12	1.25E-12	6.63E-17	8.00E-14	2.00E-14	1.34E-16	2.00E-12	5.00E-13	1.10E-14	4.00E-12	1.00E-12
9/9/1987	2.74E-16	5.00E-12	1.25E-12	2.38E-16	8.00E-14	2.00E-14	1.38E-16	2.00E-12	5.00E-13	1.04E-14	4.00E-12	1.00E-12
11/2/1987	3.73E-16	5.00E-12	1.25E-12	3.11E-16	8.00E-14	2.00E-14	1.83E-16	2.00E-12	5.00E-13	1.17E-14	4.00E-12	1.00E-12
2/16/1988	2.78E-15	5.00E-12	1.25E-12	2.31E-17	8.00E-14	2.00E-14	1.20E-16	2.00E-12	5.00E-13	3.55E-14	4.00E-12	1.00E-12
5/18/1988	4.63E-16	5.00E-12	1.25E-12	1.49E-16	8.00E-14	2.00E-14	2.30E-16	2.00E-12	5.00E-13	1.18E-14	4.00E-12	1.00E-12
8/15/1988	8.06E-16	5.00E-12	1.25E-12	8.69E-16	8.00E-14	2.00E-14	1.80E-16	2.00E-12	5.00E-13	1.42E-14	4.00E-12	1.00E-12
11/14/1988	4.34E-16	5.00E-12	1.25E-12	6.76E-16	8.00E-14	2.00E-14	1.57E-16	2.00E-12	5.00E-13	2.25E-14	4.00E-12	1.00E-12
2/13/1989	5.80E-16	5.00E-12	1.25E-12	2.85E-16	8.00E-14	2.00E-14	1.55E-16	2.00E-12	5.00E-13	2.80E-14	4.00E-12	1.00E-12
5/15/1989	5.06E-16	5.00E-12	1.25E-12	2.28E-16	8.00E-14	2.00E-14	1.63E-16	2.00E-12	5.00E-13	6.05E-15	4.00E-12	1.00E-12
8/14/1989	4.71E-16	5.00E-12	1.25E-12	9.60E-16	8.00E-14	2.00E-14	1.26E-15	2.00E-12	5.00E-13	6.65E-15	4.00E-12	1.00E-12
11/13/1989	1.14E-15	5.00E-12	1.25E-12	4.08E-16	8.00E-14	2.00E-14	4.18E-16	2.00E-12	5.00E-13	1.59E-14	4.00E-12	1.00E-12
2/12/1990	1.09E-15	5.00E-12	1.25E-12	3.25E-16	8.00E-14	2.00E-14	3.74E-16	2.00E-12	5.00E-13	1.98E-14	4.00E-12	1.00E-12
5/14/1990	9.32E-16	5.00E-12	1.25E-12	5.27E-16	8.00E-14	2.00E-14	3.97E-16	2.00E-12	5.00E-13	1.69E-14	4.00E-12	1.00E-12
8/13/1990	1.66E-16	5.00E-12	1.25E-12	5.49E-16	8.00E-14	2.00E-14	4.75E-17	2.00E-12	5.00E-13	1.27E-15	4.00E-12	1.00E-12
11/12/1990	6.05E-16	5.00E-12	1.25E-12	2.64E-16	8.00E-14	2.00E-14	1.93E-16	2.00E-12	5.00E-13	2.25E-14	4.00E-12	1.00E-12
2/11/1991	8.72E-17	5.00E-12	1.25E-12	7.00E-18	8.00E-14	2.00E-14	3.33E-17	2.00E-12	5.00E-13	3.49E-14	4.00E-12	1.00E-12
5/13/1991	1.16E-16	5.00E-12	1.25E-12	3.86E-16	8.00E-14	2.00E-14	2.80E-16	2.00E-12	5.00E-13	1.50E-14	4.00E-12	1.00E-12
8/12/1991	9.02E-17	5.00E-12	1.25E-12	8.82E-17	8.00E-14	2.00E-14	7.65E-17	2.00E-12	5.00E-13	1.58E-14	4.00E-12	1.00E-12
11/11/1991	4.81E-17	5.00E-12	1.25E-12	3.82E-17	8.00E-14	2.00E-14	2.54E-17	2.00E-12	5.00E-13	1.45E-14	4.00E-12	1.00E-12
2/10/1992	1.54E-16	5.00E-12	1.25E-12	6.82E-17	8.00E-14	2.00E-14	1.40E-17	2.00E-12	5.00E-13	3.41E-14	4.00E-12	1.00E-12
5/11/1992	2.38E-16	5.00E-12	1.25E-12	7.63E-17	8.00E-14	2.00E-14	3.07E-17	2.00E-12	5.00E-13	1.27E-14	4.00E-12	1.00E-12
8/10/1992	1.01E-16	5.00E-12	1.25E-12	7.07E-17	8.00E-14	2.00E-14	2.80E-17	2.00E-12	5.00E-13	1.41E-14	4.00E-12	1.00E-12
11/9/1992	5.20E-17	5.00E-12	1.25E-12	3.65E-17	8.00E-14	2.00E-14	1.78E-17	2.00E-12	5.00E-13	1.71E-14	4.00E-12	1.00E-12
2/9/1993	2.39E-16	5.00E-12	1.25E-12	2.97E-17	8.00E-14	2.00E-14	6.31E-17	2.00E-12	5.00E-13	3.41E-14	4.00E-12	1.00E-12
5/10/1993	1.00E-16	5.00E-12	1.25E-12	7.11E-17	8.00E-14	2.00E-14	3.19E-17	2.00E-12	5.00E-13	1.34E-14	4.00E-12	1.00E-12
8/10/1993	1.90E-16	5.00E-12	1.25E-12	1.00E-16	8.00E-14	2.00E-14	1.00E-16	2.00E-12	5.00E-13	1.80E-14	4.00E-12	1.00E-12
11/8/1993	1.00E-16	5.00E-12	1.25E-12	1.00E-16	8.00E-14	2.00E-14	1.00E-16	2.00E-12	5.00E-13	1.49E-14	4.00E-12	1.00E-12
2/7/1994	2.23E-16	5.00E-12	1.25E-12	1.00E-16	8.00E-14	2.00E-14	1.84E-16	2.00E-12	5.00E-13	2.19E-14	4.00E-12	1.00E-12
5/9/1994	2.16E-16	5.00E-12	1.25E-12	7.20E-17	8.00E-14	2.00E-14	9.89E-17	2.00E-12	5.00E-13	1.37E-14	4.00E-12	1.00E-12
8/9/1994	9.29E-17	5.00E-12	1.25E-12	2.96E-16	8.00E-14	2.00E-14	3.04E-16	2.00E-12	5.00E-13	1.00E-16	4.00E-12	1.00E-12
11/7/1994	9.21E-17	5.00E-12	1.25E-12	2.35E-16	8.00E-14	2.00E-14	1.00E-16	2.00E-12	5.00E-13	1.00E-16	4.00E-12	1.00E-12

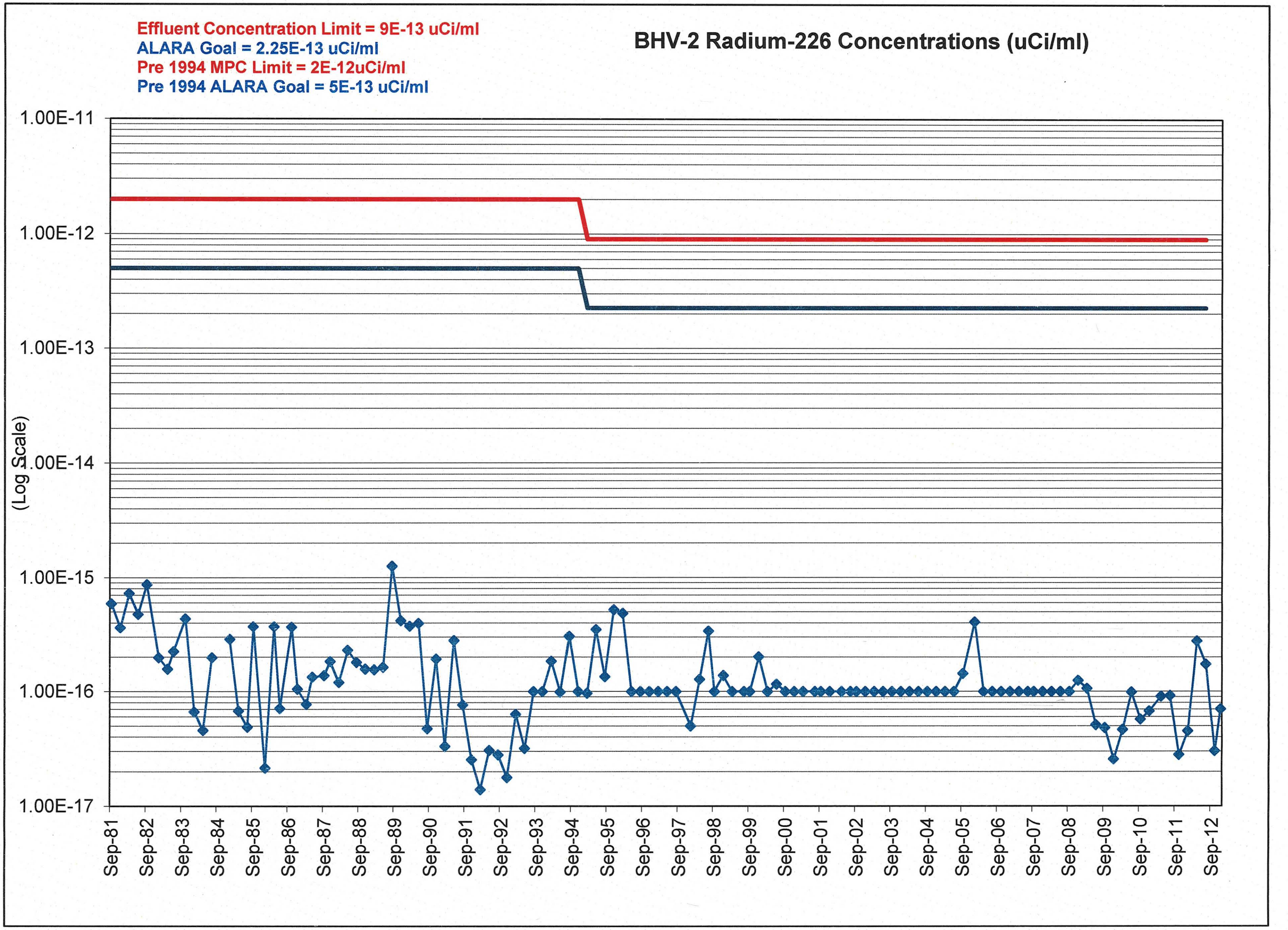
Date	Effluent Concentration Limit =	9E-14 uCi/ml	BHV-2U	Effluent Concentration Limit =	2E-14 uCi/ml	BHV-2T	Effluent Concentration Limit =	9E-13 uCi/ml	BHV-2R	Effluent Concentration Limit =	6E-13 uCi/ml	BHV-2PB
	ALARA Goal =	2.25E-14 uCi/ml		ALARA Goal =	5E-13 uCi/ml		ALARA Goal =	2.25E-13 uCi/ml		ALARA Goal =	1.5E-13 uCi/ml	
	Pre 1994 MPC Limit =	5E-12 uCi/ml		Pre 1994 MPC Limit =	8E-14 uCi/ml		Pre 1994 MPC Limit =	2E-12 uCi/ml		Pre 1994 MPC Limit =	4E-12 uCi/ml	
	Pre 1994 ALARA GOAL =	1.25E-12 uCi/ml					Pre 1994 ALARA GOAL =	5E-13 uCi/ml		Pre 1994 ALARA GOAL =	1E-12 uCi/ml	
	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A
2/7/1995	1.18E-16	9.00E-14	2.25E-14	9.70E-17	2.00E-14	5.00E-15	9.70E-17	9.00E-13	2.25E-13	7.42E-15	6.00E-13	1.50E-13
5/9/1995	9.40E-17	9.00E-14	2.25E-14	1.20E-16	2.00E-14	5.00E-15	3.50E-16	9.00E-13	2.25E-13	3.90E-15	6.00E-13	1.50E-13
8/9/1995	8.90E-17	9.00E-14	2.25E-14	9.67E-17	2.00E-14	5.00E-15	1.35E-16	9.00E-13	2.25E-13	2.38E-16	6.00E-13	1.50E-13
11/11/1995	2.83E-15	9.00E-14	2.25E-14	4.09E-16	2.00E-14	5.00E-15	5.23E-16	9.00E-13	2.25E-13	6.77E-15	6.00E-13	1.50E-13
2/5/1996	1.75E-15	9.00E-14	2.25E-14	8.66E-16	2.00E-14	5.00E-15	4.86E-16	9.00E-13	2.25E-13	3.50E-15	6.00E-13	1.50E-13
5/6/1996	1.40E-16	9.00E-14	2.25E-14	1.15E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.85E-15	6.00E-13	1.50E-13
8/5/1996	1.43E-16	9.00E-14	2.25E-14	2.78E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	5.83E-15	6.00E-13	1.50E-13
11/6/1996	1.45E-16	9.00E-14	2.25E-14	1.57E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.19E-14	6.00E-13	1.50E-13
2/6/1997	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	5.84E-16	6.00E-13	1.50E-13
5/5/1997	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	3.89E-15	6.00E-13	1.50E-13
8/11/1997	1.00E-16	9.00E-14	2.25E-14	1.09E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	5.69E-15	6.00E-13	1.50E-13
1/5/1998	2.55E-16	9.00E-14	2.25E-14	1.07E-16	2.00E-14	5.00E-15	5.00E-17	9.00E-13	2.25E-13	5.11E-15	6.00E-13	1.50E-13
4/28/1998	1.20E-16	9.00E-14	2.25E-14	1.71E-16	2.00E-14	5.00E-15	1.28E-16	9.00E-13	2.25E-13	6.40E-15	6.00E-13	1.50E-13
7/31/1998	1.47E-16	9.00E-14	2.25E-14	4.24E-16	2.00E-14	5.00E-15	3.39E-16	9.00E-13	2.25E-13	4.80E-15	6.00E-13	1.50E-13
9/28/1998	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	4.26E-15	6.00E-13	1.50E-13
12/28/1998	2.54E-16	9.00E-14	2.25E-14	2.15E-16	2.00E-14	5.00E-15	1.38E-16	9.00E-13	2.25E-13	6.88E-15	6.00E-13	1.50E-13
3/29/1999	1.07E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	7.61E-15	6.00E-13	1.50E-13
7/3/1999	2.46E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.95E-15	6.00E-13	1.50E-13
9/27/1999	2.81E-16	9.00E-14	2.25E-14	1.41E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	7.35E-15	6.00E-13	1.50E-13
12/28/1999	5.20E-16	9.00E-14	2.25E-14	2.60E-16	2.00E-14	5.00E-15	2.01E-16	9.00E-13	2.25E-13	7.00E-15	6.00E-13	1.50E-13
3/27/2000	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	7.12E-15	6.00E-13	1.50E-13
6/26/2000	1.10E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.16E-16	9.00E-13	2.25E-13	5.07E-15	6.00E-13	1.50E-13
9/26/2000	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	5.31E-15	6.00E-13	1.50E-13
12/26/2000	1.26E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	9.45E-15	6.00E-13	1.50E-13
3/26/2001	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.95E-15	6.00E-13	1.50E-13
7/2/2001	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.56E-15	6.00E-13	1.50E-13
9/24/2001	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.16E-15	6.00E-13	1.50E-13
12/31/2001	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	2.20E-15	6.00E-13	1.50E-13
4/1/2002	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	9.95E-15	6.00E-13	1.50E-13
7/1/2002	1.25E-16	9.00E-14	2.25E-14	1.43E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	8.25E-15	6.00E-13	1.50E-13
9/30/2002	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	3.69E-15	6.00E-13	1.50E-13
12/30/2002	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.91E-15	6.00E-13	1.50E-13
3/31/2003	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.16E-15	6.00E-13	1.50E-13
6/30/2003	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	5.27E-15	6.00E-13	1.50E-13
9/29/2003	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	7.23E-15	6.00E-13	1.50E-13
12/29/2003	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	7.80E-15	6.00E-13	1.50E-13
3/29/2004	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	2.04E-14	6.00E-13	1.50E-13
6/27/2004	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	3.09E-15	6.00E-13	1.50E-13
9/27/2004	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.73E-14	6.00E-13	1.50E-13
12/27/2004	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.30E-14	6.00E-13	1.50E-13
3/28/2005	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	8.88E-15	6.00E-13	1.50E-13
6/29/2005	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	8.85E-15	6.00E-13	1.50E-13
9/26/2005	1.00E-16	9.00E-14	2.25E-14	1.99E-16	2.00E-14	5.00E-15	1.44E-16	9.00E-13	2.25E-13	3.81E-14	6.00E-13	1.50E-13
1/3/2006	1.29E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	4.08E-16	9.00E-13	2.25E-13	6.58E-14	6.00E-13	1.50E-13
4/3/2006	1.02E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.08E-14	6.00E-13	1.50E-13
7/3/2006	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.10E-14	6.00E-13	1.50E-13
10/2/2006	1.30E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.68E-14	6.00E-13	1.50E-13
1/1/2007	1.24E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.38E-14	6.00E-13	1.50E-13
4/2/2007	1.40E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.63E-14	6.00E-13	1.50E-13
7/2/2007	1.04E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.36E-14	6.00E-13	1.50E-13
9/30/2007	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	8.24E-15	6.00E-13	1.50E-13
12/31/2007	1.91E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.18E-14	6.00E-13	1.50E-13
3/30/2008	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.49E-15	6.00E-13	1.50E-13
6/30/2008	1.29E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	4.82E-15	6.00E-13	1.50E-13

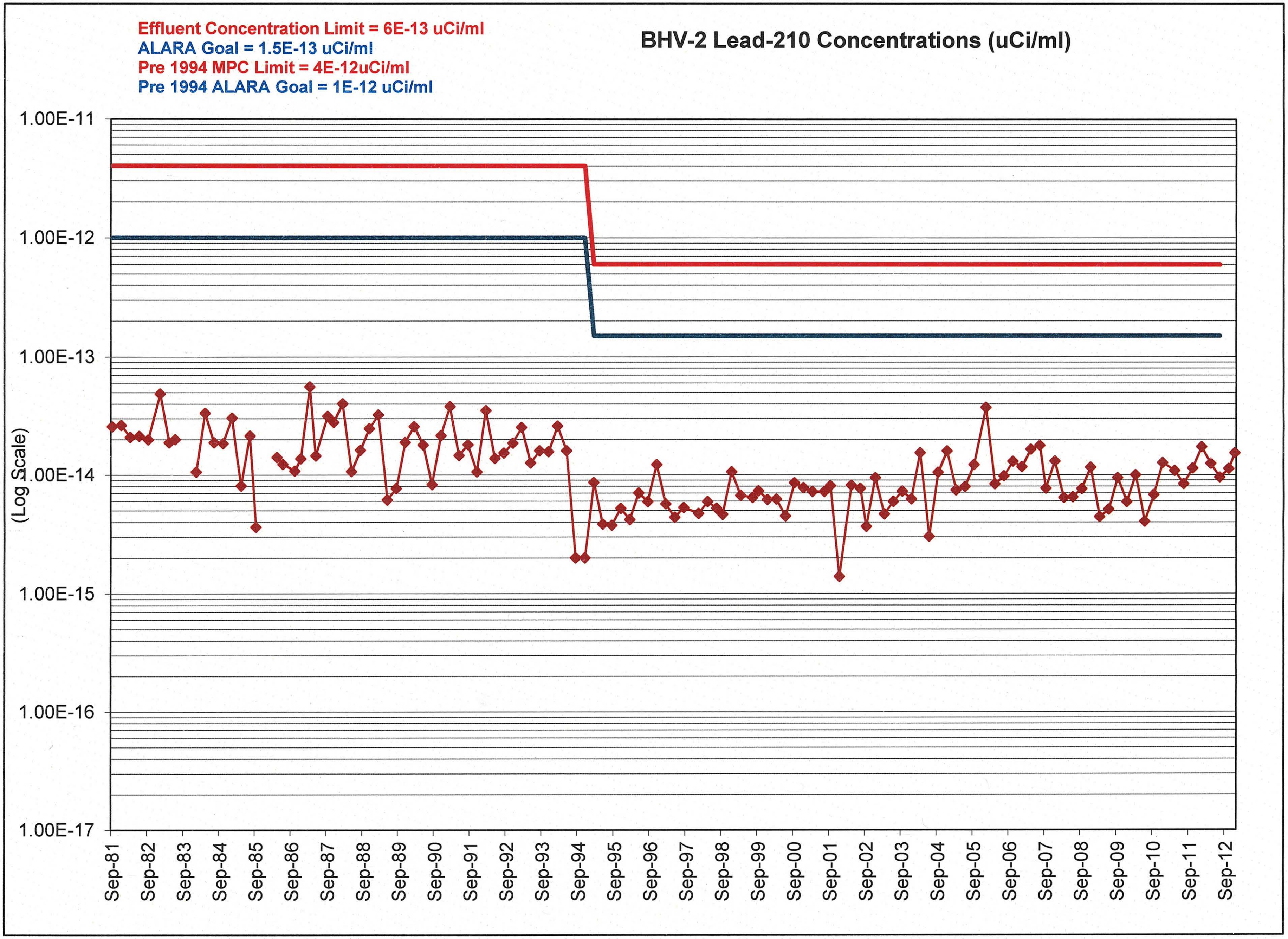
Date	**Effluent Concentration Limit =**	**9E-14 uCi/ml**	**BHV-2U**	**Effluent Concentration Limit =**	**2E-14 uCi/ml**	**BHV-2T**	**Effluent Concentration Limit =**	**9E-13 uCi/ml**	**BHV-2R**	**Effluent Concentration Limit =**	**6E-13 uCi/ml**	**BHV-2PB**
	ALARA Goal =	**2.25E-14 uCi/ml**		**ALARA Goal =**	**5E-13 uCi/ml**		**ALARA Goal =**	**2.25E-13 uCi/ml**		**ALARA Goal =**	**1.5E-13 uCi/ml**	
	Pre 1994 MPC Limit =	**5E-12 uCi/ml**		**Pre 1994 MPC Limit =**	**8E-14 uCi/ml**		**Pre 1994 MPC Limit =**	**2E-12 uCi/ml**		**Pre 1994 MPC Limit =**	**4E-12 uCi/ml**	
	Pre 1994 ALARA GOAL =	**1.25E-12 uCi/ml**					**Pre 1994 ALARA GOAL =**	**5E-13 uCi/ml**		**Pre 1994 ALARA GOAL =**	**1E-12 uCi/ml**	
	Conc	**EFC**	**EFC A**	**Conc**	**EFC**	**EFC A**	**Conc**	**EFC**	**EFC A**	**Conc**	**EFC**	**EFC A**
9/30/2008	2.73E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	8.30E-15	6.00E-13	1.50E-13
12/31/2008	5.71E-16	9.00E-14	2.25E-14	1.61E-16	2.00E-14	5.00E-15	1.25E-16	9.00E-13	2.25E-13	2.04E-14	6.00E-13	1.50E-13
3/15/2009	3.96E-16	9.00E-14	2.25E-14	1.38E-16	2.00E-14	5.00E-15	1.07E-16	9.00E-13	2.25E-13	4.81E-15	6.00E-13	1.50E-13
6/15/2009	1.24E-17	9.00E-14	2.25E-14	4.64E-17	2.00E-14	5.00E-15	5.11E-17	9.00E-13	2.25E-13	4.58E-15	6.00E-13	1.50E-13
9/15/2009	2.43E-16	9.00E-14	2.25E-14	5.28E-17	2.00E-14	5.00E-15	4.84E-17	9.00E-13	2.25E-13	1.19E-14	6.00E-13	1.50E-13
12/15/2009	5.72E-16	9.00E-14	2.25E-14	2.94E-17	2.00E-14	5.00E-15	2.57E-17	9.00E-13	2.25E-13	6.70E-15	6.00E-13	1.50E-13
3/31/2010	5.47E-16	9.00E-14	2.25E-14	1.42E-17	2.00E-14	5.00E-15	4.66E-17	9.00E-13	2.25E-13	8.24E-15	6.00E-13	1.50E-13
6/30/2010	3.58E-16	9.00E-14	2.25E-14	6.64E-17	2.00E-14	5.00E-15	9.90E-17	9.00E-13	2.25E-13	2.01E-15	6.00E-13	1.50E-13
9/30/2010	2.91E-16	9.00E-14	2.25E-14	4.48E-17	2.00E-14	5.00E-15	5.72E-17	9.00E-13	2.25E-13	1.08E-15	6.00E-13	1.50E-13
12/31/2010	5.73E-16	9.00E-14	2.25E-14	7.24E-17	2.00E-14	5.00E-15	6.76E-17	9.00E-13	2.25E-13	1.35E-14	6.00E-13	1.50E-13
4/4/2011	3.79E-16	9.00E-14	2.25E-14	4.01E-17	2.00E-14	5.00E-15	9.11E-17	9.00E-13	2.25E-13	1.06E-14	6.00E-13	1.50E-13
7/4/2011	3.07E-16	9.00E-14	2.25E-14	8.54E-17	2.00E-14	5.00E-15	9.21E-17	9.00E-13	2.25E-13	7.21E-15	6.00E-13	1.50E-13
10/3/2011	1.17E-16	9.00E-14	2.25E-14	3.04E-17	2.00E-14	5.00E-15	2.81E-17	9.00E-13	2.25E-13	1.03E-14	6.00E-13	1.50E-13
1/3/2012	3.65E-16	9.00E-14	2.25E-14	2.72E-17	2.00E-14	5.00E-15	4.54E-17	9.00E-13	2.25E-13	1.58E-14	6.00E-13	1.50E-13
4/3/2012	4.22E-16	9.00E-14	2.25E-14	1.15E-16	2.00E-14	5.00E-15	2.77E-16	9.00E-13	2.25E-13	1.58E-14	6.00E-13	1.50E-13
7/2/2012	3.39E-16	9.00E-14	2.25E-14	1.56E-16	2.00E-14	5.00E-15	1.74E-16	9.00E-13	2.25E-13	8.60E-15	6.00E-13	1.50E-13
10/1/2012	3.13E-16	9.00E-14	2.25E-14	4.13E-17	2.00E-14	5.00E-15	3.04E-17	9.00E-13	2.25E-13	1.03E-14	6.00E-13	1.50E-13
12/31/2012	2.76E-16	9.00E-14	2.25E-14	5.41E-17	2.00E-14	5.00E-15	7.05E-17	9.00E-13	2.25E-13	1.48E-14	6.00E-13	1.50E-13


BHV-2 Radionuclide Concentrations (uCi/ml)
(Log Scale)
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
1.00E-18
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12
Uranium Natural
Thorium-230
Radium-226
Lead-210


Effluent Concentration Limit = 9E-14 uCi/ml
ALARA Goal = 2.25E-14 uCi/ml
Pre 1994 MPC Limit = 5E-12uCi/ml
Pre 1994 ALARA Goal = 1.25E-12 uCi/ml
BHV-2 Uranium-Natural Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12


Effluent Concentration Limit = 2E-14 uCi/ml
ALARA Goal = 5E-13 uCi/ml
Pre 1994 MPC Limit = 8E-14uCi/ml
BHV-2 Thorium-230 Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
1.00E-18
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12


Effluent Concentration Limit = 9E-13 uCi/ml
ALARA Goal = 2.25E-13 uCi/ml
Pre 1994 MPC Limit = 2E-12uCi/ml
Pre 1994 ALARA Goal = 5E-13 uCi/ml
BHV-2 Radium-226 Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12



Effluent Concentration Limit = 6E-13 uCi/ml
ALARA Goal = 1.5E-13 uCi/ml
Pre 1994 MPC Limit = 4E-12uCi/ml
Pre 1994 ALARA Goal = 1E-12 uCi/ml
BHV-2 Lead-210 Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12

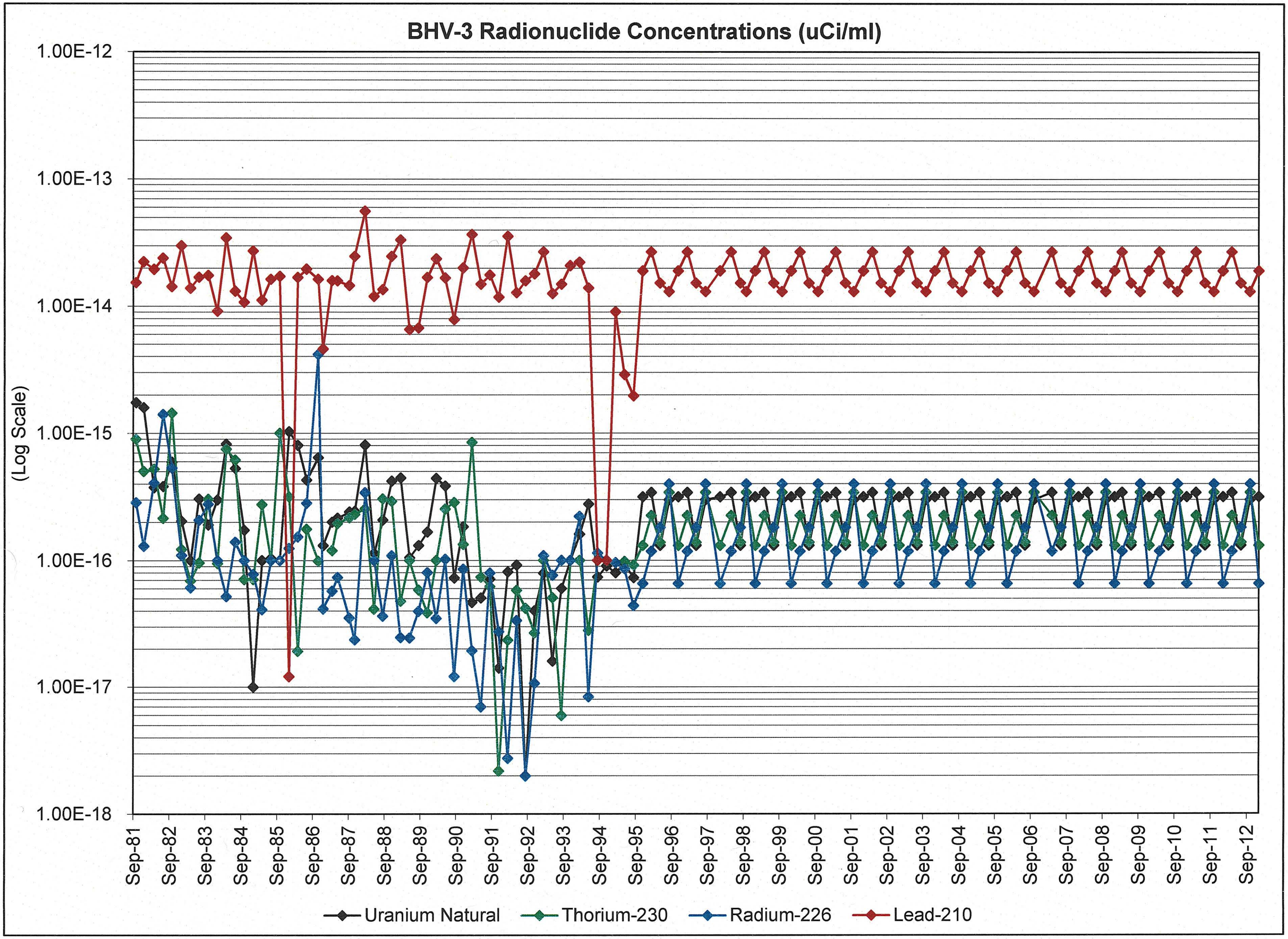
TAB 3

BHV-3 AIR SAMPLING GRAPHS AND DATA TABLE

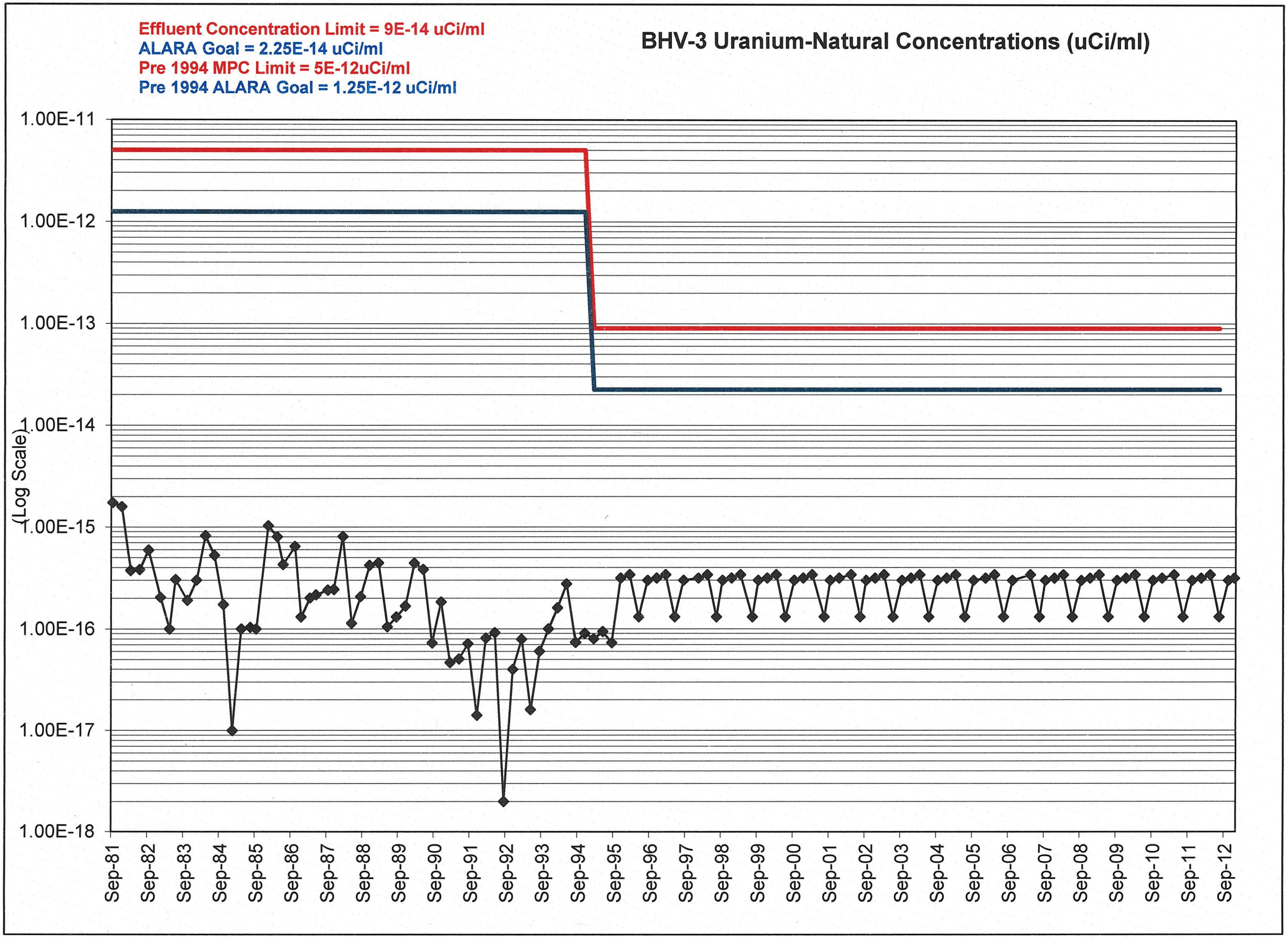
Date	Effluent Concentration Limit =	9E-14 uCi/ml	BHV-3U	Effluent Concentration Limit =	2E-14 uCi/ml	BHV-3T	Effluent Concentration Limit =	9E-13 uCi/ml	BHV-3R	Effluent Concentration Limit =	6E-13 uCi/ml	BHV-3PB
	ALARA Goal =	2.25E-14 uCi/ml		ALARA Goal =	5E-13 uCi/ml		ALARA Goal =	2.25E-13 uCi/ml		ALARA Goal =	1.5E-13 uCi/ml	
	Pre 1994 MPC Limit =	5E-12 uCi/ml		Pre 1994 MPC Limit =	8E-14 uCi/ml		Pre 1994 MPC Limit =	2E-12 uCi/ml		Pre 1994 MPC Limit =	4E-12 uCi/ml	
	Pre 1994 ALARA GOAL =	1.25E-12 uCi/ml					Pre 1994 ALARA GOAL =	5E-13 uCi/ml		Pre 1994 ALARA GOAL =	1E-12 uCi/ml	
	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A
9/28/1981	1.74E-15	5.00E-12	1.25E-12	9.02E-16	8.00E-14	2.00E-14	2.87E-16	2.00E-12	5.00E-13	1.54E-14	4.00E-12	1.00E-12
12/14/1981	1.59E-15	5.00E-12	1.25E-12	5.03E-16	8.00E-14	2.00E-14	1.30E-16	2.00E-12	5.00E-13	2.25E-14	4.00E-12	1.00E-12
3/29/1982	3.76E-16	5.00E-12	1.25E-12	5.25E-16	8.00E-14	2.00E-14	4.08E-16	2.00E-12	5.00E-13	1.96E-14	4.00E-12	1.00E-12
6/30/1982	3.83E-16	5.00E-12	1.25E-12	2.16E-16	8.00E-14	2.00E-14	1.41E-15	2.00E-12	5.00E-13	2.40E-14	4.00E-12	1.00E-12
9/27/1982	5.95E-16	5.00E-12	1.25E-12	1.44E-15	8.00E-14	2.00E-14	5.36E-16	2.00E-12	5.00E-13	1.43E-14	4.00E-12	1.00E-12
1/3/1983	2.05E-16	5.00E-12	1.25E-12	1.23E-16	8.00E-14	2.00E-14	1.10E-16	2.00E-12	5.00E-13	3.01E-14	4.00E-12	1.00E-12
4/4/1983	1.00E-16	5.00E-12	1.25E-12	6.94E-17	8.00E-14	2.00E-14	6.11E-17	2.00E-12	5.00E-13	1.39E-14	4.00E-12	1.00E-12
6/30/1983	3.06E-16	5.00E-12	1.25E-12	9.59E-17	8.00E-14	2.00E-14	2.08E-16	2.00E-12	5.00E-13	1.70E-14	4.00E-12	1.00E-12
10/3/1983	1.91E-16	5.00E-12	1.25E-12	3.05E-16	8.00E-14	2.00E-14	2.79E-16	2.00E-12	5.00E-13	1.76E-14	4.00E-12	1.00E-12
1/3/1984	3.01E-16	5.00E-12	1.25E-12	9.51E-17	8.00E-14	2.00E-14	1.00E-16	2.00E-12	5.00E-13	9.17E-15	4.00E-12	1.00E-12
4/2/1984	8.22E-16	5.00E-12	1.25E-12	7.52E-16	8.00E-14	2.00E-14	5.20E-17	2.00E-12	5.00E-13	3.47E-14	4.00E-12	1.00E-12
7/2/1984	5.29E-16	5.00E-12	1.25E-12	6.18E-16	8.00E-14	2.00E-14	1.40E-16	2.00E-12	5.00E-13	1.32E-14	4.00E-12	1.00E-12
10/1/1984	1.74E-16	5.00E-12	1.25E-12	7.10E-17	8.00E-14	2.00E-14	1.00E-16	2.00E-12	5.00E-13	1.08E-14	4.00E-12	1.00E-12
1/2/1985	1.00E-17	5.00E-12	1.25E-12	7.10E-17	8.00E-14	2.00E-14	7.80E-17	2.00E-12	5.00E-13	2.73E-14	4.00E-12	1.00E-12
4/1/1985	1.00E-16	5.00E-12	1.25E-12	2.76E-16	8.00E-14	2.00E-14	4.10E-17	2.00E-12	5.00E-13	1.12E-14	4.00E-12	1.00E-12
7/1/1985	1.04E-16	5.00E-12	1.25E-12	1.00E-16	8.00E-14	2.00E-14	1.00E-16	2.00E-12	5.00E-13	1.64E-14	4.00E-12	1.00E-12
9/30/1985	1.00E-16	5.00E-12	1.25E-12	1.00E-15	8.00E-14	2.00E-14	1.00E-16	2.00E-12	5.00E-13	1.73E-14	4.00E-12	1.00E-12
1/2/1986	1.03E-15	5.00E-12	1.25E-12	3.17E-16	8.00E-14	2.00E-14	1.25E-16	2.00E-12	5.00E-13	1.21E-17	4.00E-12	1.00E-12
4/1/1986	8.04E-16	5.00E-12	1.25E-12	1.93E-17	8.00E-14	2.00E-14	1.54E-16	2.00E-12	5.00E-13	1.69E-14	4.00E-12	1.00E-12
6/30/1986	4.29E-16	5.00E-12	1.25E-12	1.77E-16	8.00E-14	2.00E-14	2.83E-16	2.00E-12	5.00E-13	1.97E-14	4.00E-12	1.00E-12
10/27/1986	6.45E-16	5.00E-12	1.25E-12	9.89E-17	8.00E-14	2.00E-14	4.16E-15	2.00E-12	5.00E-13	1.64E-14	4.00E-12	1.00E-12
12/15/1986	1.31E-16	5.00E-12	1.25E-12	0.00E+00	8.00E-14	2.00E-14	4.16E-17	2.00E-12	5.00E-13	4.60E-15	4.00E-12	1.00E-12
3/16/1987	2.01E-16	5.00E-12	1.25E-12	1.20E-16	8.00E-14	2.00E-14	5.73E-17	2.00E-12	5.00E-13	1.60E-14	4.00E-12	1.00E-12
5/11/1987	2.16E-16	5.00E-12	1.25E-12	1.96E-16	8.00E-14	2.00E-14	7.38E-17	2.00E-12	5.00E-13	1.59E-14	4.00E-12	1.00E-12
9/9/1987	2.41E-16	5.00E-12	1.25E-12	2.18E-16	8.00E-14	2.00E-14	3.52E-17	2.00E-12	5.00E-13	1.46E-14	4.00E-12	1.00E-12
11/2/1987	2.44E-16	5.00E-12	1.25E-12	2.32E-16	8.00E-14	2.00E-14	2.37E-17	2.00E-12	5.00E-13	2.48E-14	4.00E-12	1.00E-12
2/16/1988	8.08E-16	5.00E-12	1.25E-12	2.55E-16	8.00E-14	2.00E-14	3.42E-16	2.00E-12	5.00E-13	5.61E-14	4.00E-12	1.00E-12
5/18/1988	1.14E-16	5.00E-12	1.25E-12	4.14E-17	8.00E-14	2.00E-14	1.00E-16	2.00E-12	5.00E-13	1.20E-14	4.00E-12	1.00E-12
8/15/1988	2.08E-16	5.00E-12	1.25E-12	3.06E-16	8.00E-14	2.00E-14	3.65E-17	2.00E-12	5.00E-13	1.36E-14	4.00E-12	1.00E-12
11/14/1988	4.21E-16	5.00E-12	1.25E-12	2.93E-16	8.00E-14	2.00E-14	1.09E-16	2.00E-12	5.00E-13	2.48E-14	4.00E-12	1.00E-12
2/13/1989	4.45E-16	5.00E-12	1.25E-12	4.78E-17	8.00E-14	2.00E-14	2.47E-17	2.00E-12	5.00E-13	3.34E-14	4.00E-12	1.00E-12
5/15/1989	1.05E-16	5.00E-12	1.25E-12	1.00E-16	8.00E-14	2.00E-14	2.45E-17	2.00E-12	5.00E-13	6.56E-15	4.00E-12	1.00E-12
8/14/1989	1.31E-16	5.00E-12	1.25E-12	5.85E-17	8.00E-14	2.00E-14	3.97E-17	2.00E-12	5.00E-13	6.75E-15	4.00E-12	1.00E-12
11/13/1989	1.67E-16	5.00E-12	1.25E-12	3.87E-17	8.00E-14	2.00E-14	8.03E-17	2.00E-12	5.00E-13	1.69E-14	4.00E-12	1.00E-12
2/12/1990	4.43E-16	5.00E-12	1.25E-12	1.00E-16	8.00E-14	2.00E-14	3.50E-17	2.00E-12	5.00E-13	2.37E-14	4.00E-12	1.00E-12
5/14/1990	3.84E-16	5.00E-12	1.25E-12	2.54E-16	8.00E-14	2.00E-14	1.02E-16	2.00E-12	5.00E-13	1.68E-14	4.00E-12	1.00E-12
8/13/1990	7.27E-17	5.00E-12	1.25E-12	2.87E-16	8.00E-14	2.00E-14	1.21E-17	2.00E-12	5.00E-13	7.86E-15	4.00E-12	1.00E-12
11/12/1990	1.84E-16	5.00E-12	1.25E-12	1.34E-16	8.00E-14	2.00E-14	8.53E-17	2.00E-12	5.00E-13	2.01E-14	4.00E-12	1.00E-12
2/11/1991	4.66E-17	5.00E-12	1.25E-12	8.48E-16	8.00E-14	2.00E-14	1.94E-17	2.00E-12	5.00E-13	3.69E-14	4.00E-12	1.00E-12
5/13/1991	5.05E-17	5.00E-12	1.25E-12	7.40E-17	8.00E-14	2.00E-14	7.00E-18	2.00E-12	5.00E-13	1.50E-14	4.00E-12	1.00E-12
8/12/1991	7.14E-17	5.00E-12	1.25E-12	6.22E-17	8.00E-14	2.00E-14	7.95E-17	2.00E-12	5.00E-13	1.77E-14	4.00E-12	1.00E-12
11/11/1991	1.41E-17	5.00E-12	1.25E-12	2.19E-18	8.00E-14	2.00E-14	2.75E-17	2.00E-12	5.00E-13	1.18E-14	4.00E-12	1.00E-12
2/10/1992	8.12E-17	5.00E-12	1.25E-12	2.35E-17	8.00E-14	2.00E-14	2.76E-18	2.00E-12	5.00E-13	3.57E-14	4.00E-12	1.00E-12
5/11/1992	9.18E-17	5.00E-12	1.25E-12	5.80E-17	8.00E-14	2.00E-14	3.36E-17	2.00E-12	5.00E-13	1.28E-14	4.00E-12	1.00E-12
8/10/1992	2.00E-18	5.00E-12	1.25E-12	4.19E-17	8.00E-14	2.00E-14	2.00E-18	2.00E-12	5.00E-13	1.59E-14	4.00E-12	1.00E-12
11/9/1992	4.00E-17	5.00E-12	1.25E-12	2.68E-17	8.00E-14	2.00E-14	1.07E-17	2.00E-12	5.00E-13	1.81E-14	4.00E-12	1.00E-12
2/9/1993	7.94E-17	5.00E-12	1.25E-12	1.00E-16	8.00E-14	2.00E-14	1.09E-16	2.00E-12	5.00E-13	2.69E-14	4.00E-12	1.00E-12
5/10/1993	1.60E-17	5.00E-12	1.25E-12	5.07E-17	8.00E-14	2.00E-14	7.64E-17	2.00E-12	5.00E-13	1.26E-14	4.00E-12	1.00E-12
8/10/1993	6.00E-17	5.00E-12	1.25E-12	6.00E-18	8.00E-14	2.00E-14	1.00E-16	2.00E-12	5.00E-13	1.50E-14	4.00E-12	1.00E-12
11/8/1993	1.00E-16	5.00E-12	1.25E-12	1.00E-16	8.00E-14	2.00E-14	1.00E-16	2.00E-12	5.00E-13	2.10E-14	4.00E-12	1.00E-12
2/7/1994	1.61E-16	5.00E-12	1.25E-12	1.00E-16	8.00E-14	2.00E-14	2.22E-16	2.00E-12	5.00E-13	2.23E-14	4.00E-12	1.00E-12
5/9/1994	2.77E-16	5.00E-12	1.25E-12	2.80E-17	8.00E-14	2.00E-14	8.37E-18	2.00E-12	5.00E-13	1.40E-14	4.00E-12	1.00E-12
8/9/1994	7.39E-17	5.00E-12	1.25E-12	1.00E-16	8.00E-14	2.00E-14	1.14E-16	2.00E-12	5.00E-13	1.00E-16	4.00E-12	1.00E-12
11/7/1994	9.05E-17	5.00E-12	1.25E-12	1.00E-16	8.00E-14	2.00E-14	1.00E-16	2.00E-12	5.00E-13	1.00E-16	4.00E-12	1.00E-12

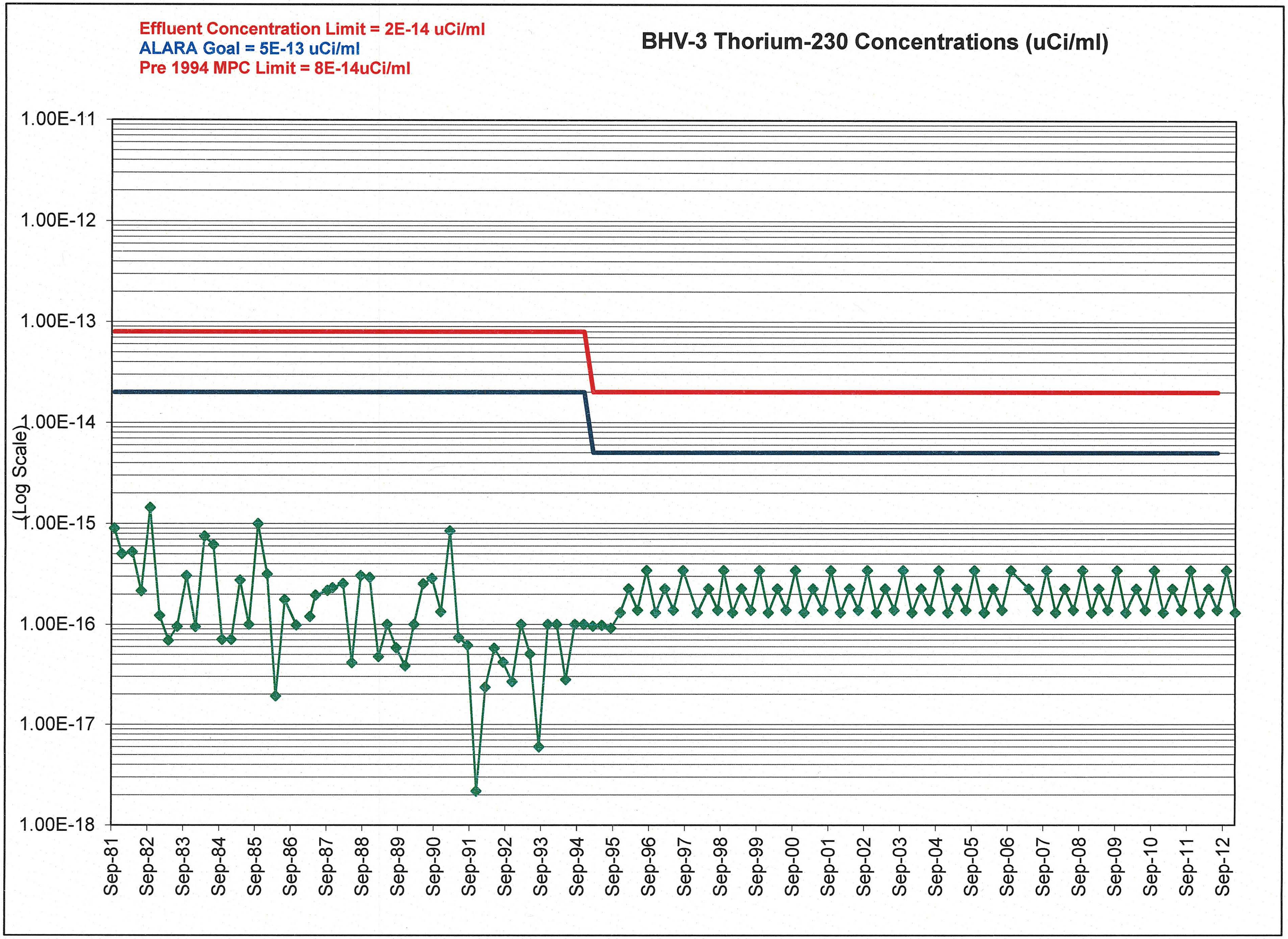
Date	Effluent Concentration Limit =	9E-14 uCi/ml	BHV-3U	Effluent Concentration Limit =	2E-14 uCi/ml	BHV-3T	Effluent Concentration Limit =	9E-13 uCi/ml	BHV-3R	Effluent Concentration Limit =	6E-13 uCi/ml	BHV-3PB
	ALARA Goal =	2.25E-14 uCi/ml		ALARA Goal =	5E-13 uCi/ml		ALARA Goal =	2.25E-13 uCi/ml		ALARA Goal =	1.5E-13 uCi/ml	
	Pre 1994 MPC Limit =	5E-12 uCi/ml		Pre 1994 MPC Limit =	8E-14 uCi/ml		Pre 1994 MPC Limit =	2E-12 uCi/ml		Pre 1994 MPC Limit =	4E-12 uCi/ml	
	Pre 1994 ALARA GOAL =	1.25E-12 uCi/ml					Pre 1994 ALARA GOAL =	5E-13 uCi/ml		Pre 1994 ALARA GOAL =	1E-12 uCi/ml	
	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A
2/7/1995	7.99E-17	9.00E-14	2.25E-14	9.60E-17	2.00E-14	5.00E-15	9.60E-17	9.00E-13	2.25E-13	9.05E-15	6.00E-13	1.50E-13
5/9/1995	9.40E-17	9.00E-14	2.25E-14	9.80E-17	2.00E-14	5.00E-15	8.60E-17	9.00E-13	2.25E-13	2.88E-15	6.00E-13	1.50E-13
8/9/1995	7.30E-17	9.00E-14	2.25E-14	9.20E-17	2.00E-14	5.00E-15	4.40E-17	9.00E-13	2.25E-13	1.96E-15	6.00E-13	1.50E-13
11/11/1995	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
2/5/1996	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
5/6/1996	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
8/5/1996	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
11/6/1996	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
2/6/1997	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
5/5/1997	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
8/11/1997	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
1/5/1998	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
4/28/1998	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
7/31/1998	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
9/28/1998	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
12/28/1998	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
3/29/1999	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
7/3/1999	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
9/27/1999	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
12/28/1999	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
3/28/2000	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
6/26/2000	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
9/26/2000	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
12/26/2000	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
3/26/2001	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
7/2/2001	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
9/24/2001	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
12/31/2001	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
4/1/2002	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
7/1/2002	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
9/30/2002	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
12/30/2002	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
3/31/2003	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
6/30/2003	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
9/29/2003	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
12/29/2003	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
3/29/2004	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
6/27/2004	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
9/27/2004	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
12/27/2004	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
3/28/2005	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
6/29/2005	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
9/26/2005	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
1/3/2006	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
4/3/2006	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
7/3/2006	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
10/2/2006	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
1/1/2006	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
4/2/2007	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
7/2/2007	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
9/30/2007	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
12/31/2007	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
3/31/2008	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
6/30/2008	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13

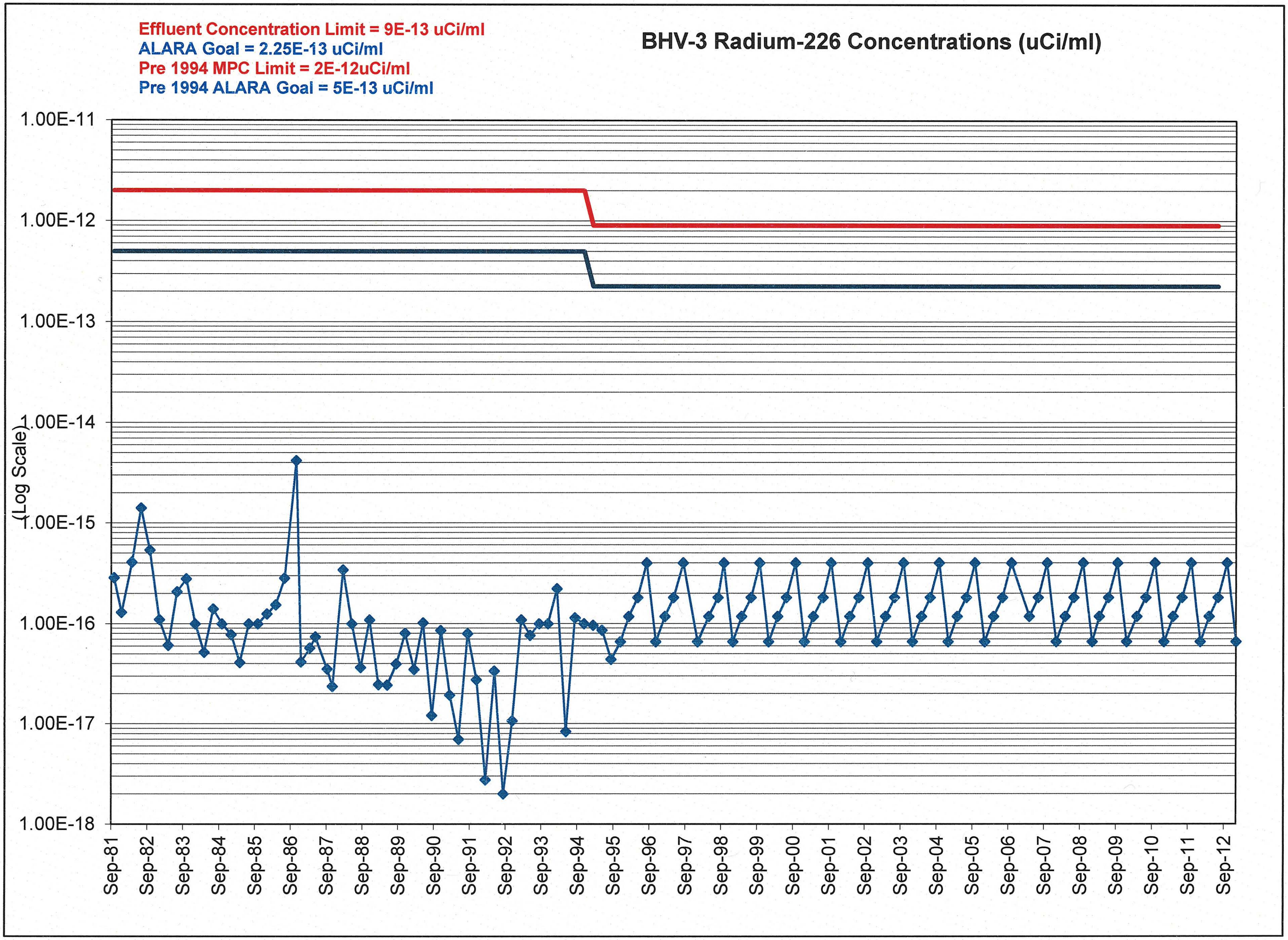
Date	Effluent Concentration Limit =	9E-14 uCi/ml	BHV-3U	Effluent Concentration Limit =	2E-14 uCi/ml	BHV-3T	Effluent Concentration Limit =	9E-13 uCi/ml	BHV-3R	Effluent Concentration Limit =	6E-13 uCi/ml	BHV-3PB
	ALARA Goal =	2.25E-14 uCi/ml		ALARA Goal =	5E-13 uCi/ml		ALARA Goal =	2.25E-13 uCi/ml		ALARA Goal =	1.5E-13 uCi/ml	
	Pre 1994 MPC Limit =	5E-12 uCi/ml		Pre 1994 MPC Limit =	8E-14 uCi/ml		Pre 1994 MPC Limit =	2E-12 uCi/ml		Pre 1994 MPC Limit =	4E-12 uCi/ml	
	Pre 1994 ALARA GOAL =	1.25E-12 uCi/ml					Pre 1994 ALARA GOAL =	5E-13 uCi/ml		Pre 1994 ALARA GOAL =	1E-12 uCi/ml	
	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A
9/30/2008	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
12/31/2008	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
3/15/2009	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
6/15/2009	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
9/15/2009	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
12/15/2009	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
3/31/2010	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
6/30/2010	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
9/30/2010	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
12/31/2010	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
4/4/2011	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
7/4/2011	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
10/3/2011	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
1/3/2012	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13
4/3/2012	3.41E-16	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	2.69E-14	6.00E-13	1.50E-13
7/2/2012	1.31E-16	9.00E-14	2.25E-14	1.39E-16	2.00E-14	5.00E-15	1.82E-16	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
10/1/2012	3.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	3.99E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
12/31/2012	3.16E-16	9.00E-14	2.25E-14	1.31E-16	2.00E-14	5.00E-15	6.58E-17	9.00E-13	2.25E-13	1.91E-14	6.00E-13	1.50E-13

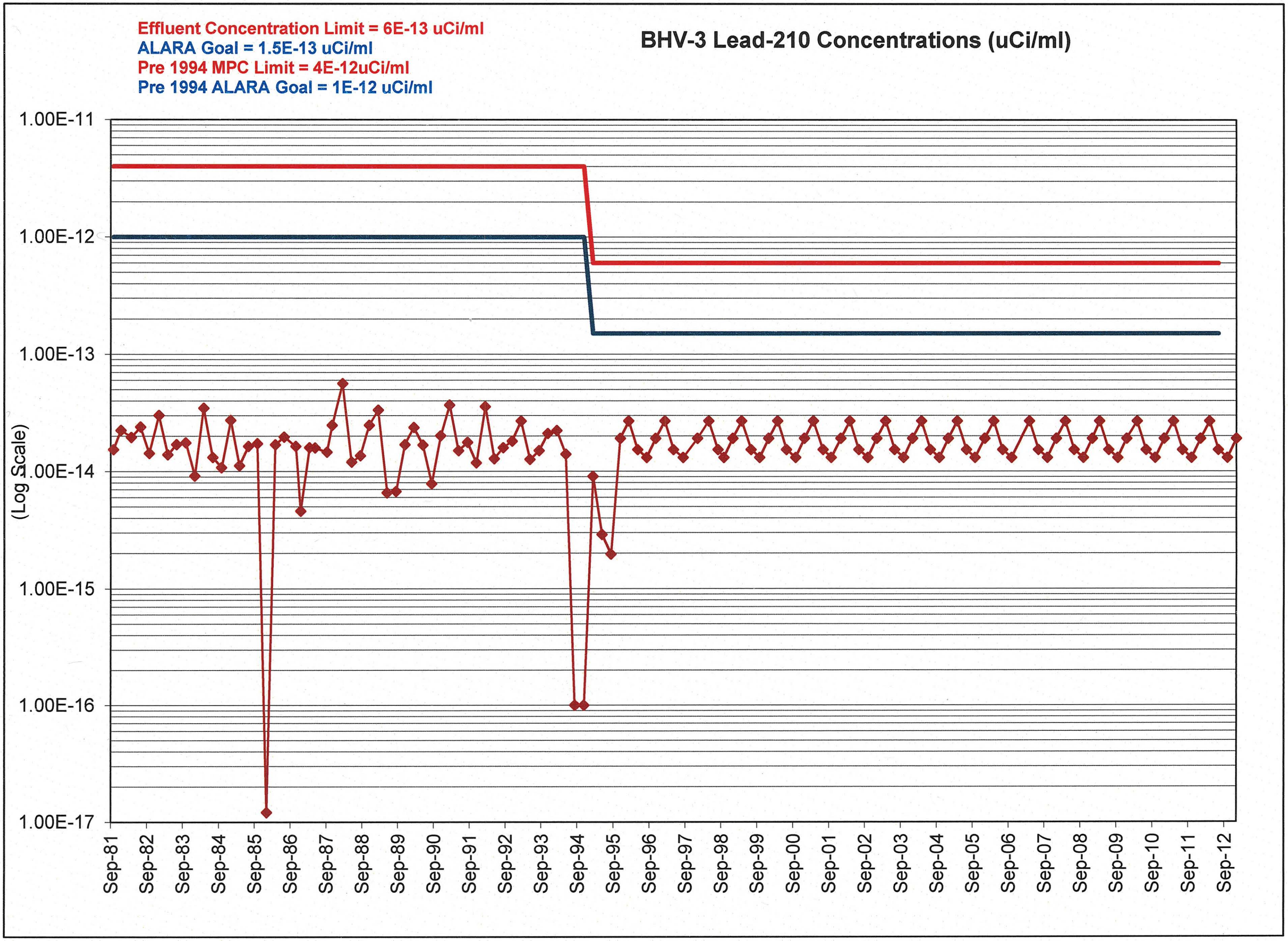


BHV-3 Radionuclide Concentrations (uCi/ml)


Effluent Concentration Limit = 9E-14 uCi/ml
ALARA Goal = 2.25E-14 uCi/ml
Pre 1994 MPC Limit = 5E-12uCi/ml
Pre 1994 ALARA Goal = 1.25E-12 uCi/ml
BHV-3 Uranium-Natural Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
1.00E-18
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12


Effluent Concentration Limit = 2E-14 uCi/ml
ALARA Goal = 5E-13 uCi/ml
Pre 1994 MPC Limit = 8E-14uCi/ml
BHV-3 Thorium-230 Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
1.00E-18
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12


Effluent Concentration Limit = 9E-13 uCi/ml
ALARA Goal = 2.25E-13 uCi/ml
Pre 1994 MPC Limit = 2E-12uCi/ml
Pre 1994 ALARA Goal = 5E-13 uCi/ml
BHV-3 Radium-226 Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
1.00E-18
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12



BHV-3 Lead-210 Concentrations (uCi/ml)

TAB 4

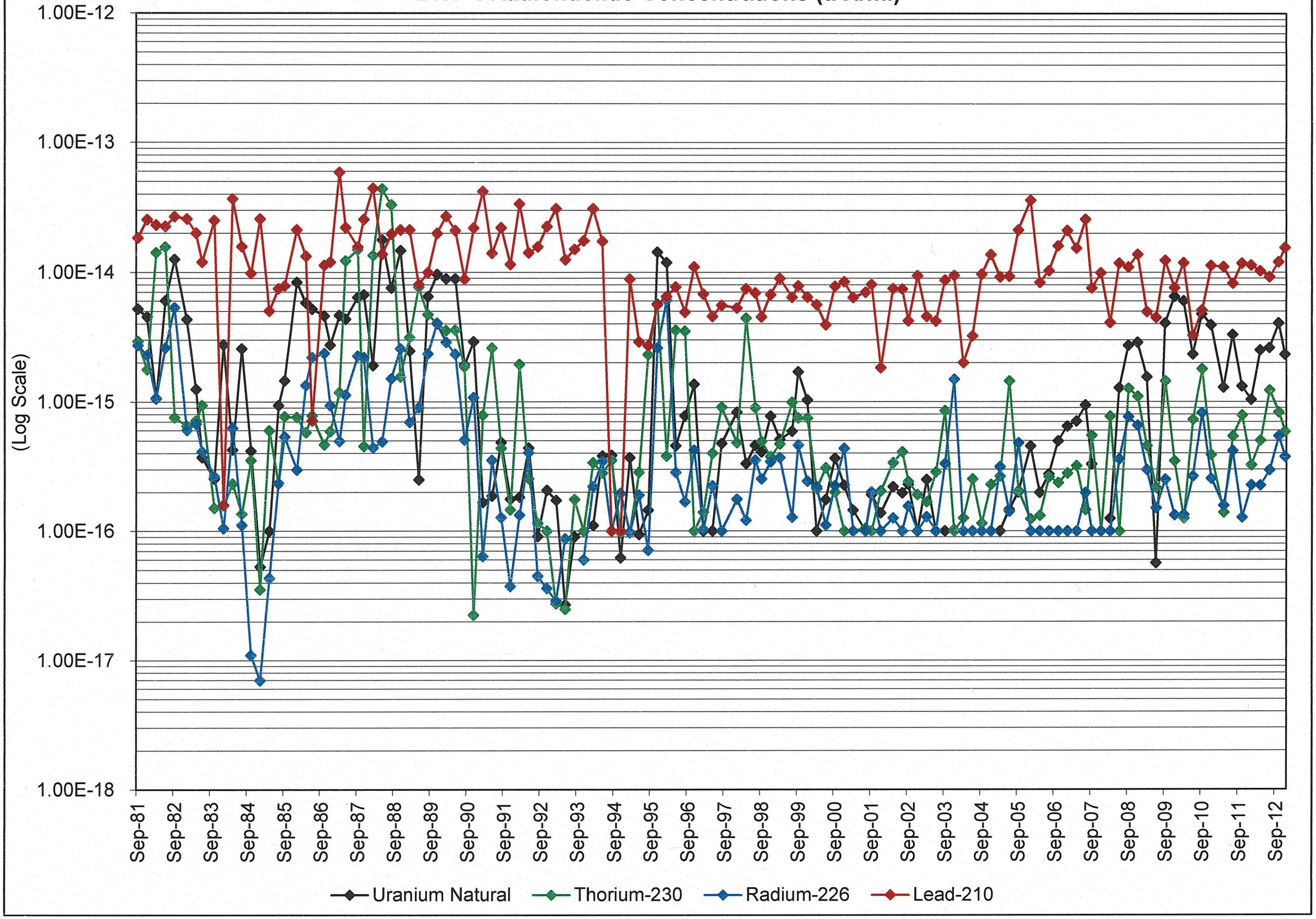
BHV-4 AIR SAMPLING GRAPHS AND DATA TABLE

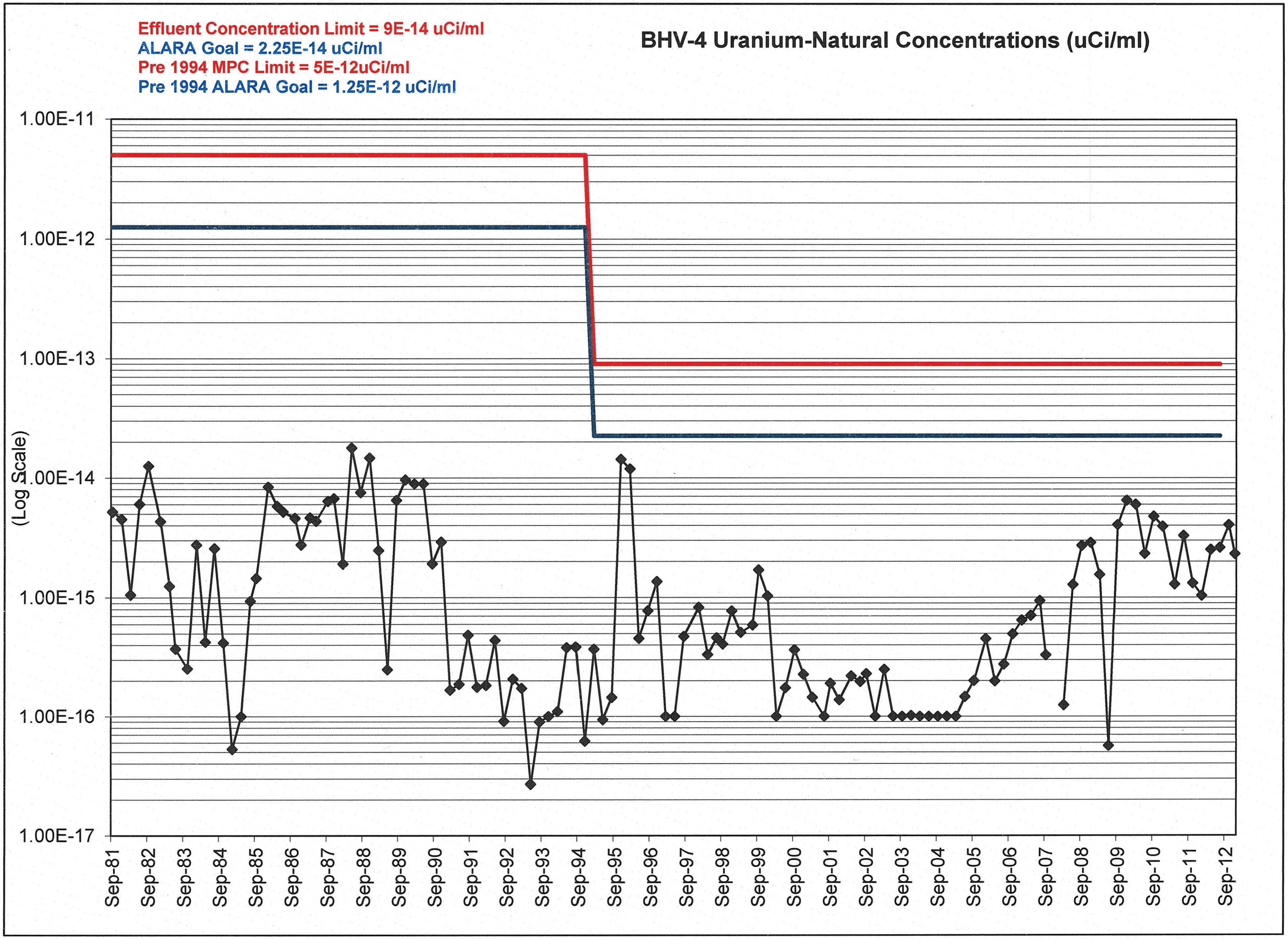
Date	Effluent Concentration Limit =	9E-14 uCi/ml	BHV-4U	Effluent Concentration Limit =	2E-14 uCi/ml	BHV-4T	Effluent Concentration Limit =	9E-13 uCi/ml	BHV-4R	Effluent Concentration Limit =	6E-13 uCi/ml	BHV-4PB
	ALARA Goal =	2.25E-14 uCi/ml		ALARA Goal =	5E-13 uCi/ml		ALARA Goal =	2.25E-13 uCi/ml		ALARA Goal =	1.5E-13 uCi/ml	
	Pre 1994 MPC Limit =	5E-12 uCi/ml		Pre 1994 MPC Limit =	8E-14 uCi/ml		Pre 1994 MPC Limit =	2E-12 uCi/ml		Pre 1994 MPC Limit =	4E-12 uCi/ml	
	Pre 1994 ALARA GOAL =	1.25E-12 uCi/ml					Pre 1994 ALARA GOAL =	5E-13 uCi/ml		Pre 1994 ALARA GOAL =	1E-12 uCi/ml	
	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A
9/28/1981	5.20E-15	5.00E-12	1.25E-12	2.93E-15	8.00E-14	2.00E-14	2.74E-15	2.00E-12	5.00E-13	1.84E-14	4.00E-12	1.00E-12
12/14/1981	4.53E-15	5.00E-12	1.25E-12	1.78E-15	8.00E-14	2.00E-14	2.29E-15	2.00E-12	5.00E-13	2.54E-14	4.00E-12	1.00E-12
3/29/1982	1.06E-15	5.00E-12	1.25E-12	1.42E-14	8.00E-14	2.00E-14	1.07E-15	2.00E-12	5.00E-13	2.31E-14	4.00E-12	1.00E-12
6/30/1982	6.03E-15	5.00E-12	1.25E-12	1.57E-14	8.00E-14	2.00E-14	2.62E-15	2.00E-12	5.00E-13	2.25E-14	4.00E-12	1.00E-12
9/27/1982	1.26E-14	5.00E-12	1.25E-12	7.58E-16	8.00E-14	2.00E-14	5.35E-15	2.00E-12	5.00E-13	2.68E-14	4.00E-12	1.00E-12
1/3/1983	4.33E-15	5.00E-12	1.25E-12	6.52E-16	8.00E-14	2.00E-14	6.04E-16	2.00E-12	5.00E-13	2.57E-14	4.00E-12	1.00E-12
4/4/1983	1.25E-15	5.00E-12	1.25E-12	7.17E-16	8.00E-14	2.00E-14	6.76E-16	2.00E-12	5.00E-13	2.00E-14	4.00E-12	1.00E-12
6/30/1983	3.73E-16	5.00E-12	1.25E-12	9.43E-16	8.00E-14	2.00E-14	4.13E-16	2.00E-12	5.00E-13	1.20E-14	4.00E-12	1.00E-12
10/3/1983	2.54E-16	5.00E-12	1.25E-12	1.51E-16	8.00E-14	2.00E-14	2.65E-16	2.00E-12	5.00E-13	2.50E-14	4.00E-12	1.00E-12
1/3/1984	2.76E-15	5.00E-12	1.25E-12	1.60E-16	8.00E-14	2.00E-14	1.05E-16	2.00E-12	5.00E-13	1.59E-16	4.00E-12	1.00E-12
4/2/1984	4.27E-16	5.00E-12	1.25E-12	2.33E-16	8.00E-14	2.00E-14	6.28E-16	2.00E-12	5.00E-13	3.67E-14	4.00E-12	1.00E-12
7/2/1984	2.57E-15	5.00E-12	1.25E-12	1.36E-16	8.00E-14	2.00E-14	1.11E-16	2.00E-12	5.00E-13	1.58E-14	4.00E-12	1.00E-12
10/1/1984	4.18E-16	5.00E-12	1.25E-12	3.54E-16	8.00E-14	2.00E-14	1.10E-17	2.00E-12	5.00E-13	9.83E-15	4.00E-12	1.00E-12
1/2/1985	5.30E-17	5.00E-12	1.25E-12	3.55E-17	8.00E-14	2.00E-14	7.00E-18	2.00E-12	5.00E-13	2.57E-14	4.00E-12	1.00E-12
4/1/1985	1.00E-16	5.00E-12	1.25E-12	6.00E-16	8.00E-14	2.00E-14	4.35E-17	2.00E-12	5.00E-13	5.02E-15	4.00E-12	1.00E-12
7/1/1985	9.36E-16	5.00E-12	1.25E-12	2.33E-16	8.00E-14	2.00E-14	2.36E-16	2.00E-12	5.00E-13	7.48E-15	4.00E-12	1.00E-12
9/30/1985	1.46E-15	5.00E-12	1.25E-12	7.69E-16	8.00E-14	2.00E-14	5.38E-16	2.00E-12	5.00E-13	7.86E-15	4.00E-12	1.00E-12
1/2/1986	8.40E-15	5.00E-12	1.25E-12	7.60E-16	8.00E-14	2.00E-14	2.99E-16	2.00E-12	5.00E-13	2.12E-14	4.00E-12	1.00E-12
4/1/1986	5.79E-15	5.00E-12	1.25E-12	5.80E-16	8.00E-14	2.00E-14	1.34E-15	2.00E-12	5.00E-13	1.33E-14	4.00E-12	1.00E-12
6/30/1986	5.19E-15	5.00E-12	1.25E-12	7.83E-16	8.00E-14	2.00E-14	2.20E-15	2.00E-12	5.00E-13	7.14E-16	4.00E-12	1.00E-12
10/27/1986	4.60E-15	5.00E-12	1.25E-12	4.67E-16	8.00E-14	2.00E-14	2.37E-15	2.00E-12	5.00E-13	1.13E-14	4.00E-12	1.00E-12
12/15/1986	2.75E-15	5.00E-12	1.25E-12	5.90E-16	8.00E-14	2.00E-14	9.39E-16	2.00E-12	5.00E-13	1.20E-14	4.00E-12	1.00E-12
3/16/1987	4.64E-15	5.00E-12	1.25E-12	1.18E-15	8.00E-14	2.00E-14	4.97E-16	2.00E-12	5.00E-13	5.89E-14	4.00E-12	1.00E-12
5/11/1987	4.35E-15	5.00E-12	1.25E-12	1.23E-14	8.00E-14	2.00E-14	1.13E-15	2.00E-12	5.00E-13	2.21E-14	4.00E-12	1.00E-12
9/9/1987	6.39E-15	5.00E-12	1.25E-12	1.50E-14	8.00E-14	2.00E-14	2.26E-15	2.00E-12	5.00E-13	1.57E-14	4.00E-12	1.00E-12
11/2/1987	6.72E-15	5.00E-12	1.25E-12	4.53E-16	8.00E-14	2.00E-14	2.20E-15	2.00E-12	5.00E-13	2.55E-14	4.00E-12	1.00E-12
2/16/1988	1.91E-15	5.00E-12	1.25E-12	1.35E-14	8.00E-14	2.00E-14	4.42E-16	2.00E-12	5.00E-13	4.44E-14	4.00E-12	1.00E-12
5/18/1988	1.78E-14	5.00E-12	1.25E-12	4.39E-14	8.00E-14	2.00E-14	4.92E-16	2.00E-12	5.00E-13	1.38E-14	4.00E-12	1.00E-12
8/15/1988	7.56E-15	5.00E-12	1.25E-12	3.31E-14	8.00E-14	2.00E-14	1.51E-15	2.00E-12	5.00E-13	1.97E-14	4.00E-12	1.00E-12
11/14/1988	1.47E-14	5.00E-12	1.25E-12	1.56E-15	8.00E-14	2.00E-14	2.57E-15	2.00E-12	5.00E-13	2.12E-14	4.00E-12	1.00E-12
2/13/1989	2.47E-15	5.00E-12	1.25E-12	3.14E-15	8.00E-14	2.00E-14	6.94E-16	2.00E-12	5.00E-13	2.12E-14	4.00E-12	1.00E-12
5/15/1989	2.50E-16	5.00E-12	1.25E-12	7.68E-15	8.00E-14	2.00E-14	9.03E-16	2.00E-12	5.00E-13	8.05E-15	4.00E-12	1.00E-12
8/14/1989	6.50E-15	5.00E-12	1.25E-12	4.72E-15	8.00E-14	2.00E-14	2.35E-15	2.00E-12	5.00E-13	9.95E-15	4.00E-12	1.00E-12
11/13/1989	9.63E-15	5.00E-12	1.25E-12	4.05E-15	8.00E-14	2.00E-14	4.03E-15	2.00E-12	5.00E-13	1.99E-14	4.00E-12	1.00E-12
2/12/1990	8.92E-15	5.00E-12	1.25E-12	3.56E-15	8.00E-14	2.00E-14	2.89E-15	2.00E-12	5.00E-13	2.69E-14	4.00E-12	1.00E-12
5/14/1990	8.90E-15	5.00E-12	1.25E-12	3.58E-15	8.00E-14	2.00E-14	2.33E-15	2.00E-12	5.00E-13	2.09E-14	4.00E-12	1.00E-12
8/13/1990	1.92E-15	5.00E-12	1.25E-12	1.87E-15	8.00E-14	2.00E-14	5.06E-16	2.00E-12	5.00E-13	8.86E-15	4.00E-12	1.00E-12
11/12/1990	2.91E-15	5.00E-12	1.25E-12	2.25E-17	8.00E-14	2.00E-14	1.08E-15	2.00E-12	5.00E-13	2.19E-14	4.00E-12	1.00E-12
2/11/1991	1.67E-16	5.00E-12	1.25E-12	7.89E-16	8.00E-14	2.00E-14	6.38E-17	2.00E-12	5.00E-13	4.19E-14	4.00E-12	1.00E-12
5/13/1991	1.87E-16	5.00E-12	1.25E-12	2.61E-15	8.00E-14	2.00E-14	3.54E-16	2.00E-12	5.00E-13	1.40E-14	4.00E-12	1.00E-12
8/12/1991	4.85E-16	5.00E-12	1.25E-12	4.38E-16	8.00E-14	2.00E-14	1.27E-16	2.00E-12	5.00E-13	2.20E-14	4.00E-12	1.00E-12
11/11/1991	1.77E-16	5.00E-12	1.25E-12	1.46E-16	8.00E-14	2.00E-14	3.76E-17	2.00E-12	5.00E-13	1.15E-14	4.00E-12	1.00E-12
2/10/1992	1.83E-16	5.00E-12	1.25E-12	1.95E-15	8.00E-14	2.00E-14	1.33E-16	2.00E-12	5.00E-13	3.35E-14	4.00E-12	1.00E-12
5/11/1992	4.40E-16	5.00E-12	1.25E-12	2.56E-16	8.00E-14	2.00E-14	4.04E-16	2.00E-12	5.00E-13	1.41E-14	4.00E-12	1.00E-12
8/10/1992	9.09E-17	5.00E-12	1.25E-12	1.15E-16	8.00E-14	2.00E-14	4.50E-17	2.00E-12	5.00E-13	1.57E-14	4.00E-12	1.00E-12
11/9/1992	2.07E-16	5.00E-12	1.25E-12	1.00E-16	8.00E-14	2.00E-14	3.62E-17	2.00E-12	5.00E-13	2.24E-14	4.00E-12	1.00E-12
2/9/1993	1.73E-16	5.00E-12	1.25E-12	2.76E-17	8.00E-14	2.00E-14	2.89E-17	2.00E-12	5.00E-13	3.08E-14	4.00E-12	1.00E-12
5/10/1993	2.70E-17	5.00E-12	1.25E-12	2.50E-17	8.00E-14	2.00E-14	8.74E-17	2.00E-12	5.00E-13	1.25E-14	4.00E-12	1.00E-12
8/10/1993	9.00E-17	5.00E-12	1.25E-12	1.76E-16	8.00E-14	2.00E-14	0.00E+00	2.00E-12	5.00E-13	1.50E-14	4.00E-12	1.00E-12
11/8/1993	1.00E-16	5.00E-12	1.25E-12	1.00E-16	8.00E-14	2.00E-14	6.00E-17	2.00E-12	5.00E-13	1.75E-14	4.00E-12	1.00E-12
2/7/1994	1.10E-16	5.00E-12	1.25E-12	3.38E-16	8.00E-14	2.00E-14	2.21E-16	2.00E-12	5.00E-13	3.08E-14	4.00E-12	1.00E-12
5/9/1994	3.80E-16	5.00E-12	1.25E-12	2.82E-16	8.00E-14	2.00E-14	3.46E-16	2.00E-12	5.00E-13	1.73E-14	4.00E-12	1.00E-12
8/9/1994	3.85E-16	5.00E-12	1.25E-12	3.53E-16	8.00E-14	2.00E-14	1.00E-16	2.00E-12	5.00E-13	1.00E-16	4.00E-12	1.00E-12
11/7/1994	6.21E-17	5.00E-12	1.25E-12	9.70E-17	8.00E-14	2.00E-14	1.96E-16	2.00E-12	5.00E-13	1.00E-16	4.00E-12	1.00E-12

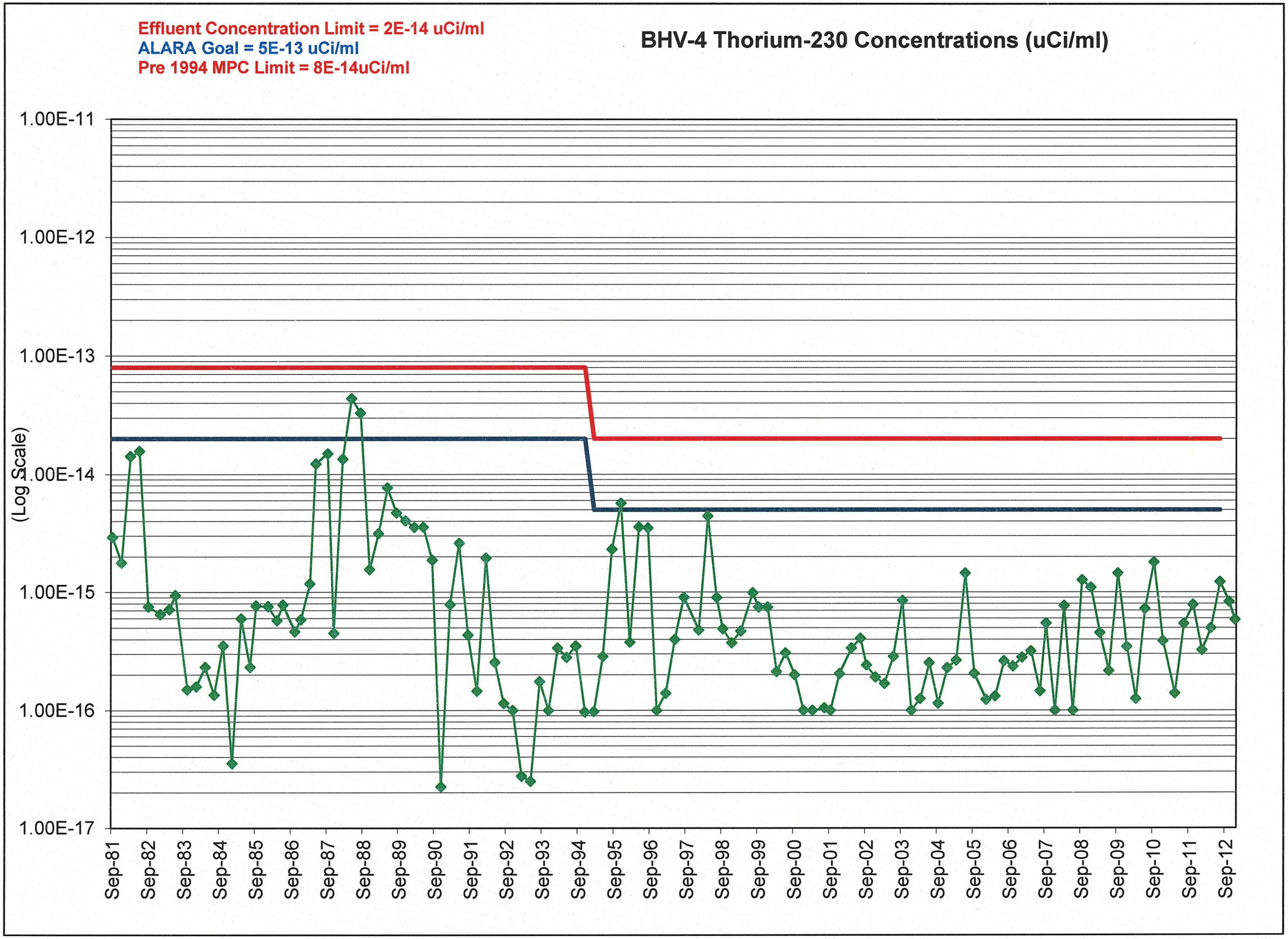
Date	Effluent Concentration Limit =	9E-14 uCi/ml	BHV-4U	Effluent Concentration Limit =	2E-14 uCi/ml	BHV-4T	Effluent Concentration Limit =	9E-13 uCi/ml	BHV-4R	Effluent Concentration Limit =	6E-13 uCi/ml	BHV-4PB
	ALARA Goal =	2.25E-14 uCi/ml		ALARA Goal =	5E-13 uCi/ml		ALARA Goal =	2.25E-13 uCi/ml		ALARA Goal =	1.5E-13 uCi/ml	
	Pre 1994 MPC Limit =	5E-12 uCi/ml		Pre 1994 MPC Limit =	8E-14 uCi/ml		Pre 1994 MPC Limit =	2E-12 uCi/ml		Pre 1994 MPC Limit =	4E-12 uCi/ml	
	Pre 1994 ALARA GOAL =	1.25E-12 uCi/ml					Pre 1994 ALARA GOAL =	5E-13 uCi/ml		Pre 1994 ALARA GOAL =	1E-12 uCi/ml	
	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A
2/7/1995	3.70E-16	9.00E-14	2.25E-14	9.80E-17	2.00E-14	5.00E-15	9.70E-17	9.00E-13	2.25E-13	8.84E-15	6.00E-13	1.50E-13
5/9/1995	9.40E-17	9.00E-14	2.25E-14	2.86E-16	2.00E-14	5.00E-15	1.90E-16	9.00E-13	2.25E-13	2.90E-15	6.00E-13	1.50E-13
8/9/1995	1.45E-16	9.00E-14	2.25E-14	2.31E-15	2.00E-14	5.00E-15	7.10E-17	9.00E-13	2.25E-13	2.70E-15	6.00E-13	1.50E-13
11/11/1995	1.43E-14	9.00E-14	2.25E-14	5.70E-15	2.00E-14	5.00E-15	2.61E-15	9.00E-13	2.25E-13	5.60E-15	6.00E-13	1.50E-13
2/5/1996	1.19E-14	9.00E-14	2.25E-14	3.80E-16	2.00E-14	5.00E-15	6.10E-15	9.00E-13	2.25E-13	6.48E-15	6.00E-13	1.50E-13
5/6/1996	4.55E-16	9.00E-14	2.25E-14	3.57E-15	2.00E-14	5.00E-15	2.84E-16	9.00E-13	2.25E-13	7.68E-15	6.00E-13	1.50E-13
8/5/1996	7.78E-16	9.00E-14	2.25E-14	3.51E-15	2.00E-14	5.00E-15	1.69E-16	9.00E-13	2.25E-13	4.90E-15	6.00E-13	1.50E-13
11/6/1996	1.36E-15	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	4.21E-16	9.00E-13	2.25E-13	1.10E-14	6.00E-13	1.50E-13
2/6/1997	1.00E-16	9.00E-14	2.25E-14	1.40E-16	2.00E-14	5.00E-15	1.03E-16	9.00E-13	2.25E-13	6.76E-15	6.00E-13	1.50E-13
5/5/1997	1.00E-16	9.00E-14	2.25E-14	4.00E-16	2.00E-14	5.00E-15	2.24E-16	9.00E-13	2.25E-13	4.55E-15	6.00E-13	1.50E-13
8/11/1997	4.74E-16	9.00E-14	2.25E-14	9.07E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	5.55E-15	6.00E-13	1.50E-13
1/5/1998	8.31E-16	9.00E-14	2.25E-14	4.82E-16	2.00E-14	5.00E-15	1.77E-16	9.00E-13	2.25E-13	5.28E-15	6.00E-13	1.50E-13
4/28/1998	3.32E-16	9.00E-14	2.25E-14	4.43E-15	2.00E-14	5.00E-15	1.21E-16	9.00E-13	2.25E-13	7.43E-15	6.00E-13	1.50E-13
7/31/1998	4.60E-16	9.00E-14	2.25E-14	9.02E-16	2.00E-14	5.00E-15	3.54E-16	9.00E-13	2.25E-13	6.91E-15	6.00E-13	1.50E-13
9/28/1998	4.08E-16	9.00E-14	2.25E-14	4.93E-16	2.00E-14	5.00E-15	2.53E-16	9.00E-13	2.25E-13	4.52E-15	6.00E-13	1.50E-13
12/28/1998	7.72E-16	9.00E-14	2.25E-14	3.75E-16	2.00E-14	5.00E-15	3.43E-16	9.00E-13	2.25E-13	6.73E-15	6.00E-13	1.50E-13
3/29/1999	5.11E-16	9.00E-14	2.25E-14	4.70E-16	2.00E-14	5.00E-15	3.70E-16	9.00E-13	2.25E-13	8.96E-15	6.00E-13	1.50E-13
7/3/1999	5.90E-16	9.00E-14	2.25E-14	9.89E-16	2.00E-14	5.00E-15	1.28E-16	9.00E-13	2.25E-13	6.40E-15	6.00E-13	1.50E-13
9/27/1999	1.70E-15	9.00E-14	2.25E-14	7.50E-16	2.00E-14	5.00E-15	4.61E-16	9.00E-13	2.25E-13	7.86E-15	6.00E-13	1.50E-13
12/28/1999	1.03E-15	9.00E-14	2.25E-14	7.50E-16	2.00E-14	5.00E-15	2.43E-16	9.00E-13	2.25E-13	6.42E-15	6.00E-13	1.50E-13
3/27/2000	1.00E-16	9.00E-14	2.25E-14	2.13E-16	2.00E-14	5.00E-15	2.20E-16	9.00E-13	2.25E-13	5.61E-15	6.00E-13	1.50E-13
6/26/2000	1.75E-16	9.00E-14	2.25E-14	3.08E-16	2.00E-14	5.00E-15	1.11E-16	9.00E-13	2.25E-13	3.92E-15	6.00E-13	1.50E-13
9/26/2000	3.65E-16	9.00E-14	2.25E-14	2.01E-16	2.00E-14	5.00E-15	2.24E-16	9.00E-13	2.25E-13	7.79E-15	6.00E-13	1.50E-13
12/26/2000	2.27E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	4.35E-16	9.00E-13	2.25E-13	8.45E-15	6.00E-13	1.50E-13
3/26/2001	1.45E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.37E-15	6.00E-13	1.50E-13
7/2/2001	1.00E-16	9.00E-14	2.25E-14	1.05E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.99E-15	6.00E-13	1.50E-13
9/24/2001	1.91E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	2.01E-16	9.00E-13	2.25E-13	8.04E-15	6.00E-13	1.50E-13
12/31/2001	1.38E-16	9.00E-14	2.25E-14	2.05E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.83E-15	6.00E-13	1.50E-13
4/1/2002	2.20E-16	9.00E-14	2.25E-14	3.38E-16	2.00E-14	5.00E-15	1.26E-16	9.00E-13	2.25E-13	7.48E-15	6.00E-13	1.50E-13
7/1/2002	1.97E-16	9.00E-14	2.25E-14	4.10E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	7.40E-15	6.00E-13	1.50E-13
9/30/2002	2.30E-16	9.00E-14	2.25E-14	2.42E-16	2.00E-14	5.00E-15	1.56E-16	9.00E-13	2.25E-13	4.21E-15	6.00E-13	1.50E-13
12/30/2002	1.00E-16	9.00E-14	2.25E-14	1.92E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	9.42E-15	6.00E-13	1.50E-13
3/31/2003	2.50E-16	9.00E-14	2.25E-14	1.69E-16	2.00E-14	5.00E-15	1.29E-16	9.00E-13	2.25E-13	4.55E-15	6.00E-13	1.50E-13
6/30/2003	1.00E-16	9.00E-14	2.25E-14	2.87E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	4.20E-15	6.00E-13	1.50E-13
9/29/2003	1.00E-16	9.00E-14	2.25E-14	8.53E-16	2.00E-14	5.00E-15	3.32E-16	9.00E-13	2.25E-13	8.69E-15	6.00E-13	1.50E-13
12/29/2003	1.02E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.49E-15	9.00E-13	2.25E-13	9.45E-15	6.00E-13	1.50E-13
3/29/2004	1.00E-16	9.00E-14	2.25E-14	1.26E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	2.00E-15	6.00E-13	1.50E-13
6/27/2004	1.00E-16	9.00E-14	2.25E-14	2.53E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	3.23E-15	6.00E-13	1.50E-13
9/27/2004	1.00E-16	9.00E-14	2.25E-14	1.15E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	9.68E-15	6.00E-13	1.50E-13
12/27/2004	1.00E-16	9.00E-14	2.25E-14	2.30E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.37E-14	6.00E-13	1.50E-13
3/28/2005	1.00E-16	9.00E-14	2.25E-14	2.66E-16	2.00E-14	5.00E-15	3.15E-16	9.00E-13	2.25E-13	9.22E-15	6.00E-13	1.50E-13
6/29/2005	1.47E-16	9.00E-14	2.25E-14	1.45E-15	2.00E-14	5.00E-15	1.42E-16	9.00E-13	2.25E-13	9.34E-15	6.00E-13	1.50E-13
9/26/2005	2.01E-16	9.00E-14	2.25E-14	2.06E-16	2.00E-14	5.00E-15	4.80E-16	9.00E-13	2.25E-13	2.12E-14	6.00E-13	1.50E-13
1/3/2006	4.54E-16	9.00E-14	2.25E-14	1.24E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	3.60E-14	6.00E-13	1.50E-13
4/3/2006	1.99E-16	9.00E-14	2.25E-14	1.32E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	8.36E-15	6.00E-13	1.50E-13
7/3/2006	2.76E-16	9.00E-14	2.25E-14	2.63E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.03E-14	6.00E-13	1.50E-13
10/2/2006	4.97E-16	9.00E-14	2.25E-14	2.37E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.60E-14	6.00E-13	1.50E-13
1/1/2007	6.46E-16	9.00E-14	2.25E-14	2.81E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	2.10E-14	6.00E-13	1.50E-13
4/2/2007	7.08E-16	9.00E-14	2.25E-14	3.20E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.54E-14	6.00E-13	1.50E-13
7/2/2007	9.41E-16	9.00E-14	2.25E-14	1.46E-16	2.00E-14	5.00E-15	1.99E-16	9.00E-13	2.25E-13	2.56E-14	6.00E-13	1.50E-13
9/30/2007	3.30E-16	9.00E-14	2.25E-14	5.50E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	7.57E-15	6.00E-13	1.50E-13
12/31/2007	1.42 E-15	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	9.93E-15	6.00E-13	1.50E-13
3/31/2008	1.25E-16	9.00E-14	2.25E-14	7.72E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	4.09E-15	6.00E-13	1.50E-13
6/30/2008	1.28E-15	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	3.61E-16	9.00E-13	2.25E-13	1.18E-14	6.00E-13	1.50E-13

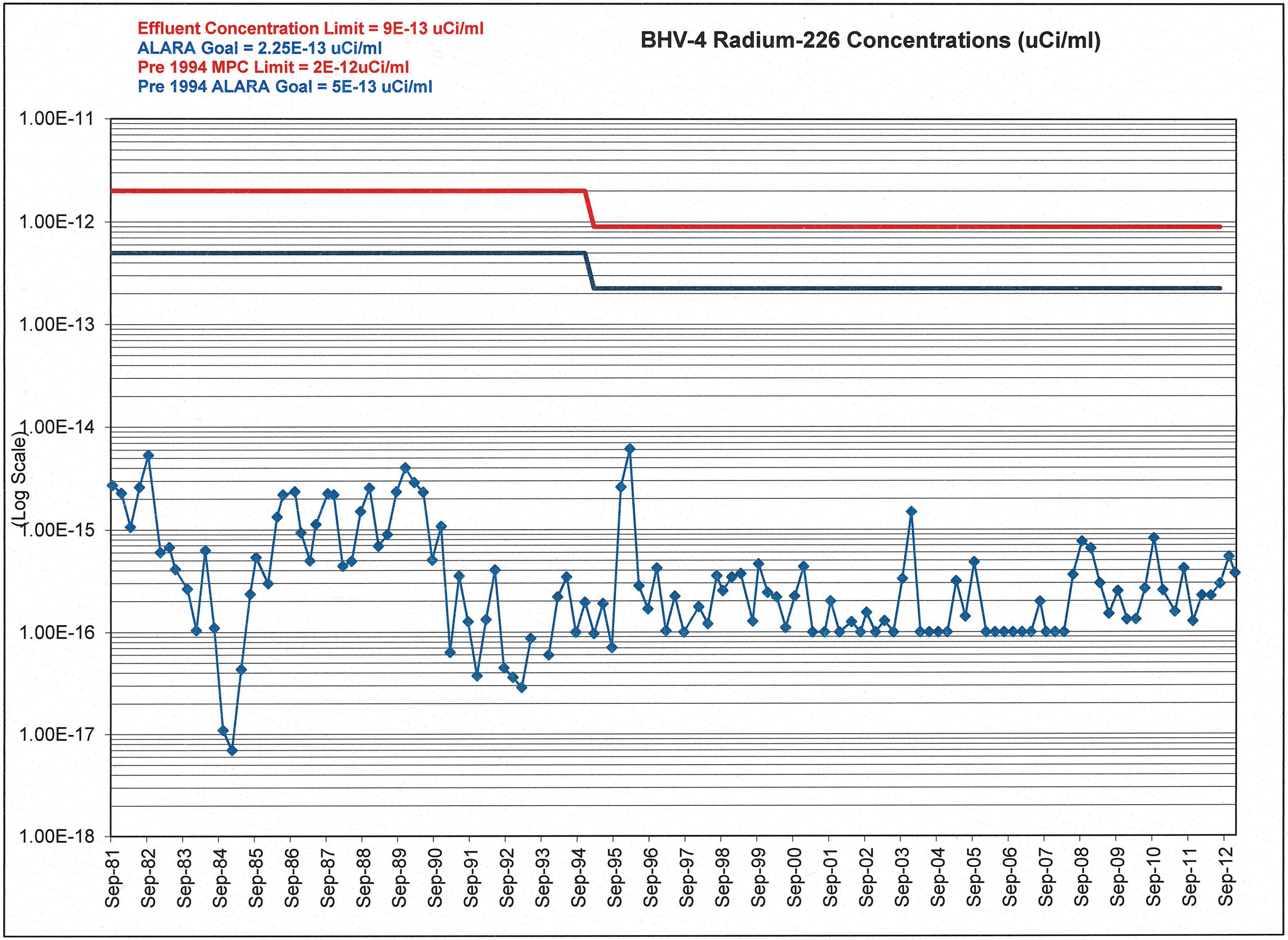
Date	**Effluent Concentration Limit =**	**9E-14 uCi/ml**	**BHV-4U**	**Effluent Concentration Limit =**	**2E-14 uCi/ml**	**BHV-4T**	**Effluent Concentration Limit =**	**9E-13 uCi/ml**	**BHV-4R**	**Effluent Concentration Limit =**	**6E-13 uCi/ml**	**BHV-4PB**
	ALARA Goal =	**2.25E-14 uCi/ml**		**ALARA Goal =**	**5E-13 uCi/ml**		**ALARA Goal =**	**2.25E-13 uCi/ml**		**ALARA Goal =**	**1.5E-13 uCi/ml**	
	Pre 1994 MPC Limit =	**5E-12 uCi/ml**		**Pre 1994 MPC Limit =**	**8E-14 uCi/ml**		**Pre 1994 MPC Limit =**	**2E-12 uCi/ml**		**Pre 1994 MPC Limit =**	**4E-12 uCi/ml**	
	Pre 1994 ALARA GOAL =	**1.25E-12 uCi/ml**					**Pre 1994 ALARA GOAL =**	**5E-13 uCi/ml**		**Pre 1994 ALARA GOAL =**	**1E-12 uCi/ml**	
	Conc	**EFC**	**EFC A**	**Conc**	**EFC**	**EFC A**	**Conc**	**EFC**	**EFC A**	**Conc**	**EFC**	**EFC A**
9/30/2008	2.72E-15	9.00E-14	2.25E-14	1.27E-15	2.00E-14	5.00E-15	7.66E-16	9.00E-13	2.25E-13	1.10E-14	6.00E-13	1.50E-13
12/31/2008	2.88E-15	9.00E-14	2.25E-14	1.10E-15	2.00E-14	5.00E-15	6.56E-16	9.00E-13	2.25E-13	1.38E-14	6.00E-13	1.50E-13
3/15/2009	1.56E-15	9.00E-14	2.25E-14	4.57E-16	2.00E-14	5.00E-15	2.99E-16	9.00E-13	2.25E-13	4.97E-15	6.00E-13	1.50E-13
6/15/2009	5.67E-17	9.00E-14	2.25E-14	2.17E-16	2.00E-14	5.00E-15	1.51E-16	9.00E-13	2.25E-13	4.47E-15	6.00E-13	1.50E-13
9/15/2009	4.05E-15	9.00E-14	2.25E-14	1.45E-15	2.00E-14	5.00E-15	2.52E-16	9.00E-13	2.25E-13	1.24E-14	6.00E-13	1.50E-13
12/15/2009	6.50E-15	9.00E-14	2.25E-14	3.48E-16	2.00E-14	5.00E-15	1.33E-16	9.00E-13	2.25E-13	7.60E-15	6.00E-13	1.50E-13
3/31/2010	6.01E-15	9.00E-14	2.25E-14	1.26E-16	2.00E-14	5.00E-15	1.34E-16	9.00E-13	2.25E-13	1.19E-14	6.00E-13	1.50E-13
6/30/2010	2.33E-15	9.00E-14	2.25E-14	7.29E-16	2.00E-14	5.00E-15	2.66E-16	9.00E-13	2.25E-13	3.27E-15	6.00E-13	1.50E-13
9/30/2010	4.77E-15	9.00E-14	2.25E-14	1.80E-15	2.00E-14	5.00E-15	8.23E-16	9.00E-13	2.25E-13	5.11E-15	6.00E-13	1.50E-13
12/31/2010	3.93E-15	9.00E-14	2.25E-14	3.90E-16	2.00E-14	5.00E-15	2.56E-16	9.00E-13	2.25E-13	1.13E-14	6.00E-13	1.50E-13
4/4/2011	1.29E-15	9.00E-14	2.25E-14	1.40E-16	2.00E-14	5.00E-15	1.58E-16	9.00E-13	2.25E-13	1.11E-14	6.00E-13	1.50E-13
7/4/2011	3.30E-15	9.00E-14	2.25E-14	5.44E-16	2.00E-14	5.00E-15	4.18E-16	9.00E-13	2.25E-13	8.26E-15	6.00E-13	1.50E-13
10/3/2011	1.32E-15	9.00E-14	2.25E-14	7.89E-16	2.00E-14	5.00E-15	1.28E-16	9.00E-13	2.25E-13	1.18E-14	6.00E-13	1.50E-13
1/3/2012	1.04E-15	9.00E-14	2.25E-14	3.25E-16	2.00E-14	5.00E-15	2.28E-16	9.00E-13	2.25E-13	1.14E-14	6.00E-13	1.50E-13
4/3/2012	2.51E-15	9.00E-14	2.25E-14	5.02E-16	2.00E-14	5.00E-15	2.27E-16	9.00E-13	2.25E-13	1.03E-14	6.00E-13	1.50E-13
7/2/2012	2.62E-15	9.00E-14	2.25E-14	1.23E-15	2.00E-14	5.00E-15	2.97E-16	9.00E-13	2.25E-13	9.27E-15	6.00E-13	1.50E-13
10/1/2012	4.05E-15	9.00E-14	2.25E-14	8.33E-16	2.00E-14	5.00E-15	5.43E-16	9.00E-13	2.25E-13	1.21E-14	6.00E-13	1.50E-13
12/31/2012	2.32E-15	9.00E-14	2.25E-14	5.89E-16	2.00E-14	5.00E-15	3.75E-16	9.00E-13	2.25E-13	1.56E-14	6.00E-13	1.50E-13

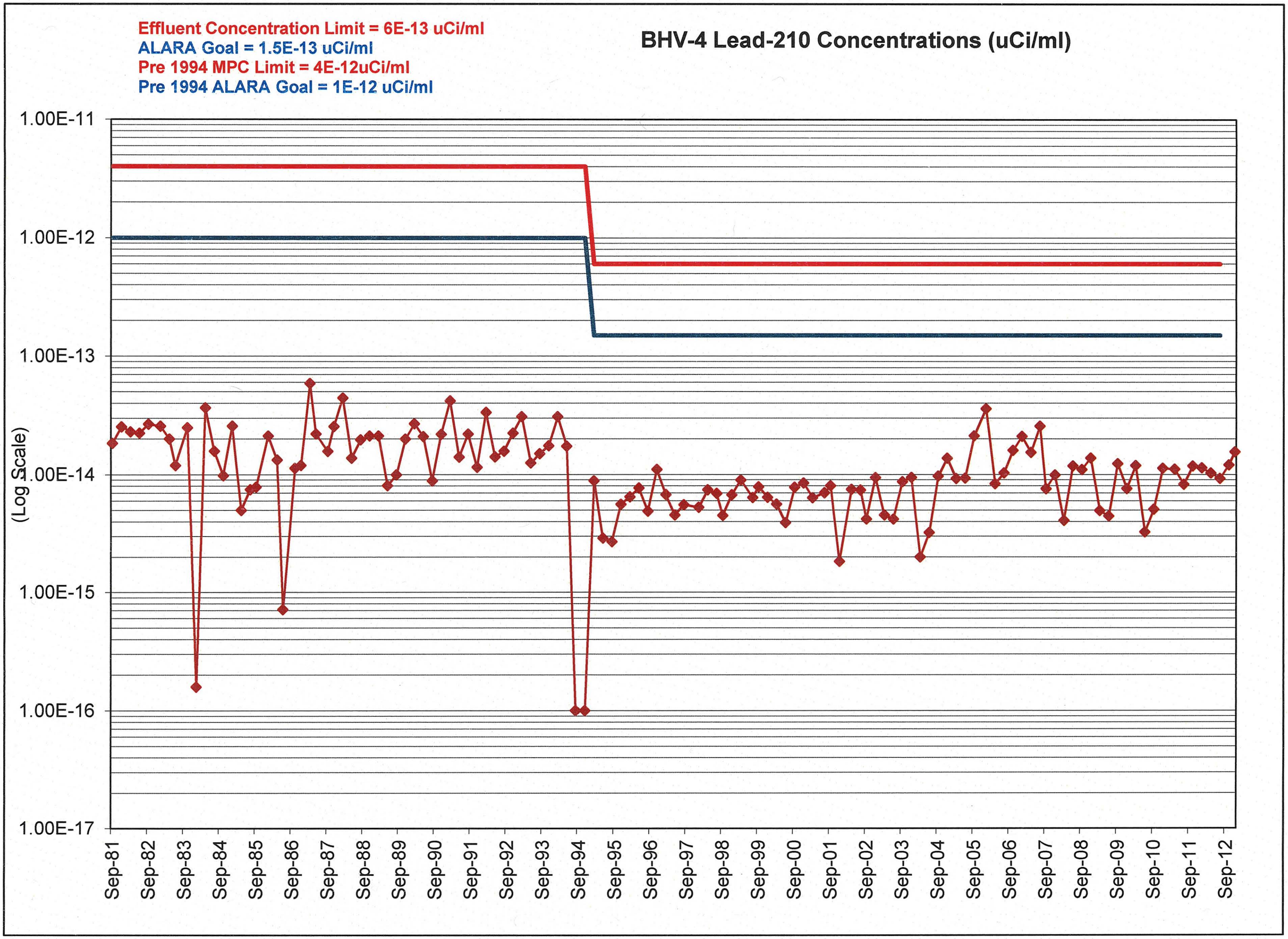
BHV-4 Radionuclide Concentrations (uCi/ml)




Effluent Concentration Limit = 9E-14 uCi/ml
ALARA Goal = 2.25E-14 uCi/ml
Pre 1994 MPC Limit = 5E-12uCi/ml
Pre 1994 ALARA Goal = 1.25E-12 uCi/ml
BHV-4 Uranium-Natural Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12


Effluent Concentration Limit = 2E-14 uCi/ml
ALARA Goal = 5E-13 uCi/ml
Pre 1994 MPC Limit = 8E-14uCi/ml
BHV-4 Thorium-230 Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12


Effluent Concentration Limit = 9E-13 uCi/ml
ALARA Goal = 2.25E-13 uCi/ml
Pre 1994 MPC Limit = 2E-12uCi/ml
Pre 1994 ALARA Goal = 5E-13 uCi/ml
BHV-4 Radium-226 Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
1.00E-18
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12


Effluent Concentration Limit = 6E-13 uCi/ml
ALARA Goal = 1.5E-13 uCi/ml
Pre 1994 MPC Limit = 4E-12uCi/ml
Pre 1994 ALARA Goal = 1E-12 uCi/ml
BHV-4 Lead-210 Concentrations (uCi/ml)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
(Log Scale)
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12

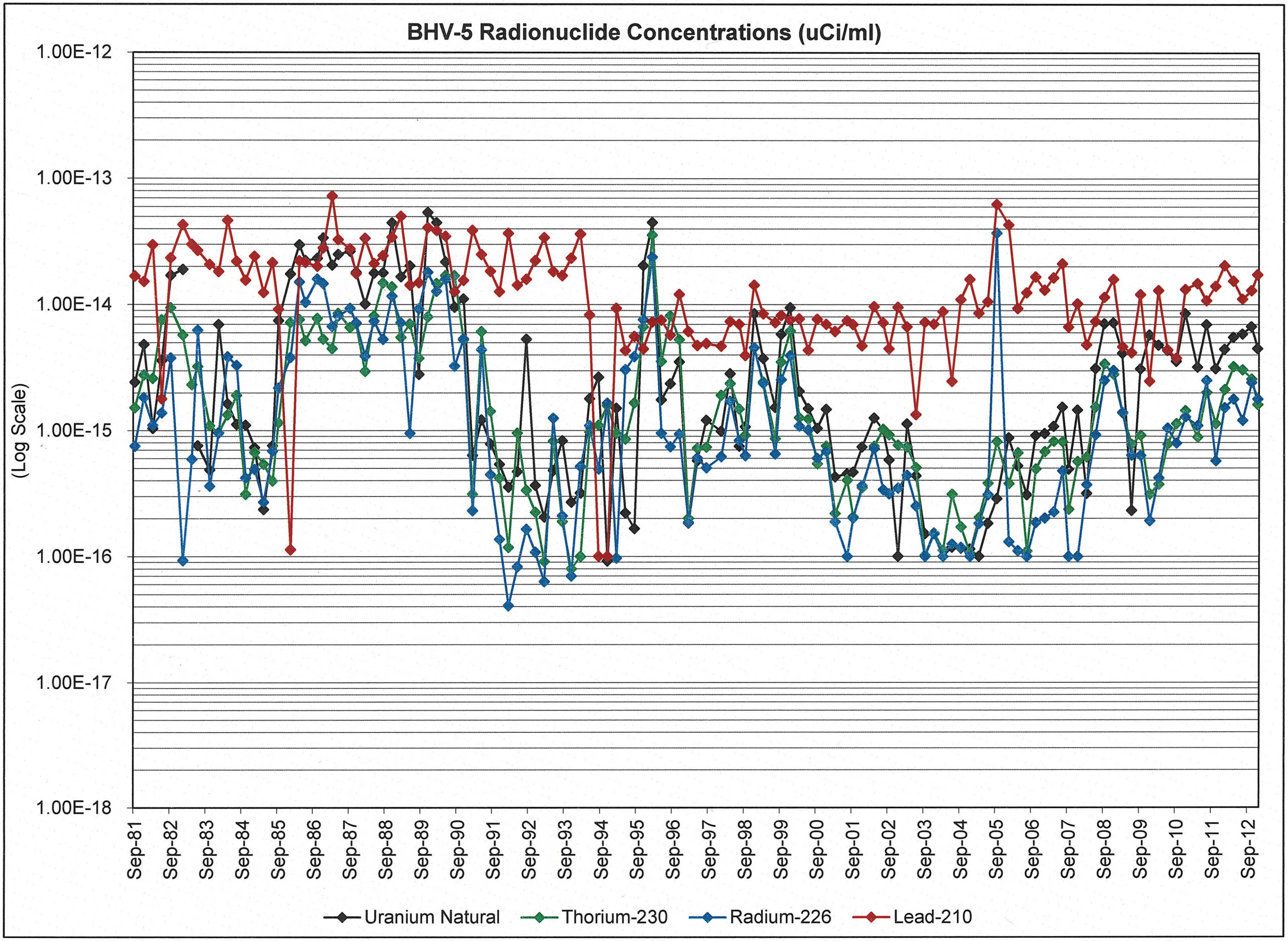
TAB 5

BHV-5 AIR SAMPLING GRAPHS AND DATA TABLE

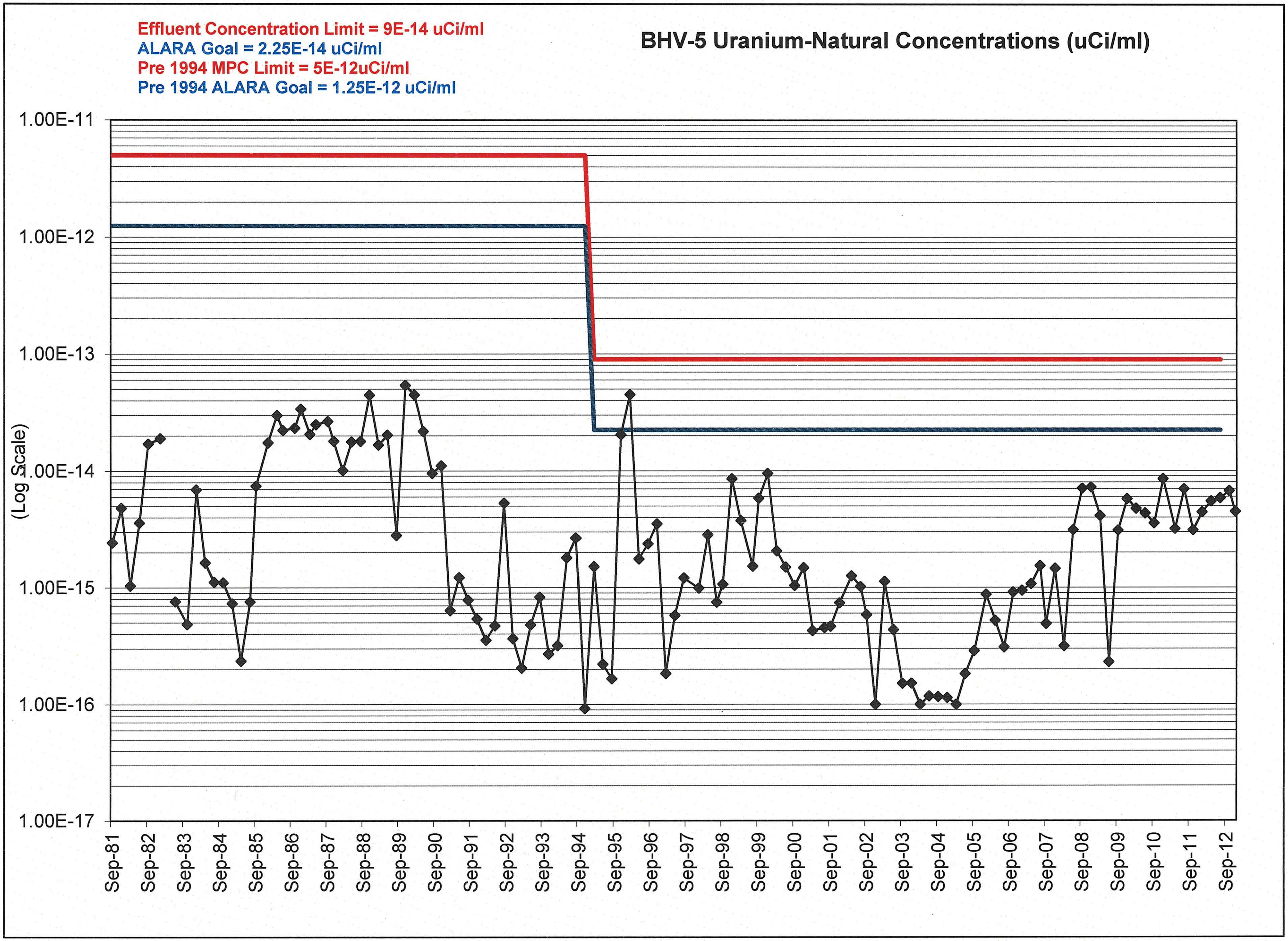
Date	Effluent Concentration Limit =	9E-14 uCi/ml	BHV-5U	Effluent Concentration Limit =	2E-14 uCi/ml	BHV-5T	Effluent Concentration Limit =	9E-13 uCi/ml	BHV-5R	Effluent Concentration Limit =	6E-13 uCi/ml	BHV-5PB
	ALARA Goal =	2.25E-14 uCi/ml		ALARA Goal =	5E-13 uCi/ml		ALARA Goal =	2.25E-13 uCi/ml		ALARA Goal =	1.5E-13 uCi/ml	
	Pre 1994 MPC Limit =	5E-12 uCi/ml		Pre 1994 MPC Limit =	8E-14 uCi/ml		Pre 1994 MPC Limit =	2E-12 uCi/ml		Pre 1994 MPC Limit =	4E-12 uCi/ml	
	Pre 1994 ALARA GOAL =	1.25E-12 uCi/ml					Pre 1994 ALARA GOAL =	5E-13 uCi/ml		Pre 1994 ALARA GOAL =	1E-12 uCi/ml	
	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A
9/28/1981	2.44E-15	5.00E-12	1.25E-12	1.53E-15	8.00E-14	2.00E-14	7.54E-16	2.00E-12	5.00E-13	1.69E-14	4.00E-12	1.00E-12
12/14/1981	4.84E-15	5.00E-12	1.25E-12	2.78E-15	8.00E-14	2.00E-14	1.84E-15	2.00E-12	5.00E-13	1.53E-14	4.00E-12	1.00E-12
3/29/1982	1.04E-15	5.00E-12	1.25E-12	2.62E-15	8.00E-14	2.00E-14	1.11E-15	2.00E-12	5.00E-13	2.98E-14	4.00E-12	1.00E-12
6/30/1982	3.61E-15	5.00E-12	1.25E-12	7.61E-15	8.00E-14	2.00E-14	1.39E-15	2.00E-12	5.00E-13	1.80E-15	4.00E-12	1.00E-12
9/27/1982	1.71E-14	5.00E-12	1.25E-12	9.46E-15	8.00E-14	2.00E-14	3.80E-15	2.00E-12	5.00E-13	2.35E-14	4.00E-12	1.00E-12
1/3/1983	1.90E-14	5.00E-12	1.25E-12	5.77E-15	8.00E-14	2.00E-14	9.34E-17	2.00E-12	5.00E-13	4.32E-14	4.00E-12	1.00E-12
4/4/1983		5.00E-12	1.25E-12	2.33E-15	8.00E-14	2.00E-14	5.93E-16	2.00E-12	5.00E-13	3.01E-14	4.00E-12	1.00E-12
6/30/1983	7.62E-16	5.00E-12	1.25E-12	3.25E-15	8.00E-14	2.00E-14	6.28E-15	2.00E-12	5.00E-13	2.69E-14	4.00E-12	1.00E-12
10/3/1983	4.86E-16	5.00E-12	1.25E-12	1.10E-15	8.00E-14	2.00E-14	3.63E-16	2.00E-12	5.00E-13	2.08E-14	4.00E-12	1.00E-12
1/3/1984	6.96E-15	5.00E-12	1.25E-12	9.69E-16	8.00E-14	2.00E-14	9.60E-16	2.00E-12	5.00E-13	1.83E-14	4.00E-12	1.00E-12
4/2/1984	1.64E-15	5.00E-12	1.25E-12	1.34E-15	8.00E-14	2.00E-14	3.88E-15	2.00E-12	5.00E-13	4.67E-14	4.00E-12	1.00E-12
7/2/1984	1.12E-15	5.00E-12	1.25E-12	1.92E-15	8.00E-14	2.00E-14	3.31E-15	2.00E-12	5.00E-13	2.21E-14	4.00E-12	1.00E-12
10/1/1984	1.11E-15	5.00E-12	1.25E-12	3.13E-16	8.00E-14	2.00E-14	4.21E-16	2.00E-12	5.00E-13	1.57E-14	4.00E-12	1.00E-12
1/2/1985	7.32E-16	5.00E-12	1.25E-12	6.71E-16	8.00E-14	2.00E-14	4.94E-16	2.00E-12	5.00E-13	2.42E-14	4.00E-12	1.00E-12
4/1/1985	2.36E-16	5.00E-12	1.25E-12	5.43E-16	8.00E-14	2.00E-14	2.71E-16	2.00E-12	5.00E-13	1.25E-14	4.00E-12	1.00E-12
7/1/1985	7.58E-16	5.00E-12	1.25E-12	4.00E-16	8.00E-14	2.00E-14	6.90E-16	2.00E-12	5.00E-13	2.15E-14	4.00E-12	1.00E-12
9/30/1985	7.47E-15	5.00E-12	1.25E-12	1.16E-15	8.00E-14	2.00E-14	2.19E-15	2.00E-12	5.00E-13	9.20E-15	4.00E-12	1.00E-12
1/2/1986	1.75E-14	5.00E-12	1.25E-12	7.24E-15	8.00E-14	2.00E-14	3.83E-15	2.00E-12	5.00E-13	1.13E-16	4.00E-12	1.00E-12
4/1/1986	2.99E-14	5.00E-12	1.25E-12	7.64E-15	8.00E-14	2.00E-14	1.51E-14	2.00E-12	5.00E-13	2.22E-14	4.00E-12	1.00E-12
6/30/1986	2.23E-14	5.00E-12	1.25E-12	5.19E-15	8.00E-14	2.00E-14	1.05E-14	2.00E-12	5.00E-13	2.16E-14	4.00E-12	1.00E-12
10/27/1986	2.33E-14	5.00E-12	1.25E-12	7.78E-15	8.00E-14	2.00E-14	1.60E-14	2.00E-12	5.00E-13	2.02E-14	4.00E-12	1.00E-12
12/15/1986	3.40E-14	5.00E-12	1.25E-12	5.35E-15	8.00E-14	2.00E-14	1.47E-14	2.00E-12	5.00E-13	2.82E-14	4.00E-12	1.00E-12
3/16/1987	2.06E-14	5.00E-12	1.25E-12	4.50E-15	8.00E-14	2.00E-14	6.74E-15	2.00E-12	5.00E-13	7.29E-14	4.00E-12	1.00E-12
5/11/1987	2.50E-14	5.00E-12	1.25E-12	8.54E-15	8.00E-14	2.00E-14	8.15E-15	2.00E-12	5.00E-13	3.28E-14	4.00E-12	1.00E-12
9/9/1987	2.65E-14	5.00E-12	1.25E-12	6.62E-15	8.00E-14	2.00E-14	9.34E-15	2.00E-12	5.00E-13	2.77E-14	4.00E-12	1.00E-12
11/2/1987	1.80E-14	5.00E-12	1.25E-12	7.09E-15	8.00E-14	2.00E-14	7.20E-15	2.00E-12	5.00E-13	1.77E-14	4.00E-12	1.00E-12
2/16/1988	1.01E-14	5.00E-12	1.25E-12	2.98E-15	8.00E-14	2.00E-14	3.93E-15	2.00E-12	5.00E-13	3.36E-14	4.00E-12	1.00E-12
5/18/1988	1.78E-14	5.00E-12	1.25E-12	8.14E-15	8.00E-14	2.00E-14	7.43E-15	2.00E-12	5.00E-13	2.12E-14	4.00E-12	1.00E-12
8/15/1988	1.79E-14	5.00E-12	1.25E-12	1.49E-14	8.00E-14	2.00E-14	5.34E-15	2.00E-12	5.00E-13	2.45E-14	4.00E-12	1.00E-12
11/14/1988	4.46E-14	5.00E-12	1.25E-12	1.39E-14	8.00E-14	2.00E-14	1.17E-14	2.00E-12	5.00E-13	3.43E-14	4.00E-12	1.00E-12
2/13/1989	1.67E-14	5.00E-12	1.25E-12	5.54E-15	8.00E-14	2.00E-14	7.20E-15	2.00E-12	5.00E-13	5.02E-14	4.00E-12	1.00E-12
5/15/1989	2.03E-14	5.00E-12	1.25E-12	7.05E-15	8.00E-14	2.00E-14	9.56E-16	2.00E-12	5.00E-13	1.43E-14	4.00E-12	1.00E-12
8/14/1989	2.81E-15	5.00E-12	1.25E-12	3.78E-15	8.00E-14	2.00E-14	9.26E-15	2.00E-12	5.00E-13	1.50E-14	4.00E-12	1.00E-12
11/13/1989	5.38E-14	5.00E-12	1.25E-12	8.01E-15	8.00E-14	2.00E-14	1.81E-14	2.00E-12	5.00E-13	4.09E-14	4.00E-12	1.00E-12
2/12/1990	4.48E-14	5.00E-12	1.25E-12	1.48E-14	8.00E-14	2.00E-14	1.28E-14	2.00E-12	5.00E-13	3.88E-14	4.00E-12	1.00E-12
5/14/1990	2.18E-14	5.00E-12	1.25E-12	1.70E-14	8.00E-14	2.00E-14	1.59E-14	2.00E-12	5.00E-13	3.49E-14	4.00E-12	1.00E-12
8/13/1990	9.53E-15	5.00E-12	1.25E-12	1.70E-14	8.00E-14	2.00E-14	3.27E-15	2.00E-12	5.00E-13	1.27E-14	4.00E-12	1.00E-12
11/12/1990	1.11E-14	5.00E-12	1.25E-12	5.27E-15	8.00E-14	2.00E-14	5.38E-15	2.00E-12	5.00E-13	1.56E-14	4.00E-12	1.00E-12
2/11/1991	6.35E-16	5.00E-12	1.25E-12	3.13E-16	8.00E-14	2.00E-14	2.31E-16	2.00E-12	5.00E-13	3.89E-14	4.00E-12	1.00E-12
5/13/1991	1.22E-15	5.00E-12	1.25E-12	6.14E-15	8.00E-14	2.00E-14	4.41E-15	2.00E-12	5.00E-13	2.50E-14	4.00E-12	1.00E-12
8/12/1991	7.84E-16	5.00E-12	1.25E-12	1.43E-15	8.00E-14	2.00E-14	4.47E-16	2.00E-12	5.00E-13	1.84E-14	4.00E-12	1.00E-12
11/11/1991	5.37E-16	5.00E-12	1.25E-12	4.20E-16	8.00E-14	2.00E-14	1.37E-16	2.00E-12	5.00E-13	1.27E-14	4.00E-12	1.00E-12
2/10/1992	3.54E-16	5.00E-12	1.25E-12	1.18E-16	8.00E-14	2.00E-14	4.08E-17	2.00E-12	5.00E-13	3.69E-14	4.00E-12	1.00E-12
5/11/1992	4.71E-16	5.00E-12	1.25E-12	9.58E-16	8.00E-14	2.00E-14	8.31E-17	2.00E-12	5.00E-13	1.43E-14	4.00E-12	1.00E-12
8/10/1992	5.32E-15	5.00E-12	1.25E-12	3.36E-16	8.00E-14	2.00E-14	1.65E-16	2.00E-12	5.00E-13	1.59E-14	4.00E-12	1.00E-12
11/9/1992	3.66E-16	5.00E-12	1.25E-12	2.25E-16	8.00E-14	2.00E-14	1.08E-16	2.00E-12	5.00E-13	2.24E-14	4.00E-12	1.00E-12
2/9/1993	2.05E-16	5.00E-12	1.25E-12	9.14E-17	8.00E-14	2.00E-14	6.31E-17	2.00E-12	5.00E-13	3.41E-14	4.00E-12	1.00E-12
5/10/1993	4.80E-16	5.00E-12	1.25E-12	8.25E-16	8.00E-14	2.00E-14	1.26E-15	2.00E-12	5.00E-13	1.83E-14	4.00E-12	1.00E-12
8/10/1993	8.30E-16	5.00E-12	1.25E-12	1.90E-16	8.00E-14	2.00E-14	2.10E-16	2.00E-12	5.00E-13	1.70E-14	4.00E-12	1.00E-12
11/8/1993	2.70E-16	5.00E-12	1.25E-12	8.00E-17	8.00E-14	2.00E-14	7.00E-17	2.00E-12	5.00E-13	2.34E-14	4.00E-12	1.00E-12
2/7/1994	3.18E-16	5.00E-12	1.25E-12	1.00E-16	8.00E-14	2.00E-14	5.18E-16	2.00E-12	5.00E-13	3.64E-14	4.00E-12	1.00E-12
5/9/1994	1.80E-15	5.00E-12	1.25E-12	9.78E-16	8.00E-14	2.00E-14	1.10E-15	2.00E-12	5.00E-13	8.30E-15	4.00E-12	1.00E-12
8/9/1994	2.67E-15	5.00E-12	1.25E-12	1.11E-15	8.00E-14	2.00E-14	4.95E-16	2.00E-12	5.00E-13	1.00E-16	4.00E-12	1.00E-12
11/7/1994	9.21E-17	5.00E-12	1.25E-12	1.59E-15	8.00E-14	2.00E-14	1.66E-15	2.00E-12	5.00E-13	1.00E-16	4.00E-12	1.00E-12

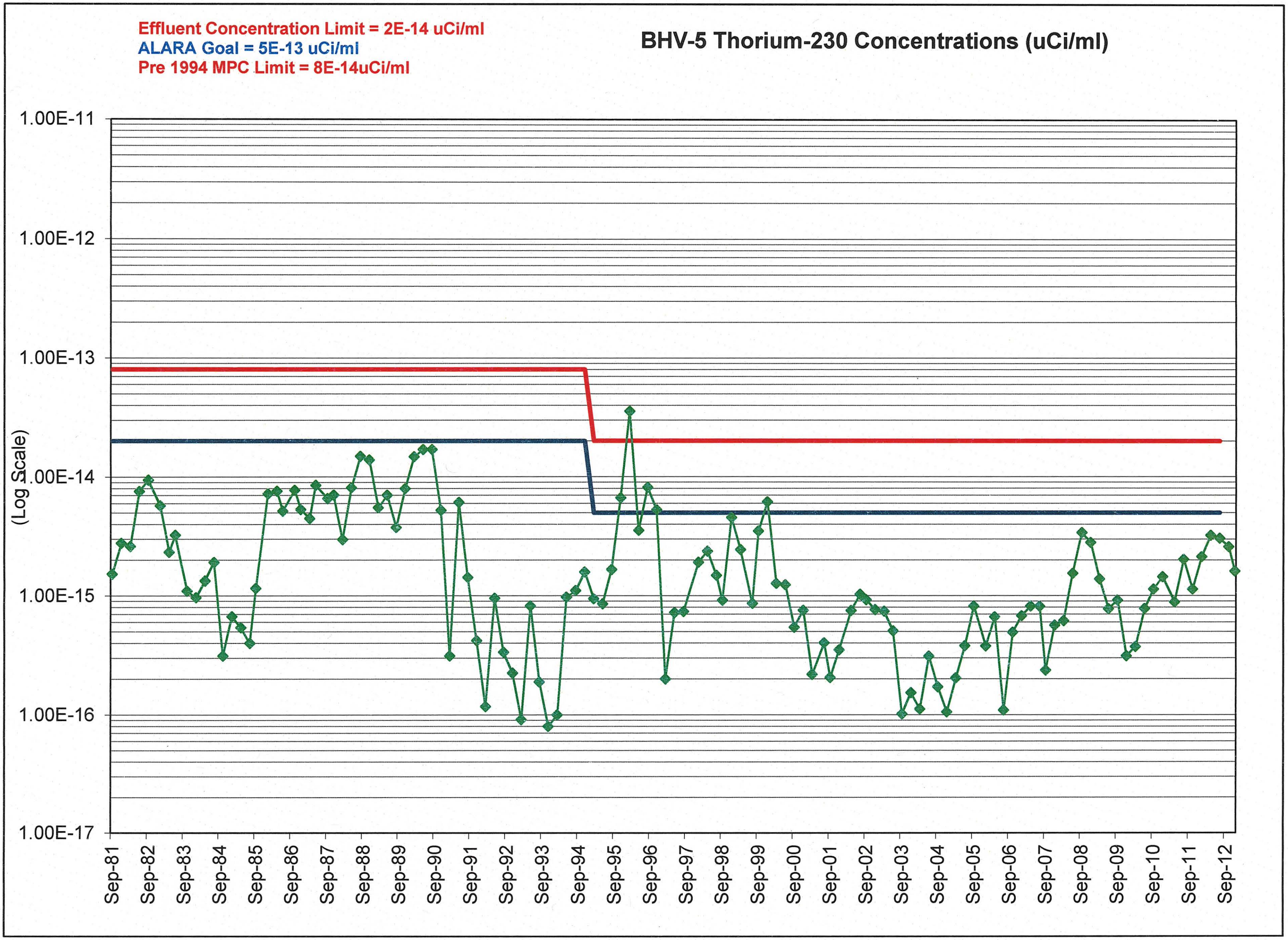
Date	Effluent Concentration Limit =	9E-14 uCi/ml	BHV-5U	Effluent Concentration Limit =	2E-14 uCi/ml	BHV-5T	Effluent Concentration Limit =	9E-13 uCi/ml	BHV-5R	Effluent Concentration Limit =	6E-13 uCi/ml	BHV-5PB
	ALARA Goal =	2.25E-14 uCi/ml		ALARA Goal =	5E-13 uCi/ml		ALARA Goal =	2.25E-13 uCi/ml		ALARA Goal =	1.5E-13 uCi/ml	
	Pre 1994 MPC Limit =	5E-12 uCi/ml		Pre 1994 MPC Limit =	8E-14 uCi/ml		Pre 1994 MPC Limit =	2E-12 uCi/ml		Pre 1994 MPC Limit =	4E-12 uCi/ml	
	Pre 1994 ALARA GOAL =	1.25E-12 uCi/ml					Pre 1994 ALARA GOAL =	5E-13 uCi/ml		Pre 1994 ALARA GOAL =	1E-12 uCi/ml	
	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A
2/7/1995	1.51E-15	9.00E-14	2.25E-14	9.50E-16	2.00E-14	5.00E-15	9.70E-17	9.00E-13	2.25E-13	9.35E-15	6.00E-13	1.50E-13
5/9/1995	2.21E-16	9.00E-14	2.25E-14	8.56E-16	2.00E-14	5.00E-15	3.06E-15	9.00E-13	2.25E-13	4.34E-15	6.00E-13	1.50E-13
8/9/1995	1.66E-16	9.00E-14	2.25E-14	1.67E-15	2.00E-14	5.00E-15	3.90E-15	9.00E-13	2.25E-13	5.60E-15	6.00E-13	1.50E-13
11/11/1995	2.04E-14	9.00E-14	2.25E-14	6.70E-15	2.00E-14	5.00E-15	7.65E-15	9.00E-13	2.25E-13	4.47E-15	6.00E-13	1.50E-13
2/5/1996	4.50E-14	9.00E-14	2.25E-14	3.58E-14	2.00E-14	5.00E-15	2.39E-14	9.00E-13	2.25E-13	7.30E-15	6.00E-13	1.50E-13
5/6/1996	1.76E-15	9.00E-14	2.25E-14	3.57E-15	2.00E-14	5.00E-15	9.55E-16	9.00E-13	2.25E-13	7.54E-15	6.00E-13	1.50E-13
8/5/1996	2.37E-15	9.00E-14	2.25E-14	8.18E-15	2.00E-14	5.00E-15	7.46E-16	9.00E-13	2.25E-13	5.75E-15	6.00E-13	1.50E-13
11/6/1996	3.53E-15	9.00E-14	2.25E-14	5.31E-15	2.00E-14	5.00E-15	9.39E-16	9.00E-13	2.25E-13	1.21E-14	6.00E-13	1.50E-13
2/6/1997	1.84E-16	9.00E-14	2.25E-14	2.01E-16	2.00E-14	5.00E-15	1.87E-16	9.00E-13	2.25E-13	6.14E-15	6.00E-13	1.50E-13
5/5/1997	5.75E-16	9.00E-14	2.25E-14	7.24E-16	2.00E-14	5.00E-15	6.07E-16	9.00E-13	2.25E-13	4.75E-15	6.00E-13	1.50E-13
8/11/1997	1.21E-15	9.00E-14	2.25E-14	7.39E-16	2.00E-14	5.00E-15	5.05E-16	9.00E-13	2.25E-13	4.92E-15	6.00E-13	1.50E-13
1/5/1998	9.89E-16	9.00E-14	2.25E-14	1.92E-15	2.00E-14	5.00E-15	6.21E-16	9.00E-13	2.25E-13	4.68E-15	6.00E-13	1.50E-13
4/28/1998	2.84E-15	9.00E-14	2.25E-14	2.38E-15	2.00E-14	5.00E-15	1.72E-15	9.00E-13	2.25E-13	7.35E-15	6.00E-13	1.50E-13
7/31/1998	7.49E-16	9.00E-14	2.25E-14	1.49E-15	2.00E-14	5.00E-15	8.34E-16	9.00E-13	2.25E-13	7.01E-15	6.00E-13	1.50E-13
9/28/1998	1.07E-15	9.00E-14	2.25E-14	9.20E-16	2.00E-14	5.00E-15	6.32E-16	9.00E-13	2.25E-13	3.95E-15	6.00E-13	1.50E-13
12/28/1998	8.51E-15	9.00E-14	2.25E-14	4.58E-15	2.00E-14	5.00E-15	4.58E-15	9.00E-13	2.25E-13	1.43E-14	6.00E-13	1.50E-13
3/29/1999	3.75E-15	9.00E-14	2.25E-14	2.45E-15	2.00E-14	5.00E-15	2.39E-15	9.00E-13	2.25E-13	8.46E-15	6.00E-13	1.50E-13
7/3/1999	1.53E-15	9.00E-14	2.25E-14	8.65E-16	2.00E-14	5.00E-15	6.52E-16	9.00E-13	2.25E-13	7.20E-15	6.00E-13	1.50E-13
9/27/1999	5.83E-15	9.00E-14	2.25E-14	3.52E-15	2.00E-14	5.00E-15	2.55E-15	9.00E-13	2.25E-13	8.22E-15	6.00E-13	1.50E-13
12/28/1999	9.48E-15	9.00E-14	2.25E-14	6.20E-15	2.00E-14	5.00E-15	3.96E-15	9.00E-13	2.25E-13	7.56E-15	6.00E-13	1.50E-13
3/27/2000	2.06E-15	9.00E-14	2.25E-14	1.27E-15	2.00E-14	5.00E-15	1.09E-15	9.00E-13	2.25E-13	7.72E-15	6.00E-13	1.50E-13
6/26/2000	1.50E-15	9.00E-14	2.25E-14	1.24E-15	2.00E-14	5.00E-15	1.01E-15	9.00E-13	2.25E-13	4.36E-15	6.00E-13	1.50E-13
9/26/2000	1.04E-15	9.00E-14	2.25E-14	5.45E-16	2.00E-14	5.00E-15	6.01E-16	9.00E-13	2.25E-13	7.67E-15	6.00E-13	1.50E-13
12/26/2000	1.48E-15	9.00E-14	2.25E-14	7.56E-16	2.00E-14	5.00E-15	6.84E-16	9.00E-13	2.25E-13	7.00E-15	6.00E-13	1.50E-13
3/26/2001	4.27E-16	9.00E-14	2.25E-14	2.19E-16	2.00E-14	5.00E-15	1.89E-16	9.00E-13	2.25E-13	6.13E-15	6.00E-13	1.50E-13
7/2/2001	4.52E-16	9.00E-14	2.25E-14	4.02E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	7.48E-15	6.00E-13	1.50E-13
9/24/2001	4.65E-16	9.00E-14	2.25E-14	2.06E-16	2.00E-14	5.00E-15	2.02E-16	9.00E-13	2.25E-13	6.98E-15	6.00E-13	1.50E-13
12/31/2001	7.40E-16	9.00E-14	2.25E-14	3.51E-16	2.00E-14	5.00E-15	3.64E-16	9.00E-13	2.25E-13	4.72E-15	6.00E-13	1.50E-13
4/1/2002	1.26E-15	9.00E-14	2.25E-14	7.53E-16	2.00E-14	5.00E-15	7.19E-16	9.00E-13	2.25E-13	9.65E-15	6.00E-13	1.50E-13
7/1/2002	1.02E-15	9.00E-14	2.25E-14	1.03E-15	2.00E-14	5.00E-15	3.39E-16	9.00E-13	2.25E-13	7.20E-15	6.00E-13	1.50E-13
9/30/2002	5.82E-16	9.00E-14	2.25E-14	9.28E-16	2.00E-14	5.00E-15	3.14E-16	9.00E-13	2.25E-13	4.48E-15	6.00E-13	1.50E-13
12/30/2002	1.00E-16	9.00E-14	2.25E-14	7.67E-16	2.00E-14	5.00E-15	3.48E-16	9.00E-13	2.25E-13	9.56E-15	6.00E-13	1.50E-13
3/31/2003	1.13E-15	9.00E-14	2.25E-14	7.41E-16	2.00E-14	5.00E-15	4.41E-16	9.00E-13	2.25E-13	6.68E-15	6.00E-13	1.50E-13
6/30/2003	4.35E-16	9.00E-14	2.25E-14	5.08E-16	2.00E-14	5.00E-15	2.51E-16	9.00E-13	2.25E-13	1.34E-15	6.00E-13	1.50E-13
9/29/2003	1.51E-16	9.00E-14	2.25E-14	1.02E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	7.28E-15	6.00E-13	1.50E-13
12/29/2003	1.52E-16	9.00E-14	2.25E-14	1.54E-16	2.00E-14	5.00E-15	1.51E-16	9.00E-13	2.25E-13	7.02E-15	6.00E-13	1.50E-13
3/29/2004	1.00E-16	9.00E-14	2.25E-14	1.12E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	8.82E-15	6.00E-13	1.50E-13
6/27/2004	1.18E-16	9.00E-14	2.25E-14	3.11E-16	2.00E-14	5.00E-15	1.25E-16	9.00E-13	2.25E-13	2.47E-15	6.00E-13	1.50E-13
9/27/2004	1.16E-16	9.00E-14	2.25E-14	1.72E-16	2.00E-14	5.00E-15	1.18E-16	9.00E-13	2.25E-13	1.10E-14	6.00E-13	1.50E-13
12/27/2004	1.14E-16	9.00E-14	2.25E-14	1.06E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.59E-14	6.00E-13	1.50E-13
3/28/2005	1.00E-16	9.00E-14	2.25E-14	2.04E-16	2.00E-14	5.00E-15	1.83E-16	9.00E-13	2.25E-13	8.57E-15	6.00E-13	1.50E-13
6/29/2005	1.83E-16	9.00E-14	2.25E-14	3.81E-16	2.00E-14	5.00E-15	3.09E-16	9.00E-13	2.25E-13	1.06E-14	6.00E-13	1.50E-13
9/26/2005	2.87E-16	9.00E-14	2.25E-14	8.21E-16	2.00E-14	5.00E-15	3.71E-14	9.00E-13	2.25E-13	6.28E-14	6.00E-13	1.50E-13
1/3/2006	8.74E-16	9.00E-14	2.25E-14	3.79E-16	2.00E-14	5.00E-15	1.31E-16	9.00E-13	2.25E-13	4.32E-14	6.00E-13	1.50E-13
4/3/2006	5.22E-16	9.00E-14	2.25E-14	6.66E-16	2.00E-14	5.00E-15	1.11E-16	9.00E-13	2.25E-13	9.34E-15	6.00E-13	1.50E-13
7/3/2006	3.08E-16	9.00E-14	2.25E-14	1.10E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.25E-14	6.00E-13	1.50E-13
10/2/2006	9.14E-16	9.00E-14	2.25E-14	4.95E-16	2.00E-14	5.00E-15	1.86E-16	9.00E-13	2.25E-13	1.67E-14	6.00E-13	1.50E-13
1/1/2007	9.49E-16	9.00E-14	2.25E-14	6.81E-16	2.00E-14	5.00E-15	2.02E-16	9.00E-13	2.25E-13	1.31E-14	6.00E-13	1.50E-13
4/2/2007	1.08E-15	9.00E-14	2.25E-14	8.22E-16	2.00E-14	5.00E-15	2.26E-16	9.00E-13	2.25E-13	1.64E-14	6.00E-13	1.50E-13
7/2/2007	1.54E-15	9.00E-14	2.25E-14	8.16E-16	2.00E-14	5.00E-15	4.76E-16	9.00E-13	2.25E-13	2.12E-14	6.00E-13	1.50E-13
9/30/2007	4.90E-16	9.00E-14	2.25E-14	2.37E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.65E-15	6.00E-13	1.50E-13
12/31/2007	1.46E-15	9.00E-14	2.25E-14	5.67E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.02E-14	6.00E-13	1.50E-13
3/31/2008	3.16E-16	9.00E-14	2.25E-14	6.17E-16	2.00E-14	5.00E-15	3.71E-16	9.00E-13	2.25E-13	4.82E-15	6.00E-13	1.50E-13
6/30/2008	3.13E-15	9.00E-14	2.25E-14	1.55E-15	2.00E-14	5.00E-15	9.27E-16	9.00E-13	2.25E-13	7.40E-15	6.00E-13	1.50E-13

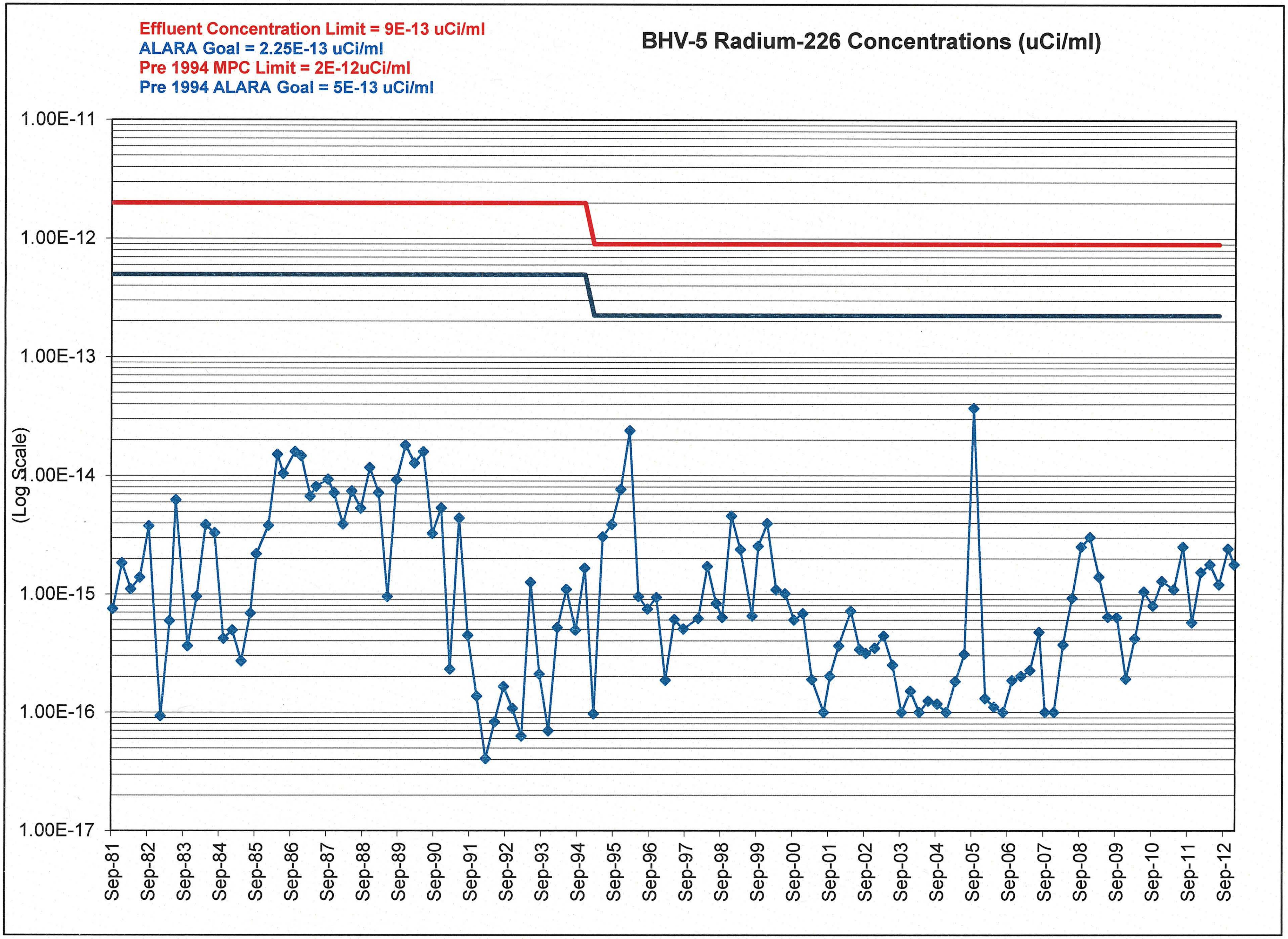
Date	Effluent Concentration Limit =	9E-14 uCi/ml	BHV-5U	Effluent Concentration Limit =	2E-14 uCi/ml	BHV-5T	Effluent Concentration Limit =	9E-13 uCi/ml	BHV-5R	Effluent Concentration Limit =	6E-13 uCi/ml	BHV-5PB
	ALARA Goal =	2.25E-14 uCi/ml		ALARA Goal =	5E-13 uCi/ml		ALARA Goal =	2.25E-13 uCi/ml		ALARA Goal =	1.5E-13 uCi/ml	
	Pre 1994 MPC Limit =	5E-12 uCi/ml		Pre 1994 MPC Limit =	8E-14 uCi/ml		Pre 1994 MPC Limit =	2E-12 uCi/ml		Pre 1994 MPC Limit =	4E-12 uCi/ml	
	Pre 1994 ALARA GOAL =	1.25E-12 uCi/ml					Pre 1994 ALARA GOAL =	5E-13 uCi/ml		Pre 1994 ALARA GOAL =	1E-12 uCi/ml	
	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A
9/30/2008	7.08E-15	9.00E-14	2.25E-14	3.41E-15	2.00E-14	5.00E-15	2.52E-15	9.00E-13	2.25E-13	1.15E-14	6.00E-13	1.50E-13
12/31/2008	7.22E-15	9.00E-14	2.25E-14	2.82E-15	2.00E-14	5.00E-15	3.03E-15	9.00E-13	2.25E-13	1.59E-14	6.00E-13	1.50E-13
3/15/2009	4.13E-15	9.00E-14	2.25E-14	1.39E-15	2.00E-14	5.00E-15	1.41E-15	9.00E-13	2.25E-13	4.66E-15	6.00E-13	1.50E-13
6/15/2009	2.31E-16	9.00E-14	2.25E-14	7.79E-16	2.00E-14	5.00E-15	6.37E-16	9.00E-13	2.25E-13	4.18E-15	6.00E-13	1.50E-13
9/15/2009	3.10E-15	9.00E-14	2.25E-14	9.20E-16	2.00E-14	5.00E-15	6.36E-16	9.00E-13	2.25E-13	1.21E-14	6.00E-13	1.50E-13
12/15/2009	5.77E-15	9.00E-14	2.25E-14	3.13E-16	2.00E-14	5.00E-15	1.92E-16	9.00E-13	2.25E-13	2.48E-15	6.00E-13	1.50E-13
3/31/2010	4.78E-15	9.00E-14	2.25E-14	3.73E-16	2.00E-14	5.00E-15	4.19E-16	9.00E-13	2.25E-13	1.30E-14	6.00E-13	1.50E-13
6/30/2010	4.35E-15	9.00E-14	2.25E-14	7.84E-16	2.00E-14	5.00E-15	1.05E-15	9.00E-13	2.25E-13	4.40E-15	6.00E-13	1.50E-13
9/30/2010	3.57E-15	9.00E-14	2.25E-14	1.14E-15	2.00E-14	5.00E-15	7.97E-16	9.00E-13	2.25E-13	3.78E-15	6.00E-13	1.50E-13
12/31/2010	8.52E-15	9.00E-14	2.25E-14	1.45E-15	2.00E-14	5.00E-15	1.29E-15	9.00E-13	2.25E-13	1.33E-14	6.00E-13	1.50E-13
4/4/2011	3.20E-15	9.00E-14	2.25E-14	8.89E-16	2.00E-14	5.00E-15	1.10E-15	9.00E-13	2.25E-13	1.48E-14	6.00E-13	1.50E-13
7/4/2011	6.98E-15	9.00E-14	2.25E-14	2.03E-15	2.00E-14	5.00E-15	2.52E-15	9.00E-13	2.25E-13	1.08E-14	6.00E-13	1.50E-13
10/3/2011	3.11E-15	9.00E-14	2.25E-14	1.14E-15	2.00E-14	5.00E-15	5.75E-16	9.00E-13	2.25E-13	1.41E-14	6.00E-13	1.50E-13
1/3/2012	4.44E-15	9.00E-14	2.25E-14	2.14E-15	2.00E-14	5.00E-15	1.53E-15	9.00E-13	2.25E-13	2.05E-14	6.00E-13	1.50E-13
4/3/2012	5.52E-15	9.00E-14	2.25E-14	3.24E-15	2.00E-14	5.00E-15	1.79E-15	9.00E-13	2.25E-13	1.55E-14	6.00E-13	1.50E-13
7/2/2012	5.87E-15	9.00E-14	2.25E-14	3.06E-15	2.00E-14	5.00E-15	1.21E-15	9.00E-13	2.25E-13	1.11E-14	6.00E-13	1.50E-13
10/1/2012	6.73E-15	9.00E-14	2.25E-14	2.59E-15	2.00E-14	5.00E-15	2.43E-15	9.00E-13	2.25E-13	1.30E-14	6.00E-13	1.50E-13
12/31/2012	4.50E-15	9.00E-14	2.25E-14	1.62E-15	2.00E-14	5.00E-15	1.79E-15	9.00E-13	2.25E-13	1.74E-14	6.00E-13	1.50E-13

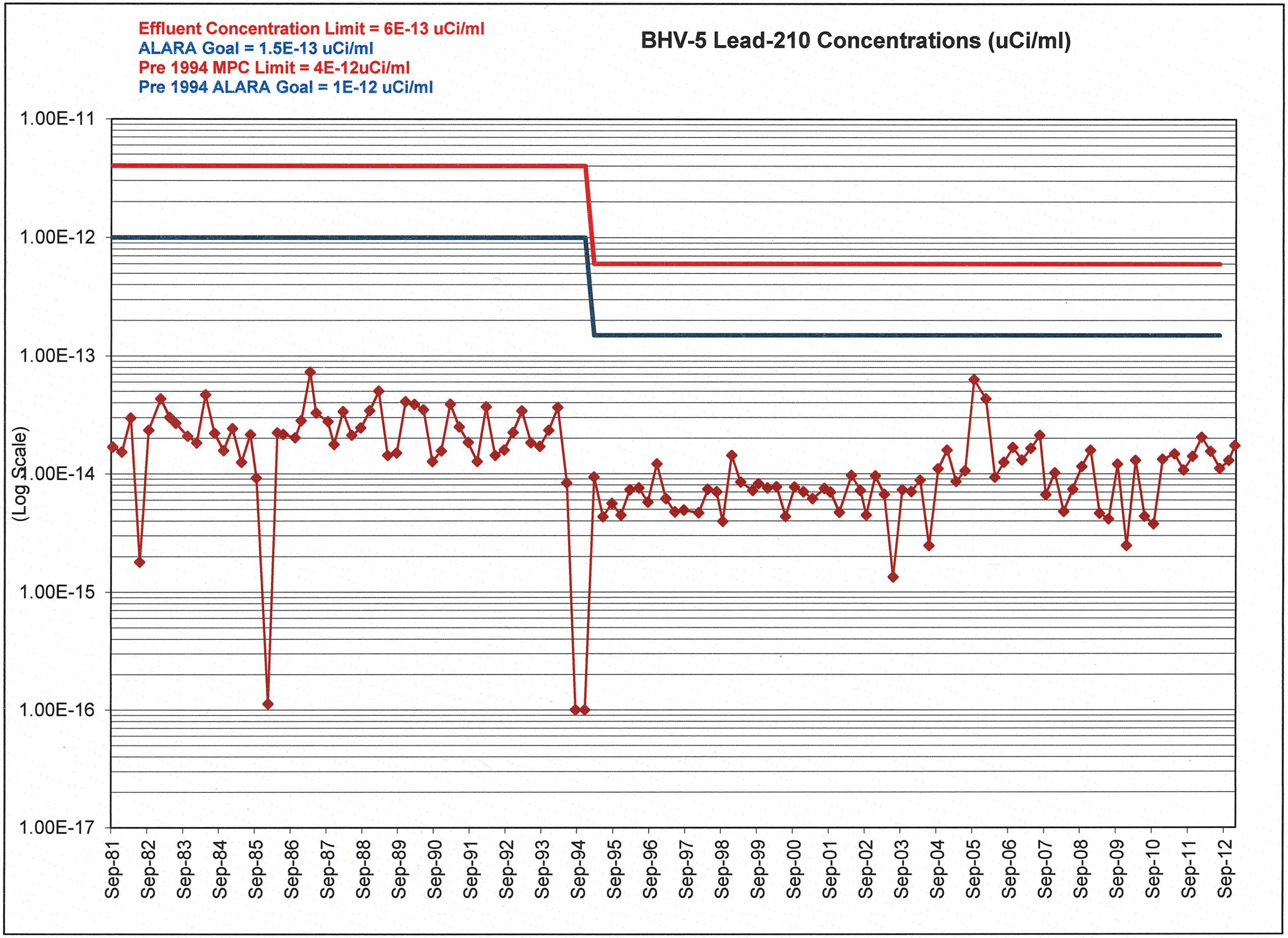


BHV-5 Radionuclide Concentrations (uCi/ml)


BHV-5 Uranium-Natural Concentrations (uCi/ml)
Effluent Concentration Limit = 9E-14 uCi/ml
ALARA Goal = 2.25E-14 uCi/ml
Pre 1994 MPC Limit = 5E-12uCi/ml
Pre 1994 ALARA Goal = 1.25E-12 uCi/ml
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12


BHV-5 Thorium-230 Concentrations (uCi/ml)
Effluent Concentration Limit = 2E-14 uCi/ml
ALARA Goal = 5E-13 uCi/ml
Pre 1994 MPC Limit = 8E-14uCi/ml
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12


BHV-5 Radium-226 Concentrations (uCi/ml)
Effluent Concentration Limit = 9E-13 uCi/ml
ALARA Goal = 2.25E-13 uCi/ml
Pre 1994 MPC Limit = 2E-12uCi/ml
Pre 1994 ALARA Goal = 5E-13 uCi/ml
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12


BHV-5 Lead-210 Concentrations (uCi/ml)
Effluent Concentration Limit = 6E-13 uCi/ml
ALARA Goal = 1.5E-13 uCi/ml
Pre 1994 MPC Limit = 4E-12uCi/ml
Pre 1994 ALARA Goal = 1E-12 uCi/ml
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
Sep-81
Sep-82
Sep-83
Sep-84
Sep-85
Sep-86
Sep-87
Sep-88
Sep-89
Sep-90
Sep-91
Sep-92
Sep-93
Sep-94
Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12

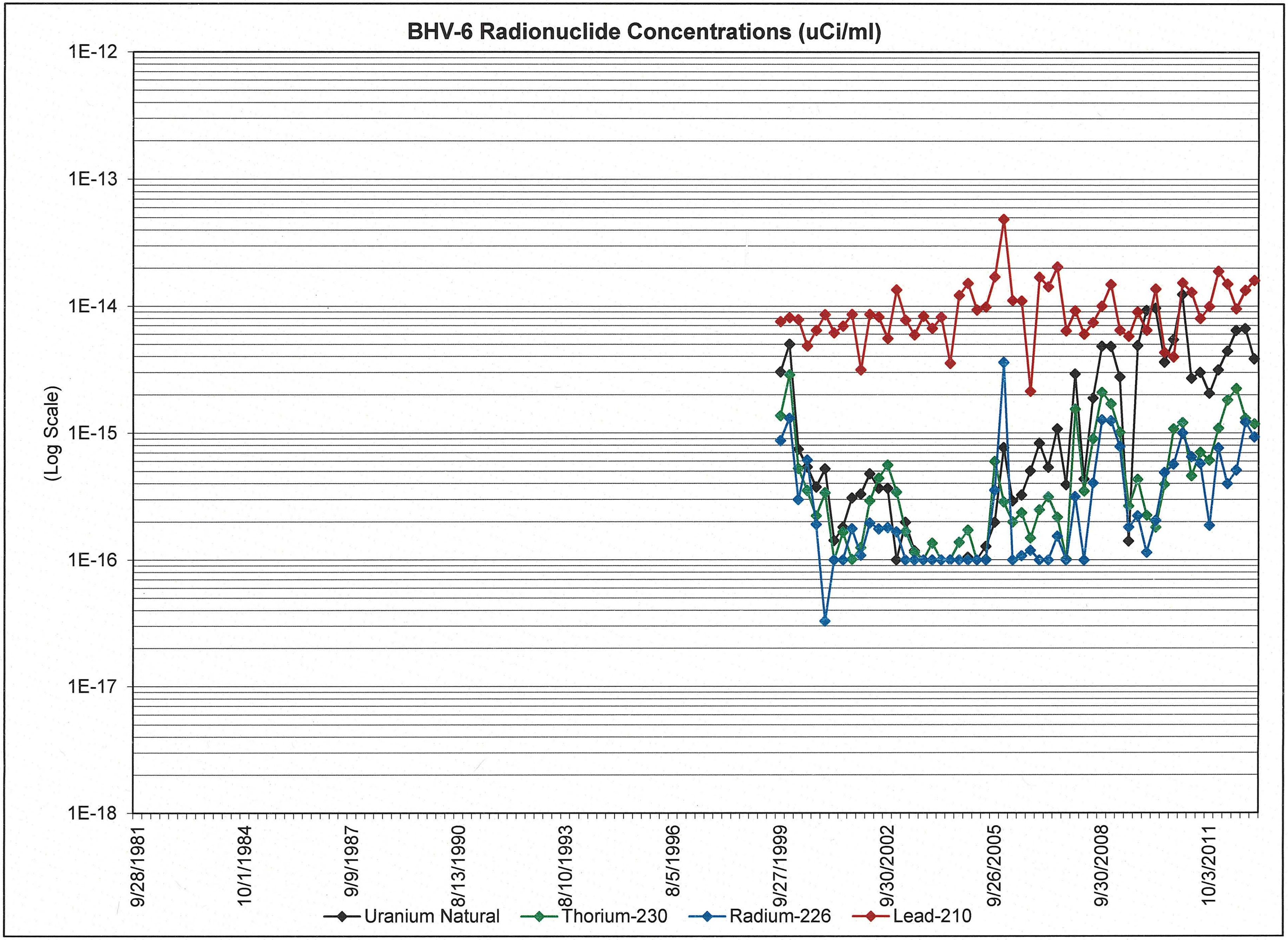
TAB 6

BHV-6 AIR SAMPLING GRAPHS AND DATA TABLE

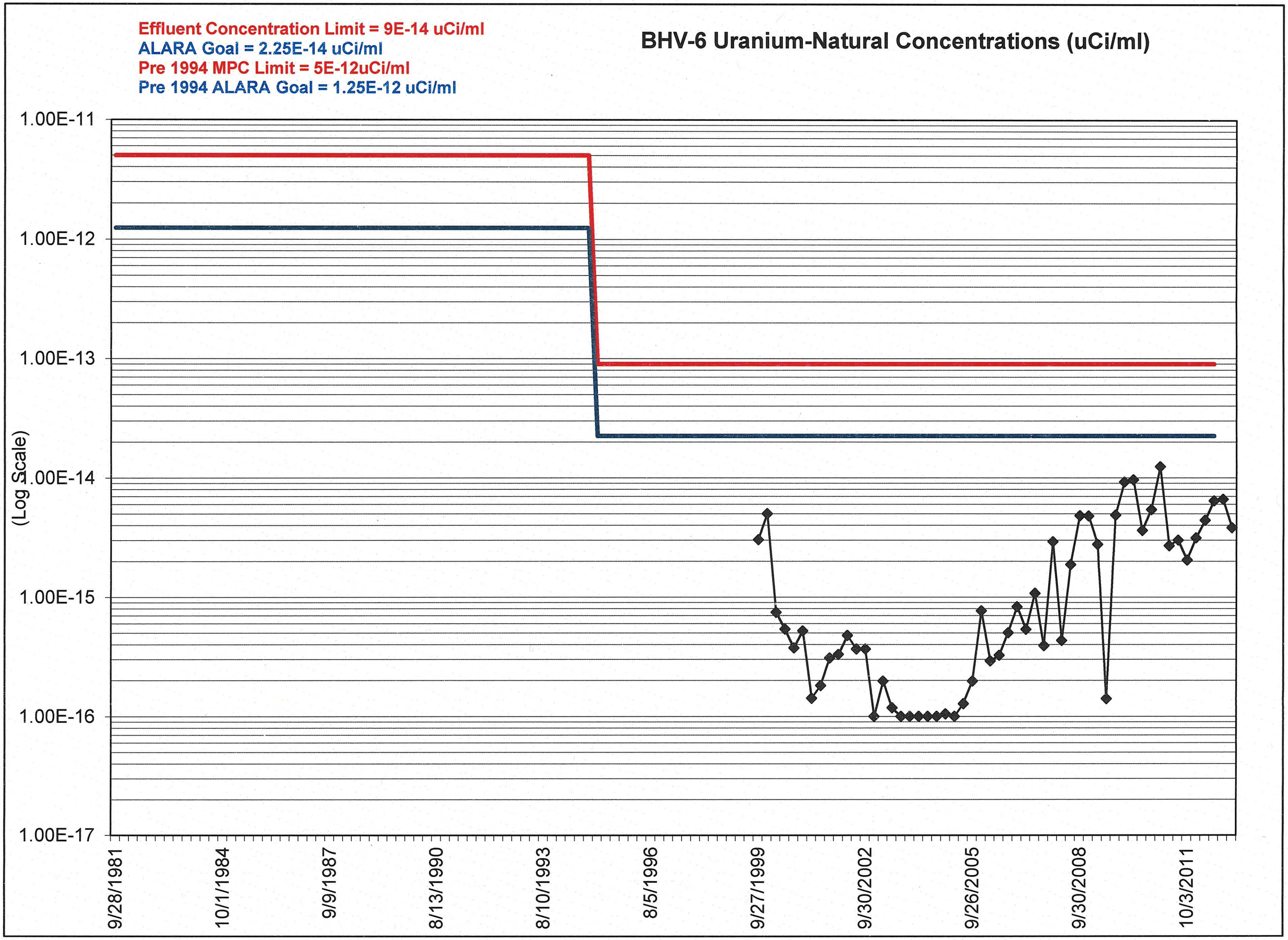
Date	Effluent Concentration Limit =	9E-14 uCi/ml	BHV-6U	Effluent Concentration Limit =	2E-14 uCi/ml	BHV-6T	Effluent Concentration Limit =	9E-13 uCi/ml	BHV-6R	Effluent Concentration Limit =	6E-13 uCi/ml	BHV-6PB
	ALARA Goal =	2.25E-14 uCi/ml		ALARA Goal =	5E-13 uCi/ml		ALARA Goal =	2.25E-13 uCi/ml		ALARA Goal =	1.5E-13 uCi/ml	
	Pre 1994 MPC Limit =	5E-12 uCi/ml		Pre 1994 MPC Limit =	8E-14 uCi/ml		Pre 1994 MPC Limit =	2E-12 uCi/ml		Pre 1994 MPC Limit =	4E-12 uCi/ml	
	Pre 1994 ALARA GOAL =	1.25E-12 uCi/ml					Pre 1994 ALARA GOAL =	5E-13 uCi/ml		Pre 1994 ALARA GOAL =	1E-12 uCi/ml	
	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A
9/28/1981		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
12/14/1981		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
3/29/1982		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
6/30/1982		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
9/27/1982		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
1/3/1983		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
4/4/1983		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
6/30/1983		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
10/3/1983		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
1/3/1984		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
4/2/1984		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
7/2/1984		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
10/1/1984		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
1/2/1985		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
4/1/1985		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
7/1/1985		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
9/30/1985		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
1/2/1986		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
4/1/1986		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
6/30/1986		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
10/27/1986		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
12/15/1986		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
3/16/1987		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
5/11/1987		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
9/9/1987		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
11/2/1987		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
2/16/1988		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
5/18/1988		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
8/15/1988		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
11/14/1988		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
2/13/1989		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
5/15/1989		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
8/14/1989		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
11/13/1989		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
2/12/1990		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
5/14/1990		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
8/13/1990		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
11/12/1990		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
2/11/1991		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
5/13/1991		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
8/12/1991		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
11/11/1991		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
2/10/1992		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
5/11/1992		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
8/10/1992		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
11/9/1992		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
2/9/1993		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
5/10/1993		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
8/10/1993		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
11/8/1993		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
2/7/1994		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
5/9/1994		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
8/9/1994		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12
11/7/1994		5.00E-12	1.25E-12		8.00E-14	2.00E-14		2.00E-12	5.00E-13		4.00E-12	1.00E-12

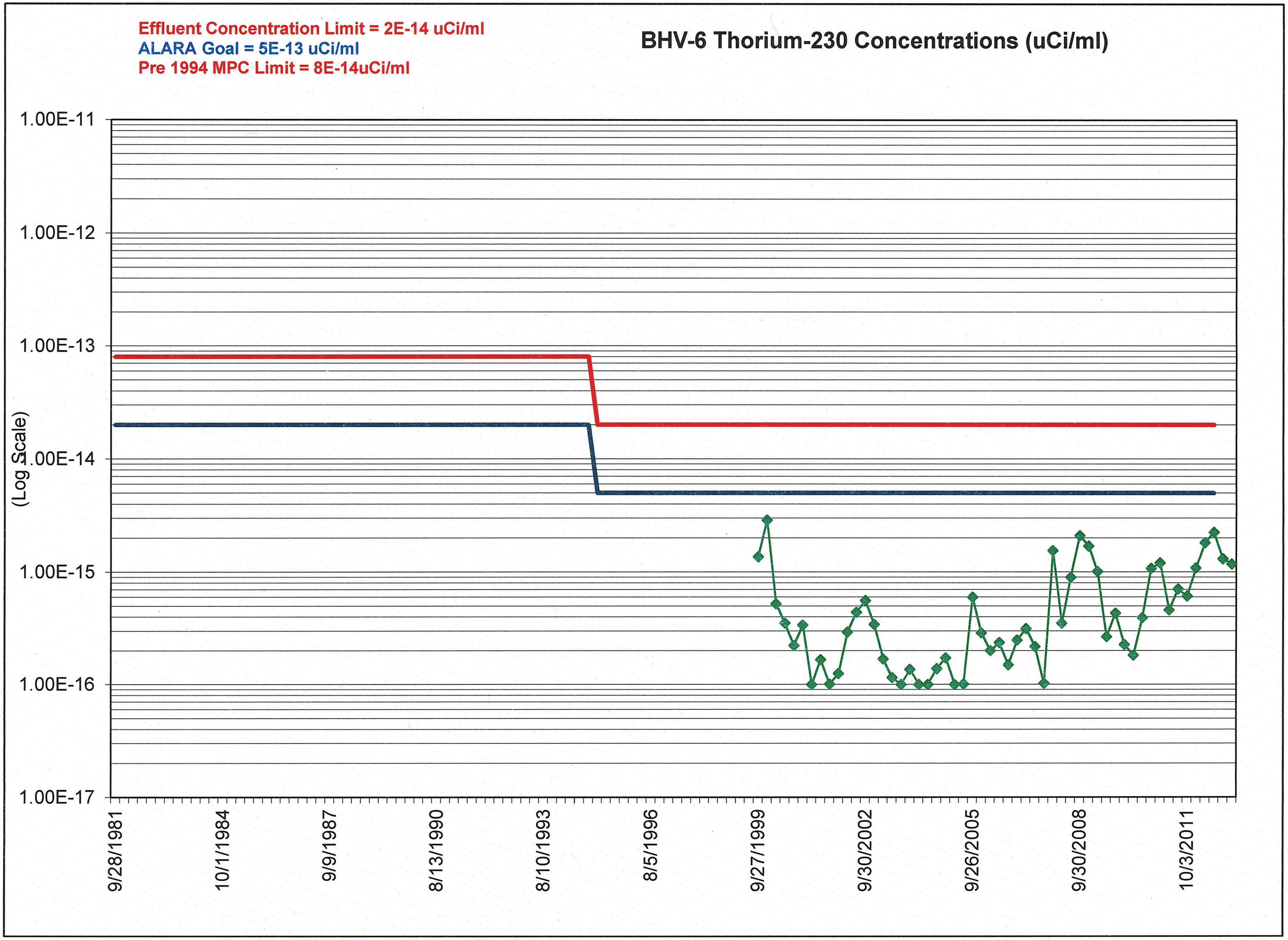
Date	Effluent Concentration Limit =	9E-14 uCi/ml	BHV-6U	Effluent Concentration Limit =	2E-14 uCi/ml	BHV-6T	Effluent Concentration Limit =	9E-13 uCi/ml	BHV-6R	Effluent Concentration Limit =	6E-13 uCi/ml	BHV-6PB
	ALARA Goal =	2.25E-14 uCi/ml		ALARA Goal =	5E-13 uCi/ml		ALARA Goal =	2.25E-13 uCi/ml		ALARA Goal =	1.5E-13 uCi/ml	
	Pre 1994 MPC Limit =	5E-12 uCi/ml		Pre 1994 MPC Limit =	8E-14 uCi/ml		Pre 1994 MPC Limit =	2E-12 uCi/ml		Pre 1994 MPC Limit =	4E-12 uCi/ml	
	Pre 1994 ALARA GOAL =	1.25E-12 uCi/ml					Pre 1994 ALARA GOAL =	5E-13 uCi/ml		Pre 1994 ALARA GOAL =	1E-12 uCi/ml	
	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A	Conc	EFC	EFC A
2/7/1995		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
5/9/1995		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
8/9/1995		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
11/11/1995		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
2/5/1996		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
5/6/1996		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
8/5/1996		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
11/6/1996		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
2/6/1997		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
5/5/1997		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
8/11/1997		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
1/5/1998		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
4/28/1998		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
7/31/1998		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
9/28/1998		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
12/28/1998		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
3/29/1999		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
7/3/1999		9.00E-14	2.25E-14		2.00E-14	5.00E-15		9.00E-13	2.25E-13		6.00E-13	1.50E-13
9/27/1999	3.03E-15	9.00E-14	2.25E-14	1.37E-15	2.00E-14	5.00E-15	8.72E-16	9.00E-13	2.25E-13	7.55E-15	6.00E-13	1.50E-13
12/28/1999	5.01E-15	9.00E-14	2.25E-14	2.89E-15	2.00E-14	5.00E-15	1.31E-15	9.00E-13	2.25E-13	8.10E-15	6.00E-13	1.50E-13
3/30/2000	7.46E-16	9.00E-14	2.25E-14	5.25E-16	2.00E-14	5.00E-15	3.00E-16	9.00E-13	2.25E-13	7.83E-15	6.00E-13	1.50E-13
6/26/2000	5.40E-16	9.00E-14	2.25E-14	3.53E-16	2.00E-14	5.00E-15	6.11E-16	9.00E-13	2.25E-13	4.83E-15	6.00E-13	1.50E-13
9/25/2000	3.75E-16	9.00E-14	2.25E-14	2.23E-16	2.00E-14	5.00E-15	1.91E-16	9.00E-13	2.25E-13	6.41E-15	6.00E-13	1.50E-13
12/26/2000	5.21E-16	9.00E-14	2.25E-14	3.39E-16	2.00E-14	5.00E-15	3.28E-17	9.00E-13	2.25E-13	8.57E-15	6.00E-13	1.50E-13
3/26/2001	1.42E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.15E-15	6.00E-13	1.50E-13
7/2/2001	1.81E-16	9.00E-14	2.25E-14	1.66E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.95E-15	6.00E-13	1.50E-13
9/24/2001	3.08E-16	9.00E-14	2.25E-14	1.01E-16	2.00E-14	5.00E-15	1.77E-16	9.00E-13	2.25E-13	8.59E-15	6.00E-13	1.50E-13
12/31/2001	3.31E-16	9.00E-14	2.25E-14	1.25E-16	2.00E-14	5.00E-15	1.09E-16	9.00E-13	2.25E-13	3.14E-15	6.00E-13	1.50E-13
4/1/2002	4.77E-16	9.00E-14	2.25E-14	2.94E-16	2.00E-14	5.00E-15	1.96E-16	9.00E-13	2.25E-13	8.61E-15	6.00E-13	1.50E-13
7/1/2002	3.68E-16	9.00E-14	2.25E-14	4.41E-16	2.00E-14	5.00E-15	1.76E-16	9.00E-13	2.25E-13	8.20E-15	6.00E-13	1.50E-13
9/30/2002	3.67E-16	9.00E-14	2.25E-14	5.60E-16	2.00E-14	5.00E-15	1.80E-16	9.00E-13	2.25E-13	5.55E-15	6.00E-13	1.50E-13
12/30/2002	1.00E-16	9.00E-14	2.25E-14	3.43E-16	2.00E-14	5.00E-15	1.67E-16	9.00E-13	2.25E-13	1.35E-14	6.00E-13	1.50E-13
3/31/2003	1.98E-16	9.00E-14	2.25E-14	1.68E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	7.77E-15	6.00E-13	1.50E-13
6/30/2003	1.18E-16	9.00E-14	2.25E-14	1.15E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	5.92E-15	6.00E-13	1.50E-13
9/29/2003	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	8.30E-15	6.00E-13	1.50E-13
12/29/2003	1.00E-16	9.00E-14	2.25E-14	1.36E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.66E-15	6.00E-13	1.50E-13
3/29/2004	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	8.17E-15	6.00E-13	1.50E-13
6/27/2004	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	3.55E-15	6.00E-13	1.50E-13
9/27/2004	1.00E-16	9.00E-14	2.25E-14	1.38E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.22E-14	6.00E-13	1.50E-13
12/27/2004	1.05E-16	9.00E-14	2.25E-14	1.72E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.52E-14	6.00E-13	1.50E-13
3/28/2005	1.00E-16	9.00E-14	2.25E-14	1.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	9.34E-15	6.00E-13	1.50E-13
6/29/2005	1.28E-16	9.00E-14	2.25E-14	1.01E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	9.85E-15	6.00E-13	1.50E-13
9/26/2005	1.98E-16	9.00E-14	2.25E-14	5.98E-16	2.00E-14	5.00E-15	3.55E-16	9.00E-13	2.25E-13	1.71E-14	6.00E-13	1.50E-13
1/3/2006	7.67E-16	9.00E-14	2.25E-14	2.88E-16	2.00E-14	5.00E-15	3.60E-15	9.00E-13	2.25E-13	4.85E-14	6.00E-13	1.50E-13
4/3/2006	2.92E-16	9.00E-14	2.25E-14	2.00E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.11E-14	6.00E-13	1.50E-13
7/3/2006	3.25E-16	9.00E-14	2.25E-14	2.36E-16	2.00E-14	5.00E-15	1.08E-16	9.00E-13	2.25E-13	1.10E-14	6.00E-13	1.50E-13
10/2/2006	5.03E-16	9.00E-14	2.25E-14	1.49E-16	2.00E-14	5.00E-15	1.19E-16	9.00E-13	2.25E-13	2.13E-15	6.00E-13	1.50E-13
1/1/2007	8.31E-16	9.00E-14	2.25E-14	2.49E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.70E-14	6.00E-13	1.50E-13
4/2/2007	5.36E-16	9.00E-14	2.25E-14	3.15E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	1.43E-14	6.00E-13	1.50E-13
7/2/2007	1.08E-15	9.00E-14	2.25E-14	2.18E-16	2.00E-14	5.00E-15	1.54E-16	9.00E-13	2.25E-13	2.04E-14	6.00E-13	1.50E-13
9/30/2007	3.92E-16	9.00E-14	2.25E-14	1.02E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	6.38E-15	6.00E-13	1.50E-13
12/31/2007	2.92E-15	9.00E-14	2.25E-14	1.55E-15	2.00E-14	5.00E-15	3.16E-16	9.00E-13	2.25E-13	9.19E-15	6.00E-13	1.50E-13
3/31/2008	4.34E-16	9.00E-14	2.25E-14	3.51E-16	2.00E-14	5.00E-15	1.00E-16	9.00E-13	2.25E-13	5.99E-15	6.00E-13	1.50E-13
6/3102008	1.88E-15	9.00E-14	2.25E-14	9.00E-16	2.00E-14	5.00E-15	4.04E-16	9.00E-13	2.25E-13	7.41E-15	6.00E-13	1.50E-13

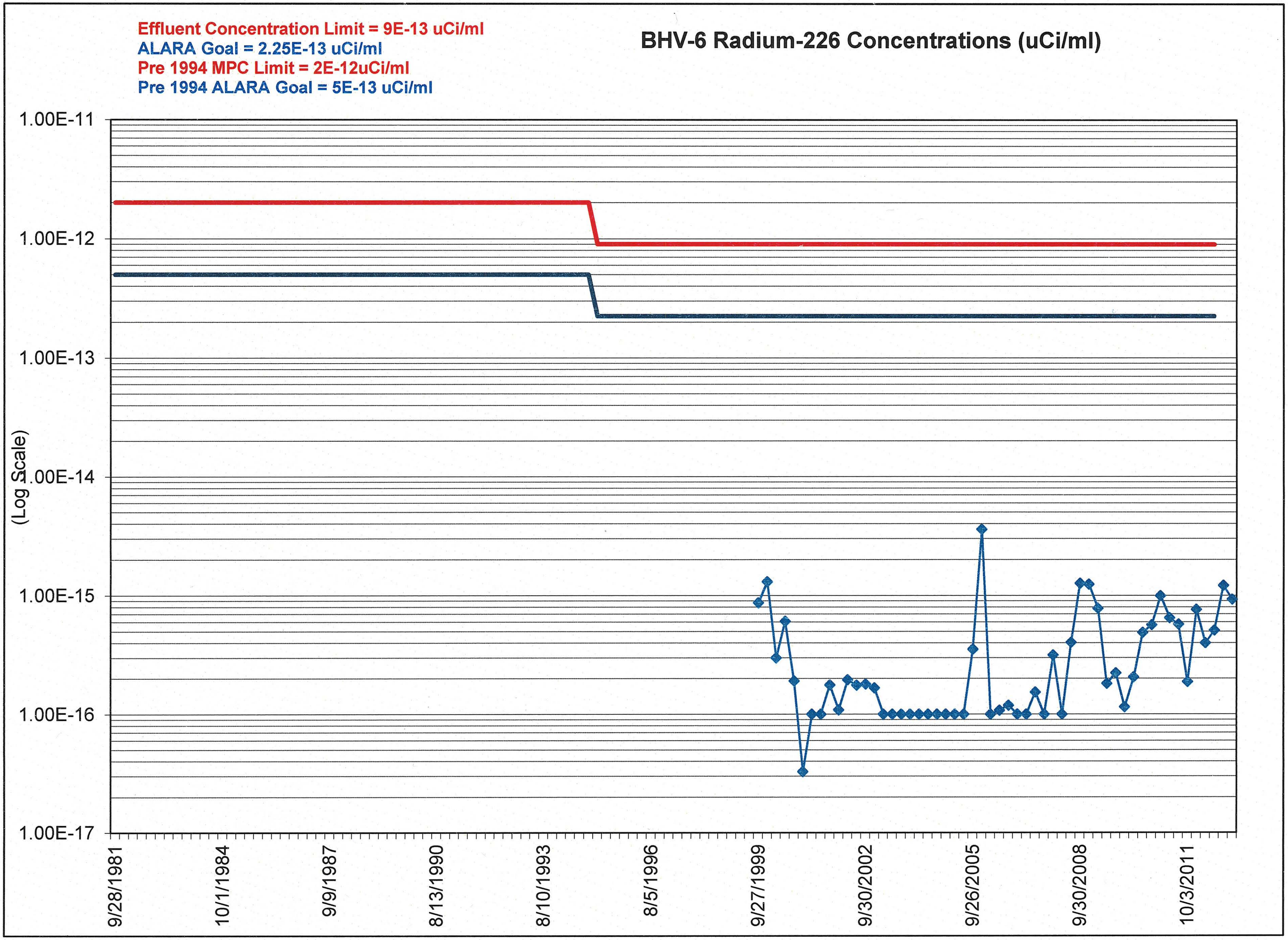
Date	**Effluent Concentration Limit =**	**9E-14 uCi/ml**	**BHV-6U**	**Effluent Concentration Limit =**	**2E-14 uCi/ml**	**BHV-6T**	**Effluent Concentration Limit =**	**9E-13 uCi/ml**	**BHV-6R**	**Effluent Concentration Limit =**	**6E-13 uCi/ml**	**BHV-6PB**
	ALARA Goal =	**2.25E-14 uCi/ml**		**ALARA Goal =**	**5E-13 uCi/ml**		**ALARA Goal =**	**2.25E-13 uCi/ml**		**ALARA Goal =**	**1.5E-13 uCi/ml**	
	Pre 1994 MPC Limit =	**5E-12 uCi/ml**		**Pre 1994 MPC Limit =**	**8E-14 uCi/ml**		**Pre 1994 MPC Limit =**	**2E-12 uCi/ml**		**Pre 1994 MPC Limit =**	**4E-12 uCi/ml**	
	Pre 1994 ALARA GOAL =	**1.25E-12 uCi/ml**					**Pre 1994 ALARA GOAL =**	**5E-13 uCi/ml**		**Pre 1994 ALARA GOAL =**	**1E-12 uCi/ml**	
	Conc	**EFC**	**EFC A**	**Conc**	**EFC**	**EFC A**	**Conc**	**EFC**	**EFC A**	**Conc**	**EFC**	**EFC A**
9/30/2008	4.82E-15	9.00E-14	2.25E-14	2.10E-15	2.00E-14	5.00E-15	1.27E-15	9.00E-13	2.25E-13	1.00E-14	6.00E-13	1.50E-13
12/31/2008	4.80E-15	9.00E-14	2.25E-14	1.70E-15	2.00E-14	5.00E-15	1.25E-15	9.00E-13	2.25E-13	1.49E-14	6.00E-13	1.50E-13
3/15/2009	2.77E-15	9.00E-14	2.25E-14	1.01E-15	2.00E-14	5.00E-15	7.82E-16	9.00E-13	2.25E-13	6.46E-15	6.00E-13	1.50E-13
6/15/2009	1.41E-16	9.00E-14	2.25E-14	2.67E-16	2.00E-14	5.00E-15	1.81E-16	9.00E-13	2.25E-13	5.76E-15	6.00E-13	1.50E-13
9/15/2009	4.87E-15	9.00E-14	2.25E-14	4.32E-16	2.00E-14	5.00E-15	2.23E-16	9.00E-13	2.25E-13	8.98E-15	6.00E-13	1.50E-13
12/15/2009	9.24E-15	9.00E-14	2.25E-14	2.26E-16	2.00E-14	5.00E-15	1.15E-16	9.00E-13	2.25E-13	6.44E-15	6.00E-13	1.50E-13
3/31/2010	9.63E-15	9.00E-14	2.25E-14	1.82E-16	2.00E-14	5.00E-15	2.06E-16	9.00E-13	2.25E-13	1.37E-14	6.00E-13	1.50E-13
6/30/2010	3.62E-15	9.00E-14	2.25E-14	3.94E-16	2.00E-14	5.00E-15	4.89E-16	9.00E-13	2.25E-13	4.30E-15	6.00E-13	1.50E-13
9/30/2010	5.42E-15	9.00E-14	2.25E-14	1.08E-15	2.00E-14	5.00E-15	5.68E-16	9.00E-13	2.25E-13	3.98E-15	6.00E-13	1.50E-13
12/31/2010	1.24E-14	9.00E-14	2.25E-14	1.21E-15	2.00E-14	5.00E-15	1.00E-15	9.00E-13	2.25E-13	1.53E-14	6.00E-13	1.50E-13
4/4/2011	2.70E-15	9.00E-14	2.25E-14	4.62E-16	2.00E-14	5.00E-15	6.51E-16	9.00E-13	2.25E-13	1.29E-14	6.00E-13	1.50E-13
7/4/2011	3.01E-15	9.00E-14	2.25E-14	7.07E-16	2.00E-14	5.00E-15	5.75E-16	9.00E-13	2.25E-13	7.97E-15	6.00E-13	1.50E-13
10/3/2011	2.05E-15	9.00E-14	2.25E-14	6.12E-16	2.00E-14	5.00E-15	1.88E-16	9.00E-13	2.25E-13	9.93E-15	6.00E-13	1.50E-13
1/3/2012	3.14E-15	9.00E-14	2.25E-14	1.09E-15	2.00E-14	5.00E-15	7.65E-16	9.00E-13	2.25E-13	1.89E-14	6.00E-13	1.50E-13
4/3/2012	4.41E-15	9.00E-14	2.25E-14	1.82E-15	2.00E-14	5.00E-15	4.00E-16	9.00E-13	2.25E-13	1.50E-14	6.00E-13	1.50E-13
7/2/2012	6.42E-15	9.00E-14	2.25E-14	2.25E-15	2.00E-14	5.00E-15	5.11E-16	9.00E-13	2.25E-13	9.54E-15	6.00E-13	1.50E-13
10/1/2012	6.63E-15	9.00E-14	2.25E-14	1.31E-15	2.00E-14	5.00E-15	1.22E-15	9.00E-13	2.25E-13	1.34E-14	6.00E-13	1.50E-13
12/31/2012	3.83E-15	9.00E-14	2.25E-14	1.18E-15	2.00E-14	5.00E-15	9.30E-16	9.00E-13	2.25E-13	1.60E-14	6.00E-13	1.50E-13

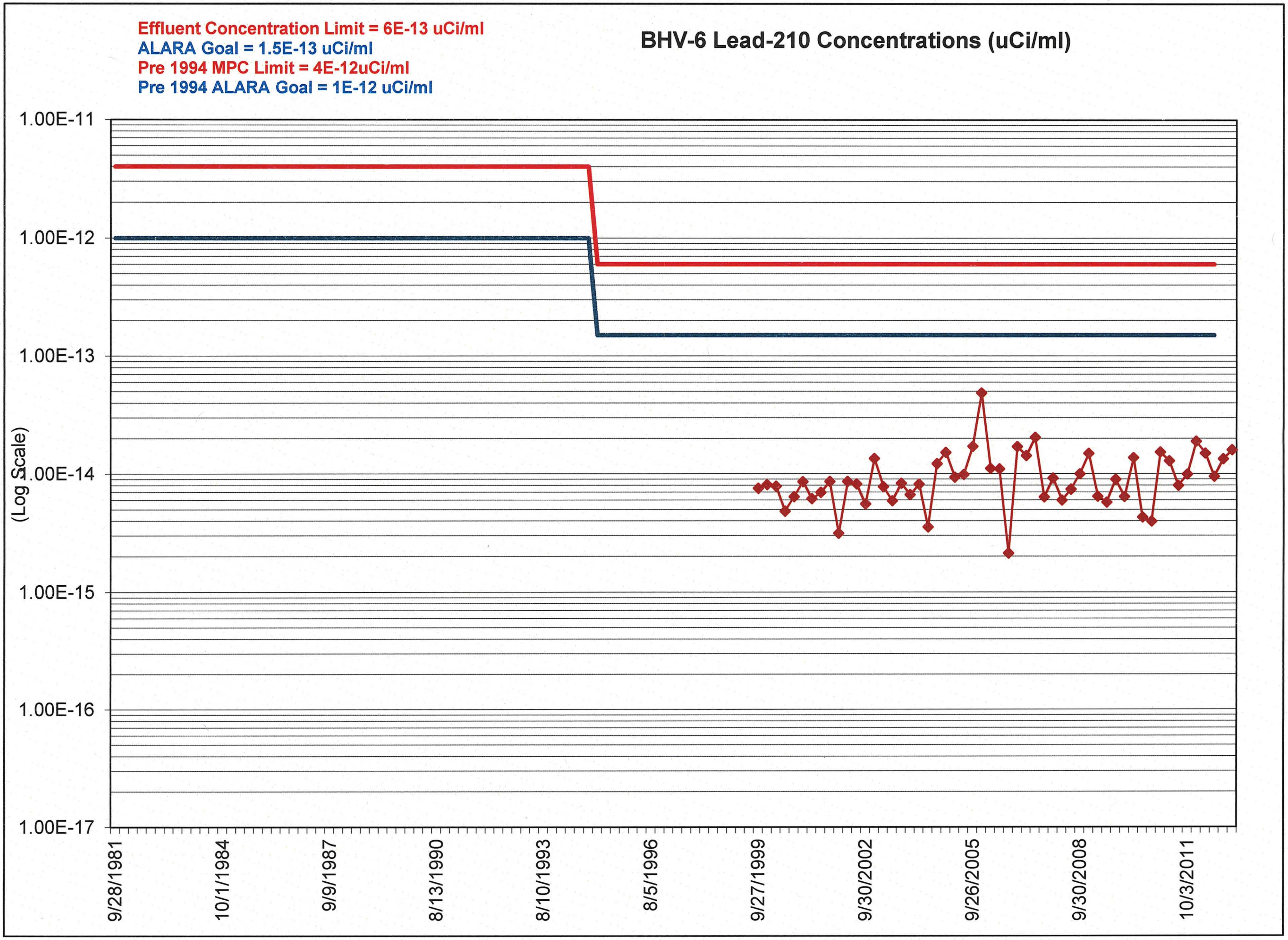


BHV-6 Radionuclide Concentrations (uCi/ml)


Effluent Concentration Limit = 9E-14 uCi/ml
ALARA Goal = 2.25E-14 uCi/ml
Pre 1994 MPC Limit = 5E-12uCi/ml
Pre 1994 ALARA Goal = 1.25E-12 uCi/ml
BHV-6 Uranium-Natural Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
9/28/1981
10/1/1984
9/9/1987
8/13/1990
8/10/1993
8/5/1996
9/27/1999
9/30/2002
9/26/2005
9/30/2008
10/3/2011

Effluent Concentration Limit = 2E-14 uCi/ml
ALARA Goal = 5E-13 uCi/ml
Pre 1994 MPC Limit = 8E-14uCi/ml
BHV-6 Thorium-230 Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
9/28/1981
10/1/1984
9/9/1987
8/13/1990
8/10/1993
8/5/1996
9/27/1999
9/30/2002
9/26/2005
9/30/2008
10/3/2011


Effluent Concentration Limit = 9E-13 uCi/ml
ALARA Goal = 2.25E-13 uCi/ml
Pre 1994 MPC Limit = 2E-12uCi/ml
Pre 1994 ALARA Goal = 5E-13 uCi/ml
BHV-6 Radium-226 Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
9/28/1981
10/1/1984
9/9/1987
8/13/1990
8/10/1993
8/5/1996
9/27/1999
9/30/2002
9/26/2005
9/30/2008
10/3/2011


Effluent Concentration Limit = 6E-13 uCi/ml
ALARA Goal = 1.5E-13 uCi/ml
Pre 1994 MPC Limit = 4E-12uCi/ml
Pre 1994 ALARA Goal = 1E-12 uCi/ml
BHV-6 Lead-210 Concentrations (uCi/ml)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
(Log Scale)
9/28/1981
10/1/1984
9/9/1987
8/13/1990
8/10/1993
8/5/1996
9/27/1999
9/30/2002
9/26/2005
9/30/2008
10/3/2011

ATTACHMENT C

BHV AIR SAMPLING LABORATORY RESULTS AND QA/QC

ANALYTICAL SUMMARY REPORT

November 10, 2012

Energy Fuels Resources (USA) Inc
225 Union Blvd Ste 600
Lakewood, CO 80228-1826

Workorder No.: C12100160

Project Name: 3rd Quarter Air 2012

Energy Laboratories, Inc. Casper WY received the following 6 samples for Energy Fuels Resources (USA) Inc on 10/3/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C12100160-001	BHV-1	10/01/12 00:00	10/03/12	Filter	Composite of two or more samples Metals, Total Digestion, Total Metals Lead 210 Radium 226 Thorium, Isotopic
C12100160-002	BHV-2	10/01/12 00:00	10/03/12	Filter	Same As Above
C12100160-003	BHV-4	10/01/12 00:00	10/03/12	Filter	Same As Above
C12100160-004	BHV-5	10/01/12 00:00	10/03/12	Filter	Same As Above
C12100160-005	BHV-6	10/01/12 00:00	10/03/12	Filter	Same As Above
C12100160-006	Blank	10/01/12 00:00	10/03/12	Filter	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these test results, please call.

Report Approved By:

Interim Branch Manager

Digitally signed by
Steve Carlston
Date: 2012.11.13 17:30:07 -07:00

CLIENT: Energy Fuels Resources (USA) Inc
Project: 3rd Quarter Air 2012
Sample Delivery Group: C12100160

Report Date: 11/10/12

CASE NARRATIVE

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

SAMPLE TEMPERATURE COMPLIANCE: 4℃ (±2℃)
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.

GROSS ALPHA ANALYSIS
Method 900.0 for gross alpha and gross beta is intended as a drinking water method for low TDS waters. Data provided by this method for non potable waters should be viewed as inconsistent.

RADON IN AIR ANALYSIS
The desired exposure time is 48 hours (2 days). The time delay in returning the canister to the laboratory for processing should be as short as possible to avoid excessive decay. Maximum recommended delay between end of exposure to beginning of counting should not exceed 8 days.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS
Data for PCBs, Atrazine and Simazine are reported from EPA 525.2. PCB data reported by ELI reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

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.

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

CERTIFICATIONS:
USEPA: WY00002, Radiochemical WY00937; FL-DOH NELAC: E87641, Radiochemical E871017; California: 02118CA; Oregon: WY200001, Radiochemical WY200002; Utah: WY00002; Washington: C836

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.
Tests associated with analyst identified as ELI-CS were subcontracted to Energy Laboratories, 415 Graham Rd., College Station, TX, EPA Number TX01520.

HIGH VOLUME AIR SAMPLING REPORT

CLIENT: Energy Fuels Resources (USA) Inc
REPORT DATE: November 10, 2012
PROJECT: 3rd Quarter Air 2012

SAMPLE ID: BHV-1

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12040316-001	^{nat}U	7.87E-16	N/A	N/A	1E-16	9E-14	8.75E-01
First Quarter 2012	^{230}Th	2.64E-16	3E-17	6E-18	1E-16	3E-14	8.80E-01
Air Volume in mLs	^{226}Ra	3.95E-16	1E-17	3E-18	1E-16	9E-13	4.39E-02
1.37E+11	^{210}Pb	1.25E-14	1E-16	4E-17	2E-15	6E-13	2.08E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12070341-001	^{nat}U	1.86E-15	N/A	N/A	1E-16	9E-14	2.06E+00
Second Quarter 2012	^{230}Th	8.33E-16	9E-17	7E-18	1E-16	3E-14	2.78E+00
Air Volume in mLs	^{226}Ra	9.85E-16	5E-17	9E-18	1E-16	9E-13	1.09E-01
1.33E+11	^{210}Pb	9.55E-15	2E-16	6E-17	2E-15	6E-13	1.59E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.$^+$ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12100160-001	^{nat}U	1.06E-15	N/A	N/A	1E-16	9E-14	1.18E+00
Third Quarter 2012	^{230}Th	2.11E-16	3E-17	8E-18	1E-16	3E-14	7.04E-01
Air Volume in mLs	^{226}Ra	2.34E-16	2E-17	7E-18	1E-16	9E-13	2.60E-02
1.36E+11	^{210}Pb	1.13E-14	2E-16	4E-17	2E-15	6E-13	1.88E+00

+LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Year for Thorium-230
Week for Radium-226
Day for Lead-210

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 3rd Quarter Air 2012
Lab ID: C12100160-001
Client Sample ID BHV-1

Report Date: 11/10/12
Collection Date: 10/01/12
DateReceived: 10/03/12
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.214	mg/filter		0.0003		SW6020	10/09/12 15:14 / smm
Uranium, Activity	145	pCi/Filter		0.2		SW6020	10/09/12 15:14 / smm
RADIONUCLIDES							
Lead 210	1540	pCi/Filter				E909.0	10/30/12 14:20 / eli-cs
Lead 210 precision (±)	21	pCi/Filter				E909.0	10/30/12 14:20 / eli-cs
Lead 210 MDC	5.8	pCi/Filter				E909.0	10/30/12 14:20 / eli-cs
Radium 226	31.9	pCi/Filter				E903.0	10/17/12 12:37 / lbb
Radium 226 precision (±)	2.7	pCi/Filter				E903.0	10/17/12 12:37 / lbb
Radium 226 MDC	0.9	pCi/Filter				E903.0	10/17/12 12:37 / lbb
Thorium 230	29	pCi/Filter				E908.0	10/17/12 09:25 / dmf
Thorium 230 precision (±)	3.9	pCi/Filter				E908.0	10/17/12 09:25 / dmf
Thorium 230 MDC	1.1	pCi/Filter				E908.0	10/17/12 09:25 / dmf

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

HIGH VOLUME AIR SAMPLING REPORT

CLIENT: **Energy Fuels Resources (USA) Inc**
REPORT DATE: **November 10, 2012**
PROJECT: **3rd Quarter Air 2012**

SAMPLE ID: **BHV-2**

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12040316-002	^{nat}U	4.22E-16	N/A	N/A	1E-16	9E-14	4.68E-01
First Quarter 2012	^{230}Th	1.15E-16	2E-17	4E-18	1E-16	3E-14	3.84E-01
Air Volume in mLs	^{226}Ra	2.77E-16	9E-18	3E-18	1E-16	9E-13	3.07E-02
1.37E+11	^{210}Pb	1.58E-14	1E-16	4E-17	2E-15	6E-13	2.63E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12070341-002	^{nat}U	3.39E-16	N/A	N/A	1E-16	9E-14	3.76E-01
Second Quarter 2012	^{230}Th	1.56E-16	2E-17	5E-18	1E-16	3E-14	5.19E-01
Air Volume in mLs	^{226}Ra	1.74E-16	2E-17	9E-18	1E-16	9E-13	1.94E-02
1.34E+11	^{210}Pb	8.60E-15	2E-16	6E-17	2E-15	6E-13	1.43E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.$^+$ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12100160-002	^{nat}U	3.13E-16	N/A	N/A	1E-16	9E-14	3.48E-01
Third Quarter 2012	^{230}Th	4.13E-17	8E-18	4E-18	1E-16	3E-14	1.38E-01
Air Volume in mLs	^{226}Ra	3.04E-17	7E-18	5E-18	1E-16	9E-13	3.37E-03
1.36E+11	^{210}Pb	1.03E-14	1E-16	4E-17	2E-15	6E-13	1.72E+00

+LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Year for Thorium-230
Week for Radium-226
Day for Lead-210

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Energy Fuels Resources (USA) Inc	**Report Date:**	11/10/12
Project:	3rd Quarter Air 2012	**Collection Date:**	10/01/12
Lab ID:	C12100160-002	**DateReceived:**	10/03/12
Client Sample ID	BHV-2	**Matrix:**	Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.0631	mg/filter		0.0003		SW6020	10/09/12 15:17 / smm
Uranium, Activity	42.7	pCi/Filter		0.2		SW6020	10/09/12 15:17 / smm
RADIONUCLIDES							
Lead 210	1410	pCi/Filter				E909.0	10/30/12 15:29 / eli-cs
Lead 210 precision (±)	20	pCi/Filter				E909.0	10/30/12 15:29 / eli-cs
Lead 210 MDC	5.8	pCi/Filter				E909.0	10/30/12 15:29 / eli-cs
Radium 226	4.1	pCi/Filter				E903.0	10/17/12 12:37 / lbb
Radium 226 precision (±)	0.9	pCi/Filter				E903.0	10/17/12 12:37 / lbb
Radium 226 MDC	0.7	pCi/Filter				E903.0	10/17/12 12:37 / lbb
Thorium 230	5.6	pCi/Filter				E908.0	10/17/12 09:25 / dmf
Thorium 230 precision (±)	1.1	pCi/Filter				E908.0	10/17/12 09:25 / dmf
Thorium 230 MDC	0.52	pCi/Filter				E908.0	10/17/12 09:25 / dmf

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

HIGH VOLUME AIR SAMPLING REPORT

CLIENT: Energy Fuels Resources (USA) Inc
REPORT DATE: November 10, 2012
PROJECT: 3rd Quarter Air 2012

SAMPLE ID: BHV-4

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12040316-003	^{nat}U	2.51E-15	N/A	N/A	1E-16	9E-14	2.79E+00
First Quarter 2012	^{230}Th	5.02E-16	6E-17	9E-18	1E-16	3E-14	1.67E+00
Air Volume in mLs	^{226}Ra	2.27E-16	8E-18	3E-18	1E-16	9E-13	2.52E-02
1.36E+11	^{210}Pb	1.03E-14	1E-16	4E-17	2E-15	6E-13	1.72E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12070341-003	^{nat}U	2.62E-15	N/A	N/A	1E-16	9E-14	2.91E+00
Second Quarter 2012	^{230}Th	1.23E-15	1E-16	6E-18	1E-16	3E-14	4.10E+00
Air Volume in mLs	^{226}Ra	2.97E-16	3E-17	9E-18	1E-16	9E-13	3.30E-02
1.35E+11	^{210}Pb	9.27E-15	2E-16	6E-17	2E-15	6E-13	1.55E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.$^{+}$ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12100160-003	^{nat}U	4.05E-15	N/A	N/A	1E-16	9E-14	4.50E+00
Third Quarter 2012	^{230}Th	8.33E-16	8E-17	9E-18	1E-16	3E-14	2.78E+00
Air Volume in mLs	^{226}Ra	5.43E-16	3E-17	6E-18	1E-16	9E-13	6.03E-02
1.36E+11	^{210}Pb	1.21E-14	2E-16	4E-17	2E-15	6E-13	2.02E+00

+LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Year for Thorium-230
Week for Radium-226
Day for Lead-210

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Energy Fuels Resources (USA) Inc	**Report Date:**	11/10/12
Project:	3rd Quarter Air 2012	**Collection Date:**	10/01/12
Lab ID:	C12100160-003	**DateReceived:**	10/03/12
Client Sample ID	BHV-4	**Matrix:**	Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.813	mg/filter		0.0003		SW6020	10/09/12 15:19 / smm
Uranium, Activity	551	pCi/Filter		0.2		SW6020	10/09/12 15:19 / smm
RADIONUCLIDES							
Lead 210	1650	pCi/Filter				E909.0	10/30/12 16:39 / eli-cs
Lead 210 precision (±)	22	pCi/Filter				E909.0	10/30/12 16:39 / eli-cs
Lead 210 MDC	5.8	pCi/Filter				E909.0	10/30/12 16:39 / eli-cs
Radium 226	73.8	pCi/Filter				E903.0	10/17/12 12:37 / lbb
Radium 226 precision (±)	3.8	pCi/Filter				E903.0	10/17/12 12:37 / lbb
Radium 226 MDC	0.9	pCi/Filter				E903.0	10/17/12 12:37 / lbb
Thorium 230	113	pCi/Filter				E908.0	10/17/12 09:25 / dmf
Thorium 230 precision (±)	11	pCi/Filter				E908.0	10/17/12 09:25 / dmf
Thorium 230 MDC	1.2	pCi/Filter				E908.0	10/17/12 09:25 / dmf

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

HIGH VOLUME AIR SAMPLING REPORT

CLIENT: Energy Fuels Resources (USA) Inc
REPORT DATE: November 10, 2012
PROJECT: 3rd Quarter Air 2012

SAMPLE ID: BHV-5

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12040316-004	^{nat}U	5.52E-15	N/A	N/A	1E-16	9E-14	6.13E+00
First Quarter 2012	^{230}Th	3.24E-15	3E-16	2E-17	1E-16	3E-14	1.08E+01
Air Volume in mLs	^{226}Ra	1.79E-15	2E-17	3E-18	1E-16	9E-13	1.99E-01
1.36E+11	^{210}Pb	1.55E-14	1E-16	4E-17	2E-15	6E-13	2.58E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12070341-004	^{nat}U	5.87E-15	N/A	N/A	1E-16	9E-14	6.52E+00
Second Quarter 2012	^{230}Th	3.06E-15	3E-16	2E-17	1E-16	3E-14	1.02E+01
Air Volume in mLs	^{226}Ra	1.21E-15	6E-17	1E-17	1E-16	9E-13	1.35E-01
1.22E+11	^{210}Pb	1.11E-14	2E-16	7E-17	2E-15	6E-13	1.85E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.$^{+}$ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12100160-004	^{nat}U	6.73E-15	N/A	N/A	1E-16	9E-14	7.48E+00
Third Quarter 2012	^{230}Th	2.59E-15	2E-16	2E-17	1E-16	3E-14	8.62E+00
Air Volume in mLs	^{226}Ra	2.43E-15	5E-17	5E-18	1E-16	9E-13	2.70E-01
1.36E+11	^{210}Pb	1.30E-14	2E-16	4E-17	2E-15	6E-13	2.16E+00

+LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Year for Thorium-230
Week for Radium-226
Day for Lead-210

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 3rd Quarter Air 2012
Lab ID: C12100160-004
Client Sample ID BHV-5

Report Date: 11/10/12
Collection Date: 10/01/12
DateReceived: 10/03/12
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	1.35	mg/filter		0.0003		SW6020	10/09/12 15:20 / smm
Uranium, Activity	915	pCi/Filter		0.2		SW6020	10/09/12 15:20 / smm
RADIONUCLIDES							
Lead 210	1760	pCi/Filter				E909.0	10/30/12 17:48 / eli-cs
Lead 210 precision (±)	23	pCi/Filter				E909.0	10/30/12 17:48 / eli-cs
Lead 210 MDC	5.8	pCi/Filter				E909.0	10/30/12 17:48 / eli-cs
Radium 226	330	pCi/Filter				E903.0	10/17/12 12:37 / lbb
Radium 226 precision (±)	7.2	pCi/Filter				E903.0	10/17/12 12:37 / lbb
Radium 226 MDC	0.7	pCi/Filter				E903.0	10/17/12 12:37 / lbb
Thorium 230	352	pCi/Filter				E908.0	10/17/12 09:25 / dmf
Thorium 230 precision (±)	33	pCi/Filter				E908.0	10/17/12 09:25 / dmf
Thorium 230 MDC	3.0	pCi/Filter				E908.0	10/17/12 09:25 / dmf

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

HIGH VOLUME AIR SAMPLING REPORT

CLIENT: Energy Fuels Resources (USA) Inc
REPORT DATE: November 10, 2012
PROJECT: 3rd Quarter Air 2012

SAMPLE ID: BHV-6

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12040316-005	^{nat}U	4.41E-15	N/A	N/A	1E-16	9E-14	4.90E+00
First Quarter 2012	^{230}Th	1.82E-15	2E-16	2E-17	1E-16	3E-14	6.08E+00
Air Volume in mLs	^{226}Ra	4.00E-16	1E-17	3E-18	1E-16	9E-13	4.45E-02
1.36E+11	^{210}Pb	1.50E-14	1E-16	4E-17	2E-15	6E-13	2.50E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12070341-005	^{nat}U	6.42E-15	N/A	N/A	1E-16	9E-14	7.13E+00
Second Quarter 2012	^{230}Th	2.25E-15	2E-16	1E-17	1E-16	3E-14	7.50E+00
Air Volume in mLs	^{226}Ra	5.11E-16	4E-17	1E-17	1E-16	9E-13	5.67E-02
1.26E+11	^{210}Pb	9.54E-15	2E-16	7E-17	2E-15	6E-13	1.59E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.$^+$ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12100160-005	^{nat}U	6.63E-15	N/A	N/A	1E-16	9E-14	7.36E+00
Third Quarter 2012	^{230}Th	1.31E-15	1E-16	2E-17	1E-16	3E-14	4.36E+00
Air Volume in mLs	^{226}Ra	1.22E-15	4E-17	6E-18	1E-16	9E-13	1.35E-01
1.24E+11	^{210}Pb	1.34E-14	2E-16	5E-17	2E-15	6E-13	2.23E+00

+LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Year for Thorium-230
Week for Radium-226
Day for Lead-210

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 3rd Quarter Air 2012
Lab ID: C12100160-005
Client Sample ID BHV-6

Report Date: 11/10/12
Collection Date: 10/01/12
DateReceived: 10/03/12
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	1.21	mg/filter		0.0003		SW6020	10/09/12 15:22 / smm
Uranium, Activity	819	pCi/Filter		0.2		SW6020	10/09/12 15:22 / smm
RADIONUCLIDES							
Lead 210	1650	pCi/Filter				E909.0	10/30/12 18:57 / eli-cs
Lead 210 precision (±)	22	pCi/Filter				E909.0	10/30/12 18:57 / eli-cs
Lead 210 MDC	5.9	pCi/Filter				E909.0	10/30/12 18:57 / eli-cs
Radium 226	151	pCi/Filter				E903.0	10/17/12 14:10 / lbb
Radium 226 precision (±)	5.1	pCi/Filter				E903.0	10/17/12 14:10 / lbb
Radium 226 MDC	0.7	pCi/Filter				E903.0	10/17/12 14:10 / lbb
Thorium 230	162	pCi/Filter				E908.0	10/17/12 09:25 / dmf
Thorium 230 precision (±)	16	pCi/Filter				E908.0	10/17/12 09:25 / dmf
Thorium 230 MDC	1.9	pCi/Filter				E908.0	10/17/12 09:25 / dmf

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

HIGH VOLUME AIR SAMPLING REPORT

CLIENT: Energy Fuels Resources (USA) Inc
REPORT DATE: November 10, 2012
PROJECT: 3rd Quarter Air 2012

SAMPLE ID: Blank

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12040316-006	^{nat}U	1.37E-17	N/A	N/A	1E-16	9E-14	1.52E-02
First Quarter 2012	^{230}Th	5.82E-18	2E-18	2E-18	1E-16	3E-14	1.94E-02
Air Volume in mLs	^{226}Ra	7.24E-18	2E-18	3E-18	1E-16	9E-13	8.04E-04
1.36E+11	^{210}Pb	-5.71E-18	2E-17	4E-17	2E-15	6E-13	-9.52E-04

Note: This sample uses 136,000,000 L of air volume for comparison purposes.

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12070341-006	^{nat}U	2.08E-17	N/A	N/A	1E-16	9E-14	2.31E-02
Second Quarter 2012	^{230}Th	7.76E-18	2E-18	2E-18	1E-16	3E-14	2.59E-02
Air Volume in mLs	^{226}Ra	2.00E-18	5E-18	9E-18	1E-16	9E-13	2.22E-04
1.36E+11	^{210}Pb	1.82E-17	4E-17	7E-17	2E-15	6E-13	3.04E-03

Note: This sample uses 136,000,000 L of air volume for comparison purposes.

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.$^{+}$ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12100160-006	^{nat}U	1.81E-17	N/A	N/A	1E-16	9E-14	2.02E-02
Third Quarter 2012	^{230}Th	6.30E-18	2E-18	2E-18	1E-16	3E-14	2.10E-02
Air Volume in mLs	^{226}Ra	1.05E-18	3E-18	6E-18	1E-16	9E-13	1.17E-04
1.36E+11	^{210}Pb	1.62E-17	3E-17	4E-17	2E-15	6E-13	2.71E-03

Note: This sample uses 136,000,000 L of air volume for comparison purposes.

+LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Year for Thorium-230
Week for Radium-226
Day for Lead-210

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 3rd Quarter Air 2012
Lab ID: C12100160-006
Client Sample ID Blank

Report Date: 11/10/12
Collection Date: 10/01/12
DateReceived: 10/03/12
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.0036	mg/filter		0.0003		SW6020	10/09/12 15:29 / smm
Uranium, Activity	2.5	pCi/Filter		0.2		SW6020	10/09/12 15:29 / smm
RADIONUCLIDES							
Lead 210	2.2	pCi/Filter	U			E909.0	10/30/12 20:07 / eli-cs
Lead 210 precision (±)	3.6	pCi/Filter				E909.0	10/30/12 20:07 / eli-cs
Lead 210 MDC	5.9	pCi/Filter				E909.0	10/30/12 20:07 / eli-cs
Radium 226	0.1	pCi/Filter	U			E903.0	10/17/12 14:10 / lbb
Radium 226 precision (±)	0.5	pCi/Filter				E903.0	10/17/12 14:10 / lbb
Radium 226 MDC	0.8	pCi/Filter				E903.0	10/17/12 14:10 / lbb
Thorium 230	0.86	pCi/Filter				E908.0	10/17/12 09:25 / dmf
Thorium 230 precision (±)	0.31	pCi/Filter				E908.0	10/17/12 09:25 / dmf
Thorium 230 MDC	0.29	pCi/Filter				E908.0	10/17/12 09:25 / dmf

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 3rd Quarter Air 2012

Report Date: 11/10/12
Work Order: C12100160

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: R165941
Sample ID: C12100037-004AMS		Sample Matrix Spike				Run: BERTHOLD 770-1_121011A				10/17/12 09:26
Radium 226		9.41E-07	pCi/Filter		99	70	130			
Sample ID: C12100037-004AMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-1_121011A				10/17/12 09:26
Radium 226		8.74E-07	pCi/Filter		100	70	130	7.4	22.3	
Sample ID: LCS-35265		Laboratory Control Sample				Run: BERTHOLD 770-1_121011A				10/17/12 12:37
Radium 226		17.4	pCi/Filter		90	70	130			
Sample ID: MB-35265	3	Method Blank				Run: BERTHOLD 770-1_121011A				10/17/12 12:37
Radium 226		-0.06	pCi/Filter							U
Radium 226 precision (±)		0.2	pCi/Filter							
Radium 226 MDC		0.3	pCi/Filter							

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc

Report Date: 11/10/12

Project: 3rd Quarter Air 2012

Work Order: C12100160

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0										Batch: 35306
Sample ID: C12100250-002AMS		Sample Matrix Spike				Run: ALPHANALYST_121015A			10/17/12 09:25	
Thorium 230		51.1	pCi/Filter		104	70	130			
Sample ID: C12100250-002AMSD		Sample Matrix Spike Duplicate				Run: ALPHANALYST_121015A			10/17/12 09:25	
Thorium 230		50.1	pCi/Filter		103	70	130	2.2	30.3	
Sample ID: LCS-35306		Laboratory Control Sample				Run: ALPHANALYST_121015A			10/17/12 09:25	
Thorium 230		17.7	pCi/Filter		108	80	120			
Sample ID: MB-35306	3	Method Blank				Run: ALPHANALYST_121015A			10/17/12 09:25	
Thorium 230		0.1	pCi/Filter							U
Thorium 230 precision (±)		0.1	pCi/Filter							
Thorium 230 MDC		0.2	pCi/Filter							

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc

Project: 3rd Quarter Air 2012

Report Date: 11/10/12

Work Order: C12100160

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0										Batch: T_17273
Sample ID: MB-17273	3	Method Blank				Run: SUB-T47886				10/30/12 12:01
Lead 210		0.09	pCi/Filter							U
Lead 210 precision (±)		3	pCi/Filter							
Lead 210 MDC		6	pCi/Filter							
Sample ID: LCS-17273		Laboratory Control Sample				Run: SUB-T47886				10/30/12 13:11
Lead 210		596	pCi/Filter		94	70	130			
Sample ID: C12100242-001AMS		Sample Matrix Spike				Run: SUB-T47886				10/30/12 22:25
Lead 210		2790	pCi/Filter		97	70	130			
Sample ID: C12100242-001AMSD		Sample Matrix Spike Duplicate				Run: SUB-T47886				10/30/12 23:35
Lead 210		2760	pCi/Filter		96	70	130	1.2	13.6	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 3rd Quarter Air 2012

Report Date: 11/10/12
Work Order: C12100160

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Analytical Run: ICPMS2-C_121009B
Sample ID: ICV		Initial Calibration Verification Standard								10/09/12 12:18
Uranium		0.0488	mg/L	0.00030	98	90	110			
Method: SW6020										Batch: 35306
Sample ID: MB-35306		Method Blank				Run: ICPMS2-C_121009B				10/09/12 15:09
Uranium		8E-05	mg/filter	6E-05						
Sample ID: LCS2-35306		Laboratory Control Sample				Run: ICPMS2-C_121009B				10/09/12 15:11
Uranium		0.0830	mg/filter	0.00030	83	75	125			
Sample ID: C12100160-001ADIL		Serial Dilution				Run: ICPMS2-C_121009B				10/09/12 15:16
Uranium		0.253	mg/filter	0.0014				17	20	
Sample ID: C12100250-002AMS		Sample Matrix Spike				Run: ICPMS2-C_121009B				10/09/12 15:36
Uranium		0.0482	mg/filter	0.00030	96	75	125			
Sample ID: C12100250-002AMSD		Sample Matrix Spike Duplicate				Run: ICPMS2-C_121009B				10/09/12 15:37
Uranium		0.0499	mg/filter	0.00030	99	75	125	3.6	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

Energy Fuels Resources (USA) Inc C12100160

Login completed by: Dorian Quis
Reviewed by: BL2000\swaldrop
Reviewed Date: 10/5/2012

Date Received: 10/3/2012
Received by: tjp
Carrier name: NDA

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? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☐	No ☐	Not Applicable ☑
Container/Temp Blank temperature:	NA °C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Contact and Corrective Action Comments:

None

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: Energy Fuels

Project Name, PWS, Permit, Etc.: 3rd Quarter Air 2012

Sample Origin State: UT

EPA/State Compliance: Yes ☒ No ☐

Report Mail Address: P.O. Box 809
Blanding UT, 84511

Contact Name: Garrin Palmer

Phone/Fax: 435678 2221

Email:

Sampler: (Please Print) Garrin Palmer

Invoice Address: Same

Invoice Contact & Phone: Same

Purchase Order:

Quote/Bottle Order:

Special Report/Formats:

☐ DW
☐ POTW/WWTP
☐ State: ____________
☐ Other: ____________
☐ EDD/EDT (Electronic Data) Format: ____________
☐ LEVEL IV
☐ NELAC

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Shipped by: UPS-NDA

Cooler ID(s): Box

Receipt Temp NA °C

On Ice: Y N

Custody Seal
On Bottle Y N
On Cooler Y N

Intact Y N

Signature Match Y N

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers, Sample Type: A W S V B O DW, Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water)	ANALYSIS REQUESTED U-Nat	Th-230	Ra-226	Pb-210						SEE ATTACHED	Standard Turnaround (TAT)	RUSH	Comments:	LABORATORY USE ONLY
1 BHU-1			13-A	X	X	X	X										
2 BHU-2				X	X	X	X										
3 BHU-4				X	X	X	X										
4 BHU-5				X	X	X	X										
5 BHU-6				X	X	X	X									C12100160	
6 Blank				X	X	X	X										
7																	
8																	
9																	
10																	

Custody Record MUST be Signed

Relinquished by (print): Garrin Palmer Date/Time: 10/1/12 1300 Signature: Garrin Palmer

Relinquished by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Date/Time: 10312/915 Signature: Alessa Parke

Sample Disposal: Return to Client: ____________ Lab Disposal: ____________

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ENERGY LABORATORIES
www.energylab.com
Analytical Excellence Since 1952
Helena, MT 877-472-0711 • Billings, MT 800-735-4489 • Casper, WY 888-235-0515
Gillette, WY 866-686-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-690-2218

ANALYTICAL SUMMARY REPORT

January 29, 2013

Energy Fuels Resources (USA) Inc
225 Union Blvd Ste 600
Lakewood, CO 80228-1826

Workorder No.: C13010107

Project Name: 4th Quarter Air 2012

Energy Laboratories, Inc. Casper WY received the following 6 samples for Energy Fuels Resources (USA) Inc on 1/4/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13010107-001	BHV-1	12/31/12 00:00	01/04/13	Filter	Composite of two or more samples Metals, Total Digestion, Total Metals Lead 210 Radium 226 Thorium, Isotopic
C13010107-002	BHV-2	12/31/12 00:00	01/04/13	Filter	Same As Above
C13010107-003	BHV-4	12/31/12 00:00	01/04/13	Filter	Same As Above
C13010107-004	BHV-5	12/31/12 00:00	01/04/13	Filter	Same As Above
C13010107-005	BHV-6	12/31/12 00:00	01/04/13	Filter	Same As Above
C13010107-006	Blank	12/31/12 00:00	01/04/13	Filter	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these test results, please call.

Report Approved By:

Interim Branch Manager

Digitally signed by
Steve Carlston
Date: 2013.01.29 15:29:02 -07:00

CLIENT: Energy Fuels Resources (USA) Inc
Project: 4th Quarter Air 2012
Sample Delivery Group: C13010107

Report Date: 01/29/13

CASE NARRATIVE

Tests associated with analyst identified as ELI-CS were subcontracted to Energy Laboratories, 415 Graham Rd., College Station, TX, EPA Number TX01520.

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

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.

GROSS ALPHA ANALYSIS
Method 900.0 for gross alpha and gross beta is intended as a drinking water method for low TDS waters. Data provided by this method for non potable waters should be viewed as inconsistent.

RADON IN AIR ANALYSIS
The desired exposure time is 48 hours (2 days). The time delay in returning the canister to the laboratory for processing should be as short as possible to avoid excessive decay. Maximum recommended delay between end of exposure to beginning of counting should not exceed 8 days.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS
Data for PCBs, Atrazine and Simazine are reported from EPA 525.2. PCB data reported by ELI reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

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.

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

CERTIFICATIONS:
USEPA: WY00002, Radiochemical WY00937; FL-DOH NELAC: E87641, Radiochemical E871017; California: 02118CA; Oregon: WY200001, Radiochemical WY200002; Utah: WY00002; Washington: C836

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

HIGH VOLUME AIR SAMPLING REPORT

CLIENT: Energy Fuels Resources (USA) Inc
REPORT DATE: January 29, 2013
PROJECT: 4th Quarter Air 2012

SAMPLE ID: BHV-1

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12040316-001	^{nat}U	7.87E-16	N/A	N/A	1E-16	9E-14	8.75E-01
First Quarter 2012	^{230}Th	2.64E-16	3E-17	6E-18	1E-16	3E-14	8.80E-01
Air Volume in mLs	^{226}Ra	3.95E-16	1E-17	3E-18	1E-16	9E-13	4.39E-02
1.37E+11	^{210}Pb	1.25E-14	1E-16	4E-17	2E-15	6E-13	2.08E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12070341-001	^{nat}U	1.86E-15	N/A	N/A	1E-16	9E-14	2.06E+00
Second Quarter 2012	^{230}Th	8.33E-16	9E-17	7E-18	1E-16	3E-14	2.78E+00
Air Volume in mLs	^{226}Ra	9.85E-16	5E-17	9E-18	1E-16	9E-13	1.09E-01
1.33E+11	^{210}Pb	9.55E-15	2E-16	6E-17	2E-15	6E-13	1.59E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12100160-001	^{nat}U	1.06E-15	N/A	N/A	1E-16	9E-14	1.18E+00
Third Quarter 2012	^{230}Th	2.11E-16	3E-17	8E-18	1E-16	3E-14	7.04E-01
Air Volume in mLs	^{226}Ra	2.34E-16	2E-17	7E-18	1E-16	9E-13	2.60E-02
1.36E+11	^{210}Pb	1.13E-14	2E-16	4E-17	2E-15	6E-13	1.88E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.$^{+}$ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C13010107-001	^{nat}U	6.86E-16	N/A	N/A	1E-16	9E-14	7.62E-01
Fourth Quarter 2012	^{230}Th	1.27E-16	2E-17	9E-18	1E-16	3E-14	4.22E-01
Air Volume in mLs	^{226}Ra	1.38E-16	1E-17	6E-18	1E-16	9E-13	1.53E-02
1.37E+11	^{210}Pb	1.54E-14	1E-16	5E-17	2E-15	6E-13	2.56E+00

+LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Year for Thorium-230
Week for Radium-226
Day for Lead-210

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 4th Quarter Air 2012
Lab ID: C13010107-001
Client Sample ID BHV-1

Report Date: 01/29/13
Collection Date: 12/31/12
DateReceived: 01/04/13
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.138	mg/filter		0.0003		SW6020	01/18/13 04:58 / clm
Uranium, Activity	93.7	pCi/Filter		0.2		SW6020	01/18/13 04:58 / clm
RADIONUCLIDES							
Lead 210	2100	pCi/Filter				E909.0	01/19/13 09:13 / eli-cs
Lead 210 precision (±)	19	pCi/Filter				E909.0	01/19/13 09:13 / eli-cs
Lead 210 MDC	6.7	pCi/Filter				E909.0	01/19/13 09:13 / eli-cs
Radium 226	18.9	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Radium 226 precision (±)	2.0	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Radium 226 MDC	0.8	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Thorium 230	17	pCi/Filter				E908.0	01/15/13 20:01 / dmf
Thorium 230 precision (±)	3.0	pCi/Filter				E908.0	01/15/13 20:01 / dmf
Thorium 230 MDC	1.2	pCi/Filter				E908.0	01/15/13 20:01 / dmf

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

HIGH VOLUME AIR SAMPLING REPORT

CLIENT: Energy Fuels Resources (USA) Inc
REPORT DATE: January 29, 2013
PROJECT: 4th Quarter Air 2012

SAMPLE ID: BHV-2

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12040316-002	^{nat}U	4.22E-16	N/A	N/A	1E-16	9E-14	4.68E-01
First Quarter 2012	^{230}Th	1.15E-16	2E-17	4E-18	1E-16	3E-14	3.84E-01
Air Volume in mLs	^{226}Ra	2.77E-16	9E-18	3E-18	1E-16	9E-13	3.07E-02
1.37E+11	^{210}Pb	1.58E-14	1E-16	4E-17	2E-15	6E-13	2.63E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12070341-002	^{nat}U	3.39E-16	N/A	N/A	1E-16	9E-14	3.76E-01
Second Quarter 2012	^{230}Th	1.56E-16	2E-17	5E-18	1E-16	3E-14	5.19E-01
Air Volume in mLs	^{226}Ra	1.74E-16	2E-17	9E-18	1E-16	9E-13	1.94E-02
1.34E+11	^{210}Pb	8.60E-15	2E-16	6E-17	2E-15	6E-13	1.43E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12100160-002	^{nat}U	3.13E-16	N/A	N/A	1E-16	9E-14	3.48E-01
Third Quarter 2012	^{230}Th	4.13E-17	8E-18	4E-18	1E-16	3E-14	1.38E-01
Air Volume in mLs	^{226}Ra	3.04E-17	7E-18	5E-18	1E-16	9E-13	3.37E-03
1.36E+11	^{210}Pb	1.03E-14	1E-16	4E-17	2E-15	6E-13	1.72E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.$^+$ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C13010107-002	^{nat}U	2.76E-16	N/A	N/A	1E-16	9E-14	3.07E-01
Fourth Quarter 2012	^{230}Th	5.41E-17	9E-18	3E-18	1E-16	3E-14	1.80E-01
Air Volume in mLs	^{226}Ra	7.05E-17	9E-18	5E-18	1E-16	9E-13	7.84E-03
1.37E+11	^{210}Pb	1.48E-14	1E-16	5E-17	2E-15	6E-13	2.47E+00

+LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Year for Thorium-230
Week for Radium-226
Day for Lead-210

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 4th Quarter Air 2012
Lab ID: C13010107-002
Client Sample ID BHV-2

Report Date: 01/29/13
Collection Date: 12/31/12
DateReceived: 01/04/13
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.0558	mg/filter		0.0003		SW6020	01/18/13 05:17 / clm
Uranium, Activity	37.8	pCi/Filter		0.2		SW6020	01/18/13 05:17 / clm
RADIONUCLIDES							
Lead 210	2020	pCi/Filter				E909.0	01/19/13 11:18 / eli-cs
Lead 210 precision (±)	18	pCi/Filter				E909.0	01/19/13 11:18 / eli-cs
Lead 210 MDC	6.7	pCi/Filter				E909.0	01/19/13 11:18 / eli-cs
Radium 226	9.6	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Radium 226 precision (±)	1.3	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Radium 226 MDC	0.7	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Thorium 230	7.4	pCi/Filter				E908.0	01/15/13 20:01 / dmf
Thorium 230 precision (±)	1.3	pCi/Filter				E908.0	01/15/13 20:01 / dmf
Thorium 230 MDC	0.46	pCi/Filter				E908.0	01/15/13 20:01 / dmf

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

HIGH VOLUME AIR SAMPLING REPORT

CLIENT: Energy Fuels Resources (USA) Inc
REPORT DATE: January 29, 2013
PROJECT: 4th Quarter Air 2012

SAMPLE ID: BHV-4

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12040316-003	^{nat}U	2.51E-15	N/A	N/A	1E-16	9E-14	2.79E+00
First Quarter 2012	^{230}Th	5.02E-16	6E-17	9E-18	1E-16	3E-14	1.67E+00
Air Volume in mLs	^{226}Ra	2.27E-16	8E-18	3E-18	1E-16	9E-13	2.52E-02
1.36E+11	^{210}Pb	1.03E-14	1E-16	4E-17	2E-15	6E-13	1.72E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12070341-003	^{nat}U	2.62E-15	N/A	N/A	1E-16	9E-14	2.91E+00
Second Quarter 2012	^{230}Th	1.23E-15	1E-16	6E-18	1E-16	3E-14	4.10E+00
Air Volume in mLs	^{226}Ra	2.97E-16	3E-17	9E-18	1E-16	9E-13	3.30E-02
1.35E+11	^{210}Pb	9.27E-15	2E-16	6E-17	2E-15	6E-13	1.55E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12100160-003	^{nat}U	4.05E-15	N/A	N/A	1E-16	9E-14	4.50E+00
Third Quarter 2012	^{230}Th	8.33E-16	8E-17	9E-18	1E-16	3E-14	2.78E+00
Air Volume in mLs	^{226}Ra	5.43E-16	3E-17	6E-18	1E-16	9E-13	6.03E-02
1.36E+11	^{210}Pb	1.21E-14	2E-16	4E-17	2E-15	6E-13	2.02E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.$^{+}$ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C13010107-003	^{nat}U	2.32E-15	N/A	N/A	1E-16	9E-14	2.58E+00
Fourth Quarter 2012	^{230}Th	5.89E-16	7E-17	2E-17	1E-16	3E-14	1.96E+00
Air Volume in mLs	^{226}Ra	3.75E-16	2E-17	5E-18	1E-16	9E-13	4.16E-02
1.35E+11	^{210}Pb	1.56E-14	1E-16	5E-17	2E-15	6E-13	2.61E+00

+LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Year for Thorium-230
Week for Radium-226
Day for Lead-210

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Energy Fuels Resources (USA) Inc	**Report Date:**	01/29/13
Project:	4th Quarter Air 2012	**Collection Date:**	12/31/12
Lab ID:	C13010107-003	**DateReceived:**	01/04/13
Client Sample ID	BHV-4	**Matrix:**	Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.462	mg/filter		0.0003		SW6020	01/18/13 05:20 / clm
Uranium, Activity	313	pCi/Filter		0.2		SW6020	01/18/13 05:20 / clm
RADIONUCLIDES							
Lead 210	2110	pCi/Filter				E909.0	01/19/13 13:23 / eli-cs
Lead 210 precision (±)	19	pCi/Filter				E909.0	01/19/13 13:23 / eli-cs
Lead 210 MDC	6.7	pCi/Filter				E909.0	01/19/13 13:23 / eli-cs
Radium 226	50.5	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Radium 226 precision (±)	2.8	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Radium 226 MDC	0.7	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Thorium 230	79	pCi/Filter				E908.0	01/15/13 20:01 / dmf
Thorium 230 precision (±)	9.5	pCi/Filter				E908.0	01/15/13 20:01 / dmf
Thorium 230 MDC	2.1	pCi/Filter				E908.0	01/15/13 20:01 / dmf

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

HIGH VOLUME AIR SAMPLING REPORT

CLIENT: Energy Fuels Resources (USA) Inc
REPORT DATE: January 29, 2013
PROJECT: 4th Quarter Air 2012

SAMPLE ID: BHV-5

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12040316-004	^{nat}U	5.52E-15	N/A	N/A	1E-16	9E-14	6.13E+00
First Quarter 2012	^{230}Th	3.24E-15	3E-16	2E-17	1E-16	3E-14	1.08E+01
Air Volume in mLs	^{226}Ra	1.79E-15	2E-17	3E-18	1E-16	9E-13	1.99E-01
1.36E+11	^{210}Pb	1.55E-14	1E-16	4E-17	2E-15	6E-13	2.58E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12070341-004	^{nat}U	5.87E-15	N/A	N/A	1E-16	9E-14	6.52E+00
Second Quarter 2012	^{230}Th	3.06E-15	3E-16	2E-17	1E-16	3E-14	1.02E+01
Air Volume in mLs	^{226}Ra	1.21E-15	6E-17	1E-17	1E-16	9E-13	1.35E-01
1.22E+11	^{210}Pb	1.11E-14	2E-16	7E-17	2E-15	6E-13	1.85E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12100160-004	^{nat}U	6.73E-15	N/A	N/A	1E-16	9E-14	7.48E+00
Third Quarter 2012	^{230}Th	2.59E-15	2E-16	2E-17	1E-16	3E-14	8.62E+00
Air Volume in mLs	^{226}Ra	2.43E-15	5E-17	5E-18	1E-16	9E-13	2.70E-01
1.36E+11	^{210}Pb	1.30E-14	2E-16	4E-17	2E-15	6E-13	2.16E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.$^+$ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C13010107-004	^{nat}U	4.50E-15	N/A	N/A	1E-16	9E-14	5.00E+00
Fourth Quarter 2012	^{230}Th	1.62E-15	2E-16	1E-17	1E-16	3E-14	5.41E+00
Air Volume in mLs	^{226}Ra	1.79E-15	5E-17	5E-18	1E-16	9E-13	1.99E-01
1.35E+11	^{210}Pb	1.74E-14	1E-16	5E-17	2E-15	6E-13	2.91E+00

+LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Year for Thorium-230
Week for Radium-226
Day for Lead-210

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Energy Fuels Resources (USA) Inc	**Report Date:**	01/29/13
Project:	4th Quarter Air 2012	**Collection Date:**	12/31/12
Lab ID:	C13010107-004	**DateReceived:**	01/04/13
Client Sample ID	BHV-5	**Matrix:**	Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.899	mg/filter		0.0003		SW6020	01/18/13 05:23 / clm
Uranium, Activity	609	pCi/Filter		0.2		SW6020	01/18/13 05:23 / clm
RADIONUCLIDES							
Lead 210	2360	pCi/Filter				E909.0	01/19/13 15:28 / eli-cs
Lead 210 precision (±)	20	pCi/Filter				E909.0	01/19/13 15:28 / eli-cs
Lead 210 MDC	6.7	pCi/Filter				E909.0	01/19/13 15:28 / eli-cs
Radium 226	243	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Radium 226 precision (±)	6.1	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Radium 226 MDC	0.7	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Thorium 230	219	pCi/Filter				E908.0	01/15/13 20:01 / dmf
Thorium 230 precision (±)	21	pCi/Filter				E908.0	01/15/13 20:01 / dmf
Thorium 230 MDC	1.8	pCi/Filter				E908.0	01/15/13 20:01 / dmf

Report Definitions:

RL - Analyte reporting limit.

QCL - Quality control limit.

MDC - Minimum detectable concentration

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

HIGH VOLUME AIR SAMPLING REPORT

CLIENT: Energy Fuels Resources (USA) Inc
REPORT DATE: January 29, 2013
PROJECT: 4th Quarter Air 2012

SAMPLE ID: BHV-6

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12040316-005	^{nat}U	4.41E-15	N/A	N/A	1E-16	9E-14	4.90E+00
First Quarter 2012	^{230}Th	1.82E-15	2E-16	2E-17	1E-16	3E-14	6.08E+00
Air Volume in mLs	^{226}Ra	4.00E-16	1E-17	3E-18	1E-16	9E-13	4.45E-02
1.36E+11	^{210}Pb	1.50E-14	1E-16	4E-17	2E-15	6E-13	2.50E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12070341-005	^{nat}U	6.42E-15	N/A	N/A	1E-16	9E-14	7.13E+00
Second Quarter 2012	^{230}Th	2.25E-15	2E-16	1E-17	1E-16	3E-14	7.50E+00
Air Volume in mLs	^{226}Ra	5.11E-16	4E-17	1E-17	1E-16	9E-13	5.67E-02
1.26E+11	^{210}Pb	9.54E-15	2E-16	7E-17	2E-15	6E-13	1.59E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12100160-005	^{nat}U	6.63E-15	N/A	N/A	1E-16	9E-14	7.36E+00
Third Quarter 2012	^{230}Th	1.31E-15	1E-16	2E-17	1E-16	3E-14	4.36E+00
Air Volume in mLs	^{226}Ra	1.22E-15	4E-17	6E-18	1E-16	9E-13	1.35E-01
1.24E+11	^{210}Pb	1.34E-14	2E-16	5E-17	2E-15	6E-13	2.23E+00

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.$^{+}$ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C13010107-005	^{nat}U	3.83E-15	N/A	N/A	1E-16	9E-14	4.26E+00
Fourth Quarter 2012	^{230}Th	1.18E-15	1E-16	2E-17	1E-16	3E-14	3.93E+00
Air Volume in mLs	^{226}Ra	9.30E-16	3E-17	5E-18	1E-16	9E-13	1.03E-01
1.35E+11	^{210}Pb	1.60E-14	1E-16	5E-17	2E-15	6E-13	2.66E+00

+LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Year for Thorium-230
Week for Radium-226
Day for Lead-210

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 4th Quarter Air 2012
Lab ID: C13010107-005
Client Sample ID BHV-6

Report Date: 01/29/13
Collection Date: 12/31/12
DateReceived: 01/04/13
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.765	mg/filter		0.0003		SW6020	01/18/13 05:26 / clm
Uranium, Activity	518	pCi/Filter		0.2		SW6020	01/18/13 05:26 / clm
RADIONUCLIDES							
Lead 210	2160	pCi/Filter				E909.0	01/19/13 17:33 / eli-cs
Lead 210 precision (±)	19	pCi/Filter				E909.0	01/19/13 17:33 / eli-cs
Lead 210 MDC	6.7	pCi/Filter				E909.0	01/19/13 17:33 / eli-cs
Radium 226	126	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Radium 226 precision (±)	4.6	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Radium 226 MDC	0.7	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Thorium 230	159	pCi/Filter				E908.0	01/15/13 20:01 / dmf
Thorium 230 precision (±)	16	pCi/Filter				E908.0	01/15/13 20:01 / dmf
Thorium 230 MDC	2.0	pCi/Filter				E908.0	01/15/13 20:01 / dmf

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

HIGH VOLUME AIR SAMPLING REPORT

CLIENT: Energy Fuels Resources (USA) Inc
REPORT DATE: January 29, 2013
PROJECT: 4th Quarter Air 2012

SAMPLE ID: Blank

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12040316-006	^{nat}U	1.37E-17	N/A	N/A	1E-16	9E-14	1.52E-02
First Quarter 2012	^{230}Th	5.82E-18	2E-18	2E-18	1E-16	3E-14	1.94E-02
Air Volume in mLs	^{226}Ra	7.24E-18	2E-18	3E-18	1E-16	9E-13	8.04E-04
1.36E+11	^{210}Pb	-5.71E-18	2E-17	4E-17	2E-15	6E-13	-9.52E-04

Note: This sample uses 136,000,000 L of air volume for comparison purposes.

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12070341-006	^{nat}U	2.08E-17	N/A	N/A	1E-16	9E-14	2.31E-02
Second Quarter 2012	^{230}Th	7.76E-18	2E-18	2E-18	1E-16	3E-14	2.59E-02
Air Volume in mLs	^{226}Ra	2.00E-18	5E-18	9E-18	1E-16	9E-13	2.22E-04
1.36E+11	^{210}Pb	1.82E-17	4E-17	7E-17	2E-15	6E-13	3.04E-03

Note: This sample uses 136,000,000 L of air volume for comparison purposes.

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.+ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C12100160-006	^{nat}U	1.81E-17	N/A	N/A	1E-16	9E-14	2.02E-02
Third Quarter 2012	^{230}Th	6.30E-18	2E-18	2E-18	1E-16	3E-14	2.10E-02
Air Volume in mLs	^{226}Ra	1.05E-18	3E-18	6E-18	1E-16	9E-13	1.17E-04
1.36E+11	^{210}Pb	1.62E-17	3E-17	4E-17	2E-15	6E-13	2.71E-03

Note: This sample uses 136,000,000 L of air volume for comparison purposes.

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/mL	Counting Precision µCi/mL	MDC µCi/mL	L.L.D.$^+$ µCi/mL	Effluent Conc.* µCi/mL	% Effluent Concentration
C13010107-006	^{nat}U	1.26E-17	N/A	N/A	1E-16	9E-14	1.40E-02
Fourth Quarter 2012	^{230}Th	3.46E-18	2E-18	2E-18	1E-16	3E-14	1.15E-02
Air Volume in mLs	^{226}Ra	5.04E-18	4E-18	5E-18	1E-16	9E-13	5.60E-04
1.36E+11	^{210}Pb	-1.50E-17	3E-17	5E-17	2E-15	6E-13	-2.49E-03

Note: This sample uses 136,000,000 L of air volume for comparison purposes.

+LLD's are from Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Year for Thorium-230
Week for Radium-226
Day for Lead-210

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Energy Fuels Resources (USA) Inc	**Report Date:**	01/29/13
Project:	4th Quarter Air 2012	**Collection Date:**	12/31/12
Lab ID:	C13010107-006	**DateReceived:**	01/04/13
Client Sample ID	Blank	**Matrix:**	Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.0025	mg/filter		0.0003		SW6020	01/18/13 05:29 / clm
Uranium, Activity	1.7	pCi/Filter		0.2		SW6020	01/18/13 05:29 / clm
RADIONUCLIDES							
Lead 210	-2	pCi/Filter	U			E909.0	01/19/13 19:38 / eli-cs
Lead 210 precision (±)	3.9	pCi/Filter				E909.0	01/19/13 19:38 / eli-cs
Lead 210 MDC	6.7	pCi/Filter				E909.0	01/19/13 19:38 / eli-cs
Radium 226	0.7	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Radium 226 precision (±)	0.5	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Radium 226 MDC	0.7	pCi/Filter				E903.0	01/21/13 13:28 / lbb
Thorium 230	0.47	pCi/Filter				E908.0	01/15/13 20:01 / dmf
Thorium 230 precision (±)	0.22	pCi/Filter				E908.0	01/15/13 20:01 / dmf
Thorium 230 MDC	0.24	pCi/Filter				E908.0	01/15/13 20:01 / dmf

Report Definitions:	RL - Analyte reporting limit.	MCL - Maximum contaminant level.
	QCL - Quality control limit.	ND - Not detected at the reporting limit.
	MDC - Minimum detectable concentration	U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 4th Quarter Air 2012

Report Date: 01/29/13
Work Order: C13010107

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: 36193
Sample ID: LCS-36193		Laboratory Control Sample				Run: BERTHOLD 770-2_130114A				01/21/13 13:28
Radium 226		12.1	pCi/Filter		103	80	120			
Sample ID: MB-36193	3	Method Blank				Run: BERTHOLD 770-2_130114A				01/21/13 13:28
Radium 226		0.02	pCi/Filter							U
Radium 226 precision (±)		0.2	pCi/Filter							
Radium 226 MDC		0.3	pCi/Filter							
Sample ID: C13010112-008AMS		Sample Matrix Spike				Run: BERTHOLD 770-2_130114A				01/21/13 15:30
Radium 226		7.09E-06	pCi/Filter		87	70	130			
Sample ID: C13010112-008AMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-2_130114A				01/21/13 15:30
Radium 226		7.28E-06	pCi/Filter		92	70	130	2.6	25.8	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc

Project: 4th Quarter Air 2012

Report Date: 01/29/13

Work Order: C13010107

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0										Batch: 36193
Sample ID: C13010112-006AMS		Sample Matrix Spike				Run: ALPHANALYST_130110B				01/15/13 20:02
Thorium 230		6.06E-06	pCi/Filter		90	70	130			
Sample ID: C13010112-006AMSD		Sample Matrix Spike Duplicate				Run: ALPHANALYST_130110B				01/15/13 20:02
Thorium 230		6.05E-06	pCi/Filter		90	70	130	0.0	30.5	
Sample ID: LCS-36193		Laboratory Control Sample				Run: ALPHANALYST_130110B				01/15/13 20:02
Thorium 230		13.7	pCi/Filter		84	80	120			
Sample ID: MB-36193	3	Method Blank				Run: ALPHANALYST_130110B				01/15/13 20:02
Thorium 230		0.2	pCi/Filter							
Thorium 230 precision (±)		0.1	pCi/Filter							
Thorium 230 MDC		0.1	pCi/Filter							

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 4th Quarter Air 2012

Report Date: 01/29/13
Work Order: C13010107

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0										Batch: T_17838
Sample ID: MB-17838	3	Method Blank				Run: SUB-T49086				01/18/13 22:48
Lead 210		-2	pCi/Filter							U
Lead 210 precision (±)		4	pCi/Filter							
Lead 210 MDC		7	pCi/Filter							
Sample ID: LCS-17838		Laboratory Control Sample				Run: SUB-T49086				01/19/13 00:53
Lead 210		129	pCi/Filter		98	70	130			
Sample ID: T13010038-001AMS		Sample Matrix Spike				Run: SUB-T49086				01/19/13 05:03
Lead 210		2.90E-05	pCi/Filter		100	70	130			
Sample ID: T13010038-001AMSD		Sample Matrix Spike Duplicate				Run: SUB-T49086				01/19/13 07:08
Lead 210		2.88E-05	pCi/Filter		98	70	130	0.6	14.1	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 4th Quarter Air 2012

Report Date: 01/29/13
Work Order: C13010107

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Analytical Run: ICPMS2-C_130117A
Sample ID: ICV		Initial Calibration Verification Standard								01/17/13 16:23
Uranium		0.0490	mg/L	0.00030	98	90	110			
Sample ID: ICSA		Interference Check Sample A								01/17/13 16:26
Uranium		1.34E-05	mg/L	0.00030						
Sample ID: ICSAB		Interference Check Sample AB								01/17/13 16:30
Uranium		3.20E-06	mg/L	0.00030						
Method: SW6020										Batch: 36193
Sample ID: MB-36193		Method Blank				Run: ICPMS2-C_130117A				01/18/13 04:36
Uranium		0.0003	mg/filter	9E-06						
Sample ID: LCS2-36193		Laboratory Control Sample				Run: ICPMS2-C_130117A				01/18/13 04:39
Uranium		0.0922	mg/filter	0.00030	92	85	115			
Sample ID: C13010106-001AMS		Sample Matrix Spike				Run: ICPMS2-C_130117A				01/18/13 04:49
Uranium		5.38E-09	mg/filter	0.00030	106	75	125			
Sample ID: C13010106-001AMSD		Sample Matrix Spike Duplicate				Run: ICPMS2-C_130117A				01/18/13 04:51
Uranium		5.33E-09	mg/filter	0.00030	104	75	125		20	
Sample ID: C13010107-001ADIL		Serial Dilution				Run: ICPMS2-C_130117A				01/18/13 05:01
Uranium		0.129	mg/filter	0.00030				7.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

Energy Fuels Resources (USA) Inc

C13010107

Login completed by: Tracy Judge

Reviewed by: BL2000\kmiller

Reviewed Date: 1/7/2013

Date Received: 1/4/2013

Received by: tj

Carrier name: NDA

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? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☐	No ☐	Not Applicable ☑
Container/Temp Blank temperature:	°C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Contact and Corrective Action Comments:

None

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: Energy Fuels	Project Name, PWS, Permit, Etc. 4th Quarter Air 2012	Sample Origin State: UT	EPA/State Compliance: Yes ☒ No ☐
Report Mail Address: PO Box 809 Blanding UT 84511	Contact Name: Garrin Palmer Phone/Fax: 435 678 2221	Email:	Sampler: (Please Print) Tanner Holliday
Invoice Address: Same	Invoice Contact & Phone: Same	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:

☐ DW
☐ POTW/WWTP
☐ State: ___________
☐ Other: ___________
☐ EDD/EDT(Electronic Data)
Format: ___________
☐ LEVEL IV
☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Ups NDA
Cooler ID(s): Box
Receipt Temp N/A °C
On Ice: N/A Y N
Custody Seal
On Bottle Y N
On Cooler [✓ Y] N
Intact [✓ Y] N
Signature Match [✓ Y] N

LABORATORY USE ONLY
C13010107

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	U-Nat	Th-230	Ra-226	Pb-210						
1 BHV-1	10/1/12 –	12/31/12	13-A	X	X	X	X						
2 BHV-2				X	X	X	X						
3 BHV-4				X	X	X	X						
4 BHV-5				X	X	X	X						
5 BHV-6				X	X	X	X						
6 Blank	10/1/12 –	12/31/12	13-A	X	X	X	X						
7													
8													
9													
10													

Custody Record MUST be Signed

Relinquished by (print): Tanner Holliday	Date/Time: 1/3/~~2012~~ 2013 1030	Signature: Tanner Holliday	Received by (print):	Date/Time:	Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal:	Return to Client: ________	Lab Disposal: ________	Received by Laboratory: 1-4-13	Date/Time: 9:40	Signature: Tracy Judge

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Period: October 1, 2012 through December 31, 2012 (4th Quarter 2012)

Page 1

BHV-1 on stream % 100.1%

BHV-1 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	8399829	1-Oct-12	8-Oct-12	4.3481	4.2048	0.1433	41758.1	41592.3	9946.8	10,280,664	0.0139	98.7%	36.5
2	8399824	08-Oct-12	15-Oct-12	4.3236	4.1938	0.1298	41926.0	41758.1	10075.8	10,556,651	0.0123	100.0%	37.0
3	8399818	15-Oct-12	22-Oct-12	4.3494	4.2081	0.1413	42096.4	41926.0	10223.4	10,711,295	0.0132	101.4%	37.0
4	8399807	22-Oct-12	29-Oct-12	4.4734	4.2463	0.2271	42263.9	42096.4	10050.0	10,529,620	0.0216	99.7%	37.0
5	8399806	29-Oct-12	5-Nov-12	4.3803	4.2474	0.1329	42433.5	42263.9	10173.0	10,658,490	0.0125	100.9%	37.0
6	8399095	05-Nov-12	12-Nov-12	4.4683	4.3031	0.1652	42601.2	42433.5	10061.4	10,541,564	0.0157	99.8%	37.0
7	8399094	12-Nov-12	19-Nov-12	4.4480	4.3154	0.1326	42768.7	42601.2	10051.2	10,502,415	0.0126	99.7%	36.9
8	8399083	19-Nov-12	26-Nov-12	4.4462	4.3008	0.1454	42937.3	42768.7	10116.6	10,570,751	0.0138	100.4%	36.9
9	8399081	26-Nov-12	3-Dec-12	4.4831	4.2912	0.1919	43107.7	42937.3	10227.0	10,686,107	0.0180	101.5%	36.9
10	8399075	03-Dec-12	11-Dec-12	4.4506	4.3270	0.1236	43301.7	43107.7	11640.6	12,064,278	0.0102	101.0%	36.6
11	8399065	11-Dec-12	17-Dec-12	4.4074	4.3156	0.0918	43444.0	43301.7	8532.6	8,794,834	0.0104	98.8%	36.4
12	8399063	17-Dec-12	24-Dec-12	4.4035	4.3277	0.0758	43606.7	43444.0	9764.4	10,064,492	0.0075	96.9%	36.4
13	8399058	24-Dec-12	31-Dec-12	4.4106	4.3463	0.0643	43779.4	43606.7	10363.2	10,681,695	0.0060	102.8%	36.4
	Totals	91	2184.0	4.4148077	4.2790385	0.1358			131226	136,642,853	0.0129	100.1%	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	8399828	01-Oct-12	08-Oct-12	4.4674	4.1876	0.2798	51960.3	51794.1	9971.4	10,306,089	0.0271	98.9%	36.5
2	8399823	08-Oct-12	15-Oct-12	4.3764	4.2272	0.1492	52128.2	51960.3	10075.2	10,556,022	0.0141	100.0%	37.0
3	8399817	15-Oct-12	22-Oct-12	4.4137	4.2221	0.1916	52298.5	52128.2	10221.6	10,709,409	0.0179	101.4%	37.0
4	8399808	22-Oct-12	29-Oct-12	4.4843	4.2347	0.2496	52466.1	52298.5	10051.2	10,530,877	0.0237	99.7%	37.0
5	8399805	29-Oct-12	05-Nov-12	4.5460	4.2409	0.3051	52635.0	52466.1	10135.2	10,618,886	0.0287	100.5%	37.0
6	8399096	05-Nov-12	12-Nov-12	4.8766	4.3332	0.5434	52803.2	52635.0	10095.0	10,576,767	0.0514	100.1%	37.0
7	8399093	12-Nov-12	19-Nov-12	4.5138	4.3412	0.1726	52970.5	52803.2	10033.8	10,484,234	0.0165	99.5%	36.9
8	8399084	19-Nov-12	26-Nov-12	4.6285	4.3064	0.3221	53139.4	52970.5	10135.8	10,590,813	0.0304	100.6%	36.9
9	8399080	26-Nov-12	03-Dec-12	4.5580	4.2586	0.2994	53309.4	53139.4	10203.6	10,661,656	0.0281	101.2%	36.9
10	8399074	03-Dec-12	11-Dec-12	4.5734	4.2934	0.2800	53503.5	53309.4	11642.4	12,066,144	0.0232	101.1%	36.6
11	8399066	11-Dec-12	17-Dec-12	4.5492	4.3469	0.2023	53646.0	53503.5	8552.4	8,815,243	0.0229	99.0%	36.4
12	8399062	17-Dec-12	24-Dec-12	4.4478	4.3499	0.0979	53808.7	53646.0	9762.0	10,062,018	0.0097	96.8%	36.4
13	8399057	24-Dec-12	31-Dec-12	4.4165	4.3249	0.0916	53981.6	53808.7	10373.4	10,692,208	0.0086	102.9%	36.4
	Totals	91	2184.0	4.527046	4.28208	0.2450			131253	136,670,366	0.0233	100.1%	36.8

BHV-4 on stream % 98.8%

BHV-4 Total Volume: 4.76E+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	8399827	01-Oct-12	08-Oct-12	4.3582	4.2001	0.1581	27291.9	27125.7	9973.8	10,308,570	0.0153	98.9%	36.5
2	8399822	08-Oct-12	15-Oct-12	4.3491	4.2182	0.1309	27459.7	27291.9	10068.0	10,548,479	0.0124	99.9%	37.0
3	8399816	15-Oct-12	22-Oct-12	4.3754	4.2464	0.1290	27629.1	27459.7	10159.8	10,644,660	0.0121	100.8%	37.0
4	8399809	22-Oct-12	29-Oct-12	4.2593	4.5033	-0.2440	27797.4	27629.1	10102.8	10,584,939	-0.0231	100.2%	37.0
5	8399804	29-Oct-12	05-Nov-12	4.3629	4.2195	0.1434	27967.0	27797.4	10175.4	10,661,004	0.0135	100.9%	37.0
6	8399097	05-Nov-12	12-Nov-12	4.6393	4.3131	0.3262	28132.6	27967.0	9936.6	10,410,808	0.0313	98.6%	37.0
7	8399092	12-Nov-12	19-Nov-12	4.4259	4.2899	0.1360	28299.4	28132.6	10005.6	10,454,768	0.0130	99.3%	36.9
8	8399085	19-Nov-12	26-Nov-12	4.3966	4.3308	0.0658	28468.0	28299.4	10118.4	10,572,632	0.0062	100.4%	36.9
9	8399079	26-Nov-12	03-Dec-12	4.4889	4.3100	0.1789	28639.4	28468.0	10284.0	10,745,666	0.0166	102.0%	36.9
10	8399073	03-Dec-12	11-Dec-12	4.4080	4.2778	0.1302	28833.2	28639.4	11623.2	12,046,245	0.0108	100.9%	36.6
11	8399067	11-Dec-12	17-Dec-12	4.4019	4.3019	0.1000	28967.8	28833.2	8080.8	8,329,149	0.0120	93.5%	36.4
12	8399061	17-Dec-12	24-Dec-12	4.4063	4.3552	0.0511	29112.0	28967.8	8649.6	8,915,430	0.0057	85.8%	36.4
13	8399056	24-Dec-12	31-Dec-12	4.4375	4.3431	0.0944	29284.5	29112.0	10351.2	10,669,326	0.0088	102.7%	36.4
	Totals	91	2184.0	4.408408	4.30072	0.1077			129529.2	134,891,675	0.0104	98.8%	36.8

BHV-5 on stream % 99.2%

BHV-5 Total Volume: 4.78E+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	8399826	01-Oct-12	06-Oct-12	4.3890	4.2002	0.1888	51090.6	50924.3	9981.0	10,316,011	0.0183	99.0%	36.5
2	8399821	08-Oct-12	15-Oct-12	4.2922	4.1688	0.1234	51258.4	51090.6	10065.6	10,545,964	0.0117	99.9%	37.0
3	8399815	15-Oct-12	22-Oct-12	4.3678	4.2052	0.1626	51427.6	51258.4	10155.0	10,639,631	0.0153	100.7%	37.0
4	8399810	22-Oct-12	29-Oct-12	4.4423	4.2451	0.1972	51596.0	51427.6	10102.8	10,584,939	0.0186	100.2%	37.0
5	8399803	29-Oct-12	05-Nov-12	4.3946	4.2488	0.1458	51765.3	51596.0	10156.8	10,641,516	0.0137	100.8%	37.0
6	8399098	05-Nov-12	12-Nov-12	4.6340	4.2989	0.3351	51931.2	51765.3	9954.0	10,429,038	0.0321	98.8%	37.0
7	8399091	12-Nov-12	19-Nov-12	4.4426	4.3082	0.1344	52098.0	51931.2	10006.8	10,456,022	0.0129	99.3%	36.9
8	8399086	19-Nov-12	26-Nov-12	4.4855	4.3204	0.1651	52266.6	52098.0	10120.8	10,575,139	0.0156	100.4%	36.9
9	8399078	26-Nov-12	03-Dec-12	4.5110	4.3066	0.2044	52437.6	52266.6	10260.0	10,720,588	0.0191	101.8%	36.9
10	8399072	03-Dec-12	11-Dec-12	4.5016	4.3219	0.1797	52631.7	52437.6	11641.8	12,065,522	0.0149	101.1%	36.6
11	8399068	11-Dec-12	17-Dec-12	4.4200	4.3242	0.0958	52772.8	52631.7	8470.2	8,730,517	0.0110	98.0%	36.4
12	8399060	17-Dec-12	24-Dec-12	4.3826	4.2982	0.0844	52917.4	52772.8	8671.8	8,938,312	0.0094	86.0%	36.4
13	8399055	24-Dec-12	31-Dec-12	4.4337	4.3457	0.0880	53090.0	52917.4	10356.0	10,674,273	0.0082	102.7%	36.4
	Totals	91	2184.0	4.438223	4.27632	0.1619			129942.6	135,317,474	0.0154	99.1%	36.8

Period: October 1, 2012 through December 31, 2012 (4th Quarter 2012)

Page 2

BHV-6 on stream % 99.0%

BHV-6 Total Volume: 4.77E+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	8399825	01-Oct-12	08-Oct-12	4.4214	4.2160	0.2054	807.8	641.6	9975.0	10,309,810	0.0199	99.0%	36.5
2	8399820	08-Oct-12	15-Oct-12	4.3658	4.2376	0.1282	975.6	807.8	10068.6	10,549,107	0.0122	99.9%	37.0
3	8399814	15-Oct-12	22-Oct-12	4.3585	4.1919	0.1666	1145.0	975.6	10161.6	10,646,545	0.0156	100.8%	37.0
4	8399811	22-Oct-12	29-Oct-12	4.3648	4.1855	0.1793	1313.3	1145.0	10099.8	10,581,796	0.0169	100.2%	37.0
5	8399802	29-Oct-12	05-Nov-12	4.4152	4.2539	0.1613	166.2	0.0	9974.4	10,450,412	0.0154	99.0%	37.0
6	8399099	05-Nov-12	12-Nov-12	4.6623	4.3214	0.3409	332.4	166.2	9969.0	10,444,754	0.0326	98.9%	37.0
7	8399090	12-Nov-12	19-Nov-12	4.3869	4.3129	0.0740	498.8	332.4	9985.8	10,434,079	0.0071	99.1%	36.9
8	8399087	19-Nov-12	26-Nov-12	4.4533	4.3015	0.1518	667.5	498.8	10118.4	10,572,632	0.0144	100.4%	36.9
9	8399077	26-Nov-12	03-Dec-12	4.4854	4.2846	0.2008	838.6	667.5	10270.2	10,731,246	0.0187	101.9%	36.9
10	8399071	03-Dec-12	11-Dec-12	4.4352	4.3050	0.1302	1032.6	838.6	11638.8	12,062,413	0.0108	101.0%	36.6
11	8399069	11-Dec-12	17-Dec-12	4.4154	4.3298	0.0856	1174.4	1032.6	8505.6	8,767,005	0.0098	98.4%	36.4
12	8399059	17-Dec-12	24-Dec-12	4.4246	4.3408	0.0838	1318.5	1174.4	8646.6	8,912,338	0.0094	85.8%	36.4
13	8399054	24-Dec-12	31-Dec-12	4.4102	4.3338	0.0764	1491.0	1318.5	10353.6	10,671,800	0.0072	102.7%	36.4
	Totals	91	2184.0	4.430692	4.27805	0.1526			129767.4	135,133,936	0.0146	99.0%	36.8

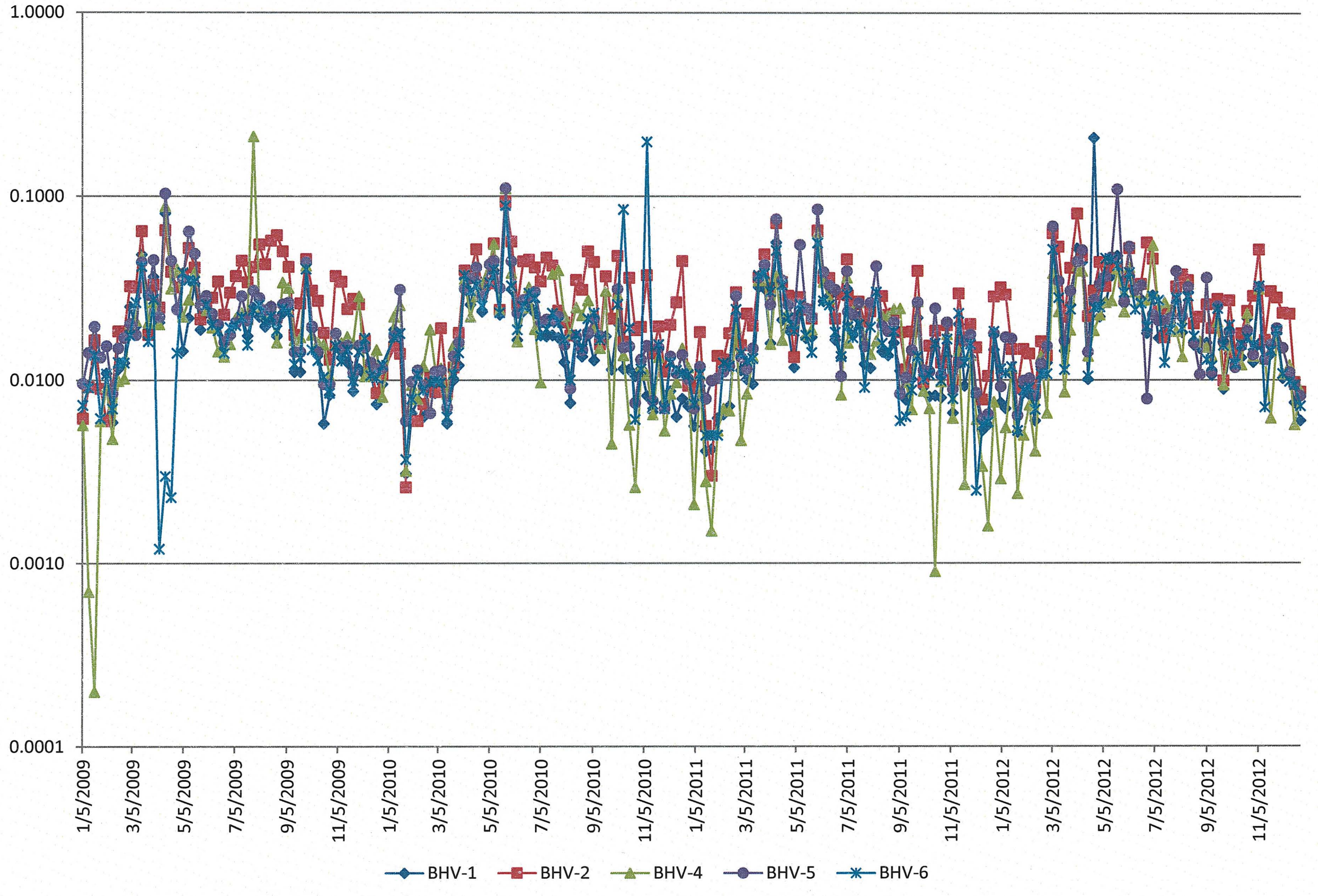
ALL BHV on stream % 99.5%

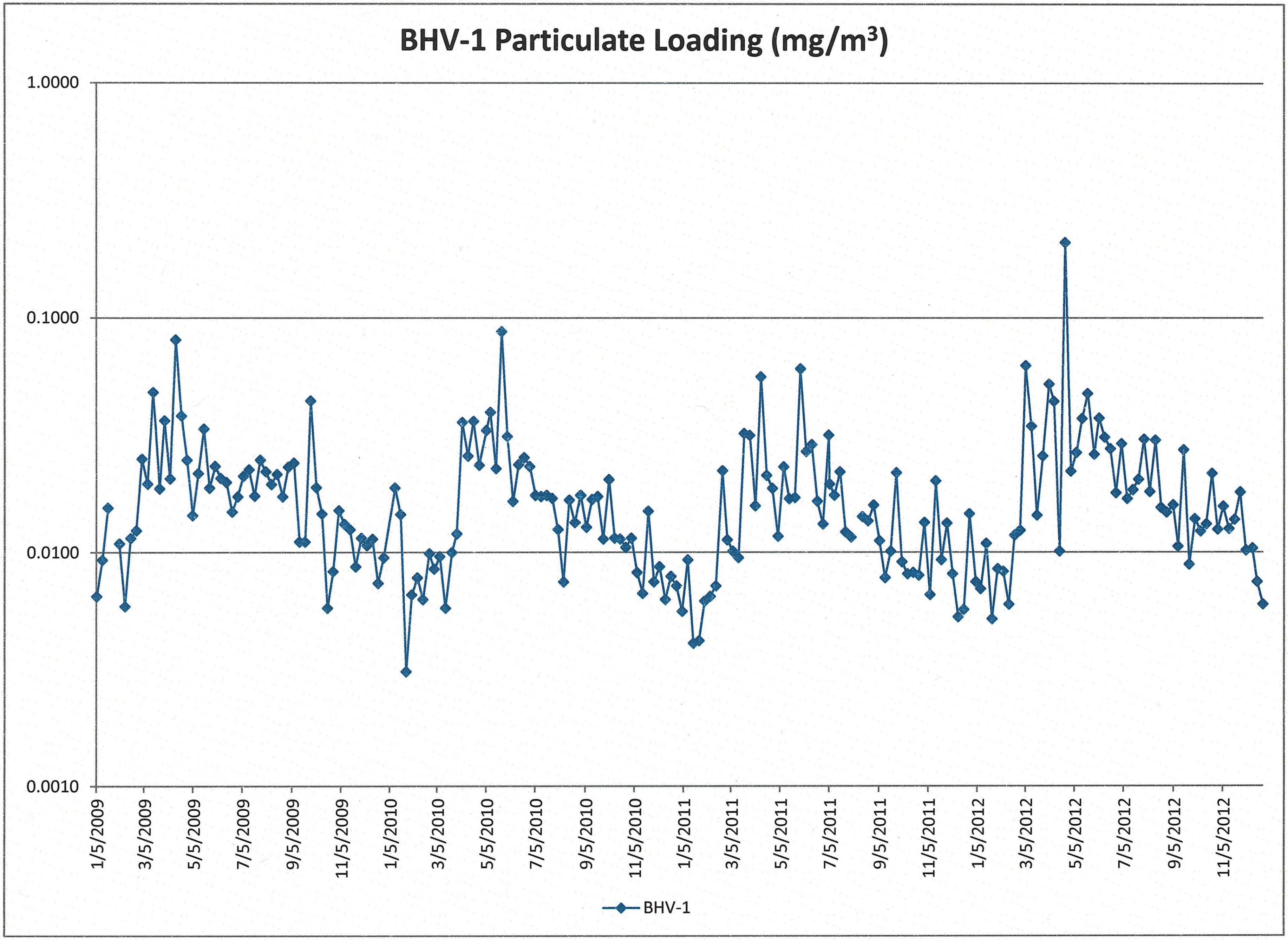
Week #	Blanks	Start Date	Stop Date	Net
1	8399819	01-Oct-12	08-Oct-12	4.2295
2	8399813	08-Oct-12	15-Oct-12	4.2394
3	8399812	15-Oct-12	22-Oct-12	4.2219
4	8399801	22-Oct-12	29-Oct-12	4.2052
5	8399100	29-Oct-12	05-Nov-12	4.3093
6	8399089	05-Nov-12	12-Nov-12	4.3133
7	8399088	12-Nov-12	19-Nov-12	4.3173
8	8399082	19-Nov-12	26-Nov-12	4.3264
9	8399075	26-Nov-12	03-Dec-12	4.3050
10	8399070	03-Dec-12	11-Dec-12	4.2615
11	8399064	11-Dec-12	17-Dec-12	4.3435
12	8399053	17-Dec-12	24-Dec-12	4.3230
13	8399052	24-Dec-12	31-Dec-12	4.3441
	Totals	91	2184.0	4.2876

ATTACHMENT D

AIR PARTICULATE LOADING GRAPHS AND SUPPORTING DATA

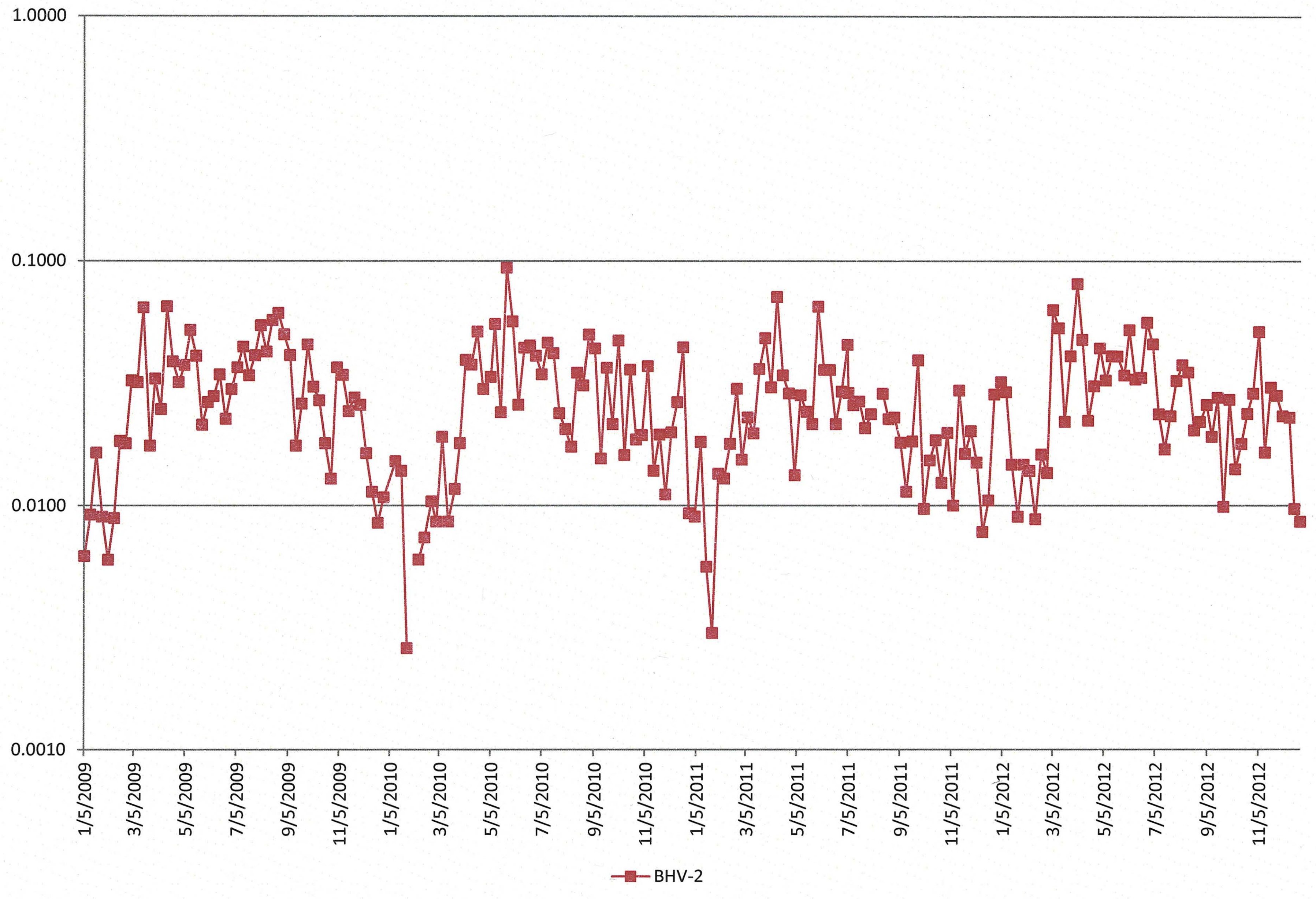
Air Station Particulate Loading (mg/m³)



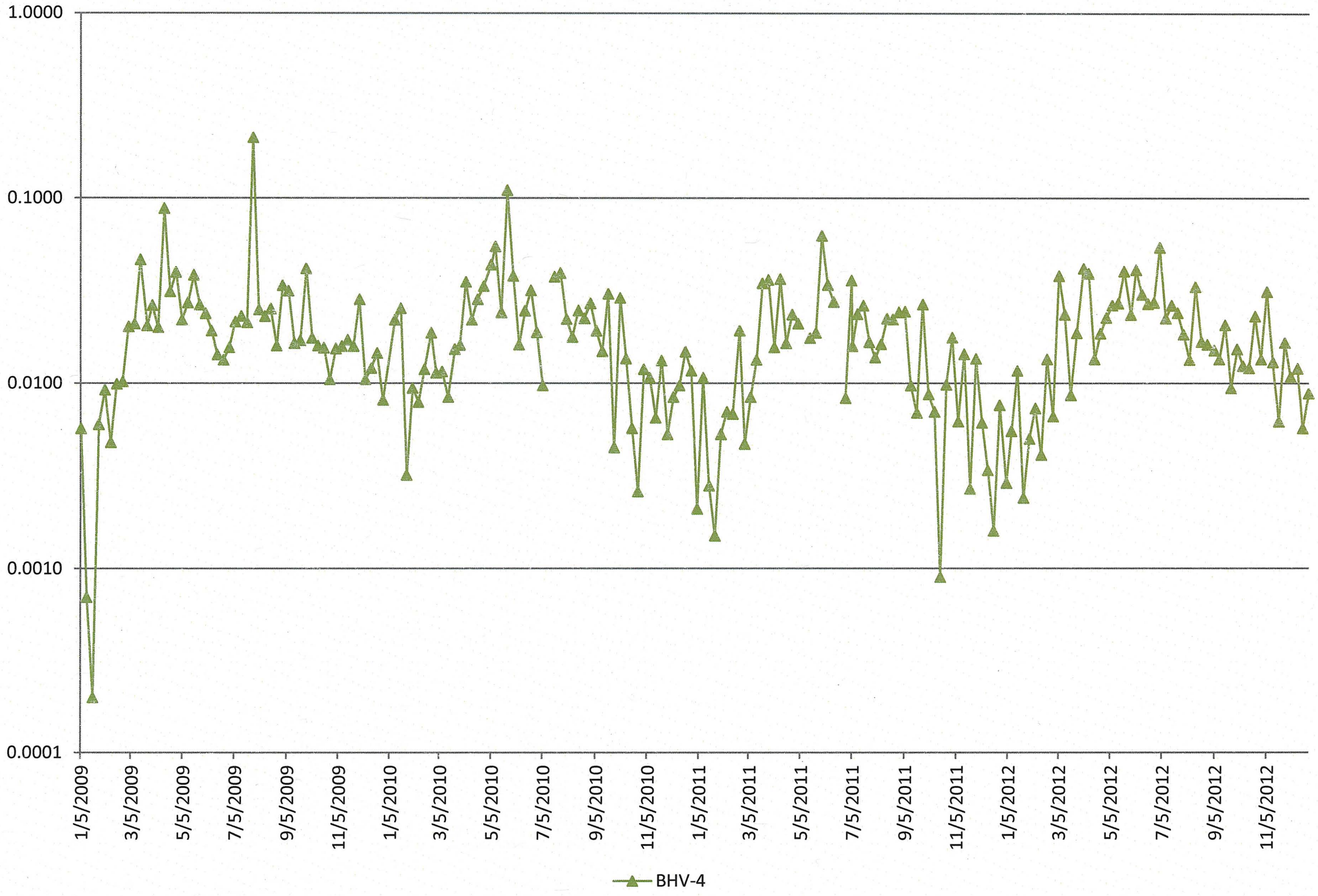


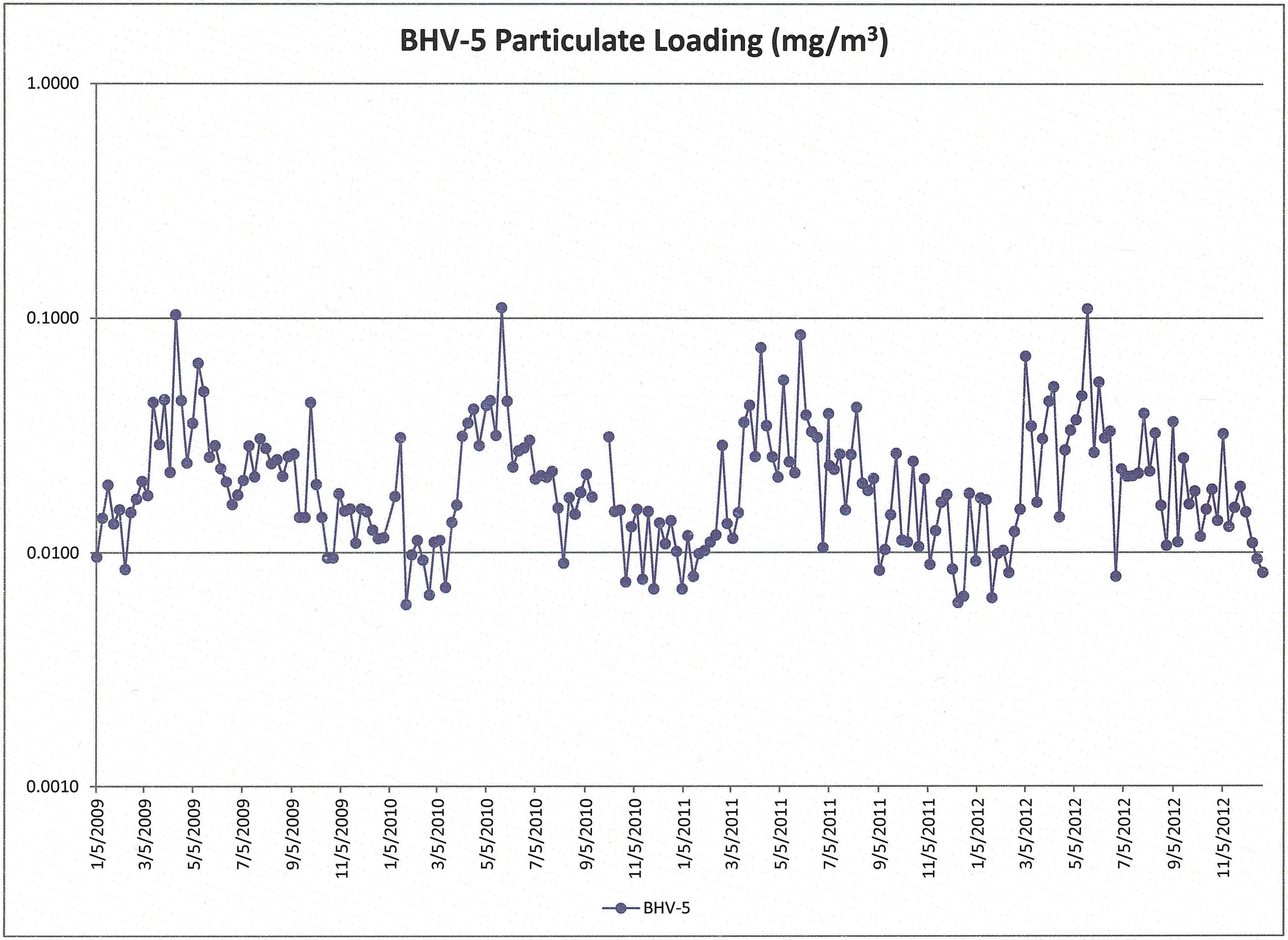
BHV-1 Particulate Loading (mg/m³)

BHV-2 Particulate Loading (mg/m^3)

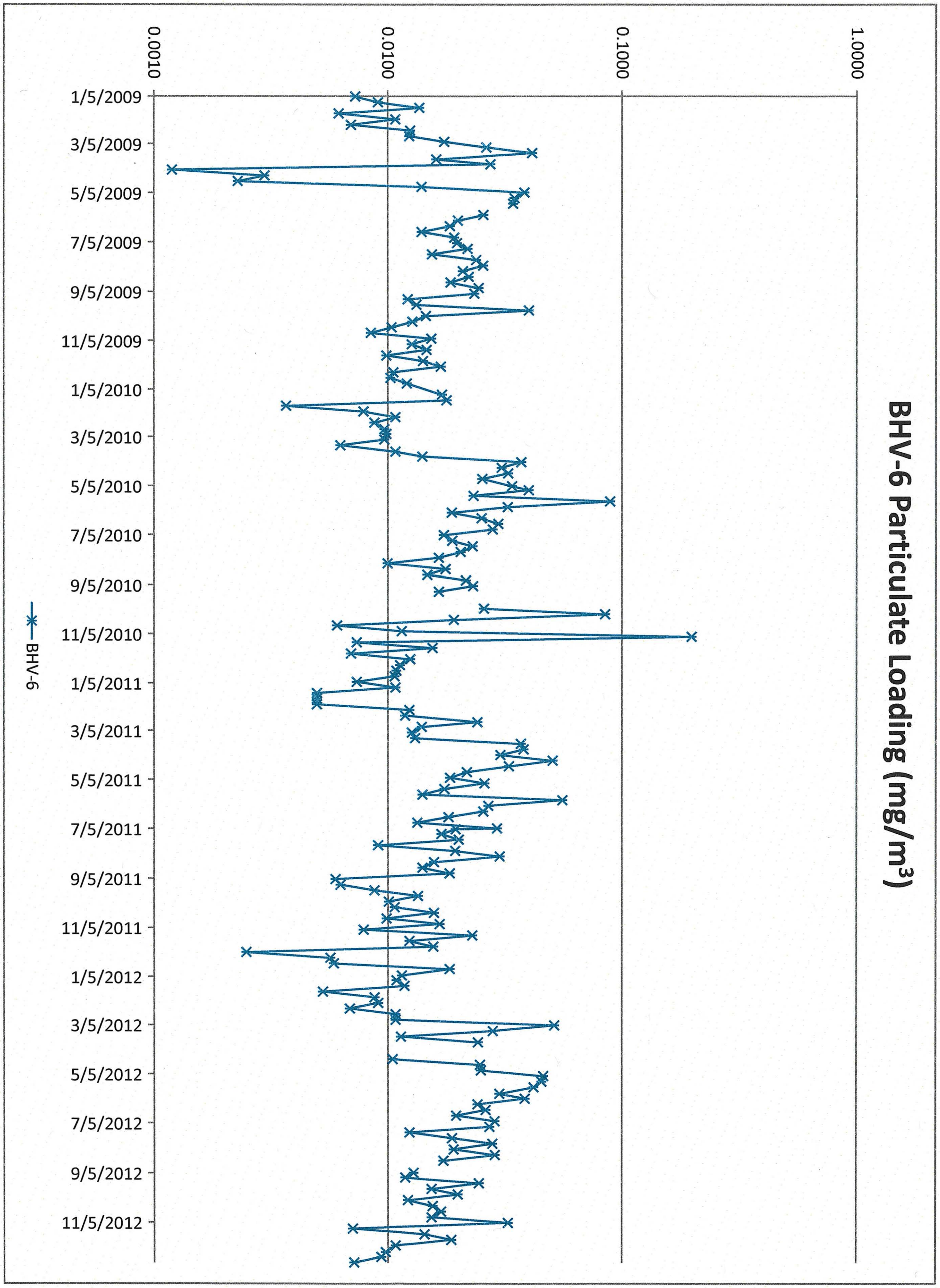


BHV-4 Particulate Loading (mg/m^3)





BHV-5 Particulate Loading (mg/m³)



BHV-6 Particulate Loading (mg/m^3)

Period: July 2, 2012 through October 1, 2012 (3rd Quarter 2012)

BHV-1 on stream % 99.9% **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	8401109	2-Jul-12	9-Jul-12	4.5176	4.2175	0.3001	39577.6	39410.4	10032.6	10,369,343	0.0289	99.5%	36.5
2	8399900	09-Jul-12	16-Jul-12	4.4865	4.3079	0.1786	39745.4	39577.6	10068.0	10,548,479	0.0169	99.9%	37.0
3	8399894	16-Jul-12	23-Jul-12	4.4905	4.2950	0.1955	39914.5	39745.4	10143.6	10,627,686	0.0184	100.6%	37.0
4	8399886	23-Jul-12	30-Jul-12	4.4193	4.2069	0.2124	40080.3	39914.5	9949.8	10,424,638	0.0204	98.7%	37.0
5	8399883	30-Jul-12	6-Aug-12	4.5496	4.2280	0.3216	40249.7	40080.3	10162.2	10,647,174	0.0302	100.8%	37.0
6	8399877	06-Aug-12	13-Aug-12	4.4300	4.2408	0.1892	40416.0	40249.7	9976.8	10,452,926	0.0181	99.0%	37.0
7	8399869	13-Aug-12	20-Aug-12	4.5256	4.2086	0.3170	40585.2	40416.0	10155.0	10,610,875	0.0299	100.7%	36.9
8	8399865	20-Aug-12	27-Aug-12	4.3646	4.2019	0.1627	40752.9	40585.2	10062.6	10,514,327	0.0155	99.8%	36.9
9	8399856	27-Aug-12	4-Sep-12	4.4343	4.2550	0.1793	40946.5	40752.9	11610.6	12,131,819	0.0148	100.8%	36.9
10	8399853	04-Sep-12	10-Sep-12	4.3701	4.2301	0.1400	41088.0	40946.5	8492.4	8,801,494	0.0159	98.3%	36.6
11	8399848	10-Sep-12	17-Sep-12	4.3710	4.2570	0.1140	41261.4	41088.0	10401.6	10,721,275	0.0106	103.2%	36.4
12	8399838	17-Sep-12	24-Sep-12	4.5155	4.2397	0.2758	41425.6	41261.4	9852.6	10,155,402	0.0272	97.7%	36.4
13	8399835	24-Sep-12	1-Oct-12	4.3490	4.2569	0.0921	41592.3	41425.6	10005.0	10,312,486	0.0089	99.3%	36.4
	Totals	91	2184.0	4.447969	4.241946	0.2060			130912.8	136,317,924	0.0197	99.9%	36.8

BHV-2 on stream % 99.9% **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	8401108	02-Jul-12	09-Jul-12	4.6247	4.1518	0.4729	49779.4	49612.5	10011.6	10,347,639	0.0457	99.3%	36.5
2	8401101	09-Jul-12	16-Jul-12	4.5903	4.3412	0.2491	49947.5	49779.4	10087.8	10,569,223	0.0236	100.1%	37.0
3	8399895	16-Jul-12	23-Jul-12	4.4379	4.2574	0.1805	50116.2	49947.5	10122.0	10,605,056	0.0170	100.4%	37.0
4	8399887	23-Jul-12	30-Jul-12	4.4727	4.2306	0.2421	50282.1	50116.2	9949.8	10,424,638	0.0232	98.7%	37.0
5	8399882	30-Jul-12	06-Aug-12	4.5388	4.1939	0.3449	50451.8	50282.1	10186.8	10,672,948	0.0323	101.1%	37.0
6	8399876	06-Aug-12	13-Aug-12	4.6048	4.2118	0.3930	50618.4	50451.8	9994.2	10,471,157	0.0375	99.1%	37.0
7	8399870	13-Aug-12	20-Aug-12	4.5878	4.2169	0.3709	50787.6	50618.4	10152.0	10,607,740	0.0350	100.7%	36.9
8	8399864	20-Aug-12	27-Aug-12	4.5027	4.2900	0.2127	50955.1	50787.6	10047.6	10,498,653	0.0203	99.7%	36.9
9	8399857	27-Aug-12	04-Sep-12	4.5331	4.2662	0.2669	51148.6	50955.1	11609.4	12,130,565	0.0220	100.8%	36.9
10	8399852	04-Sep-12	10-Sep-12	4.4242	4.1974	0.2268	51290.1	51148.6	8492.4	8,801,494	0.0258	98.3%	36.6
11	8399847	10-Sep-12	17-Sep-12	4.4450	4.2406	0.2044	51463.5	51290.1	10401.6	10,721,275	0.0191	103.2%	36.4
12	8399839	17-Sep-12	24-Sep-12	4.4990	4.2208	0.2782	51626.3	51463.5	9768.0	10,068,202	0.0276	96.9%	36.4
13	8399834	24-Sep-12	01-Oct-12	4.3070	4.2040	0.1030	51794.1	51626.3	10068.0	10,377,422	0.0099	99.9%	36.4
	Totals	91	2184.0	4.505231	4.23251	0.2727			130891.2	136,296,012	0.0261	99.9%	36.8

BHV-4 on stream % 99.6% **BHV-4** 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	8401107	02-Jul-12	09-Jul-12	4.7603	4.2085	0.5518	25113.7	24949.7	9840.6	10,170,899	0.0543	97.6%	36.5
2	8401102	09-Jul-12	16-Jul-12	4.5694	4.3351	0.2343	25279.3	25113.7	9934.8	10,408,922	0.0225	98.6%	37.0
3	8399896	16-Jul-12	23-Jul-12	4.5426	4.2675	0.2751	25445.2	25279.3	9957.6	10,432,810	0.0264	98.8%	37.0
4	8399888	23-Jul-12	30-Jul-12	4.4734	4.2175	0.2559	25613.8	25445.2	10116.6	10,599,398	0.0241	100.4%	37.0
5	8399881	30-Jul-12	06-Aug-12	4.4364	4.2416	0.1948	25782.1	25613.8	10097.4	10,579,282	0.0184	100.2%	37.0
6	8399875	06-Aug-12	13-Aug-12	4.3355	4.1948	0.1407	25948.7	25782.1	9995.4	10,472,414	0.0134	99.2%	37.0
7	8399871	13-Aug-12	20-Aug-12	4.5634	4.2109	0.3525	26117.7	25948.7	10137.6	10,592,694	0.0333	100.6%	36.9
8	8399863	20-Aug-12	27-Aug-12	4.4030	4.2260	0.1770	26285.7	26117.7	10078.2	10,530,627	0.0168	100.0%	36.9
9	8399858	27-Aug-12	04-Sep-12	4.4416	4.2454	0.1962	26479.1	26285.7	11605.2	12,126,177	0.0162	100.7%	36.9
10	8399851	04-Sep-12	10-Sep-12	4.3913	4.2581	0.1332	26620.6	26479.1	8494.2	8,803,360	0.0151	98.3%	36.6
11	8399846	10-Sep-12	17-Sep-12	4.4174	4.2731	0.1443	26794.1	26620.6	10407.6	10,727,459	0.0135	103.2%	36.4
12	8399840	17-Sep-12	24-Sep-12	4.4140	4.2032	0.2108	26958.9	26794.1	9886.8	10,190,653	0.0207	98.1%	36.4
13	8399833	24-Sep-12	01-Oct-12	4.2478	4.1508	0.0970	27125.7	26958.9	10009.2	10,316,815	0.0094	99.3%	36.4
	Totals	91	2184.0	4.461238	4.23327	0.2280			130561.2	135,951,509	0.0219	99.6%	36.8

BHV-5 on stream % 99.7% **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	8401106	02-Jul-12	09-Jul-12	4.5598	4.3284	0.2314	48910.9	48746.9	9842.4	10,172,759	0.0227	97.6%	36.5
2	8401103	09-Jul-12	16-Jul-12	4.6005	4.3804	0.2201	49076.8	48910.9	9949.2	10,424,009	0.0211	98.7%	37.0
3	8399897	16-Jul-12	23-Jul-12	4.5106	4.2876	0.2230	49243.8	49076.8	10021.8	10,500,074	0.0212	99.4%	37.0
4	8399889	23-Jul-12	30-Jul-12	4.4391	4.2085	0.2306	49412.1	49243.8	10096.2	10,578,024	0.0218	100.2%	37.0
5	8399880	30-Jul-12	06-Aug-12	4.6619	4.2452	0.4167	49580.9	49412.1	10133.4	10,617,000	0.0392	100.5%	37.0
6	8399874	06-Aug-12	13-Aug-12	4.4555	4.2230	0.2325	49747.3	49580.9	9980.4	10,456,698	0.0222	99.0%	37.0
7	8399872	13-Aug-12	20-Aug-12	4.4860	4.1438	0.3422	49916.3	49747.3	10138.2	10,593,321	0.0323	100.6%	36.9
8	8399862	20-Aug-12	27-Aug-12	4.3549	4.1870	0.1679	50084.2	49916.3	10078.2	10,530,627	0.0159	100.0%	36.9
9	8399859	27-Aug-12	04-Sep-12	4.3479	4.2185	0.1294	50277.7	50084.2	11608.8	12,129,938	0.0107	100.8%	36.9
10	8399850	04-Sep-12	10-Sep-12	4.5830	4.2650	0.3180	50419.3	50277.7	8496.0	8,805,226	0.0361	98.3%	36.6
11	8399845	10-Sep-12	17-Sep-12	4.3833	4.2638	0.1195	50592.7	50419.3	10401.6	10,721,275	0.0111	103.2%	36.4
12	8399841	17-Sep-12	24-Sep-12	4.4637	4.2059	0.2578	50757.4	50592.7	9886.8	10,190,653	0.0253	98.1%	36.4
13	8399832	24-Sep-12	01-Oct-12	4.3915	4.2253	0.1662	50924.3	50757.4	10009.2	10,316,815	0.0161	99.3%	36.4
	Totals	91	2184.0	4.479823	4.2448	0.2350			130642.2	136,036,419	0.0228	99.7%	36.8

Period: **July 2, 2012 through October 1, 2012 (3rd Quarter 2012)**

BHV-6 on stream % 90.6%

BHV-6

Total Volume: 4.36E+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	8401105	02-Jul-12	09-Jul-12	4.4972	4.2061	0.2911	2014.2	1850.2	9840.0	10,170,279	0.0286	97.6%	36.5
2	8401104	09-Jul-12	16-Jul-12	4.6531	4.3709	0.2822	2179.5	2014.2	9919.8	10,393,206	0.0272	98.4%	37.0
3	8399898	16-Jul-12	23-Jul-12	4.4034	4.2734	0.1300	2346.5	2179.5	10020.0	10,498,188	0.0124	99.4%	37.0
4	8399890	23-Jul-12	30-Jul-12	4.4407	4.2413	0.1994	2515.4	2346.5	10134.6	10,618,257	0.0188	100.5%	37.0
5	8399879	30-Jul-12	06-Aug-12	4.5044	4.2076	0.2968	2683.8	2515.4	10102.8	10,584,939	0.0280	100.2%	37.0
6	8399873	06-Aug-12	13-Aug-12	4.4050	4.2053	0.1997	2850.0	2683.8	9971.4	10,447,269	0.0191	98.9%	37.0
7	8399867	13-Aug-12	20-Aug-12	4.5435	4.2398	0.3037	3019.0	2850.0	10137.6	10,592,694	0.0287	100.6%	36.9
8	8399861	20-Aug-12	27-Aug-12	4.4237	4.2418	0.1819	3186.9	3019.0	10079.4	10,531,881	0.0173	100.0%	36.9
9	8399860	27-Aug-12	04-Sep-12	4.4806	4.2483	0.2323	3187.0	3186.9	0.6	627	370.5328	0.0%	36.9
10	8399849	04-Sep-12	10-Sep-12	4.3402	4.2303	0.1099	136.8	0.0	8206.2	8,504,878	0.0129	95.0%	36.6
11	8399844	10-Sep-12	17-Sep-12	4.3330	4.2060	0.1270	310.0	136.8	10389.6	10,708,906	0.0119	103.1%	36.4
12	8399842	17-Sep-12	24-Sep-12	4.4662	4.2164	0.2498	474.8	310.0	9888.6	10,192,509	0.0245	98.1%	36.4
13	8399831	24-Sep-12	01-Oct-12	4.3622	4.2038	0.1584	641.6	474.8	10007.4	10,314,960	0.0154	99.3%	36.4
	Totals	91	2184.0	4.450246	4.23777	0.2125			118698	123,558,591	28.5213	91.6%	36.8

ALL BHV on stream % 97.9%

Week #	Blanks	Start Date	Stop Date	Net
1	8399899	02-Jul-12	09-Jul-12	4.3979
2	8399893	09-Jul-12	16-Jul-12	4.2089
3	8399885	16-Jul-12	23-Jul-12	4.2139
4	8399884	23-Jul-12	30-Jul-12	4.2491
5	8399878	30-Jul-12	06-Aug-12	4.2048
6	8399868	06-Aug-12	13-Aug-12	4.2076
7	8399866	13-Aug-12	20-Aug-12	4.2159
8	8399855	20-Aug-12	27-Aug-12	4.2449
9	8399854	27-Aug-12	04-Sep-12	4.2770
10	8399843	04-Sep-12	10-Sep-12	4.1677
11	8399837	10-Sep-12	17-Sep-12	4.2296
12	8399836	17-Sep-12	24-Sep-12	4.2106
13	8399830	24-Sep-12	01-Oct-12	4.2472
	Totals	91	2184.0	4.2365

Period: October 1, 2012 through December 31, 2012 (4th Quarter 2012)

BHV-1 on stream % 100.1% **BHV-1** 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	8399829	1-Oct-12	8-Oct-12	4.3481	4.2048	0.1433	41758.1	41592.3	9946.8	10,280,664	0.0139	98.7%	36.5
2	8399824	08-Oct-12	15-Oct-12	4.3236	4.1938	0.1298	41926.0	41758.1	10075.8	10,556,651	0.0123	100.0%	37.0
3	8399818	15-Oct-12	22-Oct-12	4.3494	4.2081	0.1413	42096.4	41926.0	10223.4	10,711,295	0.0132	101.4%	37.0
4	8399807	22-Oct-12	29-Oct-12	4.4734	4.2463	0.2271	42263.9	42096.4	10050.0	10,529,620	0.0216	99.7%	37.0
5	8399806	29-Oct-12	5-Nov-12	4.3803	4.2474	0.1329	42433.5	42263.9	10173.0	10,658,490	0.0125	100.9%	37.0
6	8399095	05-Nov-12	12-Nov-12	4.4683	4.3031	0.1652	42601.2	42433.5	10061.4	10,541,564	0.0157	99.8%	37.0
7	8399094	12-Nov-12	19-Nov-12	4.4480	4.3154	0.1326	42768.7	42601.2	10051.2	10,502,415	0.0126	99.7%	36.9
8	8399083	19-Nov-12	26-Nov-12	4.4462	4.3008	0.1454	42937.3	42768.7	10116.6	10,570,751	0.0138	100.4%	36.9
9	8399081	26-Nov-12	3-Dec-12	4.4831	4.2912	0.1919	43107.7	42937.3	10227.0	10,686,107	0.0180	101.5%	36.9
10	8399075	03-Dec-12	11-Dec-12	4.4506	4.3270	0.1236	43301.7	43107.7	11640.6	12,064,278	0.0102	101.0%	36.6
11	8399065	11-Dec-12	17-Dec-12	4.4074	4.3156	0.0918	43444.0	43301.7	8532.6	8,794,834	0.0104	98.8%	36.4
12	8399063	17-Dec-12	24-Dec-12	4.4035	4.3277	0.0758	43606.7	43444.0	9764.4	10,064,492	0.0075	96.9%	36.4
13	8399058	24-Dec-12	31-Dec-12	4.4106	4.3463	0.0643	43779.4	43606.7	10363.2	10,681,695	0.0060	102.8%	36.4
	Totals	91	2184.0	4.414808	4.279038	0.1358			131226	136,642,853	0.0129	100.1%	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	8399828	01-Oct-12	08-Oct-12	4.4674	4.1876	0.2798	51960.3	51794.1	9971.4	10,306,089	0.0271	98.9%	36.5
2	8399823	08-Oct-12	15-Oct-12	4.3764	4.2272	0.1492	52128.2	51960.3	10075.2	10,556,022	0.0141	100.0%	37.0
3	8399817	15-Oct-12	22-Oct-12	4.4137	4.2221	0.1916	52298.5	52128.2	10221.6	10,709,409	0.0179	101.4%	37.0
4	8399808	22-Oct-12	29-Oct-12	4.4843	4.2347	0.2496	52466.1	52298.5	10051.2	10,530,877	0.0237	99.7%	37.0
5	8399805	29-Oct-12	05-Nov-12	4.5460	4.2409	0.3051	52635.0	52466.1	10135.2	10,618,886	0.0287	100.5%	37.0
6	8399096	05-Nov-12	12-Nov-12	4.8766	4.3332	0.5434	52803.2	52635.0	10095.0	10,576,767	0.0514	100.1%	37.0
7	8399093	12-Nov-12	19-Nov-12	4.5138	4.3412	0.1726	52970.5	52803.2	10033.8	10,484,234	0.0165	99.5%	36.9
8	8399084	19-Nov-12	26-Nov-12	4.6285	4.3064	0.3221	53139.4	52970.5	10135.8	10,590,813	0.0304	100.6%	36.9
9	8399080	26-Nov-12	03-Dec-12	4.5580	4.2586	0.2994	53309.4	53139.4	10203.6	10,661,656	0.0281	101.2%	36.9
10	8399074	03-Dec-12	11-Dec-12	4.5734	4.2934	0.2800	53503.5	53309.4	11642.4	12,066,144	0.0232	101.1%	36.6
11	8399066	11-Dec-12	17-Dec-12	4.5492	4.3469	0.2023	53646.0	53503.5	8552.4	8,815,243	0.0229	99.0%	36.4
12	8399062	17-Dec-12	24-Dec-12	4.4478	4.3499	0.0979	53808.7	53646.0	9762.0	10,062,018	0.0097	96.8%	36.4
13	8399057	24-Dec-12	31-Dec-12	4.4165	4.3249	0.0916	53981.6	53808.7	10373.4	10,692,208	0.0086	102.9%	36.4
	Totals	91	2184.0	4.527046	4.28208	0.2450			131253	136,670,366	0.0233	100.1%	36.8

BHV-4 on stream % 98.8% **BHV-4** Total Volume: 4.76E+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	8399827	01-Oct-12	08-Oct-12	4.3582	4.2001	0.1581	27291.9	27125.7	9973.8	10,308,570	0.0153	98.9%	36.5
2	8399822	08-Oct-12	15-Oct-12	4.3491	4.2182	0.1309	27459.7	27291.9	10068.0	10,548,479	0.0124	99.9%	37.0
3	8399816	15-Oct-12	22-Oct-12	4.3754	4.2464	0.1290	27629.1	27459.7	10159.8	10,644,660	0.0121	100.8%	37.0
4	8399809	22-Oct-12	29-Oct-12	4.2593	4.5033	-0.2440	27797.4	27629.1	10102.8	10,584,939	-0.0231	100.2%	37.0
5	8399804	29-Oct-12	05-Nov-12	4.3629	4.2195	0.1434	27967.0	27797.4	10175.4	10,661,004	0.0135	100.9%	37.0
6	8399097	05-Nov-12	12-Nov-12	4.6393	4.3131	0.3262	28132.6	27967.0	9936.6	10,410,808	0.0313	98.6%	37.0
7	8399092	12-Nov-12	19-Nov-12	4.4259	4.2899	0.1360	28299.4	28132.6	10005.6	10,454,768	0.0130	99.3%	36.9
8	8399085	19-Nov-12	26-Nov-12	4.3966	4.3308	0.0658	28468.0	28299.4	10118.4	10,572,632	0.0062	100.4%	36.9
9	8399079	26-Nov-12	03-Dec-12	4.4889	4.3100	0.1789	28639.4	28468.0	10284.0	10,745,666	0.0166	102.0%	36.9
10	8399073	03-Dec-12	11-Dec-12	4.4080	4.2778	0.1302	28833.2	28639.4	11623.2	12,046,245	0.0108	100.9%	36.6
11	8399067	11-Dec-12	17-Dec-12	4.4019	4.3019	0.1000	28967.8	28833.2	8080.8	8,329,149	0.0120	93.5%	36.4
12	8399061	17-Dec-12	24-Dec-12	4.4063	4.3552	0.0511	29112.0	28967.8	8649.6	8,915,430	0.0057	85.8%	36.4
13	8399056	24-Dec-12	31-Dec-12	4.4375	4.3431	0.0944	29284.5	29112.0	10351.2	10,669,326	0.0088	102.7%	36.4
	Totals	91	2184.0	4.408408	4.30072	0.1077			129529.2	134,891,675	0.0104	98.8%	36.8

BHV-5 on stream % 99.2% **BHV-5** Total Volume: 4.78E+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	8399826	01-Oct-12	08-Oct-12	4.3890	4.2002	0.1888	51090.6	50924.3	9981.0	10,316,011	0.0183	99.0%	36.5
2	8399821	08-Oct-12	15-Oct-12	4.2922	4.1688	0.1234	51258.4	51090.6	10065.6	10,545,964	0.0117	99.9%	37.0
3	8399815	15-Oct-12	22-Oct-12	4.3678	4.2052	0.1626	51427.6	51258.4	10155.0	10,639,631	0.0153	100.7%	37.0
4	8399810	22-Oct-12	29-Oct-12	4.4423	4.2451	0.1972	51596.0	51427.6	10102.8	10,584,939	0.0186	100.2%	37.0
5	8399803	29-Oct-12	05-Nov-12	4.3946	4.2488	0.1458	51765.3	51596.0	10156.8	10,641,516	0.0137	100.8%	37.0
6	8399098	05-Nov-12	12-Nov-12	4.6340	4.2989	0.3351	51931.2	51765.3	9954.0	10,429,038	0.0321	98.8%	37.0
7	8399091	12-Nov-12	19-Nov-12	4.4426	4.3082	0.1344	52098.0	51931.2	10006.8	10,456,022	0.0129	99.3%	36.9
8	8399086	19-Nov-12	26-Nov-12	4.4855	4.3204	0.1651	52266.6	52098.0	10120.8	10,575,139	0.0156	100.4%	36.9
9	8399078	26-Nov-12	03-Dec-12	4.5110	4.3066	0.2044	52437.6	52266.6	10260.0	10,720,588	0.0191	101.8%	36.9
10	8399072	03-Dec-12	11-Dec-12	4.5016	4.3219	0.1797	52631.7	52437.6	11641.8	12,065,522	0.0149	101.1%	36.6
11	8399068	11-Dec-12	17-Dec-12	4.4200	4.3242	0.0958	52772.8	52631.7	8470.2	8,730,517	0.0110	98.0%	36.4
12	8399060	17-Dec-12	24-Dec-12	4.3826	4.2982	0.0844	52917.4	52772.8	8671.8	8,938,312	0.0094	86.0%	36.4
13	8399055	24-Dec-12	31-Dec-12	4.4337	4.3457	0.0880	53090.0	52917.4	10356.0	10,674,273	0.0082	102.7%	36.4
	Totals	91	2184.0	4.438223	4.27632	0.1619			129942.6	135,317,474	0.0154	99.1%	36.8

Period: **October 1, 2012 through December 31, 2012 (4th Quarter 2012)**

BHV-6 on stream % 99.0%

BHV-6

Total Volume: 4.77E+06

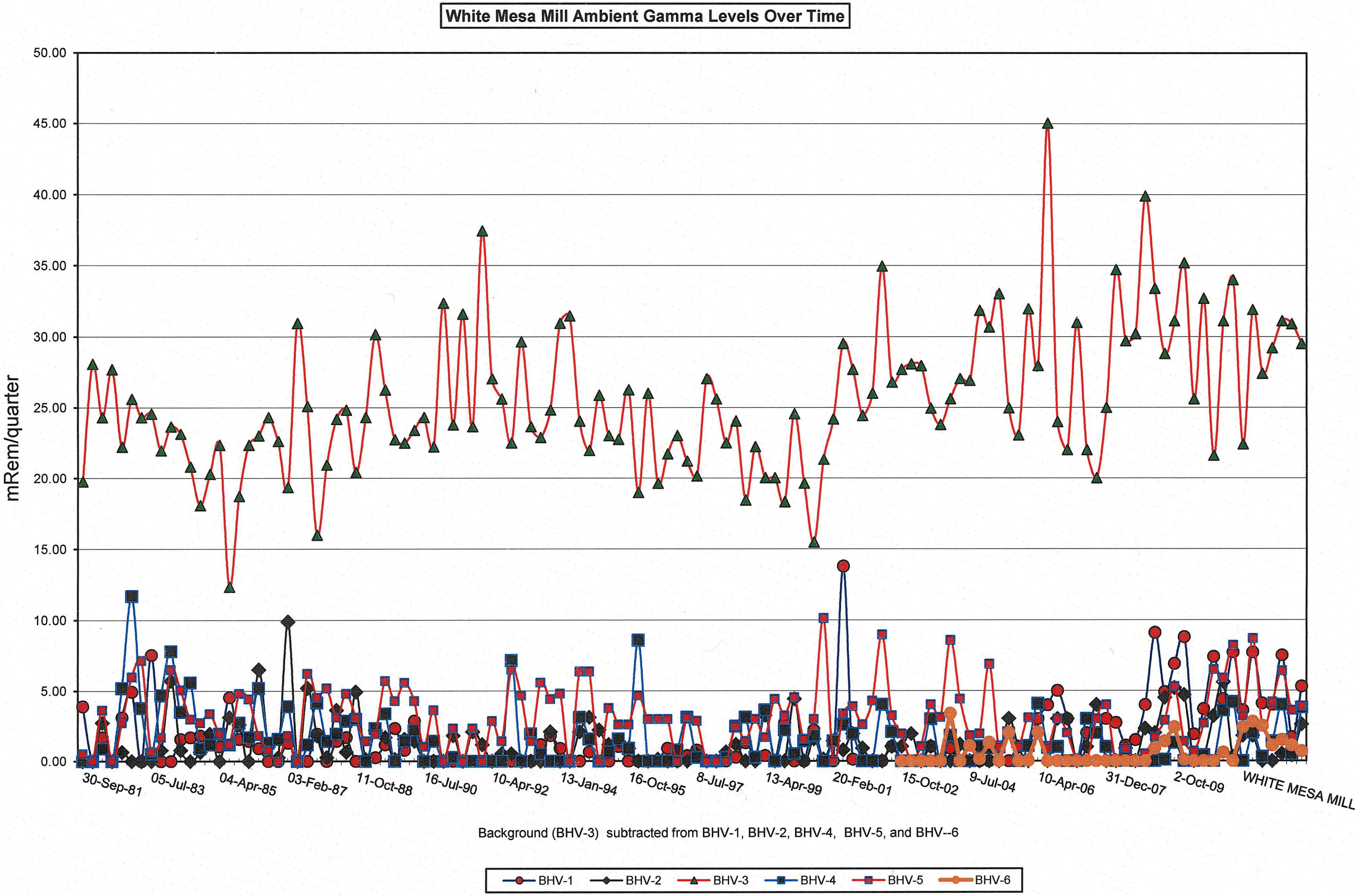
Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	8399825	01-Oct-12	08-Oct-12	4.4214	4.2160	0.2054	807.8	641.6	9975.0	10,309,810	0.0199	99.0%	36.5
2	8399820	08-Oct-12	15-Oct-12	4.3658	4.2376	0.1282	975.6	807.8	10068.6	10,549,107	0.0122	99.9%	37.0
3	8399814	15-Oct-12	22-Oct-12	4.3585	4.1919	0.1666	1145.0	975.6	10161.6	10,646,545	0.0156	100.8%	37.0
4	8399811	22-Oct-12	29-Oct-12	4.3648	4.1855	0.1793	1313.3	1145.0	10099.8	10,581,796	0.0169	100.2%	37.0
5	8399802	29-Oct-12	05-Nov-12	4.4152	4.2539	0.1613	166.2	0.0	9974.4	10,450,412	0.0154	99.0%	37.0
6	8399099	05-Nov-12	12-Nov-12	4.6623	4.3214	0.3409	332.4	166.2	9969.0	10,444,754	0.0326	98.9%	37.0
7	8399090	12-Nov-12	19-Nov-12	4.3869	4.3129	0.0740	498.8	332.4	9985.8	10,434,079	0.0071	99.1%	36.9
8	8399087	19-Nov-12	26-Nov-12	4.4533	4.3015	0.1518	667.5	498.8	10118.4	10,572,632	0.0144	100.4%	36.9
9	8399077	26-Nov-12	03-Dec-12	4.4854	4.2846	0.2008	838.6	667.5	10270.2	10,731,246	0.0187	101.9%	36.9
10	8399071	03-Dec-12	11-Dec-12	4.4352	4.3050	0.1302	1032.6	838.6	11638.8	12,062,413	0.0108	101.0%	36.6
11	8399069	11-Dec-12	17-Dec-12	4.4154	4.3298	0.0856	1174.4	1032.6	8505.6	8,767,005	0.0098	98.4%	36.4
12	8399059	17-Dec-12	24-Dec-12	4.4246	4.3408	0.0838	1318.5	1174.4	8646.6	8,912,338	0.0094	85.8%	36.4
13	8399054	24-Dec-12	31-Dec-12	4.4102	4.3338	0.0764	1491.0	1318.5	10353.6	10,671,800	0.0072	102.7%	36.4
	Totals	91	2184.0	4.430692	4.27805	0.1526			129767.4	135,133,936	0.0146	99.0%	36.8

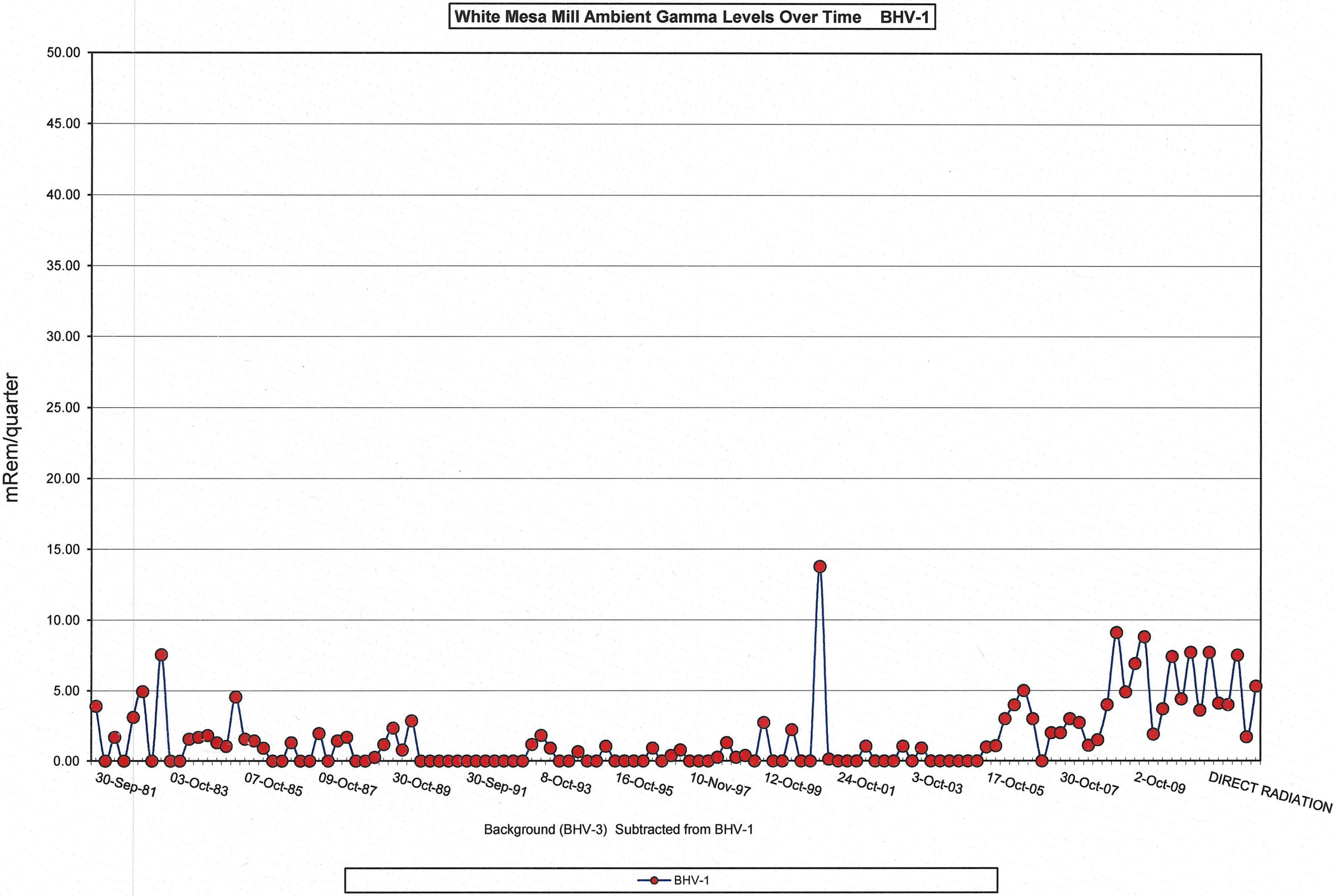
ALL BHV on stream % 99.5%

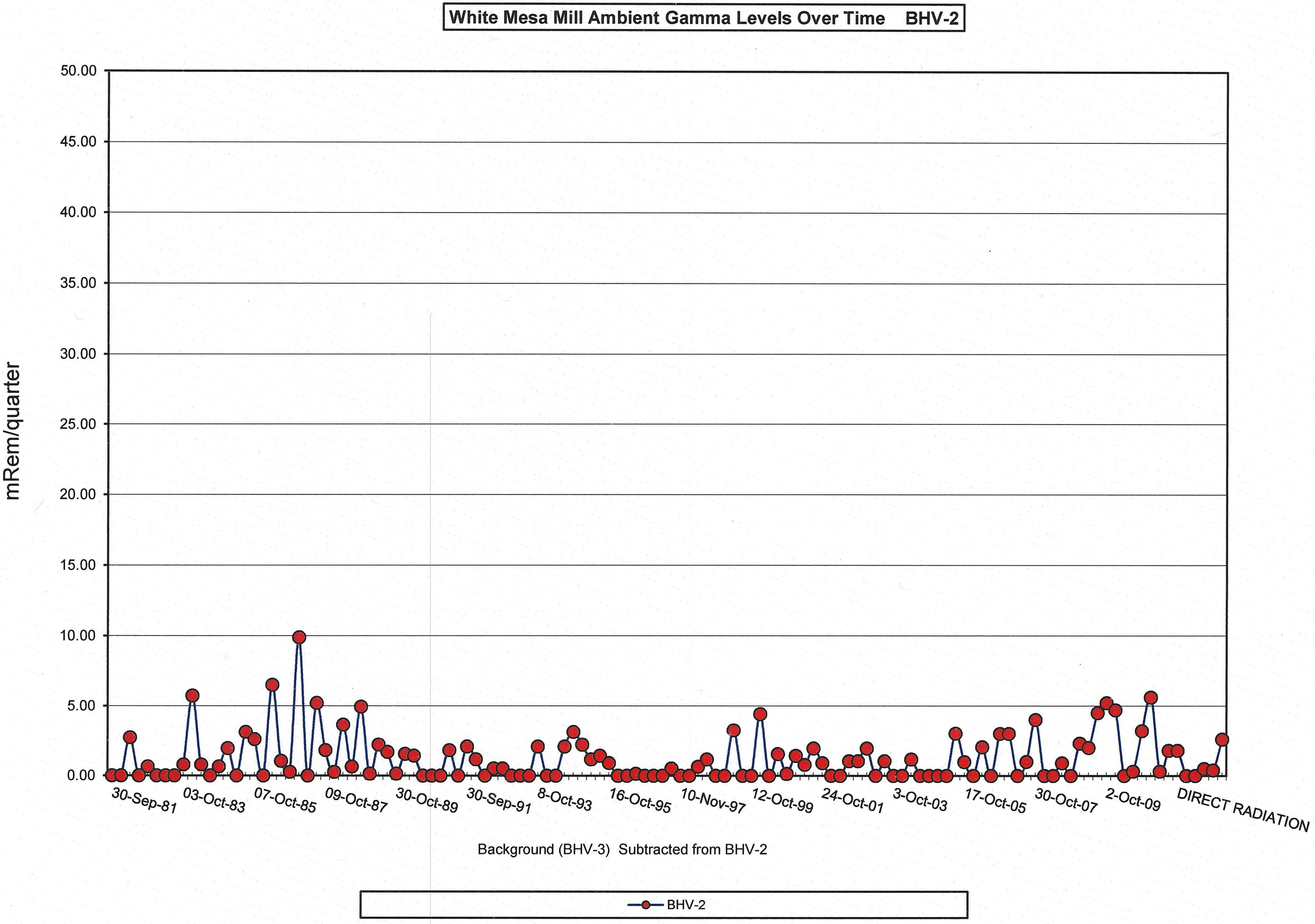
Week #	Blanks	Start Date	Stop Date	Net
1	8399819	01-Oct-12	08-Oct-12	4.2295
2	8399813	08-Oct-12	15-Oct-12	4.2394
3	8399812	15-Oct-12	22-Oct-12	4.2219
4	8399801	22-Oct-12	29-Oct-12	4.2052
5	8399100	29-Oct-12	05-Nov-12	4.3093
6	8399089	05-Nov-12	12-Nov-12	4.3133
7	8399088	12-Nov-12	19-Nov-12	4.3173
8	8399082	19-Nov-12	26-Nov-12	4.3264
9	8399075	26-Nov-12	03-Dec-12	4.3050
10	8399070	03-Dec-12	11-Dec-12	4.2615
11	8399064	11-Dec-12	17-Dec-12	4.3435
12	8399053	17-Dec-12	24-Dec-12	4.3230
13	8399052	24-Dec-12	31-Dec-12	4.3441
	Totals	91	2184.0	4.2876

ATTACHMENT E

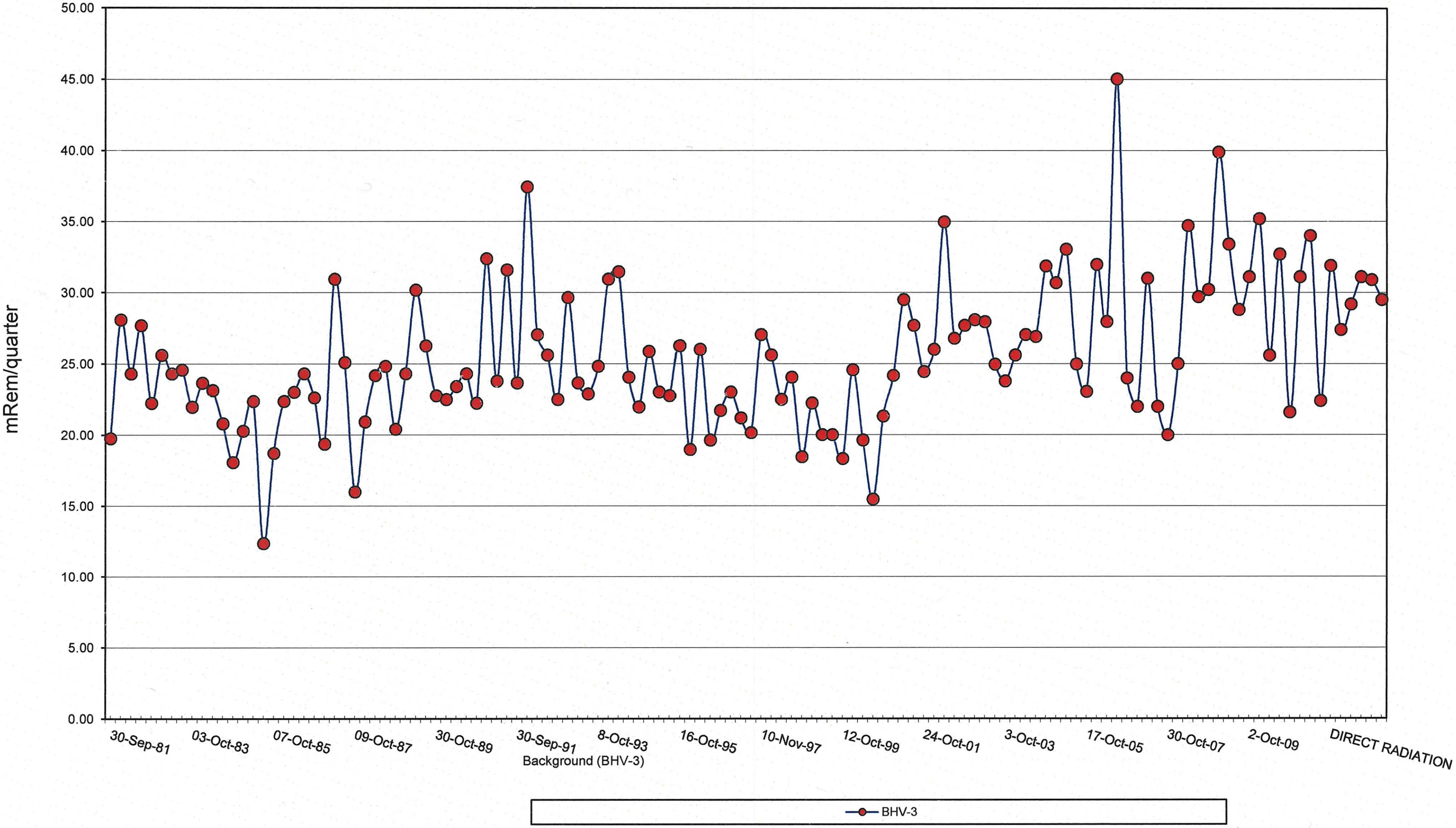
ENVIRONMENTAL GAMMA GRAPHS AND SUPPORTING DATA

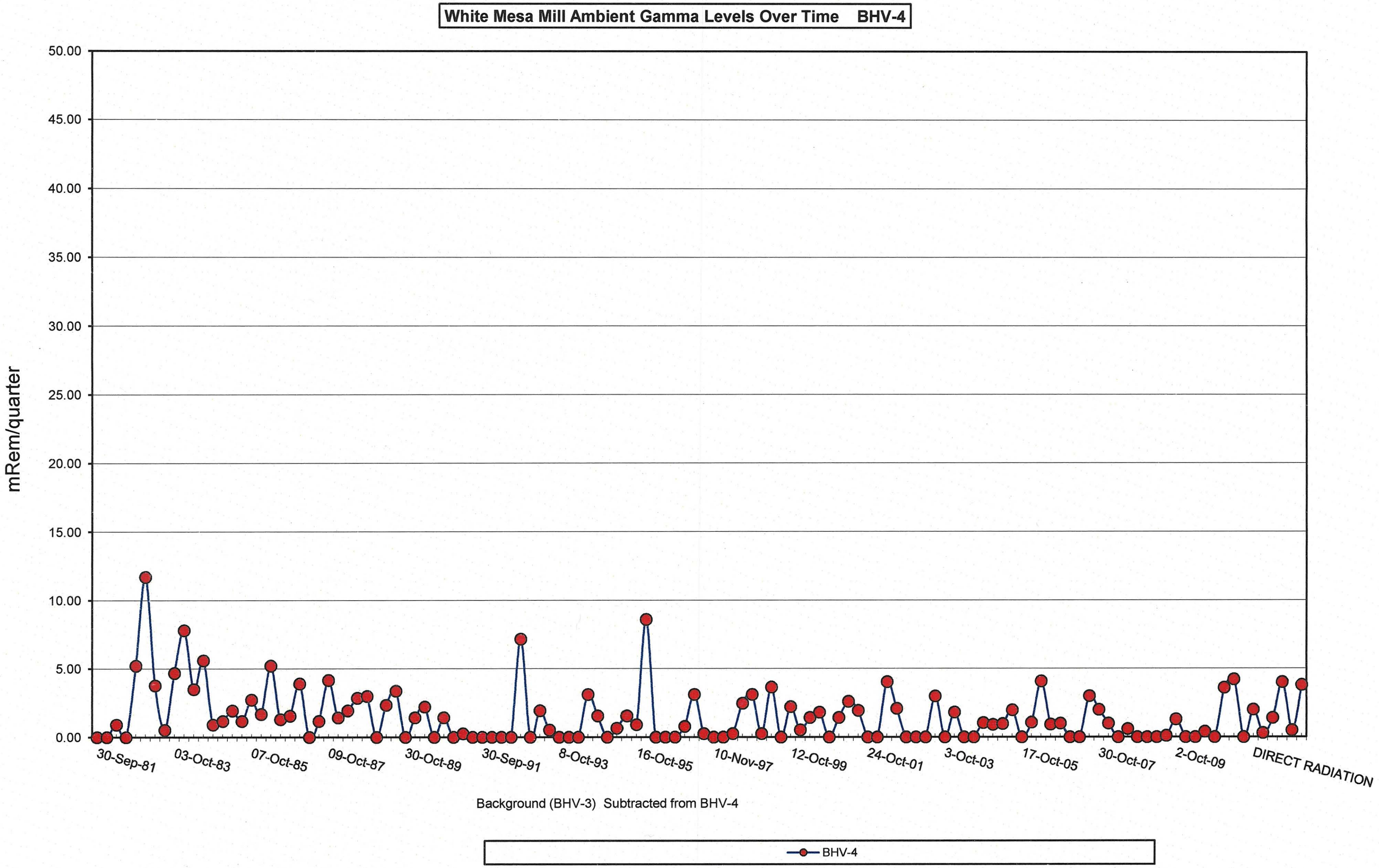

White Mesa Mill Ambient Gamma Levels Over Time
mRem/quarter
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
30-Sep-81
05-Jul-83
04-Apr-85
03-Feb-87
11-Oct-88
16-Jul-90
10-Apr-92
13-Jan-94
16-Oct-95
8-Jul-97
13-Apr-99
20-Feb-01
15-Oct-02
9-Jul-04
10-Apr-06
31-Dec-07
2-Oct-09
WHITE MESA MILL
Background (BHV-3) subtracted from BHV-1, BHV-2, BHV-4, BHV-5, and BHV--6
BHV-1
BHV-2
BHV-3
BHV-4
BHV-5
BHV-6

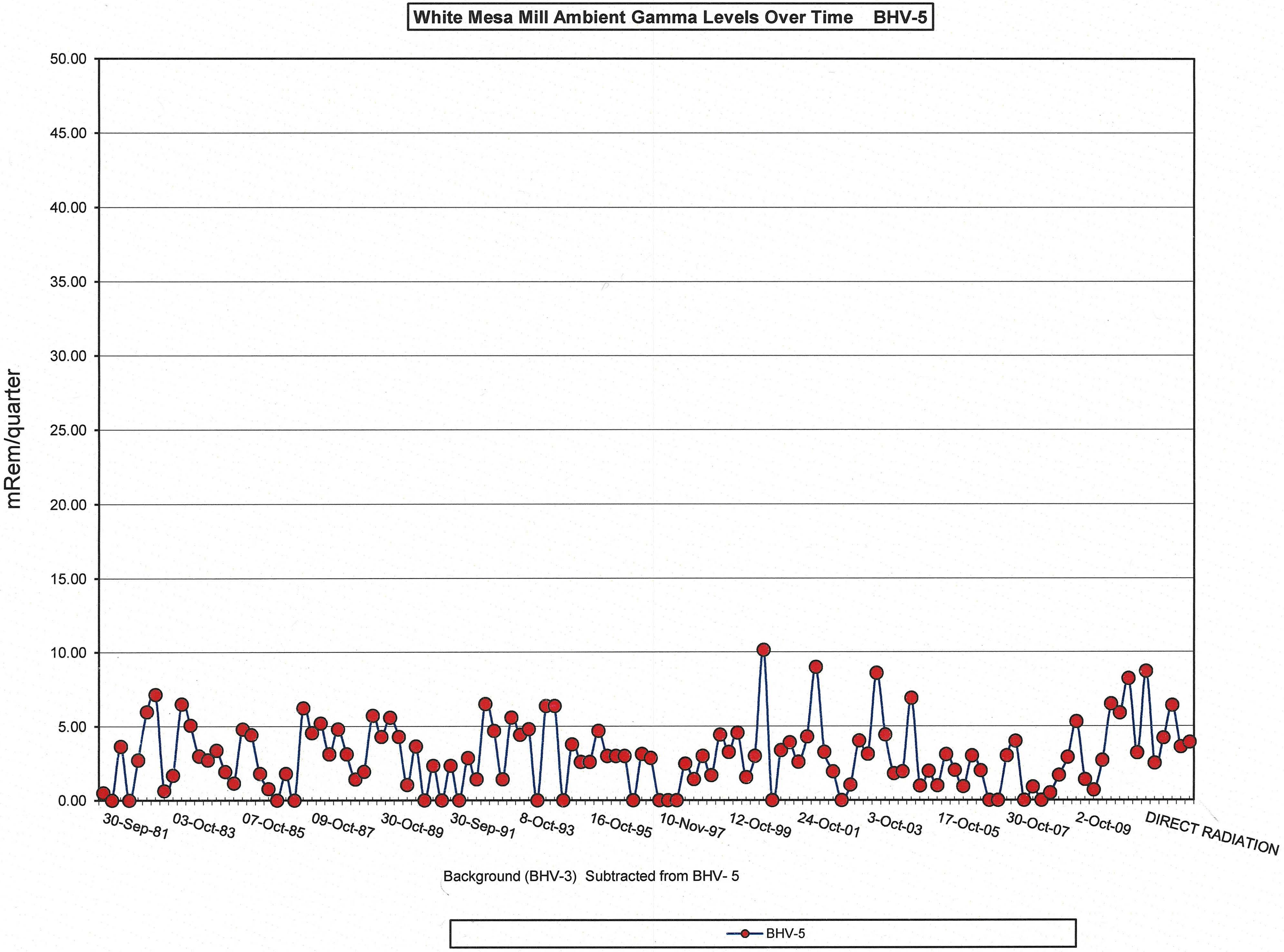

White Mesa Mill Ambient Gamma Levels Over Time BHV-1
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
mRem/quarter
30-Sep-81
03-Oct-83
07-Oct-85
09-Oct-87
30-Oct-89
30-Sep-91
8-Oct-93
16-Oct-95
10-Nov-97
12-Oct-99
24-Oct-01
3-Oct-03
17-Oct-05
30-Oct-07
2-Oct-09
DIRECT RADIATION
Background (BHV-3) Subtracted from BHV-1
BHV-1

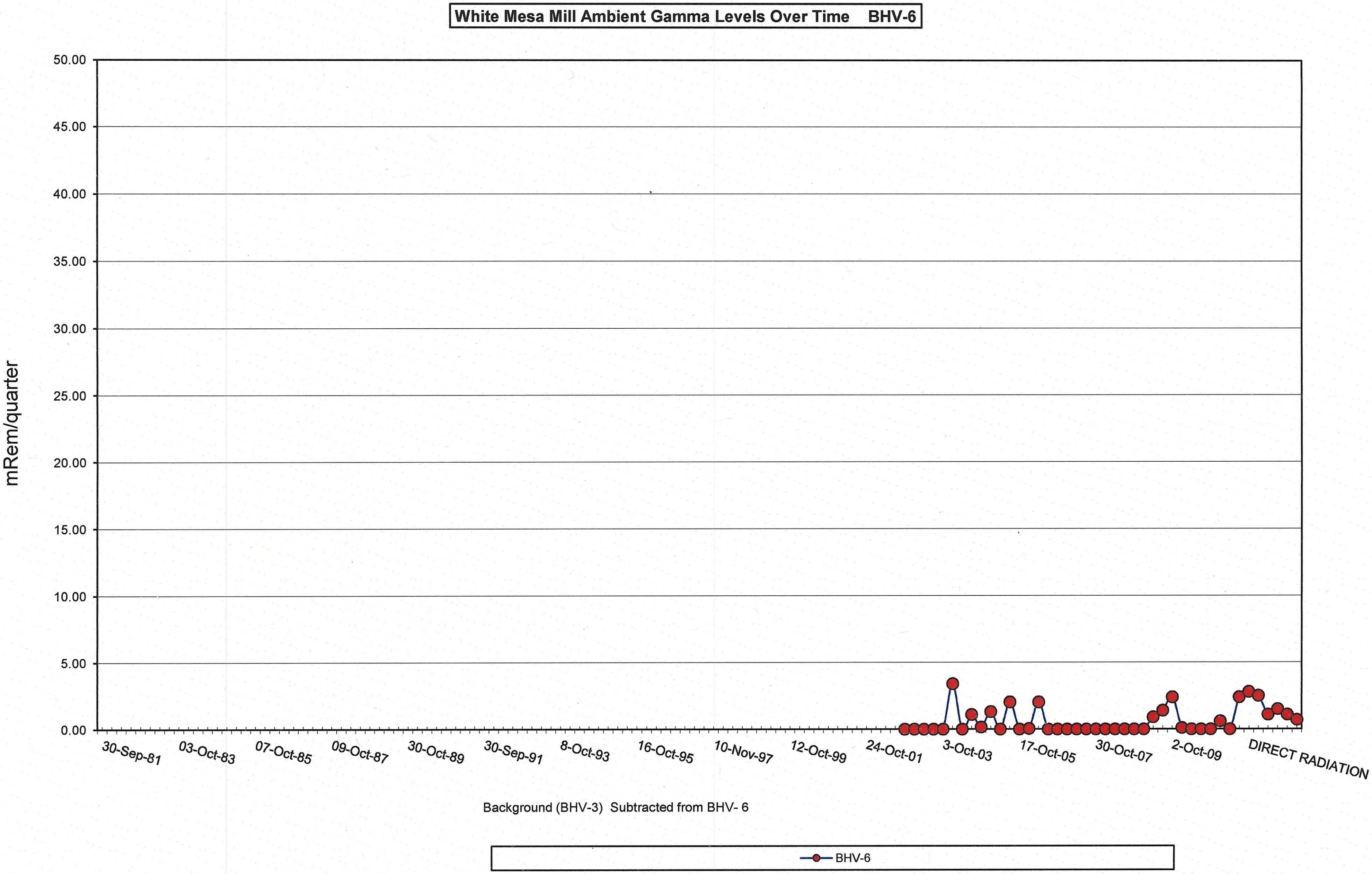
White Mesa Mill Ambient Gamma Levels Over Time BHV-2
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
mRem/quarter
30-Sep-81
03-Oct-83
07-Oct-85
09-Oct-87
30-Oct-89
30-Sep-91
8-Oct-93
16-Oct-95
10-Nov-97
12-Oct-99
24-Oct-01
3-Oct-03
17-Oct-05
30-Oct-07
2-Oct-09
DIRECT RADIATION
Background (BHV-3) Subtracted from BHV-2
BHV-2

White Mesa Mill Ambient Gamma Levels Over Time BHV-3




White Mesa Mill Ambient Gamma Levels Over Time BHV-4
mRem/quarter
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
30-Sep-81
03-Oct-83
07-Oct-85
09-Oct-87
30-Oct-89
30-Sep-91
8-Oct-93
16-Oct-95
10-Nov-97
12-Oct-99
24-Oct-01
3-Oct-03
17-Oct-05
30-Oct-07
2-Oct-09
DIRECT RADIATION
Background (BHV-3) Subtracted from BHV-4
BHV-4


White Mesa Mill Ambient Gamma Levels Over Time BHV-5
mRem/quarter
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
30-Sep-81
03-Oct-83
07-Oct-85
09-Oct-87
30-Oct-89
30-Sep-91
8-Oct-93
16-Oct-95
10-Nov-97
12-Oct-99
24-Oct-01
3-Oct-03
17-Oct-05
30-Oct-07
2-Oct-09
DIRECT RADIATION
Background (BHV-3) Subtracted from BHV- 5
BHV-5


White Mesa Mill Ambient Gamma Levels Over Time BHV-6
mRem/quarter
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
30-Sep-81
03-Oct-83
07-Oct-85
09-Oct-87
30-Oct-89
30-Sep-91
8-Oct-93
16-Oct-95
10-Nov-97
12-Oct-99
24-Oct-01
3-Oct-03
17-Oct-05
30-Oct-07
2-Oct-09
DIRECT RADIATION
Background (BHV-3) Subtracted from BHV- 6
BHV-6

White Mesa Mill Third Quarter 2012 Environmental Spherical Gamma Monitor Results

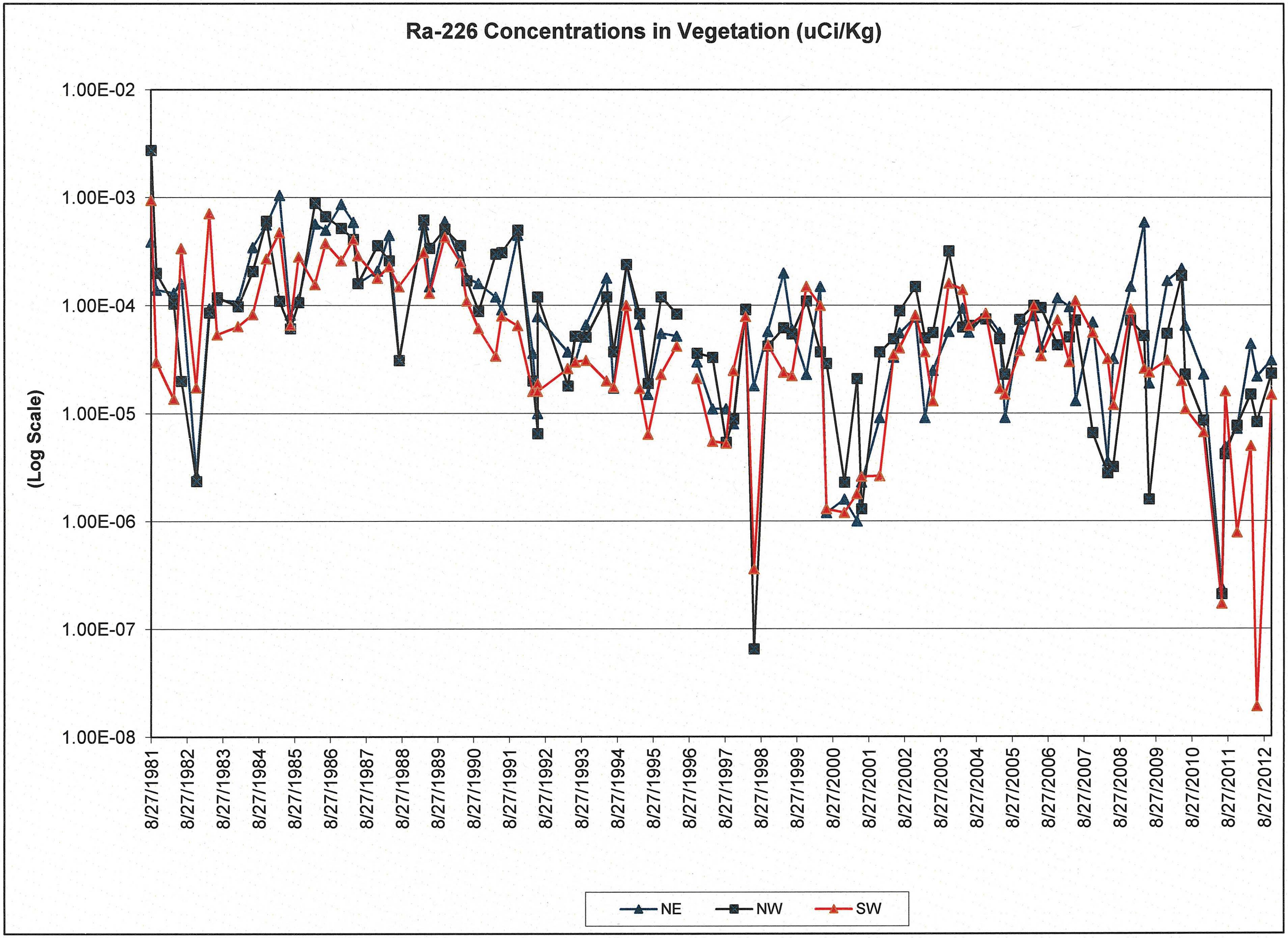
Badge Number	Location	Date Issued	Date Returned	Total Days Badge at WMM	Mean Ambient Dose Equivalent	mRem / hour	mRem / Day	mRem / Week
Control	Administration Vault	6/26/2012	9/26/2012	92	33.5	0.02	0.364	2.55
1	V2O5 Control Room	6/26/2012	9/26/2012	92	55	0.02	0.598	4.18
2	BHV-6	6/26/2012	9/26/2012	92	32	0.01	0.348	2.43
3	Ore Stor. - Molycorp Area	6/26/2012	9/26/2012	92	198.4	0.09	2.157	15.10
4	Vanadium Precip.Area	6/26/2012	9/26/2012	92	97.8	0.04	1.063	7.44
5	Yellocake Drying Area	6/26/2012	9/26/2012	92	275.4	0.12	2.993	20.95
6	Leach	6/26/2012	9/26/2012	92		0.00	0.000	0.00
7	SAG Mill Control Room	6/26/2012	9/26/2012	92	361.1	0.16	3.925	27.48
8	Yellowcake Precip.	6/26/2012	9/26/2012	92	153.8	0.07	1.672	11.70
9	Central Control Room	6/26/2012	9/26/2012	92	78.2	0.04	0.850	5.95
10	Trommel Screen (ore pad)	6/26/2012	9/26/2012	92	156.7	0.07	1.703	11.92
11	North East Corner Ore Pad	6/26/2012	9/26/2012	92	271.2	0.12	2.948	20.63
12	Met. Lab	6/26/2012	9/26/2012	92	70.8	0.03	0.770	5.39
13	Filter Press Room	6/26/2012	9/26/2012	92	211.9	0.10	2.303	16.12
14	BHV-1	6/26/2012	9/26/2012	92	32.6	0.01	0.354	2.48
15	BHV-2	6/26/2012	9/26/2012	92	31.3	0.01	0.340	2.38
16	BHV-3	6/26/2012	9/26/2012	92	30.9	0.01	0.336	2.35
17	BHV-4	6/26/2012	9/26/2012	92	31.4	0.01	0.341	2.39
18	BHV-5	6/26/2012	9/26/2012	92	34.5	0.02	0.375	2.63
19	SAG Mill	6/26/2012	9/26/2012	92	413.4	0.19	4.493	31.45
20	Tails	6/26/2012	9/26/2012	92	65.5	0.03	0.712	4.98
21	CCD	6/26/2012	9/26/2012	92	80.2	0.04	0.872	6.10
22	North SX	6/26/2012	9/26/2012	92	83.6	0.04	0.909	6.36
23	Administration Building	6/26/2012	9/26/2012	92	36.9	0.02	0.401	2.81
24	Admin Parking Lot	6/26/2012	9/26/2012	92	100.3	0.05	1.090	7.63
25	Yellowcake Packaging	6/26/2012	9/26/2012	92	1571.5	0.71	17.082	119.57
26	Yellowcake Storage	6/26/2012	9/26/2012	92	434.1	0.20	4.718	33.03
27	Bucking Room	6/26/2012	9/26/2012	92	140.9	0.06	1.532	10.72
28	Mill Lunch Room	6/26/2012	9/26/2012	92	58	0.03	0.630	4.41
29	South SX	6/26/2012	9/26/2012	92	121.7	0.06	1.323	9.26
30	Mtce. Super.'s Office	6/26/2012	9/26/2012	92	50.1	0.02	0.545	3.81
31	Ore Feed Grizzly	6/26/2012	9/26/2012	92	389.9	0.18	4.238	29.67
32	Scalehouse	6/26/2012	9/26/2012	92	258.5	0.12	2.810	19.67
33	Sample Plant (OBS)	6/26/2012	9/26/2012	92	282.1	0.13	3.066	21.46
34	Front Gate	6/26/2012	9/26/2012	92	221.7	0.10	2.410	16.87
45	AF - Barrel Dump Station	6/26/2012	9/26/2012	92	433.4	0.20	4.711	32.98
46	AF Circuit - South	6/26/2012	9/26/2012	92	135.2	0.06	1.470	10.29
47	AF Circuit - North	6/26/2012	9/26/2012	92	463.2	0.21	5.035	35.24
51	North Control # 1	6/26/2012	9/26/2012	92	39.4	0.02	0.428	3.00
52	North Control # 2	6/26/2012	9/26/2012	92	35.1	0.02	0.382	2.67
53	CaF2 Barrel Dump Station - Operator Station	6/26/2012	9/26/2012	92	287.8	0.13	3.128	21.90
64	KF Barrel Dump Station	6/26/2012	9/26/2012	92		0.00	0.000	0.00

White Mesa Mill Fourth Quarter 2012 Environmental Spherical Gamma Monitor Results

Badge Number	Location	Date Issued	Date Returned	Total Days Badge at WMM	Mean Ambient Dose Equivalent	mRem / hour	mRem / Day	mRem / Week
Control	Administration Vault	9/26/2012	12/31/2012	96	33.1	0.01	0.345	2.41
1	V2O5 Control Room	9/26/2012	12/31/2012	96	60.3	0.03	0.628	4.40
2	BHV-6	9/26/2012	12/31/2012	96	30.2	0.01	0.315	2.20
3	Ore Stor. - Molycorp Area	9/26/2012	12/31/2012	96	174.1	0.08	1.814	12.69
4	Vanadium Precip.Area	9/26/2012	12/31/2012	96	90.7	0.04	0.945	6.61
5	Yellocake Drying Area	9/26/2012	12/31/2012	96	240.8	0.10	2.508	17.56
6	Leach	9/26/2012	12/31/2012	96	184.8	0.08	1.925	13.48
7	SAG Mill Control Room	9/26/2012	12/31/2012	96	297.9	0.13	3.103	21.72
8	Yellowcake Precip.	9/26/2012	12/31/2012	96	152.4	0.07	1.588	11.11
9	Central Control Room	9/26/2012	12/31/2012	96	93.3	0.04	0.972	6.80
10	Trommel Screen (ore pad)	9/26/2012	12/31/2012	96		0.00	0.000	0.00
11	North East Corner Ore Pad	9/26/2012	12/31/2012	96	272.7	0.12	2.841	19.88
12	Met. Lab	9/26/2012	12/31/2012	96	60.9	0.03	0.634	4.44
13	Filter Press Room	9/26/2012	12/31/2012	96	196.3	0.09	2.045	14.31
14	BHV-1	9/26/2012	12/31/2012	96	34.8	0.02	0.363	2.54
15	BHV-2	9/26/2012	12/31/2012	96	32.1	0.01	0.334	2.34
16	BHV-3	9/26/2012	12/31/2012	96	29.5	0.01	0.307	2.15
17	BHV-4	9/26/2012	12/31/2012	96	33.3	0.01	0.347	2.43
18	BHV-5	9/26/2012	12/31/2012	96	33.4	0.01	0.348	2.44
19	SAG Mill	9/26/2012	12/31/2012	96	259.9	0.11	2.707	18.95
20	Tails	9/26/2012	12/31/2012	96		0.00	0.000	0.00
21	CCD	9/26/2012	12/31/2012	96	80.2	0.03	0.835	5.85
22	North SX	9/26/2012	12/31/2012	96	64.4	0.03	0.671	4.70
23	Administration Building	9/26/2012	12/31/2012	96	37.3	0.02	0.389	2.72
24	Admin Parking Lot	9/26/2012	12/31/2012	96	91	0.04	0.948	6.64
25	Yellowcake Packaging	9/26/2012	12/31/2012	96	1279	0.56	13.323	93.26
26	Yellowcake Storage	9/26/2012	12/31/2012	96	385.3	0.17	4.014	28.09
27	Bucking Room	9/26/2012	12/31/2012	96	121.6	0.05	1.267	8.87
28	Mill Lunch Room	9/26/2012	12/31/2012	96	59.6	0.03	0.621	4.35
29	South SX	9/26/2012	12/31/2012	96	99.4	0.04	1.035	7.25
30	Mtce. Super.'s Office	9/26/2012	12/31/2012	96	48	0.02	0.500	3.50
31	Ore Feed Grizzly	9/26/2012	12/31/2012	96	401.6	0.17	4.183	29.28
32	Scalehouse	9/26/2012	12/31/2012	96	224.1	0.10	2.334	16.34
33	Sample Plant (OBS)	9/26/2012	12/31/2012	96	274.4	0.12	2.858	20.01
34	Front Gate	9/26/2012	12/31/2012	96	207.9	0.09	2.166	15.16
45	AF - Barrel Dump Station	9/26/2012	12/31/2012	96	146.6	0.06	1.527	10.69
46	AF Circuit - South	9/26/2012	12/31/2012	96	50.6	0.02	0.527	3.69
47	AF Circuit - North	9/26/2012	12/31/2012	96	108.8	0.05	1.133	7.93
51	North Control # 1	9/26/2012	12/31/2012	96	37.3	0.02	0.389	2.72
52	North Control # 2	9/26/2012	12/31/2012	96	32.4	0.01	0.338	2.36
53	CaF2 Barrel Dump Station - Operator Station	9/26/2012	12/31/2012	96		0.00	0.000	0.00
64	KF Barrel Dump Station	9/26/2012	12/31/2012	96	155.3	0.07	1.618	11.32

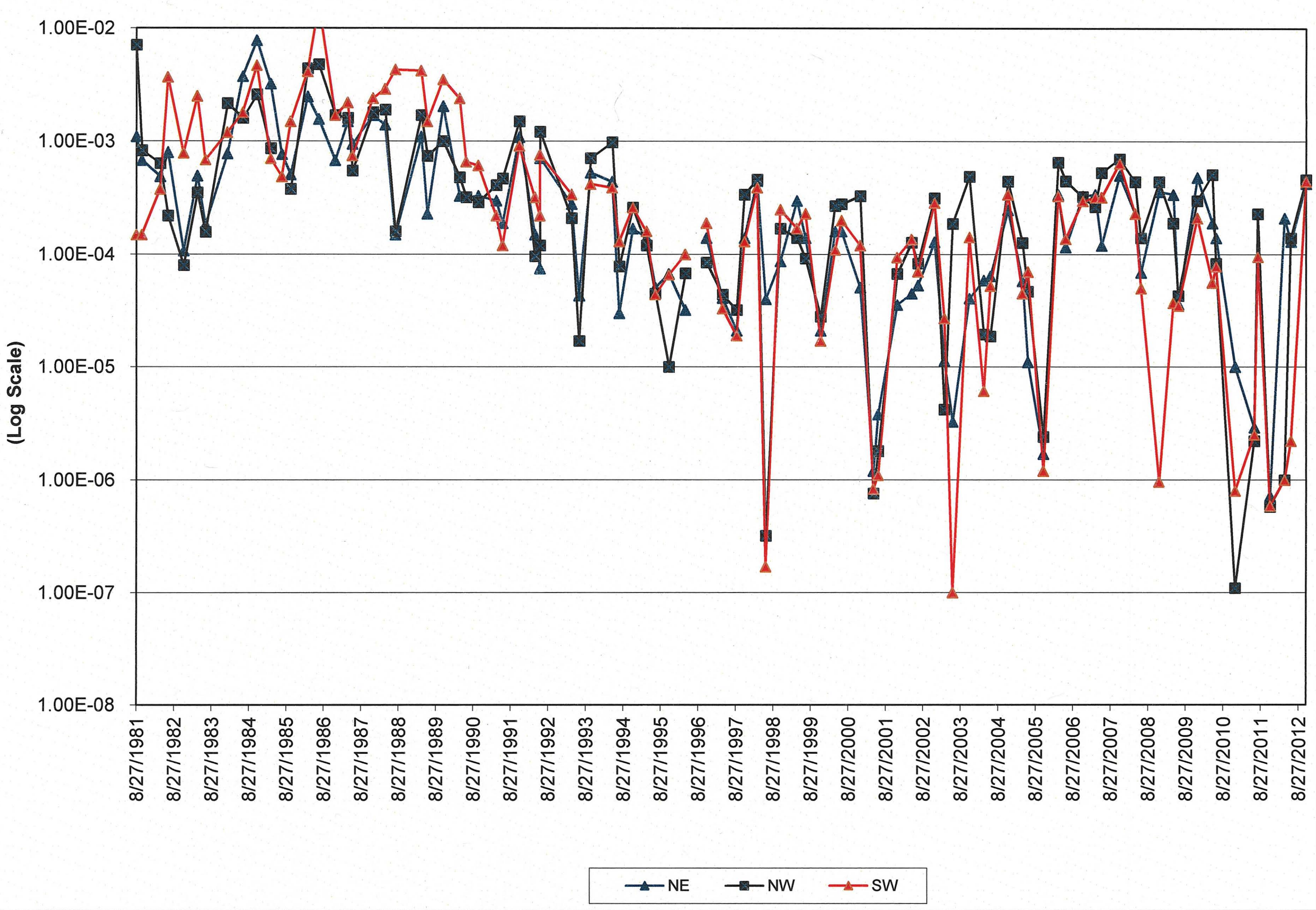
ATTACHMENT F

VEGETATION GRAPHS, DATA TABLE, LABORATORY RESULTS AND QA/QC

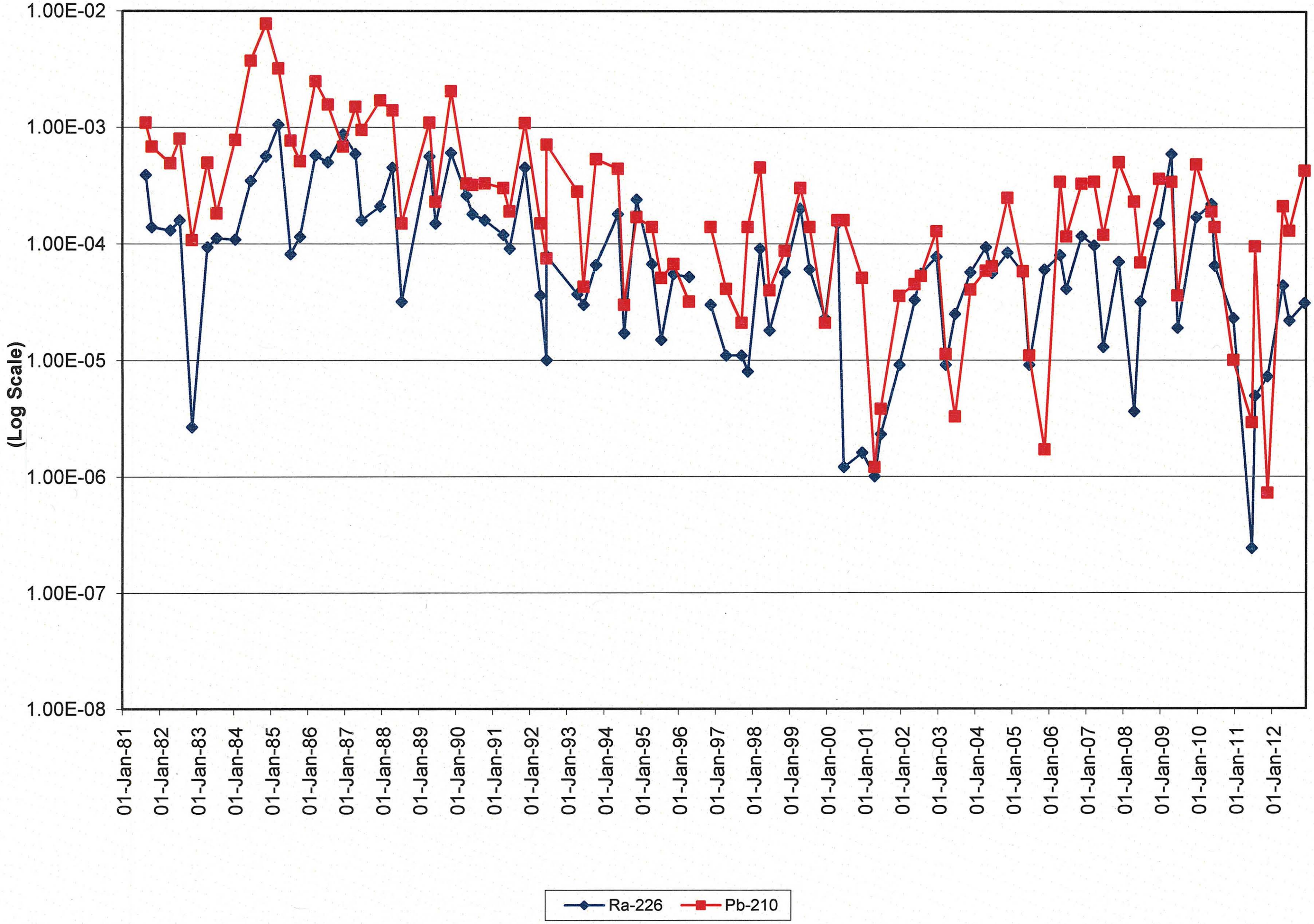


Ra-226 Concentrations in Vegetation (uCi/Kg)

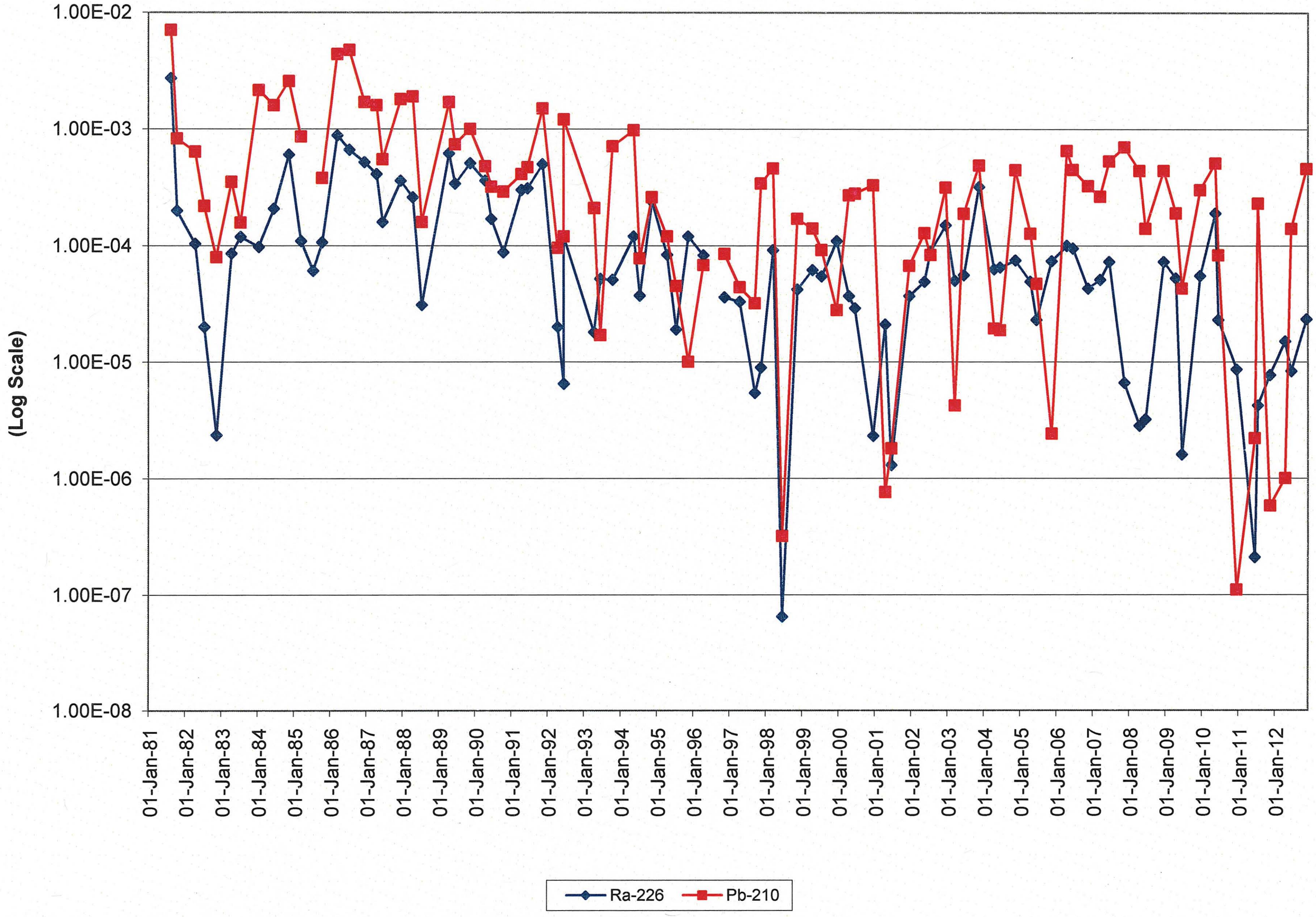
Pb-210 Concentrations In Vegetation (uCi/Kg)



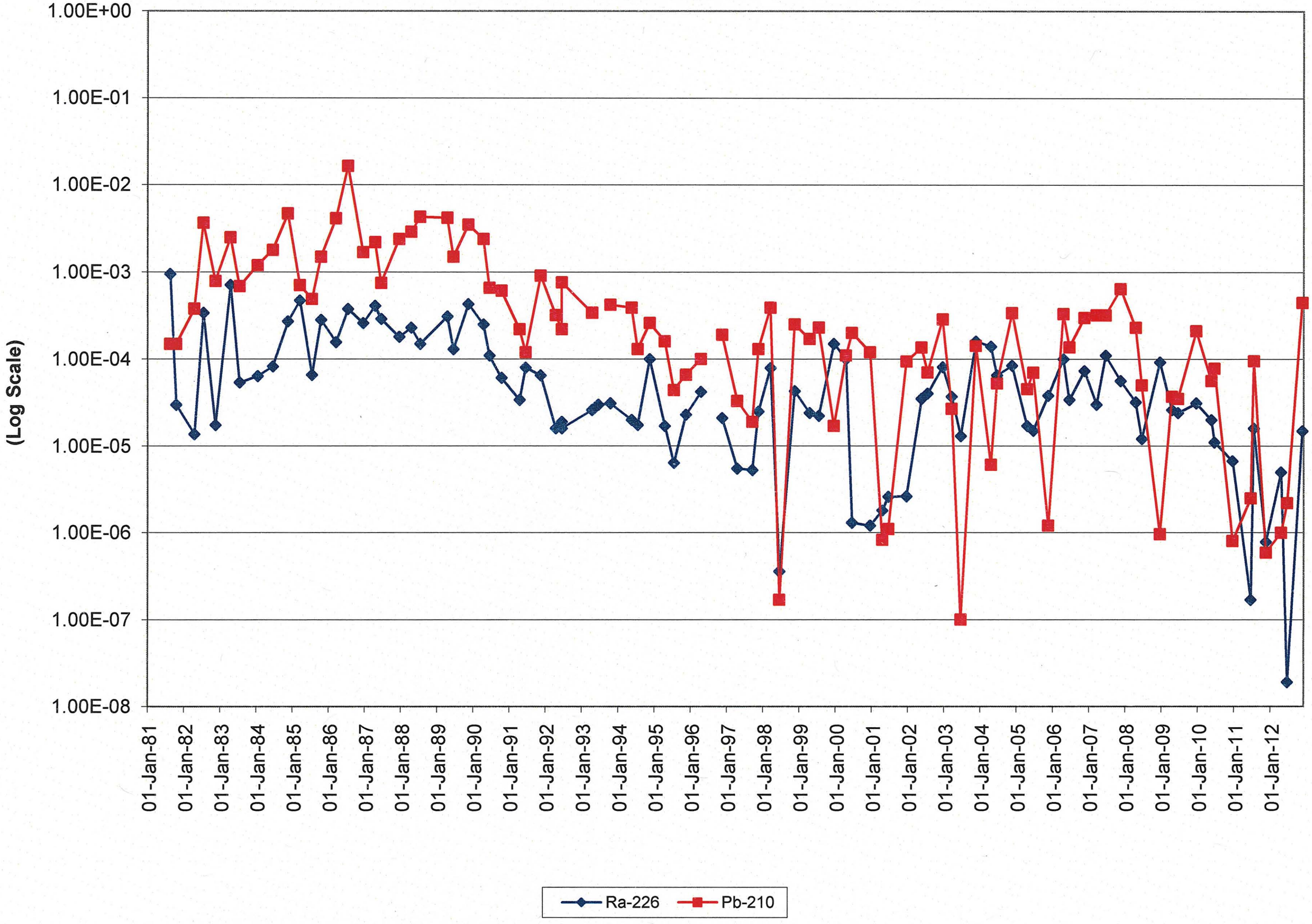
WHITE MESA MILL - NORTHEAST OF MILL Ra-226 and Pb-210 Concentrations in Vegetation (uCi/Kg)



WHITE MESA MILL - NORTHWEST OF MILL Ra-226 and Pb-210 Concentrations in Vegetation (uCi/Kg)



WHITE MESA MILL - SOUTHWEST OF MILL Ra-226 and Pb-210 Concentrations in Vegetation (uCi/Kg)



WHITE MESA MILL
FORAGE RADIONUCLIDE DATA
NORTHEAST OF MILL

SAMPLED QTR.	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)
3rd '81	27-Aug-81	3.90E-04	1.0E-05	5.0E-08	1.10E-03	1.0E-04	1.0E-06
4th '81	20-Oct-81	1.40E-04	1.0E-05	5.0E-08	6.80E-04	8.0E-05	1.0E-06
2nd '82	15-Apr-82	1.31E-04	1.3E-05	1.0E-06	4.90E-04	7.0E-05	8.0E-05
3rd '82	01-Jul-82	1.60E-04	1.0E-05	5.0E-08	8.00E-04	1.7E-04	1.0E-07
4th '82	30-Nov-82	2.67E-06	1.1E-06	1.0E-06	1.08E-04	9.0E-06	1.0E-05
2nd '83	13-Apr-83	9.36E-05	6.2E-06	8.0E-09	4.97E-04	9.3E-05	1.0E-04
3rd '83	01-Jul-83	1.12E-04	1.2E-05	6.0E-06	1.84E-04	1.2E-05	1.0E-06
4th '83	30-Jan-84	1.09E-04	8.0E-06	4.0E-06	7.80E-04	6.2E-05	6.0E-05
2nd '84	28-Jun-84	3.47E-04	1.2E-05	2.0E-09	3.75E-03	1.6E-04	4.0E-08
4th '84	14-Nov-84	5.61E-04	2.0E-04	2.0E-07	7.82E-03	3.3E-04	7.0E-08
2nd '85	27-Mar-85	1.05E-03	3.0E-05	2.0E-06	3.22E-03	1.4E-04	2.0E-05
3rd '85	15-Jul-85	8.20E-05	7.0E-06	3.0E-06	7.70E-04	1.3E-04	2.0E-04
4th '85	09-Oct-85	1.15E-04	1.0E-05	3.0E-06	5.10E-04	3.0E-05	2.0E-05
2nd '86	24-Mar-86	5.72E-04	2.1E-05	4.0E-06	2.49E-03	1.0E-04	1.0E-05
3rd '86	10-Jul-86	5.01E-04	1.3E-05	3.0E-06	1.57E-03	1.7E-03	2.0E-04
4th '86	18-Dec-86	8.70E-04	5.0E-05	3.0E-06	6.80E-04	3.0E-05	3.0E-06
2nd '87	20-Apr-87	5.90E-04	7.0E-05	5.0E-08	1.50E-03	1.0E-04	1.0E-06
3rd '87	05-Jun-87	1.60E-04	3.0E-05	5.0E-08	9.50E-04	4.0E-05	1.0E-06
4th '87	22-Dec-87	2.10E-04	4.0E-05	5.0E-08	1.70E-03	1.0E-04	1.0E-06
2nd '88	19-Apr-88	4.50E-04	7.0E-05	5.0E-08	1.40E-03	1.0E-04	1.0E-06
3rd '88	28-Jul-88	3.20E-05	2.2E-05	5.0E-08	1.50E-04	4.4E-04	1.0E-06
2nd '89	07-Apr-89	5.60E-04	4.0E-05	***	1.10E-03	1.0E-01	***
3rd '89	06-Jun-89	1.50E-04	2.0E-05	***	2.30E-04	2.0E-05	***
4th '89	07-Nov-89	6.00E-04	5.0E-05	7.0E-06	2.04E-03	7.0E-05	1.4E-05
1st '90	17-Apr-90	2.60E-04	3.0E-05	4.0E-06	3.30E-04	2.0E-05	2.2E-05
2nd '90	20-Jun-90	1.80E-04	2.0E-05	5.0E-08	3.20E-04	2.0E-05	1.0E-06
3rd '90	17-Oct-90	1.60E-04	2.0E-05	5.0E-08	3.30E-04	2.0E-05	1.0E-06
1st '91	10-Apr-91	1.20E-04	2.0E-05	5.0E-06	3.00E-04	2.0E-05	1.0E-06
2nd '91	11-Jun-91	9.10E-05	1.6E-05	2.0E-07	1.90E-04	2.0E-05	2.0E-07
3rd '91	20-Nov-91	4.50E-04	4.0E-05	5.0E-08	1.09E-03	5.0E-05	1.0E-06
1st '92	22-Apr-92	3.60E-05	1.0E-05	2.0E-06	1.50E-04	2.0E-05	1.0E-05
2nd '92	10-Jun-92	1.00E-05	7.0E-06	2.0E-07	7.50E-05	2.0E-05	1.0E-06
3rd '92	10-Jun-92	7.90E-05	3.5E-05	3.0E-06	7.10E-04	7.0E-05	2.0E-05
1st '93	13-Apr-93	3.70E-05	2.2E-05	3.0E-06	2.80E-04	3.0E-05	2.0E-05
2nd '93	26-Jun-93	3.00E-05	1.5E-05	3.0E-06	4.30E-05	3.5E-05	2.0E-05
3rd '93	12-Oct-93	6.60E-05	2.7E-05	3.0E-06	5.30E-04	6.0E-05	2.0E-05
1st '94	11-May-94	1.80E-04	4.0E-05	3.0E-05	4.40E-04	6.0E-05	2.0E-04
2nd '94	19-Jul-94	1.71E-05	1.2E-06	9.0E-08	3.00E-05	6.1E-06	4.5E-06
3rd '94	28-Nov-94	2.40E-04	1.5E-05	1.7E-07	1.70E-04	1.1E-05	8.3E-07
1st '95	11-Apr-95	6.70E-05	5.4E-06	1.6E-07	1.40E-04	1.3E-05	7.9E-07
2nd '95	06-Jul-95	1.50E-05	1.5E-06	1.5E-07	5.10E-05	4.5E-06	7.6E-07
3rd '95	15-Nov-95	5.50E-05	5.0E-06	1.8E-07	6.70E-05	1.0E-05	8.8E-07
1st '96	23-Apr-96	5.20E-05	2.5E-06	1.5E-07	3.20E-05	4.5E-06	1.8E-07
2nd '96 *	31-Jul-96						
3rd '96	14-Nov-96	3.00E-05	2.5E-06	1.8E-07	1.40E-04	7.1E-06	9.3E-07
1st '97	21-Apr-97	1.10E-05	4.7E-07	1.2E-07	4.10E-05	3.6E-06	6.1E-07
3rd '97	05-Sep-97	1.10E-05	4.3E-07	1.3E-07	2.10E-05	7.3E-07	6.7E-07
4th '97	20-Nov-97	8.00E-06	1.2E-06	5.6E-07	1.40E-04	4.6E-06	1.1E-07
1st '98	23-Mar-98	<9.10E-05	9.1E-05	9.1E-05	<4.50E-04	4.5E-04	4.5E-04
2nd '98	16-Jun-98	1.80E-05	1.2E-06	6.3E-08	4.00E-05	1.8E-06	3.2E-07
4th '98	05-Nov-98	5.70E-05	1.0E-06	8.2E-08	8.70E-05	5.0E-06	4.1E-07
2nd '99	15-Apr-99	2.00E-04	3.0E-06	1.2E-07	3.00E-04	1.0E-05	6.0E-05
3rd '99	07-Jul-99	6.03E-05	1.4E-06	8.3E-08	1.40E-04	4.7E-06	4.2E-07
4th '99	02-Dec-99	2.30E-05	1.0E-06	2.3E-07	2.10E-05	1.0E-06	1.1E-06
2nd '00	21-Apr-00	1.50E-04	3.0E-06	1.2E-07	1.60E-04	8.0E-06	5.9E-07
2nd '00	22-Jun-00	1.20E-06	1.0E-07	2.8E-07	1.60E-04	1.0E-05	1.4E-06

4th '00	21-Dec-00	1.60E-06	1.1E-06	3.7E-07	5.10E-05	5.0E-06	1.9E-06
1st '01	30-Apr-01	1.00E-06	1.0E-07	2.4E-07	<1.2E-06	1.0E-07	2.4E-07
2nd '01	14-Jun-01	2.30E-06	2.0E-07	9.9E-08	3.80E-06	2.0E-07	5.0E-07
4th '01	17-Dec-01	9.10E-06	2.4E-06	1.2E-07	3.57E-05	3.0E-06	6.0E-07
1st '02	07-May-02	3.30E-05	1.8E-06	7.6E-07	4.50E-05	2.6E-06	1.0E-05
2nd '02	07-Jul-02	5.55E-05	2.8E-06	7.6E-07	5.31E-05	3.9E-06	1.0E-05
4th '02	15-Dec-02	7.75E-05	3.6E-06	7.6E-07	1.29E-04	6.2E-06	1.0E-05
1st '03	21-Mar-03	9.10E-06	1.3E-06	3.6E-07	1.13E-05	1.6E-06	3.4E-06
2nd '03	10-Jun-03	2.50E-05	1.3E-06	3.6E-07	3.26E-06	2.0E-06	7.4E-08
4th '03	20-Nov-03	5.70E-05	3.5E-06	1.5E-07	4.05E-05	5.8E-06	8.3E-07
1st '04	08-Apr-04	9.38E-05	3.7E-06	1.1E-07	5.88E-05	3.0E-06	5.5E-07
2nd '04	12-Jun-04	5.63E-05	3.4E-06	1.8E-07	6.42E-05	5.9E-06	9.0E-07
4th '04	30-Nov-04	8.41E-05	5.50E-06	2.00E-08	2.48E-04	1.40E-05	3.00E-07
1st '05	21-Apr-05	5.60E-05	3.00E-06	1.40E-07	5.80E-05	4.00E-06	6.90E-07
2nd '05	13-Jun-05	9.10E-06	1.50E-06	1.80E-07	1.10E-05	1.20E-05	9.00E-07
4th '05	10-Nov-05	6.00E-05	3.00E-06	1.10E-10	1.70E-06	6.40E-07	5.50E-10
1st '06	03-Apr-06	8.00E-05	5.00E-06	5.00E-08	3.40E-04	1.20E-05	1.00E-06
2nd '06	16-Jun-06	4.10E-05	3.10E-06	5.00E-08	1.16E-04	6.10E-06	1.00E-06
4th '06	28-Nov-06	1.17E-04	4.60E-06	1.90E-07	3.28E-04	9.50E-06	9.50E-07
1st '07	30-Mar-07	9.70E-05	4.40E-06	1.90E-07	3.40E-04	8.70E-06	8.4-07
2nd '07	1-Jun-07	1.30E-05	1.60E-06	1.90E-07	1.20E-04	6.60E-06	9.70E-07
4th '07	23-Nov-07	7.00E-05	8.20E-06	2.00E-07	5.00E-04	2.00E-05	1.20E-06
1st '08	22-Apr-08	3.6E-06	3.00E-06	5.20E-07	2.3E-04	1.40E-05	1.00E-06
2nd '08	18-Jun-08	3.2E-05	3.20E-06	1.80E-06	6.9E-05	3.50E-05	5.50E-05
4th '08	12-Dec-08						
1st '09	28-Apr-09	5.9E-04	1.35E-05	1.50E-06	3.4E-04	1.30E-05	1.50E-06
2nd '09	17-Jun-09	1.9E-05	1.45E-06	4.90E-07	3.6E-05	1.10E-05	1.80E-05
4th '09	18-Dec-09	1.7E-04	5.90E-06		4.8E-04	1.20E-05	
1st '10	13-May-10	2.2E-04	7.20E-06	1.10E-06	1.9E-04	1.90E-05	2.90E-05
2nd '10	18-Jun-10	6.5E-05	3.40E-06	7.60E-07	1.4E-04	1.90E-05	2.90E-05
4th '10	20-Dec-10	2.3E-05	1.70E-06	5.20E-07	1.0E-05	1.50E-06	2.30E-06
2nd '11	23-Jun-11	2.4E-07	1.4E-07	1.8E-07	<2.9E-06	1.7E-06	2.9E-06
2nd '12	11-Apr-12	4.4E-05	1.9E-06	3.6E-07	2.1E-04	2.0E-06	1.0E-06
3rd '12	11-Jun-12	2.2E-05	8.4E-07	1.1E-07	1.3E-04	7.6E-06	5.9E-06
4th '12	06-Nov-12	3.1E-05	4.8E-07	4.6E-08	4.3E-04	3.7E-06	6.5E-07

*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
FORAGE RADIONUCLIDE DATA
NORTHWEST OF MILL

SAMPLED QTR.	**SAMPLED DATE**	**Ra-226**	**Ra-226**	**LLD**	**Pb-210**	**Pb-210**	**LLD**
		VALUE (uCi/Kg)	**ERROR (uCi/Kg)**	**uCi/Kg (5.0E-08)**	**VALUE (uCi/Kg)**	**ERROR (uCi/Kg)**	**uCi/Kg (1.0E-06)**
3rd '81	27-Aug-81	2.73E-03	5.0E-05	5.0E-08	7.10E-03	3.0E-04	1.0E-06
4th '81	20-Oct-81	2.00E-04	1.0E-05	5.0E-08	8.30E-04	5.0E-05	1.0E-06
2nd '82	15-Apr-82	1.04E-04	9.0E-06	7.0E-06	6.40E-04	5.0E-05	4.0E-05
3rd '82	01-Jul-82	2.00E-05	1.0E-05	5.0E-08	2.20E-04	9.0E-05	1.0E-07
4th '82	30-Nov-82	2.36E-06	9.5E-07	1.0E-06	8.00E-05	1.0E-05	1.0E-05
2nd '83	13-Apr-83	8.58E-05	1.4E-05	2.0E-08	3.53E-04	1.9E-05	1.0E-05
3rd '83	01-Jul-83	1.19E-04	1.1E-05	5.0E-06	1.58E-04	1.3E-05	1.0E-05
4th '83	30-Jan-84	9.78E-05	7.0E-06	2.0E-06	2.16E-03	3.4E-04	3.0E-04
2nd '84	28-Jun-84	2.08E-04	1.0E-05	3.0E-09	1.60E-03	7.0E-05	3.0E-08
4th '84	14-Nov-84	6.05E-04	1.6E-04	2.0E-07	2.58E-03	1.1E-04	3.0E-08
2nd '85	27-Mar-85	1.10E-04	8.0E-06	3.0E-06	8.63E-04	4.2E-05	3.0E-05
3rd '85	15-Jul-85	6.10E-05	6.0E-06	2.0E-06	5.40E-04	5.0E-05	5.0E-05
4th '85	09-Oct-85	1.07E-04	6.0E-06	2.0E-06	3.80E-04	3.0E-05	2.0E-05
2nd '86	24-Mar-86	8.86E-04	1.8E-05	2.0E-06	4.40E-03	1.9E-04	3.0E-05
3rd '86	10-Jul-86	6.66E-04	1.8E-05	3.0E-06	4.78E-03	2.1E-04	6.0E-05
4th '86	18-Dec-86	5.20E-04	1.0E-04	3.0E-06	1.70E-03	1.0E-04	6.0E-05
2nd '87	20-Apr-87	4.10E-04	1.0E-04	5.0E-08	1.60E-03	1.0E-04	1.0E-06
3rd '87	05-Jun-87	1.60E-04	3.0E-05	5.0E-08	5.50E-04	4.0E-05	1.0E-06
4th '87	22-Dec-87	3.60E-04	5.0E-05	5.0E-08	1.80E-03	1.0E-04	1.0E-06
2nd '88	19-Apr-88	2.60E-04	5.0E-05	5.0E-08	1.90E-03	1.0E-04	1.0E-06
3rd '88	28-Jul-88	3.10E-05	1.9E-05	5.0E-08	1.60E-04	4.0E-05	1.0E-06
2nd '89	07-Apr-89	6.20E-04	5.0E-05	***	1.70E-03	1.0E-04	***
3rd '89	06-Jun-89	3.40E-04	3.0E-05	***	7.40E-04	3.0E-05	***
4th '89	07-Nov-89	5.10E-04	6.0E-05	7.0E-06	1.00E-03	7.0E-05	1.4E-05
1st '90	17-Apr-90	3.60E-04	3.0E-05	4.0E-06	4.80E-04	2.0E-05	2.2E-05
2nd '90	20-Jun-90	1.70E-04	2.0E-05	5.0E-08	3.20E-04	2.0E-05	1.0E-06
3rd '90	17-Oct-90	8.80E-05	1.6E-05	5.0E-08	2.90E-04	2.0E-05	1.0E-06
1st '91	10-Apr-91	3.00E-04	3.0E-05	5.0E-06	4.10E-04	2.0E-05	1.0E-06
2nd '91	11-Jun-91	3.10E-04	3.0E-05	2.0E-07	4.70E-04	2.0E-05	2.0E-07
3rd '91	20-Nov-91	5.00E-04	4.0E-05	5.0E-08	1.50E-03	1.0E-04	1.0E-06
1st '92	22-Apr-92	2.00E-05	8.0E-06	2.0E-06	9.60E-05	1.4E-05	1.0E-05
2nd '92	10-Jun-92	6.50E-06	6.0E-06	2.0E-06	1.20E-04	2.0E-05	1.0E-06
3rd '92	10-Jun-92	1.20E-04	4.0E-05	3.0E-06	1.21E-03	8.0E-05	2.0E-05
1st '93	13-Apr-93	1.80E-05	1.7E-05	3.0E-06	2.10E-04	3.0E-05	2.0E-05
2nd '93	26-Jun-93	5.20E-05	1.9E-05	3.0E-06	1.70E-05	3.6E-05	2.0E-05
3rd '93	12-Oct-93	5.10E-05	2.3E-05	3.0E-06	7.10E-04	6.0E-05	2.0E-05
1st '94	11-May-94	1.20E-04	1.0E-05	3.0E-05	9.80E-04	1.6E-04	2.0E-04
2nd '94	19-Jul-94	3.73E-05	1.6E-06	8.4E-08	7.80E-05	7.1E-06	4.2E-07
3rd '94	28-Nov-94	2.40E-04	1.5E-05	1.7E-07	2.60E-04	1.3E-05	8.3E-07
1st '95	11-Apr-95	8.40E-05	6.1E-06	1.5E-07	1.20E-04	1.1E-05	7.5E-05
2nd '95	06-Jul-95	1.90E-05	1.5E-06	1.4E-07	4.50E-05	4.3E-06	7.2E-07
3rd '95	15-Nov-95	1.20E-04	6.8E-06	1.4E-07	1.00E-05	5.8E-06	7.1E-07
1st '96	23-Apr-96	8.30E-05	3.3E-06	1.9E-07	6.80E-05	6.3E-06	1.8E-07
2nd '96 *	31-Jul-96						
3rd '96	14-Nov-96	3.60E-05	2.5E-06	1.6E-07	8.50E-05	5.6E-06	8.4E-07
1st '97	21-Apr-97	3.30E-05	2.3E-06	1.7E-07	4.40E-05	4.8E-06	8.4E-07
3rd '97	05-Sep-97	5.40E-06	3.5E-07	1.6E-07	3.20E-05	9.0E-07	7.8E-07
4th '97	20-Nov-97	8.90E-06	7.2E-07	5.4E-07	3.40E-04	6.7E-06	1.1E-07
1st '98	23-Mar-98	<9.20E-05	9.2E-05	9.2E-05	<4.60E-04	4.6E-04	4.6E-04
2nd '98	16-Jun-98	< 6.50E-08	6.5E-08	6.5E-08	<3.20E-07	3.2E-07	3.2E-07
4th '98	05-Nov-98	4.20E-05	1.0E-06	1.1E-07	1.70E-04	1.0E-05	5.5E-07
2nd '99	15-Apr-99	6.20E-05	1.0E-06	1.0E-07	1.40E-04	7.0E-06	1.0E-07
3rd '99	07-Jul-99	5.45E-05	1.4E-06	8.3E-08	9.20E-05	4.0E-06	4.2E-07
4th '99	02-Dec-99	1.10E-04	3.0E-06	2.2E-07	2.80E-05	1.0E-06	1.1E-06
2nd '00	21-Apr-00	3.70E-05	1.0E-06	2.4E-07	2.70E-04	1.0E-05	1.2E-06

2nd '00	22-Jun-00	2.90E-05	1.0E-06	3.3E-07	2.80E-04	2.0E-05	1.7E-06
4th '00	21-Dec-00	2.30E-06	1.4E-06	3.7E-07	3.30E-04	5.0E-05	1.9E-06
1st '01	30-Apr-01	2.10E-05	1.0E-06	1.5E-07	<7.6E-07	N/A	7.6E-07
2nd '01	14-Jun-01	1.30E-06	4.0E-08	1.2E-07	1.80E-06	3.0E-08	5.9E-07
4th '01	17-Dec-01	3.70E-05	7.67E-07	8.30E-08	6.72E-05	2.62E-06	6.00E-07
1st '02	07-May-02	4.90E-05	2.40E-06	7.60E-07	1.28E-04	5.61E-06	1.00E-05
2nd '02	07-Jul-02	8.88E-05	4.32E-06	7.60E-07	8.33E-05	4.32E-06	1.00E-05
4th '02	15-Dec-02	1.50E-04	6.2E-06	7.60E-07	3.16E-04	1.07E-05	1.0E-05
1st '03	21-Mar-03	5.00E-05	3.4E-06	2.71E-06	<4.2e-6		4.20E-06
2nd '03	10-Jun-03	5.60E-05	2.0E-06	4.10E-07	1.88E-04	5.14E-06	8.2E-08
4th '03	20-Nov-03	3.20E-04	8.2E-06	1.70E-07	4.89E-04	1.25E-05	8.3E-07
1st '04	08-Apr-04	6.29E-05	4.1E-06	2.00E-07	1.94E-05	4.00E-06	1.0E-06
2nd '04	12-Jun-04	6.51E-05	3.4E-06	1.30E-07	1.87E-05	3.90E-06	6.5E-07
4th '04	30-Nov-04	7.50E-05	4.6E-06	2.0E-08	4.45E-04	1.40E-05	3.0E-07
1st '05	21-Apr-05	4.90E-05	2.70E-06	1.30E-07	1.27E-04	4.80E-06	6.50E-07
2nd '05	13-Jun-05	2.30E-05	2.10E-06	1.50E-07	4.70E-05	5.10E-06	7.60E-07
4th '05	10-Nov-05	7.40E-05	3.50E-06	1.20E-10	2.40E-06	8.10E-08	5.80E-10
1st '06	03-Apr-06	1.00E-04	6.00E-06	5.00E-08	6.54E-04	1.50E-05	1.00E-06
2nd '06	16-Jun-06	9.50E-05	5.90E-06	5.00E-08	4.48E-04	1.40E-05	1.00E-06
4th '06	28-Nov-06	8.13E-05	4.10E-06	2.20E-07	3.25E-04	1.12E-06	1.00E-05
1st '07	30-Mar-07	4.30E-05	2.60E-06	1.70E-07	2.64E-04	7.20E-06	8.60E-07
2nd '07	1-Jun-07	5.10E-05	3.20E-06	2.30E-07	5.30E-04	1.40E-06	1.20E-06
4th '07	23-Nov-07	7.30E-05	6.6E-06	5.0E-08	7.00E-04	2.20E-05	1.10E-06
1st '08	22-Apr-08	2.8E-06	2.8E-06	7.20E-07	4.40E-04	2.0E-05	1.0E-06
2nd '08	18-Jun-08	3.2E-06	3.3E-06	1.80E-06	1.40E-04	3.3E-05	5.5E-05
4th '08	12-Dec-08	7.3E-05	3.2E-06	7.40E-07	4.40E-04	2.5E-05	3.2E-05
1st '09	28-Apr-09	5.3E-05	3.6E-06	1.10E-06	1.90E-04	1.5E-05	2.2E-05
2nd '09	17-Jun-09	2.3E-05	1.6E-05	5.2E-07	4.30E-05	1.00E-05	1.7E-05
4th '09	18-Dec-09	5.50E-05	3.50E-06		3.0E-04	1.10E-05	
1st '10	13-May-10	1.9E-04	6.10E-06	9.40E-07	5.1E-04	2.40E-05	3.10E-05
2nd '10	18-Jun-10	2.3E-05	2.00E-06	7.70E-07	8.3E-05	1.80E-05	2.90E-05
4TH '10	20-Dec-10	8.6E-06	9.10E-07	3.90E-07	1.1E-07	6.80E-07	1.10E-06
2nd '11	23-Jun-11	2.1E-07	1.20E-07	1.40E-07	<2.2E-06	1.30E-06	2.20E-06
2nd '12	11-Apr-12	1.5E-05	9.50E-07	2.60E-07	<7.0E-07	6.00E-07	1.00E-06
3rd '12	11-Jun-12	8.3E-06	5.40E-07	1.20E-07	1.4E-04	8.30E-06	6.50E-06
4th '12	06-Nov-12	2.3E-05	4.10E-07	7.71E-08	4.6E-04	3.83E-06	6.18E-07

*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
FORAGE RADIONUCLIDE DATA
SOUTHWEST OF MILL

SAMPLED QTR.	SAMPLED DATE	Ra-226	Ra-226	LLD	Pb-210	Pb-210	LLD
		VALUE (uCi/Kg)	ERROR (uCi/Kg)	uCi/Kg (5.0E-08)	VALUE (uCi/Kg)	ERROR (uCi/Kg)	uCi/Kg (1.0E-06)
3rd '81	27-Aug-81	9.50E-04	2.0E-05	5.0E-08	1.50E-04	1.0E-05	1.0E-06
4th '81	20-Oct-81	3.00E-05	3.0E-06	5.0E-08	1.50E-04	2.0E-05	1.0E-06
2nd '82	15-Apr-82	1.37E-05	3.0E-06	3.0E-06	3.80E-04	4.0E-05	4.0E-05
3rd '82	01-Jul-82	3.40E-04	2.0E-05	5.0E-08	3.68E-03	2.7E-04	1.0E-07
4th '82	30-Nov-82	1.75E-05	3.0E-06	2.0E-06	7.92E-04	4.0E-06	2.0E-05
2nd '83	13-Apr-83	7.13E-04	7.3E-05	9.0E-08	2.51E-03	3.0E-04	3.0E-04
3rd '83	01-Jul-83	5.39E-05	4.5E-06	2.0E-06	6.88E-04	4.3E-05	4.0E-05
4th '83	30-Jan-84	6.40E-05	7.0E-06	4.0E-06	1.20E-03	1.0E-04	4.0E-05
2nd '84	28-Jun-84	8.27E-05	6.3E-06	3.0E-09	1.80E-03	1.0E-04	9.0E-08
4th '84	14-Nov-84	2.72E-04	1.5E-04	2.0E-07	4.70E-03	7.2E-04	3.0E-07
2nd '85	27-Mar-85	4.73E-04	1.6E-07	3.0E-06	7.07E-04	3.6E-05	3.0E-05
3rd '85	15-Jul-85	6.60E-05	7.0E-06	4.0E-06	4.90E-04	3.0E-05	3.0E-05
4th '85	09-Oct-85	2.83E-04	2.0E-05	7.0E-06	1.50E-03	1.0E-04	7.0E-05
2nd '86	24-Mar-86	1.57E-04	1.0E-05	4.0E-06	4.14E-03	1.8E-04	3.0E-05
3rd '86	10-Jul-86	3.78E-04	1.0E-05	2.0E-06	1.65E-02	7.0E-04	1.0E-04
4th '86	18-Dec-86	2.60E-04	2.0E-05	2.0E-06	1.70E-03	1.0E-04	1.0E-04
2nd '87	20-Apr-87	4.10E-04	7.0E-05	5.0E-08	2.20E-03	1.0E-04	1.0E-06
3rd '87	05-Jun-87	2.90E-04	4.0E-05	5.0E-08	7.50E-04	5.0E-05	1.0E-06
4th '87	22-Dec-87	1.80E-04	3.0E-05	5.0E-08	2.40E-03	1.0E-04	1.0E-06
2nd '88	19-Apr-88	2.30E-04	5.0E-05	5.0E-08	2.90E-03	1.0E-04	1.0E-06
3rd '88	28-Jul-88	1.50E-04	3.0E-05	5.0E-08	4.30E-03	2.0E-04	1.0E-06
2nd '89	07-Apr-89	3.10E-04	4.0E-05	***	4.20E-03	1.0E-04	***
3rd '89	06-Jun-89	1.30E-04	2.0E-05	***	1.50E-03	1.0E-04	***
4th '89	07-Nov-89	4.30E-04	5.0E-05	1.4E-05	3.50E-03	1.4E-04	2.7E-05
1st '90	17-Apr-90	2.50E-04	3.0E-05	5.0E-06	2.39E-03	5.0E-05	2.5E-05
2nd '90	20-Jun-90	1.10E-04	2.0E-05	5.0E-08	6.60E-04	3.0E-05	1.0E-06
3rd '90	17-Oct-90	6.10E-05	1.4E-05	5.0E-08	6.10E-04	3.0E-05	1.0E-06
1st '91	10-Apr-91	3.40E-05	1.1E-05	5.0E-06	2.20E-04	1.0E-05	1.0E-06
2nd '91	11-Jun-91	8.00E-05	6.0E-06	2.0E-07	1.20E-04	1.0E-05	2.0E-07
3rd '91	20-Nov-91	6.50E-05	1.4E-05	5.0E-08	9.10E-04	5.0E-05	1.0E-06
1st '92	22-Apr-92	1.60E-05	7.0E-06	2.0E-06	3.20E-04	2.0E-05	1.0E-05
2nd '92	10-Jun-92	1.90E-05	1.0E-05	2.0E-07	2.20E-04	2.0E-05	1.0E-06
3rd '92	10-Jun-92	1.60E-05	1.8E-05	3.0E-06	7.60E-04	6.0E-05	2.0E-05
1st '93	13-Apr-93	2.60E-05	2.0E-05	3.0E-06	3.40E-04	3.0E-05	2.0E-05
2nd '93	26-Jun-93	3.00E-05	1.4E-05	3.0E-06	0.00E+00	3.0E-05	2.0E-05
3rd '93	12-Oct-93	3.10E-05	1.6E-05	3.0E-06	4.20E-04	6.0E-05	2.0E-05
1st '94	11-May-94	2.00E-05	5.0E-06	3.0E-05	3.90E-04	8.0E-05	2.0E-04
2nd '94	19-Jul-94	1.75E-05	1.7E-06	7.6E-08	1.30E-04	7.8E-06	3.8E-07
3rd '94	28-Nov-94	1.00E-04	9.0E-06	1.5E-07	2.60E-04	1.2E-05	7.4E-07
1st '95	11-Apr-95	1.70E-05	1.5E-06	1.6E-07	1.60E-04	1.5E-05	8.1E-07
2nd '95	06-Jul-95	6.40E-06	6.0E-07	1.4E-07	4.40E-05	4.2E-06	7.0E-07
3rd '95	15-Nov-95	2.30E-05	2.2E-06	1.7E-07	6.60E-05	9.6E-06	8.3E-07
1st '96	23-Apr-96	4.20E-05	2.2E-06	1.7E-07	1.00E-04	6.7E-06	1.8E-07
2nd '96 *	31-Jul-96						
3rd '96	14-Nov-96	2.10E-05	2.0E-06	1.6E-07	1.90E-04	7.3E-06	8.2E-07
1st '97	21-Apr-97	5.50E-06	4.2E-07	1.4E-07	3.30E-05	3.9E-06	7.0E-07
3rd '97	05-Sep-97	5.30E-06	3.2E-07	1.3E-07	1.90E-05	6.9E-07	6.3E-07
4th '97	20-Nov-97	2.50E-05	9.5E-07	5.9E-07	1.30E-04	4.7E-06	1.2E-07
1st '98	23-Mar-98	<7.90E-05	7.9E-05	7.9E-05	<3.90E-04	3.9E-04	3.9E-04
2nd '98	16-Jun-98	3.60E-07	1.4E-07	3.3E-08	<1.7E-07	1.7E-07	1.7E-07
4th '98	05-Nov-98	4.30E-05	1.0E-06	7.6E-08	2.50E-04	1.0E-05	3.8E-07
2nd '99	15-Apr-99	2.40E-05	1.0E-06	1.2E-07	1.70E-04	8.0E-06	6.2E-07
3rd '99	07-Jul-99	2.23E-05	8.6E-07	1.2E-07	2.30E-04	7.0E-06	5.9E-07
4th '99	02-Dec-99	1.50E-04	3.0E-06	2.0E-07	1.70E-05	1.0E-06	1.0E-06
2nd '00	21-Apr-00	1.00E-04	2.0E-06	1.2E-07	1.10E-04	7.0E-06	6.1E-07

2nd '00	22-Jun-00	1.30E-06	1.0E-07	2.4E-07	2.00E-04	1.0E-05	1.2E-06
4th '00	21-Dec-00	1.20E-06	9.0E-07	2.4E-07	1.20E-04	3.0E-05	1.2E-06
1st '01	30-Apr-01	1.80E-06	1.0E-07	1.7E-07	<8.3E-07	N/A	8.3E-07
2nd '01	14-Jun-01	2.60E-06	2.0E-07	9.9E-08	1.10E-06	2.0E-08	5.0E-07
4th '01	17-Dec-01	2.63E-06	4.6E-05	1.2E-07	9.40E-05	3.7E-06	6.0E-07
1st '02	07-May-02	3.50E-05	2.2E-06	7.6E-07	1.36E-04	5.6E-06	1.0E-05
2nd '02	07-Jul-02	4.02E-05	2.3E-06	7.6E-07	7.04E-05	4.1E-06	1.0E-05
4th '02	15-Dec-02	8.10E-05	3.9E-06	7.6E-07	2.87E-04	8.5E-06	1.0E-05
1st '03	21-Mar-03	3.70E-05	2.6E-06	2.4E-06	2.69E-05	2.0E-06	3.7E-06
2nd '03	10-Jun-03	1.30E-05	1.0E-06	5.2E-07	<1.00E-07		1.0E-07
4th '03	20-Nov-03	1.60E-04	1.3E-05	1.2E-07	1.42E-04	6.4E-06	5.9E-07
1st '04	08-Apr-04	1.40E-04	7.7E-06	1.1E-07	6.10E-06	2.7E-06	5.5E-07
2nd '04	12-Jun-04	6.51E-05	3.2E-06	1.5E-07	5.27E-05	4.9E-06	7.6E-07
4th '04	30-Nov-04	8.40E-05	5.7E-06	3.0E-08	3.39E-04	1.6E-05	3.0E-07
1st '05	21-Apr-05	1.70E-05	1.6E-06	1.3E-07	4.50E-05	3.5E-06	6.5E-07
2nd '05	13-Jun-05	1.50E-05	1.6E-06	1.4E-07	7.00E-05	5.1E-06	6.9E-07
4th '05	10-Nov-05	3.80E-05	2.1E-06	8.6E-10	1.20E-06	4.8E-08	4.3E-10
1st '06	03-Apr-06	1.00E-04	6.0E-06	5.0E-08	3.30E-04	1.1E-05	1.0E-06
2nd '06	16-Jun-06	3.40E-05	2.5E-06	5.0E-08	1.37E-04	6.0E-06	1.0E-06
4th '06	28-Nov-06	7.31E-05	3.20E-06	1.60E-07	2.98E-04	8.50E-06	8.20E-07
1st '07	30-Mar-07	3.00E-05	2.20E-06	1.70E-07	3.20E-04	7.90E-06	8.40E-07
2nd '07	1-Jun-07	1.10E-04	4.60E-06	2.3-07	3.20E-04	1.10E-05	1.10E-06
4th '07	23-Nov-07	5.60E-05	5.20E-06	5.00E-08	6.40E-04	1.90E-05	1.00E-06
1st '08	22-Apr-08	3.20E-05	2.30E-06	7.20E-07	2.30E-04	1.50E-05	1.00E-06
2nd '08	18-Jun-08	1.25E-05	2.20E-06	1.80E-06	5.00E-05	3.00E-05	4.80E-03
4th '08	12-Dec-08						
1st '09	28-Apr-09	2.60E-05	2.90E-06	1.40E-06	3.70E-05	1.50E-06	2.50E-05
2nd '09	17-Jun-09	2.40E-05	1.40E-06	3.90E-07	3.50E-05	7.90E-06	1.30E-05
4th '09	18-Dec-09	3.1E-05	2.30E-06		2.1E-04	8.40E-06	
1st '10	13-May-10	2.0E-05	2.10E-06	9.40E-07	5.6E-05	1.50E-05	2.40E-05
2nd '10	18-Jun-10	1.1E-05	1.30E-06	6.60E-07	7.8E-05	1.60E-05	2.50E-05
4th '10	20-Dec-10	6.7E-06	9.10E-07	4.80E-07	8.0E-07	7.90E-07	1.30E-06
2nd '11	23-Jun-11	<1.7E-07	6.9E-08	1.7E-07	<2.5E-06	1.5E-06	2.5E-06
2nd '12	11-Apr-12	5.0E-06	6.0E-07	3.0E-07	<7.0E-07	7.0E-07	1.0E-06
3rd '12	11-Jun-12	1.9E-08	6.2E-08	1.1E-07	<2.5E-07	1.3E-06	2.2E-06
4th '12	06-Nov-12	1.5E-05	3.4E-07	4.3E-08	4.5E-04	4.0E-06	8.6E-07

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

GEL | Laboratories LLC

a member of **The GEL Group** INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 **F** 843.766.1178

www.gel.com

December 05, 2012

Ms. Kathy Weinel
Energy Fuels Resources (USA), Inc.
225 Union Boulevard
Suite 600
Lakewood, Colorado 80228

Re: Vegetation Analysis
Work Order: 314963

Dear Ms. Weinel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on November 09, 2012. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4505.

Sincerely,

Heather Shaffer

Heather Shaffer
Project Manager

Purchase Order: DW16138
Enclosures

Energy Fuels Resources (USA), Inc.
Vegetation Analysis
SDG: 314963

Table of Contents

Case Narrative

Receipt Narrative
for
Energy Fuels Resources (USA), Inc.
SDG: 314963

December 05, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 09, 2012 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
314963001	North East
314963002	North West
314963003	South West

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package:

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.

Heather Shaffer

Heather Shaffer
Project Manager

Chain of Custody and Supporting Documentation

314963

DENISON MINES

Sheet 1 of 1

CHAIN OF CUSTODY

Samples Shipped to: GEL Laboratories
2040 Savage Rd
Charleston, South Carolina 29407

Contact: Garrin Palmer or David Turk
Ph: 435 678 2221
gpalmer@denisonmines.com
dturk@denisonmines.com
tholliday@denisonmines.com

Chain of Custody/Sampling Analysis Request

Project	Samplers Name	Samplers Signature
Late fall Vegetation 2012	Tanner Holliday	Tanner Holliday

Sample ID	Date Collected	Time Collected	Laboratory Analysis Requested
North East	11/6/2012	900	RA 226, PB 210
North West	11/6/2012	930	RA 226, PB 210
South West	11/6/2012	1015	RA 226, PB 211

Please notify Garrin Palmer or Tanner Holliday of Reciept tempature on these samples Immediately! Thank you.

Relinquished By:(Signature)	Date/Time	Received By:(Signature)	Date/Time
Tanner Holliday	11/7/2012 1100	P. Wont	11-9-12 09:20
Relinquished By:(Signature)	Date/Time	Received By:(Signature)	Date/Time

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: DNMI	**SDG/AR/COC/Work Order:** 314963
Received By: P. Went	**Date Received:** Nov. 9, 2012

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe) 23
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		X		Preservation Method: Ice bags Blue ice Dry ice [✓ None] Other (describe) *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 61524646
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?		X		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		X		Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?			X	Sample ID's affected: Lab rec'd 1 container each
12	Are sample containers identifiable as GEL provided?			X	Clients
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.	X			Circle Applicable: FedEx Air FedEx Ground [✓ UPS] Field Services Courier Other 1Z187Y4Y02 9990 7574 9890 ~~49~~ 9967 } 23c

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials P.D. Date 11-16-12 Page 1 of 1

GEL Laboratories LLC – Login Review Report

GEL Work Order/SDG:	**314963**	**Work Order Due Date:**	**13–DEC–12**	**Collector:**	**C**
Client SDG:	**314963**	**Package Due Date:**	**10–DEC–12**	**Prelogin #:**	**20121197700**
Project Manager:	**Heather Shaffer**	**EDD Due Date:**	**13–DEC–12**	**Project Workdef ID:**	**1310529**
Project Name:	**DNMI00101 Vegetation Analysis**	**Due Date:**	**13–DEC–12**	**SDG Status:**	**Closed**
Purchase Order:	**DW16138**	**HXS1**		**Logged by:**	
Package Level:	**LEVEL3**				
EDD Format:	**EIM_DNMI**				

GEL ID	Client Sample ID	Client Sample Desc.	Collect Date & Time	Receive Date & Time	Time Zone	# of Cont.	Lab Matrix	Fax Due Date	Days to Process	CofC #	Prelog Group	Lab QC	Field QC
314963001	North East		06–NOV–12 09:00	09–NOV–12 09:20	0	1	VEGETATION		30		1		
314963002	North West		06–NOV–12 09:30	09–NOV–12 09:20	0	1	VEGETATION		30		1		
314963003	South West		06–NOV–12 10:15	09–NOV–12 09:20	0	1	VEGETATION		30		1		

Client Sample ID	Status	Tests/Methods	Product Reference	Fax Date	PM Comments	Aux Data		Receive Codes
-001 North East	**REVW**	**GFPC, Total Alpha Radium, solid**			**Prep: Please use 2000g of sample to dry**	**Cooler Seal Undisturbed**	**y**	
	REVW	**GFPC, Pb210, Solid**				**Temperature (C)**	**23**	
-002 North West	**REVW**	**GFPC, Total Alpha Radium, solid**			**Prep: Please use 2000g of sample to dry**	**Cooler Seal Undisturbed**	**y**	
	REVW	**GFPC, Pb210, Solid**				**Temperature (C)**	**23**	
-003 South West	**REVW**	**GFPC, Total Alpha Radium, solid**			**Prep: Please use 2000g of sample to dry**	**Cooler Seal Undisturbed**	**y**	
	REVW	**GFPC, Pb210, Solid**				**Temperature (C)**	**23**	

Product: GFC__PBS **Workdef ID:** 1310600 **In Product Group?** No **Group Name:** **Group Reference:**

Method: DOE RP280 Modified
Product Description: GFPC, Pb210, Solid
Samples: 001, 002, 003
Parmname Check: All parmnames scheduled properly

Path: Standard
Product Reference:
Moisture Correction: "As Received"

CAS #	Parmname	Client RDL or PQL & Unit	Reporting Units	Parm Function	Included in Sample?	Included in QC?	Custom List?
14255-04-0	Lead-210	.000001	uCi/kg	REG	Y	Y	Yes

GEL Laboratories LLC – Login Review Report

Product: GFCTORAS **Workdef ID:** 1310679 **In Product Group?** No **Group Name:** **Group Reference:**

Method: EPA 900.1 Modified
Product Description: GFPC, Total Alpha Radium, solid
Samples: 001, 002, 003
Parmname Check: All parmnames scheduled properly

Path: Standard
Product Reference:
Moisture Correction: "As Received"

CAS #	Parmname	Client RDL or PQL & Unit	Reporting Units	Parm Function	Included in Sample?	Included in QC?	Custom List?
	Total Radium	.00000005	uCi/kg	REG	Y	Y	Yes

Contingent Tests

Action	Product Name	Description	Samples

Login Requirements:

Requirement	Include?	Comments

Peer Review by:____________________________ Work Order (SDG#), PO# Checked?____________ C of C signed in receiver location? ____________

Laboratory Certifications

List of current GEL Certifications as of 05 December 2012

State	Certification
Arkansas	88–0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH–0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330–12–00283, P330–12–00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C–SC–01
Kansas NELAP	E–10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M–SC012
Mississippi	SC00012
Nevada	SC000122011–1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68–00485
Plant Material Permit	PDEP–12–00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235–12–7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780–12
Wisconsin	999887790

Radiological Analysis

Radiochemistry Case Narrative
Energy Fuels Resources (DNMI)
SDG 314963

Method/Analysis Information

Product:	**GFPC, Pb210, Solid**
Analytical Method:	DOE RP280 Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1264113
Prep Batch Number:	1263219

Sample ID	Client ID
314963001	North East
314963002	North West
314963003	South West
1202781968	Method Blank (MB)
1202781969	314963003(South West) Sample Duplicate (DUP)
1202781970	314963003(South West) Matrix Spike (MS)
1202781971	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-018 REV# 13.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314963003 (South West).

QC Information
All of the QC samples meet the required acceptance limits with the following exceptions: The blank result 1202781968 (MB) is greater than the MDC but less than the required detection limit.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202781970 (South West), aliquot was reduced to conserve sample volume.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Total Alpha Radium, solid**
Analytical Method:	EPA 900.1 Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1264114
Prep Batch Number:	1263219

Sample ID	**Client ID**
314963001	North East
314963002	North West
314963003	South West
1202781972	Method Blank (MB)
1202781973	314963001(North East) Sample Duplicate (DUP)
1202781974	314963001(North East) Matrix Spike (MS)
1202781975	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-010 REV# 14.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 314963001 (North East).

QC Information

All of the QC samples meet the required acceptance limits with the following exceptions: The blank, 1202781972 (MB), did not meet the detection limit due to keeping the blank volume consistent with the other sample aliquots. All other samples met the detection limits. The sample and the duplicate, 1202781973 (North East) and 314963001 (North East) , did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with value of 2.7807.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

Samples were recounted due to high recovery. The recounts are reported.

Chemical Recoveries

All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments

The matrix spike, 1202781974 (North East), aliquot was reduced to conserve sample volume.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

DNMI001 Energy Fuels Resources (USA), Inc.

Client SDG: 314963 GEL Work Order: 314963

The Qualifiers in this report are defined as follows:

*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
U	Analyte was analyzed for, but not detected above the cRDL.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Heather M. McCarty **Name:** **Heather McCarty**

Date: **02 JAN 2013** **Title:** **Analyst II**

Sample Data Summary

Certificate of Analysis

Report Date: January 2, 2013

Company :	Energy Fuels Resources (USA), Inc.
Address :	225 Union Boulevard Suite 600 Lakewood, Colorado 80228
Contact:	Ms. Kathy Weinel
Project:	Vegetation Analysis

Client Sample ID:	North East	Project:	DNMI00101
Sample ID:	314963001	Client ID:	DNMI001
Matrix:	Vegetation		
Collect Date:	06-NOV-12 09:00		
Receive Date:	09-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Pb210, Solid "As Received"												
Lead-210		0.000426	+/-3.72E-06	6.52E-07	1.00E-06	uCi/kg		BXF1	01/01/13	1640	1264113	1
GFPC, Total Alpha Radium, solid "As Received"												
Total Radium		3.10E-05	+/-4.82E-07	4.63E-08	5.00E-08	uCi/kg		BXF1	01/02/13	0743	1264114	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/14/12	0609	1263219

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE RP280 Modified	
2	EPA 900.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Lead Carrier	GFPC, Pb210, Solid "As Received"			101	(25%-125%)
Barium Carrier	GFPC, Total Alpha Radium, solid "As Received"			122	(25%-125%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: January 2, 2013

Company :	Energy Fuels Resources (USA), Inc.
Address :	225 Union Boulevard Suite 600 Lakewood, Colorado 80228
Contact:	Ms. Kathy Weinel
Project:	Vegetation Analysis

Client Sample ID:	North West	Project:	DNMI00101
Sample ID:	314963002	Client ID:	DNMI001
Matrix:	Vegetation		
Collect Date:	06-NOV-12 09:30		
Receive Date:	09-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Pb210, Solid "As Received"												
Lead-210		0.000459	+/-3.83E-06	6.18E-07	1.00E-06	uCi/kg		BXF1	01/01/13	1640	1264113	1
GFPC, Total Alpha Radium, solid "As Received"												
Total Radium		2.34E-05	+/-4.10E-07	7.71E-08	5.00E-08	uCi/kg		BXF1	01/01/13	1634	1264114	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/14/12	0609	1263219

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE RP280 Modified	
2	EPA 900.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Lead Carrier	GFPC, Pb210, Solid "As Received"			100	(25%-125%)
Barium Carrier	GFPC, Total Alpha Radium, solid "As Received"			124	(25%-125%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: January 2, 2013

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Vegetation Analysis

Client Sample ID: South West
Sample ID: 314963003
Matrix: Vegetation
Collect Date: 06-NOV-12 10:15
Receive Date: 09-NOV-12
Collector: Client

Project: DNMI00101
Client ID: DNMI001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Pb210, Solid "As Received"												
Lead-210		0.000445	+/-4.01E-06	8.57E-07	1.00E-06	uCi/kg		BXF1	01/01/13	1640	1264113	1
GFPC, Total Alpha Radium, solid "As Received"												
Total Radium		1.49E-05	+/-3.41E-07	4.25E-08	5.00E-08	uCi/kg		BXF1	01/01/13	1634	1264114	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/14/12	0609	1263219

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE RP280 Modified	
2	EPA 900.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Lead Carrier	GFPC, Pb210, Solid "As Received"			96.6	(25%-125%)
Barium Carrier	GFPC, Total Alpha Radium, solid "As Received"			123	(25%-125%)

Quality Control Data

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: January 2, 2013
Page 1 of 2

Energy Fuels Resources (USA), Inc.
225 Union Boulevard
Suite 600
Lakewood, Colorado

Contact: **Ms. Kathy Weinel**

Workorder: **314963**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Ti
Rad Gas Flow											
Batch 1264113											
QC1202781969 314963003 DUP											
Lead-210		0.000445		0.000388	uCi/kg	13.5		(0% - 20%)	BXF1	01/01/13	1
	Uncertainty	+/-4.01E-06		+/-3.63E-06							
QC1202781971 LCS											
Lead-210	0.00802			0.0081	uCi/kg		101	(75%-125%)		01/01/13	1
	Uncertainty			+/-4.92E-05							
QC1202781968 MB											
Lead-210			U	8.06E-07	uCi/kg					01/01/13	1
	Uncertainty			+/-4.56E-07							
QC1202781970 314963003 MS											
Lead-210	0.0244	0.000445		0.0242	uCi/kg		97.2	(75%-125%)		01/01/13	1
	Uncertainty	+/-4.01E-06		+/-0.000142							
Batch 1264114											
QC1202781973 314963001 DUP											
Total Radium		3.10E-05		2.48E-05	uCi/kg	22.2*		(0% - 20%)	BXF1	01/02/13	0
	Uncertainty	+/-4.82E-07		+/-4.08E-07							
QC1202781975 LCS											
Total Radium	0.000203			0.000237	uCi/kg		117	(75%-125%)		12/30/12	1
	Uncertainty			+/-4.85E-06							
QC1202781972 MB											
Total Radium			U	5.66E-08	uCi/kg					01/02/13	0
	Uncertainty			+/-4.62E-08							
QC1202781974 314963001 MS											
Total Radium	0.000528	3.10E-05		0.000685	uCi/kg		124	(75%-125%)		12/30/12	1
	Uncertainty	+/-4.82E-07		+/-1.20E-05							

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
F	Estimated Value
H	Analytical holding time was exceeded

QC Summary

Workorder: 314963

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Ti

K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the cRDL.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater tha five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

ATTACHMENT G

STACK SAMPLE LABORATORY RESULTS

THIRD QUARTER
RADIONUCLIDE EMISSIONS TEST
CONDUCTED AT
ENERGY FUELS RESOURCES
NORTH YELLOW CAKE SCRUBBER
YELLOW CAKE DRYER BAGHOUSE

BLANDING, UTAH

September 28-29, 2012

by:

TETCO
391 East 620 South
American Fork, UT 84003
Phone (801) 492-9106
Fax (801) 492-9107 fax

Prepared for:

Energy Fuels Resources
6425 S Hwy 91
Blanding, Utah 84511

Date of Report:

December 6, 2012

CERTIFICATION OF REPORT INTEGRITY

Technical Emissions Testing Company (TETCO) certifies that this report represents the truth as well as can be derived by the methods employed. Every effort was made to obtain accurate and representative data and to comply with procedures set forth in the Federal Register.

Paul Kitchen

Reviewer: Paul R Kitchen

Date: 12/6/12

Dean Kitchen

Reviewer:

Date: 12-6-12

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Test Purpose

This test project was conducted to determine the total radionuclide emissions from the North Yellow Cake Scrubber and the Yellow Cake Dryer Baghouse exhausts in terms of Curies per dry standard cubic foot (Ci/dscf).

These tests were for U-Nat only.

Test Location and Type of Process

Energy Fuels Resources is located about 5 miles south of Blanding, Utah. Uranium ore is processed into yellow cake, which is shipped to other facilities for additional processing. There are two yellow cake dryers with individual scrubbers. Both dryer enclosures discharge into the Yellow Cake Dryer Baghouse. The packaging enclosure also discharges into the Yellow Cake Dryer Baghouse. The North Yellow Cake (NYC) dryer was the only operating dryer at the time of the test. The South Yellow Cake dryer is currently not operational. The Grizzly Baghouse serves as the main dust control device for the raw ore unloading and conveying to the processing building.

Stack schematics are shown as Figures 1 and 2 in Appendix D.

Test Dates

One test run was completed on the NYC Scrubber September 28, 2012 and one run on September 29th.

One run was completed on the Yellow Cake Dryer Baghouse September 28, 2012.

Pollutants Tested and Methods Applied

The tests were a determination of radionuclide emissions in accordance with EPA Method 5/114.

Test run filters and front wash residues were sent to Test America located in Richland, Washington for radionuclide analysis.

Test Participants

Test Facility	Garren Palmer	
State Agency	None	
TETCO	Dean Kitchen Jeff Graton	Doug Olsen

Deviations From EPA Methods

None

Quality Assurance

Testing procedures and sample recovery techniques were according to those outlined in the Federal Register and the *Quality Assurance Handbook for Air Pollution Measurement Systems*.

SUMMARY OF RESULTS

Emission Results

Table I presents the findings of the test in Curies per dry standard cubic foot. Tables IV-VI in Appendix A have more detailed information.

Table I. Measured Radionuclide Emissions

Run #	North Yellow Cake Scrubber		Yellow Cake Dryer Baghouse	
	pCi/dscf	pCi/hr	pCi/dscf	pCi/hr
1	239.3	1.986E +07	33.7	6.168E+06
2	185.7	1.619E+07		
AVE	**212.5**	**1.802E+07**	**33.7**	**6.168E+06**

Process Data

The process was operated according to standard procedures. All pertinent process data was available for recording by agency personnel. Scrubber water flow, pressure drop readings (Δp) were recorded and are found in Appendix D. The Dryer Baghouse pressure drop readings (Δp) were recorded and are found on the test run sheets. Production data will be submitted by Energy Fuels Resources.

Description of Collected Samples

The test filters for the North Yellow Cake Scrubber were heavily covered with a white or pinkish white colored particulate. The front washes were clear in appearance.

The test filters for the Yellow Cake Dryer Baghouse were lightly colored with a tan colored particulate. The front wash was clear in appearance.

Discussion of Errors or Irregularities

None

Percent Isokinetic Sampling

Each test run was isokinetic within the ±10% of 100% criterion specified in the Federal Register. Isokinetic values for each test run are presented in Table II.

Table II. Percent Isokinetic Sampling

Run #	North Yellow Cake Scrubber	Yellow Cake Dryer Baghouse
1	99	100
2	96	▨

SOURCE OPERATION

Process Control Devices Operation

All process control devices were operated normally. Recorded scrubber water flow, pressure and baghouse Δp readings were recorded and are found on the test run sheets or in Appendix D.

Process Representativeness

The facility was operated normally. Production data was retained by Energy Fuels Resources.

SAMPLING AND ANALYSIS PROCEDURES

Sampling Port Location

The inside diameter of the North Yellow Cake Scrubber stack is 18.0 inches. The two, four-inch diameter sample port are located 6.3 diameters (9.5 feet) downstream from the last disturbance and 6.3 diameters (9.5 feet) upstream from the next disturbance. Figure 1 in Appendix D is a schematic of the stack.

The inside diameter of the Yellow Cake Dryer Baghouse stack is 16.0 inches. The two, four-inch diameter sample ports are located 28.38 diameters (454 inches) downstream from the last disturbance and 3.56 diameters (57 inches) upstream from the next disturbance. The sample port locations are depicted in Figure 2 in Appendix D.

Sampling Point Location

Table III shows the distance of each sampling point from the inside wall according to EPA Method 1. Each point is marked and identified with a wrapping of glass tape and numbered. These points are determined by measuring the distance from the inside wall.

Table III. Sampling Point Location

Sample Point	Distance (inches) from Inside Wall	
	NYC Scrubber	Dryer Baghouse
1	0.58	0.70
2	1.89	2.34
3	3.49	4.74
4	5.81	11.26
5	12.19	13.66
6	14.51	15.30
7	16.11	
8	17.42	

Sampling Train Description

To determine the actual emission rates for this stack, 40 CFR 60, Appendix A, Methods 1-5/114 were followed.

All sampling trains were made of inert materials, (Teflon, stainless steel and glass) to prevent interference of the sampled gas and particulate. The stack analyzers used to conduct Methods 1-5/114 are constructed to meet the specifications outlined in the CFR. The temperature sensors are K-type thermocouples. Heater, vacuum and pitot line connections have been designed to be interchangeable with all units used by the tester. A 316 stainless steel probe liner was used for the tests. Figure 4 in Appendix E is a sketch of the Methods 5/114 sampling train.

Sample boxes were prepared for testing by following the prescribed procedures outlined in Methods 5/114.

Sampling and Analytical Procedures

All sampling and analytical test procedures were as specified in 40 CFR 60, Appendix A, Methods 5/114.

Quality Assurance

All equipment setup, sampling procedures, sample recovery and equipment calibrations were carried out according to the procedures specified in 40 CFR 60 and the *Quality Assurance Handbook for Air Pollution Measurement Systems*.

APPENDIX

A: Complete Results and Sample Calculations
B: Raw Field Data
C: Laboratory Data and Chain of Custody
D: Raw Production Data
E: Calibration Procedures and Results
F: Related Correspondence

APPENDIX A

TABLE IV
COMPLETE RESULTS
ENERGY FUELS RESOURCES, BLANDING, UTAH
NORTH YELLOWCAKE SCRUBBER EXHAUST

Symbol	Description	Dimensions	Run #1	Run #2	
Date			9/28/2012	9/29/2012	
Filter #			6037	6039	
Begin	Time Test Began		7:40	7:25	
End	Time Test Ended		15:43	15:37	
Pb_m	Meter Barometric Pressure	In. Hg. Abs	24.55	24.55	
ΔH	Orifice Pressure Drop	In. H_2O	1.498	1.599	
Y	Meter Calibration Y Factor	dimensionless	0.998	0.998	
Vm	Volume Gas Sampled--Meter Conditions	cf	374.109	381.835	
T_m	Avg Meter Temperature	°F	95.4	94.2	
$\sqrt{\Delta P}$	Sq Root Velocity Head	Root In. H_2O	0.2949	0.3057	
Wt_{wc}	Weight Water Collected	Grams	738.8	676.5	
T_t	Duration of Test	Minutes	480	480	
C_p	Pitot Tube Coefficient	Dimensionless	0.84	0.84	
D_n	Nozzle Diameter	Inches	0.3803	0.3803	
CO_2	Volume % Carbon Dioxide	Percent	2.60	2.50	
O_2	Volume % Oxygen	Percent	17.20	17.40	
N_2 & CO	Volume % Nitrogen and Carbon Monoxide	Percent	80.20	80.10	
Vm_{std}	Volume Gas Sampled (Standard)	dscf	292.544	299.323	
Vw	Volume Water Vapor	scf	34.834	31.897	
$Bw_{s\ (measured)}$	Fraction H_2O in Stack Gas (Measured)	Fraction	0.106	0.096	
$Bw_{s\ (saturated)}$	Fraction H_2O in Stack Gas (Saturated)	Fraction	0.120	0.105	
Bw_s	Fraction H_2O in Stack Gas *	Fraction	0.106	0.096	
X_d	Fraction of Dry Gas	Fraction	0.894	0.904	
M_d	Molecular Wt. Dry Gas	lb/lbmol	29.10	29.10	
M_s	Molecular Wt. Stack Gas	lb/lbmol	27.92	28.03	
%I	Percent Isokinetic	Percent	98.7	96.1	**AVG**
T_s	Avg Stack Temperature	°F	114.4	109.8	**112.1**
A_s	Stack Cross Sectional Area	Sq. Ft.	1.767	1.767	
P_G	Stack Static Pressure	In. H_2O	-0.060	-0.060	
Pb_p	Sample Port Barometric Pressure	In. Hg. Abs	24.48	24.48	
P_s	Stack Pressure	In. Hg. Abs	24.476	24.476	
Q_s	Stack Gas Volumetric Flow Rate (Std)	dscfm	1.38E+03	1.45E+03	**1.42E+03**
Q_a	Stack Gas Volumetric Flow Rate (Actual)	cfm	2.06E+03	2.12E+03	**2.09E+03**
V_s	Velocity of Stack Gas	fpm	1.16E+03	1.20E+03	**1.18E+03**
Curies	Radionuclides per sample	pCi	70000.0	55590.0	
Crad	Concentration of Radionuclides	pCi/dscf	239.280	185.719	**212.500**
ERrad	Emission Rate of Radionuclides	pCi/hr	1.986E+07	1.619E+07	**1.802E+07**

* If the measured moisture content is greater than the saturated moisture level (supersaturated), the saturated moisture value will be used in all calculations (40 CFR 60, Method 4, Section 12.1.7).

TABLE V
COMPLETE RESULTS, PM
ENERGY FUELS RESOURCES
YELLOW CAKE DRYER BAGHOUSE

Symbol	Description	Dimensions	Run #1
Date	Date		9/28/2012
Filter #			6038
Begin	Time Test Began		10:43
End	Time Test Ended		12:45
Pb_m	Meter Barometric Pressure	In. Hg. Abs	24.55
ΔH	Orifice Pressure Drop	In. H_2O	2.133
Y	Meter Calibration Y Factor	dimensionless	1.006
Vm	Volume Gas Sampled--Meter Conditions	cf	113.314
T_m	Avg Meter Temperature	°F	90.6
$\sqrt{\Delta P}$	Sq Root Velocity Head	Root In. H_2O	0.7506
Wt_{wc}	Weight Water Collected	Grams	22.2
T_t	Duration of Test	Minutes	120
C_p	Pitot Tube Coefficient	Dimensionless	0.84
D_n	Nozzle Diameter	Inches	0.2515
CO_2	Volume % Carbon Dioxide	Percent	0.00
O_2	Volume % Oxygen	Percent	20.90
N_2 & CO	Volume % Nitrogen and Carbon Monoxide	Percent	79.10
Vm_{std}	Volume Gas Sampled (Standard)	dscf	90.268
Vw	Volume Water Vapor	scf	1.047
Bw_s	Fraction H_2O in Stack Gas	Fraction	0.011
X_d	Fraction of Dry Gas	Fraction	0.989
M_d	Molecular Wt. Dry Gas	lb/lbmol	28.84
M_s	Molecular Wt. Stack Gas	lb/lbmol	28.71
%I	Percent Isokinetic	Percent	99.9
T_s	Avg Stack Temperature	°F	109.1
A_s	Stack Cross Sectional Area	Sq. Ft.	1.396
P_G	Stack Static Pressure	In. H_2O	-0.47
Pb_p	Sample Port Barometric Pressure	In. Hg. Abs	24.48
P_s	Stack Pressure	In. Hg. Abs	24.445
Q_s	Stack Gas Volumetric Flow Rate (Std)	dscfm	3.05E+03
Q_a	Stack Gas Volumetric Flow Rate (Actual)	cfm	4.07E+03
V_s	Velocity of Stack Gas	fpm	2.91E+03
Curies	Radionuclides per sample	pCi	3040.0
Crad	Concentration of Radionuclides	pCi/dscf	33.6774
ERrad	Emission Rate of Radionuclides	pCi/hr	6.156E+06

Nomenclature

%I = percent isokinetic, percent
A_s = stack cross-sectional area (ft^2)
ASΔP = see √ΔP
Btu = unit heat value (British thermal unit)
B_{ws} = fraction of water in stack gas (may have designation of "measured" or "saturated")
"measured" represents measured moisture based upon sample volume and water collected
"saturated" is a calculated value based upon stack pressure and temperature
C_0 = average of initial and final system zero gas calibration bias checks (ppm, percent)
C_{avg} = average gas concentration (as measured)
C_B = concentration of particulate matter, back half (gr/dscf,lb/dscf, etc.)
C_{cond} = concentration of condensibles (grain/dscf)
C_{cors} = concentration of coarse particulate (gr/dscf)
C_{Dir} = measured concentration of a calibration gas when introduced in direct calibration mode
C_{fa} = concentration of particulate matter, front half, actual stack flow (gr /acf)
C_F = concentration of particulate matter, front half (gr/dscf,lb/dscf, etc.)
C_{gas} = C_{avg} corrected for initial and final system bias checks (Equation 7E-5)
C_m = average of initial and final system upscale gas calibration bias checks (ppm, percent)
C_{ma} = actual concentration of upscale calibration gas
C_{metal} = concentration of metals (ppm, $\mu g/ft^3$, etc.) atomic symbol replaces "metal"
CO_2 = percent carbon dioxide in the stack gas
C_p = pitot tube coefficient (0.84)
C_{PM10} = concentration of PM_{10} particulate (gr/dscf)
C_{rad} = concentration of radionuclides (pCi/dscf)
CS = measured concentration of a calibration gas when introduced in system calibration mode
C_X = Any species symbol may replace X. Units may be expressed as ppm, lb/dscf, etc.
$C_{X\ (corr)}$ = actual gas concentration corrected to required percent O_2
Curies = Measured radionuclides per sample. Units may be pCi or uCi.
D_c = jet diameter (cm)
D/F = Dioxins and Furans (See laboratory report for D/F descriptions and nomenclature)
ΔH = orifice pressure drop (inches H_2O)
$\Delta H_@$ = orifice pressure (inches H_2O)
ΔH_d = orifice pressure head (inches H_2O) needed for impactor flow rate
D_n = nozzle diameter (inches)
ΔP = stack flow pressure differential (inches H_2O)
Dp_{50} = 50% effective cutoff diameter of particle (cm)
D_s = diameter of the stack (feet)
EA = percent excess air
ER_B = emission rate of back half particulate (lb/hr)
ER_{cond} = emission rate of condensibles (lb/hr)
ER_{cors} = emission rate of coarse particulate (lb/hr)
ER_F = emission rate of front half particulate (lb/hr)
ER_{gas} = emission rate of a gas (lb/hr)
ER_{mmBtu} = emission rate per mmBtu of fuel
ER_{PM10} = emission rate of PM_{10} particulate (lb/hr)
ER_{rad} = emission rate of radionuclides (pCi/hr)
ER_X = emission rate of compound which replaces X. Units are usually in lb/hr.
F_D = Dry based fuel factor. Ratio of the gas volume of the products of combustion to the heat content
See 40 CFR 60, Appendix A, Method 19, Table 19-2 for fuel factor values.
K_c = Cunningham slip correction factor
λ = mean free path of molecules in gas phase (cm)
M_B = mass of particulate in back half (mg)

Nomenclature

mmBtu = million Btu
M_{cond} = mass of condensibles (milligrams)
M_{cors} = mass of coarse particulate (milligrams)
M_d = molecular weight of stack gas, dry basis (lb/lb-mol)
M_F = mass of particulate on filter (mg)
M_{FP} = mass of particulate matter on filter and probe (mg)
mmBtu = million Btu
M_P = mass of particulate matter in probe and front wash (mg)
M_{PM10} = mass of PM_{10} particulate (milligrams)
M_s = molecular weight of stack gas, wet basis (lb/lbmol)
M_X = mass of species "X". Units may vary and other descriptive subscripts may apply.
μ_s = gas viscosity (poise)
M_{wx} = molecular weight of gas species (g/gmol)
N = number of jets per plate
N_2 = percent nitrogen in the stack gas
O_2 = percent oxygen in the stack gas
$\sqrt{\Delta P}$ = average of the square roots of ΔP (may also be referred to as ASΔP)
Pb_m = absolute barometric pressure at the dry gas meter (inches Hg)
Pb_p = absolute barometric pressure at the sample location (inches Hg)
P_G = stack static pressure (inches H_2O)
P_s = absolute stack pressure (inches Hg)
P_{std} = absolute pressure at standard conditions (29.92 inches Hg.)
θ = time of test (minutes)
Q_a = stack gas volumetric flow rate (acfm)
Q_s = stack gas volumetric flow rate (dscfm)
Q_{sc} = actual gas flow rate through the cyclone (acfm)
Q_{sce} = actual gas flow rate through the impactor (acfm)
Q_W = wet stack gas std. volumetric flow (ft^3/min, wscfm)
R = gas constant (8.31451 J/gmol-°K)
ρ_p = particle density (1 g/cm^3)
ρ_s = stack gas density (g/cm^3)
T_m = stack temperature (°F)
T_s = stack temperature (°F)
T_{std} = absolute temperature at standard conditions (528°R)
Tt = Duration of test run in minutes. Also see θ
u_m = mean molecular speed (cm/s)
Vm = sample volume (ft^3) at meter conditions
Vm_{std} = volume standard (dscf), sample volume adjusted to 68°F and 29.92 inches Hg.
V_s = velocity of stack gas (fpm)
V_w = volume water vapor (scf) at 68°F and 29.92 inches Hg.
Wt_{wc} = weight of the condensed water collected (grams)
X_C = subscript referring to carbon monoxide, CO
X_d = fraction of dry gas
X_H = subscript referring to hydrogen sulfide, H_2S
X_N = subscript referring to oxides of nitrogen, NO_x
X_S = subscript referring to sulfur dioxide, SO_2
X_{SA} = subscript referring to sulfuric acid mist, H_2SO_4
Y = meter calibration Y-factor (dimensionless)
ψ = dimensionless inertial impaction parameter, 0.14

Sample Equations

$$\%I = Vm_{std} \bullet (T_s + 460) \bullet 1039 / (\theta \bullet V_s \bullet P_s \bullet X_d \bullet D_n^2)$$

$$A_s = D_s^2 / 4 \bullet \pi$$

$$B_{ws} = V_w / (Vm_{std} + V_w)$$

$$C_B = M_B \bullet 0.01543 / Vm_{std}$$

$$C_{cond} = M_{cond} \bullet 0.01543 / Vm_{std}$$

$$C_{cors} = M_{cors} \bullet 0.01543 / Vm_{std}$$

$$C_{fa} = T_{std} \bullet C_{fp} \bullet P_s \bullet X_d / [P_{std} \bullet (T_m + 460)]$$

$$C_f = M_{fp} \bullet 0.01543 / Vm_{std}$$

$$C_{PM10} = M_{PM10} \bullet 0.01543 / Vm_{std}$$

$$C_{rad} = \text{Curies}/Vm_{std}$$

$$C_{X\ (act)} = (C_{X\ (avg)} - C_0) \bullet C_{ma} / (C_m - C_0)$$

$$C_{X\ (corr)} = C_{X\ (act)} \bullet (20.9 - \text{desired } \%O_2) / (20.9 - \text{actual } \%O_2)$$

$$C_{X\ (mass)} = M_w \bullet C_{X\ (ppm)} \bullet P_{std} / (R \bullet T_{std} \bullet 10^6)$$

$${}_{casc}\ Dp_{50} = \sqrt{}\ [\mu s \bullet \psi \bullet N \bullet \pi \bullet D_c^3 \bullet 18 / (K_c \bullet \rho_p \bullet Q_{sce} \bullet 4)]$$

$${}_{PM_{10}}\ Dp_{50} = 0.15625 \bullet [(T_s + 460) / (M_s \bullet P_s)]^{0.2091} \bullet (\mu_s / Q_{sc})^{0.7091}$$

$$ER_B = C_B \bullet Q_s \bullet 0.00857$$

$$ER_{cond} = C_{cond} \bullet Q_s \bullet 0.00857$$

$$ER_{cors} = C_{cors} \bullet Q_s \bullet 0.00857$$

$$ER_F = C_f \bullet Q_s \bullet 0.00857$$

$$ER_{gas} = P_{std} \bullet Q_s \bullet M_{wx} \bullet C_{X\ (act)} \bullet 60 / (R \bullet T_{std} \bullet 10^6)$$

$$ER_X = Q_s \bullet C_{X\ (lb/dscf)} \bullet 60$$

$$ER_{mmBtu} = C_X \bullet F_D \bullet [20.9/(20.9\text{-}O_2)], \quad (C_X \text{ in units of lb/dscf})$$

$$ER_{PM10} = C_{PM10} \bullet Q_s \bullet 0.00857$$

$$ER_{rad} = C_{rad} \bullet Qs \bullet 60$$

$$K_c = 1 + 2 \bullet \lambda \bullet 1.257 / Dp_{50}$$

$$\lambda = \mu_s / (0.499 \bullet \rho_s \bullet u_m)$$

$$M_d = CO_2 \bullet 0.44 + O_2 \bullet 0.32 + N_2 \bullet 0.28$$

$$M_s = (M_d \bullet X_d) + (18 \bullet B_{ws})$$

$$\mu_s = [51.05 + 0.207 \bullet (T_s + 460) + 3.24 \bullet 10^{-5} \bullet (T_s + 460)_2 + 0.53147 \bullet \%O_2 - 74.143 \bullet B_{ws}] \bullet 10^{-6}$$

$$P_s = Pb_p + (P_G / 13.6)$$

$$Q_a = V_s \bullet A_s$$

$$Q_s = Qa \bullet Xd \bullet Ps \bullet T_{std} / [(Ts + 460) \bullet P_{std}]$$

$$Q_{sc} = [(T_s + 460) \bullet P_{std} / (T_{std} \bullet P_s)] \bullet [(Vm_{std} + V_w) / \theta]$$

$$Q_{sce} = [(T_s + 460) \bullet P_{std} / (T_{std} \bullet P_s)] \bullet [(Vm_{std} + V_w) / \theta]$$

$$Q_W = Q_s / X_d$$

$$\rho_s = P_s \bullet M_s \bullet 3386.39 \bullet 10^{-6} / [R \bullet (T_s + 460) / 1.8]$$

$$u_m = 100 \bullet \sqrt{}\ \{[R \bullet (T_s + 460) / 1.8 \bullet 8 \bullet 10^3] / [\pi \bullet M_s]\}$$

$$Vm_{std} = Vm \bullet Y \bullet T_{std} \bullet (Pb_m + \Delta H / 13.6) / [P_{std} \bullet (T_m + 460)]$$

$$V_s = 85.49 \bullet 60 \bullet Cp \bullet \sqrt{}\Delta P \bullet \sqrt{}\ [(T_s + 460) / (P_s \bullet M_s)]$$

$$V_{wc} = Wt_{wc} \bullet 0.04715$$

$$X_d = 1 - B_{ws}$$

APPENDIX B

North Yellow Cake Scrubber
    Preliminary Velocity Traverse and Sampling Point Location Data
    Particulate Field Data

Yellow Cake Dryer Baghouse
    Preliminary Velocity Traverse and Sampling Point Location Data
    Particulate Field Data

North Yellow Cake Dryer Scrubber

5/114 Field Data Sheet

Filter 6037 TETCO Sample Box A

Page 1 of 2 Run # 1

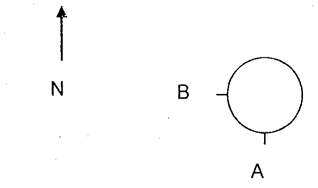
Plant: Energy Fuels Resources, Blanding, UT

Date: 8 7/28/12

Location: North Yellowcake Dryer Scrubber

Operator:

Traverse	Time		DGM	ΔP	ΔH (in H_2O)		Vacuum	Temperatures (°F)					DGM Temp (T_m)	
Point	Clock	Min (θ)	(ft^3)	(in H_2O)	Desired	Actual	(in Hg)	Stack (T_s)	Probe	Probe Out	Filter	Effluent	Out	In
1	7:40	0	10.306	.075	1.24	1.28	2	115	262	259	260	55	68	70
1		15	20.958	.083	1.42	1.42	2	114	240	261	260	52	70	75
2		30	32.350	.085	1.38	1.38	2	114	269	269	268	54	76	85
2		45	43.588	.085	1.38	1.38	2	113	244	270	268	57	81	90
3		60	54.626	083	1.37	1.37	2	112	270	270	268	58	86	96
3		75	66.248	082	1.36	1.36	3	112	270	265	265	57	88	97
4		90	77.560	080	1.32	1.32	3	111	270	271	270	58	91	100
4		105	88.760	.080	1.38	1.36	3	112	265	269	270	58	94	102
5		120	100.060	095	1.64	1.64	4	113	266	270	269	55	95	103
5		135	112.256	095	1.64	1.64	5	113	267	267	267	55	93	100
6		150	124.509	.085	1.47	1.47	5	111	261	262	261	56	92	98
6		165	136.233	.082	1.42	1.42	5	111	262	261	262	57	91	98
7		180	147.957	.067	1.16	1.16	5	113	263	262	262	58	91	98
7		195	158.150	.065	1.12	1.12	5	110	262	266	268	58	91	97
8		210	168.412	.067	1.16	1.16	5	109	259	262	261	59	90	97
8		225	178.863	.066	1.12	1.12	5	109	258	262	261	60	90	96
	11:41	240	~~240~~											
			189.119											
Total				√										
Average				√										



Stack Diameter 18" Port Reference 0.0"

Ports are 9.5' Upstream from next disturbance

Ports are 9.5' Downstream from last disturbance

Assumed Moisture 4-13 %

Probe 27-6 Cp 0.84

Nozzle Calibration

.381 .381 .379 .380

Avg D_n .38025 inches

Gas Bag H-07

Console 7

Y-Factor .998

$\Delta H_@$ 1.682 in H_2O

Barometric Pressures

Pb_m 24.55 in Hg

Pb_p 24.48 in Hg

P_G 0 06 in H_2O

Leak Check:	Pre	Post
ft^3/min	0.007	Page 2
vac in Hg	22	
Pitot Rate	.25	page 2
In H_2O	0.0	

Water Collected 738.8 g

Time Sampled Page min

Review

K = @T_m

K = @T_m

Additional (Extra) Leak Check Information

	DGM before Leak Check	Vac ("Hg)	Rate (ft^3/min)	DGM After Leak Check	Vac ("Hg)	Rate (ft^3/min)

5/114 Field Data Sheet

6077

TETCO

Filter 6039 Sample Box 17

Page 2 of 2 Run # 1

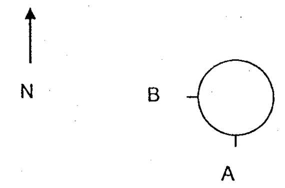
Plant: Energy Fuels Resources, Blanding, UT

Date: 9/28 | 30

Location: North Yellowcake Dryer Scrubber

Operator:

	Traverse Point	Time		DGM (ft³)	ΔP (in H₂O)	ΔH (in H₂O)		Vacuum (in Hg)	Temperatures (°F)					DGM Temp (T_m)	
		Clock	Min (θ)			Desired	Actual		Stack (T_s)	Probe	Probe Out	Filter	Effluent	Out	In
4:00	1	11:43	240	189.119	.075	1.30	1.30	5	112	265	262	261	63	91	95
15	1		255	199.934	.075	1.30	1.30	5	112	269	268	268	56	90	96
30	2		270	210.839	.080	1.38	1.38	5	115	246	253	252	51	91	98
45	2		285	222.085	.085	1.47	1.47	6	119	237	256	253	51	93	99
5	3		300	233.351	.090	1.56	1.56	6	115	236	251	253	55	94	99
15	3		315	245.549	.095	1.64	1.64	6	115	246	246	251	53	95	102
130	4		330	257.781	.1000	1.73	1.73	7	113	242	239	240	55	96	104
45	4		345	270.228	.110	1.90	1.90	6	114	231	254	255	56	97	105
4	5		360	283.115	.110	1.90	1.90	8	117	238	241	242	50	98	105
15	5		375	296.232	.105	1.82	1.82	8	117	235	247	248	51	99	107
30	6		390	309.045	.105	1.82	1.82	9	118	233	243	243	51	100	107
45	6		405	321.897	.110	1.90	1.90	9	119	251	243	242	52	102	108
7	7		420	334.263	.095	1.64	1.64	10	120	257	249	240	52	102	108
15	7		435	347.415	.100	1.73	1.73	10	121	251	241	242	53	103	109
30	8		450	359.830	.095	1.62	1.62	10	121	265	256	256	51	103	109
45	8		465	372.094	.095	1.62	1.62	10	121	250	250	251	62	104	109
5		15:44	480	384.415											
		15:45													
Total				374.109	√9.4376		47.95		3661					6107	
Average					√.2949		1.498		114.4					95.4	



Stack Diameter 18" Port Reference 0.0"

Ports are 9.5' Upstream from next disturbance

Ports are 9.5' Downstream from last disturbance

Assumed Moisture 4-13 %

Probe 270 Cp 0.84

Nozzle Calibration

.381 .381 .379 .380

Avg D_n .38025 inches

Gas Bag H-107

Console 7

Y-Factor .998

$\Delta H_@$ 1.682 in H_2O

Barometric Pressures

Pb_m 24.55 in Hg

Pb_p 24.48 in Hg

P_G -0.06 in H_2O

Leak Check:	Pre	Post
ft³/min	0.007	0.003
vac in Hg	22	15
Pitot Rate	.25	.25
In H_2O	0.0	0.0

Water Collected 73.8.8 g

Time Sampled 480 min

Review

K = @T_m

K = @T_m

Additional (Extra) Leak Check Information

	DGM before Leak Check	Vac ("Hg)	Rate (ft³/min)	DGM After Leak Check	Vac ("Hg)	Rate (ft³/min)

5/114 Field Data Sheet

TETCO

Filter 6039 Sample Box A

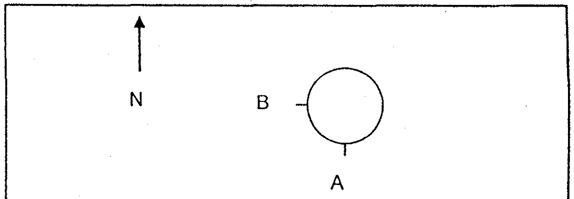
Page 1 of 2. Run # 2

Plant: Energy Fuels Resources, Blanding, UT

Date: 9/28/12 29

Location: North Yellowcake Dryer Scrubber

Operator: JC, [illegible]



Stack Diameter 18"
Port Reference 0.0"
Ports are 9.5' Upstream from next disturbance
Ports are 9.5' Downstream from last disturbance

Assumed Moisture 4-13 %
Probe 276
Cp 0.84
Nozzle Calibration .381 .381 .379 .380
Avg D_n .3802.5 inches
Gas Bag H-07
Console 7
Y-Factor .998
$\Delta H_@$ 1.682 in H_2O

Barometric Pressures
Pb_m 24.55 in Hg
Pb_p 24.48 in Hg
P_G 0.06 in H_2O

Leak Check:	Pre	Post
ft^3/min	0.006	PG. 2.
vac in Hg	22	
Pitot Rate	0.0	PG. 2.
In H_2O	.25	

Water Collected ________ g
Time Sampled ________ min
Review ________

	Traverse Point	Time		DGM	ΔP	ΔH (in H_2O)		Vacuum	1 Temperatures (°F)	2	3	4	5	DGM Temp (T_m) 6	7
		Clock	Min (θ)	(ft^3)	(in H_2O)	Desired	Actual	(in Hg)	Stack (T_s)	Probe	Probe Out	Filter	Effluent	Out	In
B	1	7:25	0	385.701	.080	1.33	1.33	2	103	270	265	265	55	68	68
	1		15	396.142	.080	1.33	1.33	2	109	261	270	270	51	71	74
	2		30	407.075	.080	1.33	1.33	2	113	263	270	270	52	75	82
	2		45	417.475	.080	1.33	1.33	2	115	266	273	273	52	80	88
1:00	3		60	428.240	.084	1.40	1.40	2	115	270	270	270	53	91	84
15	3		75	439.555	.095	1.59	1.59	4	115	277	272	272	54	94	86
30	4		90	451.445	.105	1.75	1.75	4	114	244	274	274	55	90	97
45	4		105	464.085	.105	1.75	1.75	4	114	249	276	276	56	93	101
2:00	5		120	476.450	.107	1.79	1.79	4	114	261	274	274	57	95	103
15	5		135	489.211	.107	1.83	1.83	5	112	258	283	283	59	98	105
30	6		150	502.150	.095	1.63	1.63	6	113	257	275	275	53	97	104
45	6		165	514.375	.096	1.65	1.65	5	111	254	264	264	51	95	100
3:00	7		180	526.425	.087	1.49	1.49	5	112	253	269	269	52	93	98
15	7		195	538.012	.087	1.49	1.49	5	110	255	269	269	53	91	96
30	8		210	549.515	.085	1.46	1.46	5	110	250	265	265	54	94	101
45	8		225	560.935	.085	1.46	1.46	5	110	246	261	261	52	97	103
4:00		11:26	240	572.255											

Total 186.554 √

Average √

K = @T_m
K = @T_m

Additional (Extra) Leak Check Information

	DGM before Leak Check	Vac ("Hg)	Rate (ft^3/min)	DGM After Leak Check	Vac ("Hg)	Rate (ft^3/min)
	572.255	11.0	0.007	572.800	13	0.005

5/114 Field Data Sheet

TETCO

Filter 6040 Sample Box A

Page 2 of 2 Run # 2

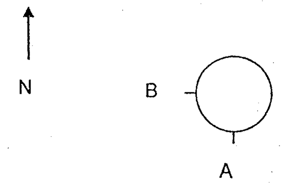
Plant: Energy Fuels Resources, Blanding, UT

Date: 9/29 13

Location: North Yellowcake Dryer Scrubber

Operator: JG/DO

	Traverse Point	Time Clock	Time Min (0)	DGM (ft³)	ΔP (in H₂O)	ΔH (in H₂O) Desired	ΔH (in H₂O) Actual	Vacuum (in Hg)	Temperatures (°F) 1 Stack (T_s)	2 Probe	3 Probe Out	4 Filter	5 Effluent	DGM Temp (T_m) 6 Out	7 In
4 hr A	1	11:36	240	572.800	.085	1.46	1.46	3	113	238	200	200	60	92	92
15	1		255	584.345	.085	1.46	1.46	3	112	234	242	242	49	92	95
30	2		270	595.680	.090	1.54	1.54	3	112	236	244	244	51	92	96
45	2		285	606.700	.090	1.54	1.54	3	112	228	250	250	53	92	97
5	3		300	618.410	.090	1.54	1.54	4	106	229	250	250	56	92	97
15	3		315	629.265	.090	1.54	1.54	4	105	229	249	249	55	90	91
30	4		330	640.720	.104	1.78	1.78	4	102	237	254	254	48	90	95
45	4		345	653.115	.104	1.78	1.78	4	103	248	250	250	48	91	98
6	5		360	665.700	.105	1.83	1.83	4	103	234	247	247	52	93	99
15	5		375	678.525	.105	1.83	1.83	4	105	244	255	255	52	94	101
30	6		390	691.225	.111	1.94	1.94	5	105	241	258	258	52	95	102
45	6		405	704.325	.111	1.94	1.94	5	107	250	247	247	50	96	104
7	7		420	717.495	.095	1.64	1.64	5	107	250	244	244	51	98	106
15	7		435	730.655	.095	1.64	1.64	5	110	250	243	243	53	101	108
30	8		450	743.815	.090	1.55	1.55	5	110	250	245	245	52	102	109
45	8		465	755.700	.090	1.55	1.55	5	110	252	246	246	48	104	110
8		15:37	480	769.081											
				195.281											
				186.554											
Total				381.835	√9.781 ✓		51.17 ✓		3512 ✓					6026 ✓	
Average					√0.3056 ✓		1.599 ✓		109.8 ✓					94.2 ✓	



Stack Diameter 18" Port Reference 0.0"

Ports are 9.5' Upstream from next disturbance

Ports are 9.5' Downstream from last disturbance

Assumed Moisture 4-13 %

Probe 27 G Cp 0.84

Nozzle Calibration

.381 .381 .379 .380

Avg D_n .38025 inches

Gas Bag H-07

Console 7

Y-Factor .998

$\Delta H_@$ 1.682 in H_2O

Barometric Pressures

Pb_m 24.55 in Hg

Pb_p 24.48 in Hg

P_G 0.06 in H_2O

Leak Check:	Pre	Post
ft³/min	0.006	0.003
vac in Hg	22	10
Pitot Rate	0.0	0.0
In H_2O	.25	.25

Water Collected 676.0 g

Time Sampled 480 min

Review

K = @T_m

K = @T_m

Additional (Extra) Leak Check Information

	DGM before Leak Check	Vac ("Hg)	Rate (ft³/min)	DGM After Leak Check	Vac ("Hg)	Rate (ft³/min)

Yellow Cake Dryer Baghouse

TETCO

7114 Field Data Sheet

Filter 8078 Sample Box 13

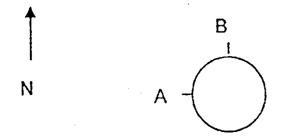
Page 1 of 1 Run # 1

Plant: Energy Fuels Resources, Blanding, UT

Date: 9-28-12

Location: North Yellowcake Dryer Baghouse

Operator: D. Kitchen



Stack Diameter 16" Port Reference 0.0"

Ports are 57" Upstream from next disturbance

Ports are 468" Downstream from last disturbance

Traverse Point	Time Clock	Time Min (θ)	DGM (ft³)	ΔP (in H₂O)	ΔH (in H₂O) Desired	ΔH (in H₂O) Actual	Vacuum (in Hg)	Temperatures (°F) Stack (T_s)	Probe	Probe Out	Filter	Effluent	DGM Temp (T_m) Out	DGM Temp (T_m) In
1	1047	0	99.271	.57	2.06	2.06	6	105	236	261	259	48	73	77
2		10	108.400	.52	1.95	1.95	6	105	233	263	270	42	74	78
3		20	117.410	.50	1.87	1.87	6	106	235	260	240	46	77	86
4		30	126.235	.67	2.51	2.51	7	110	257	231	225	48	82	92
5		40	136.475	.70	2.62	2.62	8	110	268	237	226	49	85	96
6		50	146.910	.67	2.51	2.51	7	110	269	236	239	50	88	99
1	11:45	60	157.152	.48	1.80	1.80	5	110	262	249	250	53	90	98
2		70	165.900	.48	1.80	1.80	5	110	260	244	250	49	92	100
3		80	174.660	.48	1.80	1.80	5	110	233	234	241	46	93	102
4		90	182.444	.49	1.83	1.83	5	111	239	234	240	47	94	103
5		100	192.270	.68	2.55	2.55	6	111	236	226	242	48	95	103
6		110	202.715	.61	2.29	2.29	6	111	230	229	234	43	96	106
	12:45	120	212.585											

1003

970

Total 113.314 √9.002 25.59 1309 2175

Average √.7502 2.133 109.1 90.6

Assumed Moisture 1 %

Probe 18-6 Cp 0.84

Nozzle Calibration

.251 .251 .252 .252

Avg D_n .2515 inches

Gas Bag Ambient Air

Console 3

Y-Factor 1.006

$\Delta H_@$ 1.641 in H_2O

Barometric Pressures

Pb_m 25.14 in Hg 24.55

Pb_p 24.48 in Hg

P_G -.47 in H_2O

Leak Check:	Pre	Post
ft³/min	.007	.001
vac in Hg	21.0	8.0
Pitot Rate	0.0	0.0
In H₂O	8.0	8.0

Water Collected 22.2 g

Time Sampled 120 min

Review

K = @T_m

K = @T_m

Comments:

Time	Baghouse ΔP
10:40	4.2
11:00	4.2
11:20	4.0
11:40	4.1

Time	Baghouse ΔP
12:00	5.1
12:20	5.8
12:40	6.0

6 barrels finished by 12:00

APPENDIX C

North Yellow Cake Scrubber
    Sample Recovery
    Gas Analysis Data (ORSAT)

Yellow Cake Dryer Baghouse
    Sample Recovery
    Gas Analysis Data (Ambient)

Chain of Custody

Lab Analysis

North Yellow Cake Dryer Scrubber

METHOD 5

Facility: [illegible] Energy Fuels Resources

Date:

Stack Identification: North YellowCake Scrubber

IMPINGERS

Filter
6037

Run: 1

Sample Box: A

9-25-12

	Impinger Number					
	1	2	3	4	5	6
Initial Volume of liquid (H_2O) in impingers, (ml)	drop out	—	100	100	—	Silica Gel
Final (g)	822.3	885.2	809.5	730.8	599.5	986.2
Initial (g)	567.1	734.3	567.6	705.4	593.7	926.6
Net (g)	255.2	150.9	241.9	25.4	5.8	59.6

Total (g) 738.8 ✓

IMPINGERS

Run: 2

Sample Box:

9-26-12

	Impinger Number					
	1	2	3	4	5	6
Initial Volume of liquid (H_2O) in impingers, (ml)	drop out	—	100	100	—	Silica Gel
Final (g)	888.1	930.3	602.4	743.4	602.0	966.7
Initial (g)	556.7	685.0	566.8	730.6	599.4	907.9
Net (g)	331.4	245.3	35.6	12.8	2.6	58.8

Total (g) 676.5 ✓

6039

IMPINGERS

Run:

Sample Box:

	Impinger Number					
	1	2	3	4	5	6
Initial Volume of liquid (H_2O) in impingers, (ml)	drop out	—	100	100	—	Silica Gel
Final (g)						
Initial (g)						
Net (g)						

Total (g)

IMPINGERS

Run:

Sample Box:

	Impinger Number					
	1	2	3	4	5	6
Initial Volume of liquid (H_2O) in impingers, (ml)	drop out	—	100	100	—	Silica Gel
Final (g)						
Initial (g)						
Net (g)						

Total (g)

Plant Energy Fuels Resources
Location North Yellowcake Dryer Scrubber
Analytical Method Orsat

Date 9-28-12
Test No. 1
Gas Bag No. H-07
Ambient Temp 72
Operator DM

Gas	RUN 1		RUN 2		RUN 3		Average Net Volume
	Actual Reading	Net	Actual Reading	Net	Actual Reading	Net	
CO_2	2.6	2.6	2.6	2.6	2.6	2.6	2.6
O_2 (Net is Actual O_2 Reading Minus Actual CO_2 Reading).	19.8	17.2	19.8	17.2	19.8	17.2	17.2
N_2 (Net is 100 Minus Actual O_2 Reading).							

Date 9/29/12
Test No. 2
Gas Bag No. H-07
Ambient Temp 72
Operator [illegible]

Gas	RUN 1		RUN 2		RUN 3		Average Net Volume
	Actual Reading	Net	Actual Reading	Net	Actual Reading	Net	
CO_2	2.5	2.5	2.5	2.5	2.5	2.5	2.5
O_2 (Net is Actual O_2 Reading Minus Actual CO_2 Reading).	19.9	17.4	19.9	17.4	19.9	17.4	17.4
N_2 (Net is 100 Minus Actual O_2 Reading).							

Date
Test No.
Gas Bag No.
Ambient Temp
Operator

Gas	RUN 1		RUN 2		RUN 3		Average Net Volume
	Actual Reading	Net	Actual Reading	Net	Actual Reading	Net	
CO_2							
O_2 (Net is Actual O_2 Reading Minus Actual CO_2 Reading).							
N_2 (Net is 100 Minus Actual O_2 Reading).							

[†] O_2 was determined using a gas analyzer
CO is not measured, as it has the same molecular weight as N_2

Yellow Cake Dryer Baghouse

Method 5

Facility: Energy Fuels Resources
Date: [illegible]
Stack Identification: Yellow Cake Baghouse

IMPINGERS

Run: 1
Sample Box: B

Filter Number: 6038

	Impinger Number					
	1	2	3	4	5	6
	Initial Volume of liquid (H_2O) in impingers. (ml)					
	100	100	—	Silica Gel		
	1	2	3	4	5	6
Final (g)	601.4	704.0	609.2	967.2		
Initial (g)	616.0	692.0	605.1	946.5		
Net (g)	-14.6	12.0	4.1	20.7		

Total (g) 22.2 ✓

IMPINGERS

Run:
Sample Box:

Filter Number:

	Impinger Number					
	1	2	3	4	5	6
	Initial Volume of liquid (H_2O) in impingers. (ml)					
	100	100	—	Silica Gel		
	1	2	3	4	5	6
Final (g)						
Initial (g)						
Net (g)						

Total (g)

IMPINGERS

Run:
Sample Box:

Filter Number:

	Impinger Number					
	1	2	3	4	5	6
	Initial Volume of liquid (H_2O) in impingers. (ml)					
	100	100	—	Silica Gel		
	1	2	3	4	5	6
Final (g)						
Initial (g)						
Net (g)						

Total (g)

Chain of Custody Record

TAL-4124 (1007)

Temperature on Receipt ______

Drinking Water? Yes ☐ No ☐

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client: Tetco

Address: 391 East 620 South

City: American Fork

State: Ut

Zip Code: 84003

Project Manager: Dean Kitchen

Telephone Number (Area Code)/Fax Number: 801-492-9106

Date: 10/01/2012

Chain of Custody Number:

Lab Number:

Page 1 of 1

Site Contact: Scott Christensen, Garren Palmer

Lab Contact:

Project Name and Location (State): Denison Mine 2011 1st Quarter

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis: U-Nat	TH-230	Ra-226	Lead-210	Special Instructions/ Conditions of Receipt
R1 Baghouse filter (6038) and beaker	10/28/12	11:00	X										X				
R1 NYC filters (6037) and beaker	10/28/12	8:00	X										X				
R2 NYC filters (6039,6040) and beaker	10/29/12	8:00	X										X				

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal

☐ Return To Client ☑ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other as per method

QC Requirements (Specify)

1. Relinquished By | Date 10/01/12 | Time
1. Received By | Date | Time

2. Relinquished By | Date | Time
2. Received By | Date | Time

3. Relinquished By | Date | Time
3. Received By | Date | Time

Comments

When Complete Email to: Dean or Paul tetco@tetco-ut.com

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Analytical Data Package Prepared For

Denison Mines (USA) Corp.

Denison Mine 2012 3rd Quarter

Radiochemical Analysis By

TestAmerica

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code:

Data Package Contains 15 *Pages*

Report No.: 53660

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
45792		R1 Baghouse Filter(6038)/Bkr	J2J040470-1	MWTWE1AA	9MWTWE10	2283081
		R1 NYC Filters (6037) / Beaker	J2J040470-2	MWTWJ3AA	9MWTWJ30	2306033
		R2 NYC Filters (6039,6040)/Bkr	J2J040470-3	MWTWK1AA	9MWTWK10	2283081

Certificate of Analysis

November 8, 2012

Denison Mines (USA) Corp
1050 17th Street, Suite 950
Denver, CO 80265

Attention: Dean Kitchen

Date Received at Lab	:	October 4, 2012
Project Name	:	Denison Mine 2012 3rd Quarter
Sample Type	:	Three (3) Stack Filter Samples
SDG Number	:	45792

CASE NARRATIVE

I. Introduction

On October 4, 2012, three stack filter samples were received at TestAmerica's Richland laboratory for radiochemical analysis. Upon receipt, the samples were assigned the TestAmerica identification numbers as described on the cover page of the Analytical Data Package report form. The samples were assigned to Lot Numbers J2J040470.

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in. The sample date was incorrect on the chain-of-custody. The client was contacted and provide the correct date of September 28, 2012.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical uncertainties.

The analysis requested was:

Alpha Spectroscopy
Uranium-234, -235, -238 by method RL-ALP-004

IV. Quality Control

The analytical result for each analysis performed includes a minimum of one laboratory control sample (LCS), and one reagent blank sample analysis. Any exceptions have been noted in the "Comments" section.

V. Comments

Alpha Spectroscopy

Uranium-234, 235, 238

Sample R1 NYC Filters (6039,6040) and Beaker has an elevated FWHM due to the activity in the sample. The sample was re-analyzed but still shows some slight smearing in the spectra for U-234 but the results are acceptable. The batch LCS recovery yield for U-234 was initially just below acceptance. The LCS was recounted and is now within acceptance criteria. The achieved MDA of the batch exceeds the detection limit from reduced aliquot sizes taken due to historical process knowledge. The sample activity exceeds the MDA and detection limit for all samples. The batch blank activity also exceeds detection limit; however, the blank results are significantly lower than sample results. Data is accepted. Except as noted, the LCS, batch blank, sample and sample duplicate results are within acceptance limits.

I certify that this Certificate of Analysis is in compliance with the SOW and/or NELAC, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Erika Jordan
2012.11.08
11:24:04
-08'00'

Erika Jordan

Erika Jordan
Customer Service Manager

Drinking Water Method Cross References

	DRINKING WATER ASTM METHOD CROSS REFERENCES	
Referenced Method	**Isotope(s)**	**TestAmerica Richland's SOP No.**
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

Results in this report relate only to the sample(s) analyzed.

Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/?n), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Sample Results Summary

Date: 08-Nov-12

TestAmerica

Ordered by Method, Batch No., Client Sample ID.

Report No. : 53660

SDG No: 45792

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RER2
2283081 FFSR									
	R1 Baghouse Filter(6038)/Bkr								
	MWTWE1A	U-234	1.53E-03 +- 3.7E-04		UCI/SA	99%	4.20E-05	9.00E-15	
		U-235	9.04E-05 +- 6.7E-05		UCI/SA	99%	5.27E-05	9.00E-15	
		U-238	1.42E-03 +- 3.5E-04		UCI/SA	99%	5.27E-05	9.00E-15	
	R2 NYC Filters (6039,6040)/Bkr								
	MWTWK1A	U-234	2.81E-02 +- 7.2E-03		UCI/SA	94%	5.33E-05	9.00E-15	
		U-235	1.39E-03 +- 4.4E-04		UCI/SA	94%	4.49E-05	9.00E-15	
		U-238	2.61E-02 +- 6.7E-03		UCI/SA	94%	4.49E-05	9.00E-15	
2306033 FFSR									
	R1 NYC Filters (6037) / Beaker								
	MWTWJ3A	U-234	3.55E-02 +- 6.5E-03		UCI/SA	108%	1.35E-04	9.00E-15	
		U-235	1.00E-03 +- 4.2E-04		UCI/SA	108%	1.35E-04	9.00E-15	
		U-238	3.35E-02 +- 6.2E-03		UCI/SA	108%	3.34E-04	9.00E-15	

No. of Results: 9

TestAmerica RER2 - **Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.**

rptSTLRchSaSum
mary2 V5.2.22
A2002

QC Results Summary

TestAmerica

Date: 08-Nov-12

Ordered by Method, Batch No, QC Type,.

Report No. : 53660

SDG No.: 45792

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
FFSR								
2283081 BLANK QC,								
MWWAP1A	U-234	1.28E-08 +- 3.1E-08	U	UCI/SA	81%			6.99E-08
	U-235	-1.23E-09 +- 3.1E-08	U	UCI/SA	81%			6.16E-08
	U-238	-4.29E-09 +- 3.1E-08	U	UCI/SA	81%			7.91E-08
2283081 LCS,								
MWWAP2A	U-234	2.15E-06 +- 5.1E-07		UCI/SA	87%	123%	0.2	8.42E-08
	U-238	1.66E-06 +- 4.2E-07		UCI/SA	87%	91%	-0.1	6.13E-08
FFSR								
2306033 BLANK QC,								
MW7AC1AA	U-234	2.59E-08 +- 3.7E-08	U	UCI/SA	107%			4.72E-08
	U-235	-1.56E-09 +- 2.6E-08	U	UCI/SA	107%			5.60E-08
	U-238	-1.56E-09 +- 2.6E-08	U	UCI/SA	107%			5.60E-08
2306033 LCS,								
MW7AC1AC	U-234	1.45E-06 +- 3.7E-07		UCI/SA	104%	88%	-0.1	4.71E-08
	U-238	1.40E-06 +- 3.6E-07		UCI/SA	104%	81%	-0.2	4.71E-08

No. of Results: 10

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 08-Nov-12

Lab Name: TestAmerica
Lot-Sample No.: J2J040470-1
Client Sample ID: R1 Baghouse Filter(6038)/Bkr
Denison Mine 2012 3rd Quarter

SDG: 45792
Report No. : 53660
COC No. :

Collection Date: 9/28/2012 11:00:00 AM
Received Date: 10/4/2012 10:00:00 AM
Matrix: FILTER

Ordered by Client Sample ID, Batch No.

Batch: 2283081 FFSR **Work Order:** MWTWE1AA **Report DB ID:** 9MWTWE10

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
U-234	**1.53E-03**		2.7E-04	3.7E-04	4.20E-05	UCI/SA 5.37E-06	99% 9.00E-15	*(36.5)* *(8.2)*	10/26/12 05:56 p	1.0 Sample	0.00107 Sample	ALP10
U-235	**9.04E-05**		6.5E-05	6.7E-05	5.27E-05	UCI/SA 1.07E-05	99% 9.00E-15	*(1.7)* *(2.7)*	10/26/12 05:56 p	1.0 Sample	0.00107 Sample	ALP10
U-238	**1.42E-03**		2.6E-04	3.5E-04	5.27E-05	UCI/SA 1.07E-05	99% 9.00E-15	*(26.9)* *(8.)*	10/26/12 05:56 p	1.0 Sample	0.00107 Sample	ALP10

Ratio U-234/238 = 1.1

No. of Results: 3 **Comments:**

TestAmerica
rptSTLRchSample
V5.2.22 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 08-Nov-12

Lab Name:	TestAmerica	**SDG:**	45792	**Collection Date:**	9/28/2012 11:00:00 AM
Lot-Sample No.:	**J2J040470-2**	**Report No. :**	53660	**Received Date:**	10/4/2012 10:00:00 AM
Client Sample ID:	**R1 NYC Filters (6037) / Beaker**	**COC No. :**		**Matrix:**	FILTER

Denison Mine 2012 3rd Quarter

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2306033	FFSR			**Work Order:**	MWTWJ3AA	**Report DB ID:**	9MWTWJ30					
U-234	**3.55E-02**		2.3E-03	6.5E-03	1.35E-04	UCI/SA	108%	*(263.2)*	11/6/12 02:25 p	1.0	0.00035	ALP211
						1.72E-05	9.00E-15	*(10.9)*		Sample	Sample	
U-235	**1.00E-03**		3.8E-04	4.2E-04	1.35E-04	UCI/SA	108%	*(7.4)*	11/6/12 02:25 p	1.0	0.00035	ALP211
						1.72E-05	9.00E-15	*(4.7)*		Sample	Sample	
U-238	**3.35E-02**		2.2E-03	6.2E-03	3.34E-04	UCI/SA	108%	*(100.5)*	11/6/12 02:25 p	1.0	0.00035	ALP211
						1.17E-04	9.00E-15	*(10.9)*		Sample	Sample	

Ratio U-234/238 = 1.1

No. of Results: 3 **Comments:**

TestAmerica
rptSTLRchSample
V5.2.22 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I
SAMPLE RESULTS

Date: 08-Nov-12

Lab Name: TestAmerica
Lot-Sample No.: J2J040470-3
Client Sample ID: R2 NYC Filters (6039,6040)/Bkr
Denison Mine 2012 3rd Quarter

SDG: 45792
Report No. : 53660
COC No. :

Collection Date: 9/28/2012 11:00:00 AM
Received Date: 10/4/2012 10:00:00 AM
Matrix: FILTER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2283081	FFSR			**Work Order:**	MWTWK1AA		**Report DB ID:**	9MWTWK10				
U-234	**2.81E-02**		1.2E-03	7.2E-03	5.33E-05	UCI/SA	94%	*(526.6)*	10/26/12 05:57 p	1.0	0.00099	ALP12
						9.95E-06	9.00E-15	*(7.8)*		Sample	Sample	
U-235	**1.39E-03**		2.6E-04	4.4E-04	4.49E-05	UCI/SA	94%	*(31.)*	10/26/12 05:57 p	1.0	0.00099	ALP12
						5.75E-06	9.00E-15	*(6.3)*		Sample	Sample	
U-238	**2.61E-02**		1.1E-03	6.7E-03	4.49E-05	UCI/SA	94%	*(581.5)*	10/26/12 05:57 p	1.0	0.00099	ALP12
						5.75E-06	9.00E-15	*(7.8)*		Sample	Sample	

Ratio U-234/238 = 1.1

No. of Results: 3 **Comments:**

TestAmerica **MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.**

rptSTLRchSample V5.2.22 A2002 **U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.**

FORM II

BLANK RESULTS

Date: 08-Nov-12

Lab Name: TestAmerica

Matrix: FILTER

SDG: 45792

Report No. : 53660

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2283081	FFSR			**Work Order:**	MWWAP1AA	**Report DB ID:**		MWWAP1AB				
U-234	1.28E-08	U	3.1E-08	3.1E-08	6.99E-08	UCI/SA	81%	0.18	10/26/12 05:56 p	1.0	1.0	ALP71
					1.43E-08	9.00E-15		0.83		Sample	Sample	
U-235	-1.23E-09	U	3.1E-08	3.1E-08	6.16E-08	UCI/SA	81%	-0.02	10/26/12 05:56 p	1.0	1.0	ALP71
					1.01E-08	9.00E-15		-0.08		Sample	Sample	
U-238	-4.29E-09	U	3.1E-08	3.1E-08	7.91E-08	UCI/SA	81%	-0.05	10/26/12 05:56 p	1.0	1.0	ALP71
					1.89E-08	9.00E-15		-0.28		Sample	Sample	
								Ratio U-234/238 = -3.0				
Batch: 2306033	FFSR			**Work Order:**	MW7AC1AA	**Report DB ID:**		MW7AC1AB				
U-234	2.59E-08	U	3.7E-08	3.7E-08	4.72E-08	UCI/SA	107%	0.55	11/6/12 02:25 p	1.0	1.02	ALP212
					6.03E-09	9.00E-15		(1.4)		Sample	Sample	
U-235	-1.56E-09	U	2.6E-08	2.6E-08	5.60E-08	UCI/SA	107%	-0.03	11/6/12 02:25 p	1.0	1.02	ALP212
					1.04E-08	9.00E-15		-0.12		Sample	Sample	
U-238	-1.56E-09	U	2.6E-08	2.6E-08	5.60E-08	UCI/SA	107%	-0.03	11/6/12 02:25 p	1.0	1.02	ALP212
					1.04E-08	9.00E-15		-0.12		Sample	Sample	
								Ratio U-234/238 = -16.7				

No. of Results: 6 **Comments:**

TestAmerica

rptSTLRchBlank V5.2.22 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II

LCS RESULTS

Date: 08-Nov-12

Lab Name: TestAmerica

Matrix: FILTER

SDG: 45792

Report No. : 53660

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 2283081	FFSR			**Work Order:**	MWWAP2AC		**Report DB ID:**	MWWAP2CS					
U-234	2.15E-06		3.5E-07	5.1E-07	8.42E-08	UCI/SA	87%	1.75E-06	9.57E-09	123%	10/29/12 12:21 p	1.0	ALP4
							Rec Limits:	75	125	0.2		Sample	
U-238	1.66E-06		3.1E-07	4.2E-07	6.13E-08	UCI/SA	87%	1.83E-06	1.00E-08	91%	10/29/12 12:21 p	1.0	ALP4
							Rec Limits:	75	125	-0.1		Sample	
Batch: 2306033	FFSR			**Work Order:**	MW7AC1AC		**Report DB ID:**	MW7AC1CS					
U-234	1.45E-06		2.7E-07	3.7E-07	4.71E-08	UCI/SA	104%	1.65E-06	9.06E-09	88%	11/6/12 02:26 p	1.04	ALP213
							Rec Limits:	75	125	-0.1		Sample	
U-238	1.40E-06		2.7E-07	3.6E-07	4.71E-08	UCI/SA	104%	1.73E-06	9.49E-09	81%	11/6/12 02:26 p	1.04	ALP213
							Rec Limits:	75	125	-0.2		Sample	

No. of Results: 4 **Comments:**

TestAmerica Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V5.2.22 A2002

Chain of Custody Record

Temperature on Receipt ______

Drinking Water? Yes ☐ No ☐

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client: Tetco
Project Manager: Dean Kitchen
Date: 10/01/2012
Chain of Custody Number:
Address: 391 East 620 South
Telephone Number (Area Code)/Fax Number: 801-492-9106
Lab Number:
Page 1 of 1
City: American Fork
State: Ut
Zip Code: 84003
Site Contact: Scott Christensen, Garren Palmer
Lab Contact:
Project Name and Location (State): Denison Mine 2011 1st Quarter
Carrier/Waybill Number:
Contract/Purchase Order/Quote No.

			Matrix					Containers & Preservatives						Analysis (Attach list if more space is needed)				
Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	U-Nat	TH-230	Ra-226	Lead-210	Special Instructions/ Conditions of Receipt
R1 Baghouse filter (6038) and beaker	10/28/12	11:00	X										X				MWTWE
R1 NYC filters (6037) and beaker	10/28/12	8:00	X										X				MWTWJ
R2 NYC filters (6039,6040) and beaker	10/29/12	8:00	X										X				MWTWK

J2J040470
SDG-45792
Due 11-1-12

J2J040470

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other as per method

QC Requirements (Specify)

1. Relinquished By	Date 10/01/12	Time	1. Received By Julie Bock TAUR	Date 10-4-12	Time 1000
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments
When Complete Email to: Dean or Paul tetco@tetco-ut.com

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Check-in List

Date/Time Received: 10-4-12 \ 1030 Container GM Screen Result: (Airlock) .06 Initials [✓]
Sample GM Screen Result (Sample Receiving) .40 Initials [✓]

Client: DEN SDG #: 45792 NA [ ] SAF #: NA [✓]

Lot Number: J2J040470

Chain of Custody #

Shipping Container ID: NA [✓] Air Bill Number: NA [✓]

Samples received inside shipping container/cooler/box Yes [✓] Continue with 1 through 4. Initial appropriate response.
No [ ] Go to 5, add comment to #16.

1. Custody Seals on shipping container intact? Yes [ ] No [ ] No Custody Seal [✓]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [✓]
3. Cooler temperature: ______°C NA [✓]
4. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [✓]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [✓] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 3
7. Containers received: 3x filter; 3x beaker
8. Sample holding times exceeded? NA [ ] Yes [ ] No [✓]
9. Samples have:
   - ____tape
   - ____custody seals
   - ____hazard labels
   - ✓ appropriate sample labels
10. Matrix:
    - ✓ A (FLT, Wipe, Solid, Soil)
    - ____S (Air, Niosh 7400)
    - ____I (Water)
    - ____T (Biological, Ni-63)
11. Samples:
    - ✓ are in good condition
    - ____are broken
    - ____Other
    - ____are leaking
    - ____have air bubbles (Only for samples requiring no head space)
12. Sample pH appropriate for analysis requested Yes [ ] No [ ] NA [✓]
(If acidification is necessary, then document sample ID, initial pH, amount of HNO_3 added and pH after addition on table overleaf)

RPL ID # of preservative used :

13. Were any anomalies identified in sample receipt? Yes [ ] No [✓]
14. Description of anomalies (include sample numbers): NA [✓]

LS-023, Rev. 15, 07/11 See over for additional information.

15. Sample Location, Sample Collector Listed on COC? * Yes [✓] No [ ]
*For documentation only. No corrective action needed.

16. Additional Information: Sample date is incorrect.

[ ] Client/Courier denied temperature check. [ ] Client/Courier unpack cooler.

Sample Custodian: Beck Date: 10-4-12

Client Informed on 10-5-12 by email Person contacted Dean Kitchen

ej 10/5/12 ~~[X]~~ No action necessary; process as is

Project Manager Erika Jordan Date 10-5-12

SAMPLE ID	Initial pH	Acid Amt	Final pH	SAMPLE ID	Initial pH	Acid Amt	Final pH

Beck 10-4-12

Beck 10-4-12

APPENDIX D

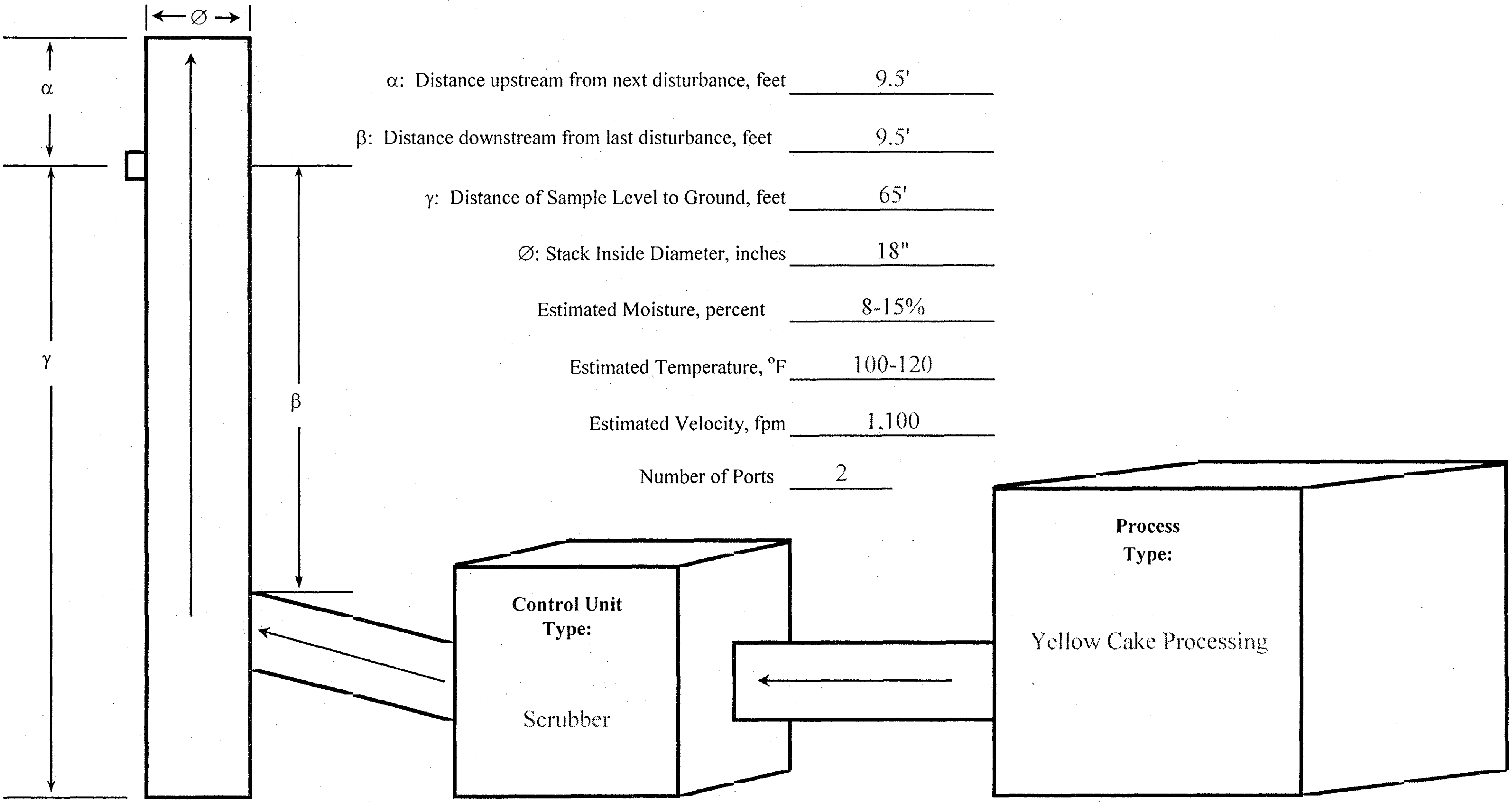
North Yellow Cake Scrubber
  Figure 1. Facility Schematic Representation

Yellow Cake Dryer Baghouse
  Figure 2. Facility Schematic Representation

Process Data
  (Retained by Energy Fuels Resources)

Facility: Denison Mines

Stack Identification: North Yellow Cake Scrubber



α: Distance upstream from next disturbance, feet 9.5'

β: Distance downstream from last disturbance, feet 9.5'

γ: Distance of Sample Level to Ground, feet 65'

∅: Stack Inside Diameter, inches 18"

Estimated Moisture, percent 8-15%

Estimated Temperature, °F 100-120

Estimated Velocity, fpm 1,100

Number of Ports 2

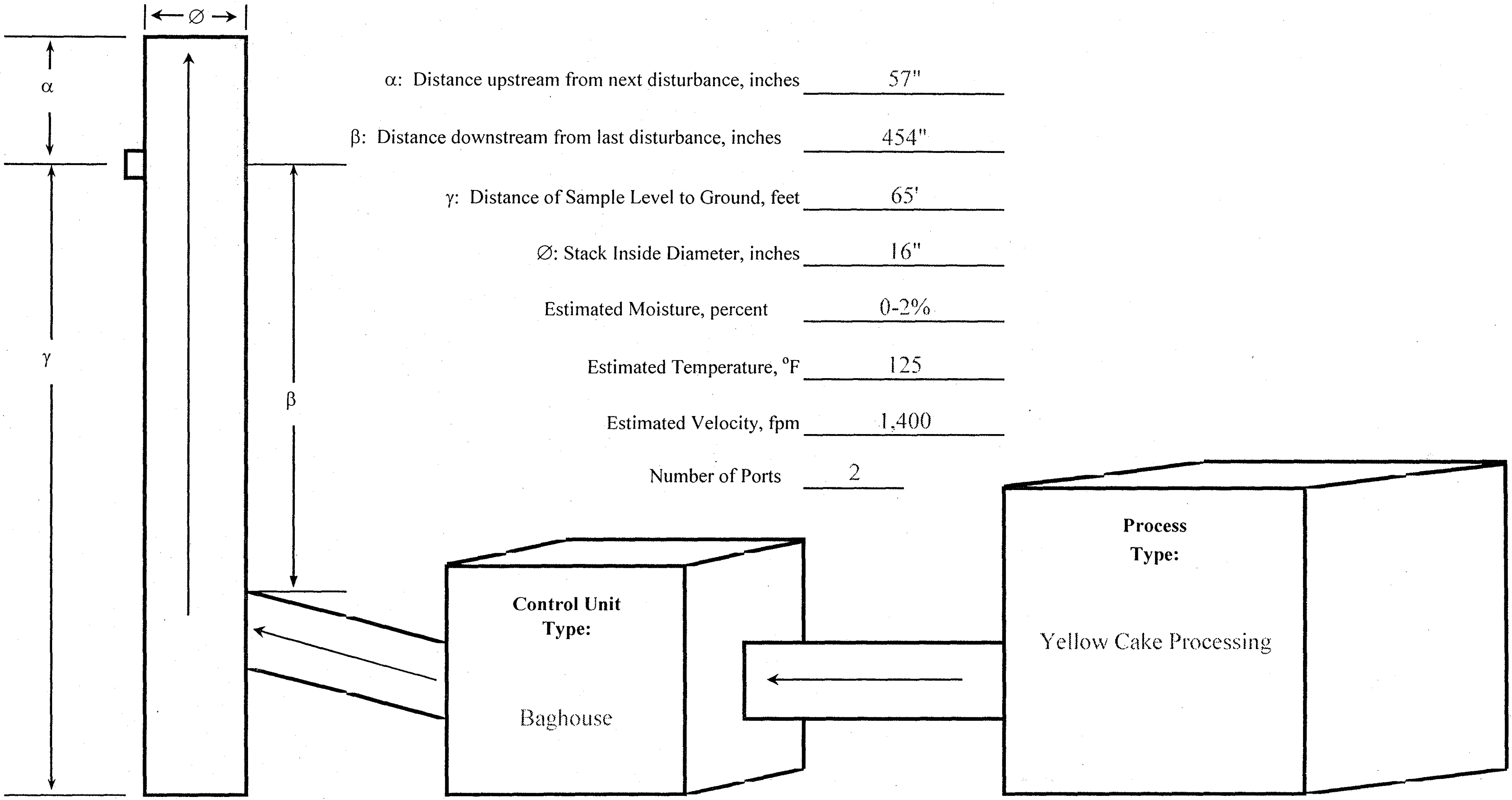
Control Unit Type: Scrubber

Process Type: Yellow Cake Processing

Figure 1. Facility Schematic Representation

Facility: Denison Mines

Stack Identification: Yellow Cake Dryer Baghouse



α: Distance upstream from next disturbance, inches 57"

β: Distance downstream from last disturbance, inches 454"

γ: Distance of Sample Level to Ground, feet 65'

∅: Stack Inside Diameter, inches 16"

Estimated Moisture, percent 0-2%

Estimated Temperature, °F 125

Estimated Velocity, fpm 1,400

Number of Ports 2

Control Unit Type: Baghouse

Process Type: Yellow Cake Processing

Figure 2. Facility Schematic Representation

Energy Fuels Resources, Blanding, UT Process Data

Source: North Yellow Cake		Date: 9/28/12	
	Scrubber Flow GPM		
Time	#1	#2	ΔP
7:45	5.9	12.4	4.1
8:15	5.7	12.4	4.0
8:45	5.9	12.5	4.0
9:15	5.9	125	4.0
9:45	5.9	12.6	4.1
10:15	5.8	12.3	4.0
10:45	5.7	12.0	4.0
11:15	5.7	12.1	4.1
11:45	5.7	12.2	4.0
12:15	5.8	12.1	4.1
12:45	5.8	12.1	4.1
13:15	5.7	12.1	4.0
13:45	5.8	12.1	4.1
14:15	5.7	12.1	4.1
14:45	5.6	12.6	4.1
15:15	5.6	11.8	4.0
15:45	5.6	12.0	4.1
16:00			

Energy Fuels Resources, Blanding, UT Process Data

Source: North Yellow Cake

Date: 9/29/12

Time	Scrubber Flow GPM		ΔP
	#1	#2	
7:00	5.7	12.1	4.1
7:30	5.7	12.1	4.1
8 00	5.7	12.0	3.9
8:30	5.6	11.9	3.9
9:00	5.7	12.1	3.9
9:30	5.8	12.2	4.0
10:00	5.9	12.5	4.0
10:30	5.9	12.4	4.0
11:00	5.8	12.4	4.0
11:30	5.9	12.3	3.9
12:00	5.9	12.2	4.0
12:30	5.8	12.2	4.1
13:00	5.8	12.3	4.0
13 30	5.9	12.3	4.1
14 00	5.9	12.4	4.0
14 30	5.9	12.0	4.0
15 00	5.7	11.9	4.0
15:30	5.6	12.0	4.1

APPENDIX E

Calibration of the console dry gas meter(s), pitot tubes, nozzles diameters, and temperature sensors were carried out in accordance with the procedures outlined in the Quality Assurance Handbook. The appropriate calibration data are presented in the following pages. The nozzle calibrations are recorded on the first page of the field data sheets.

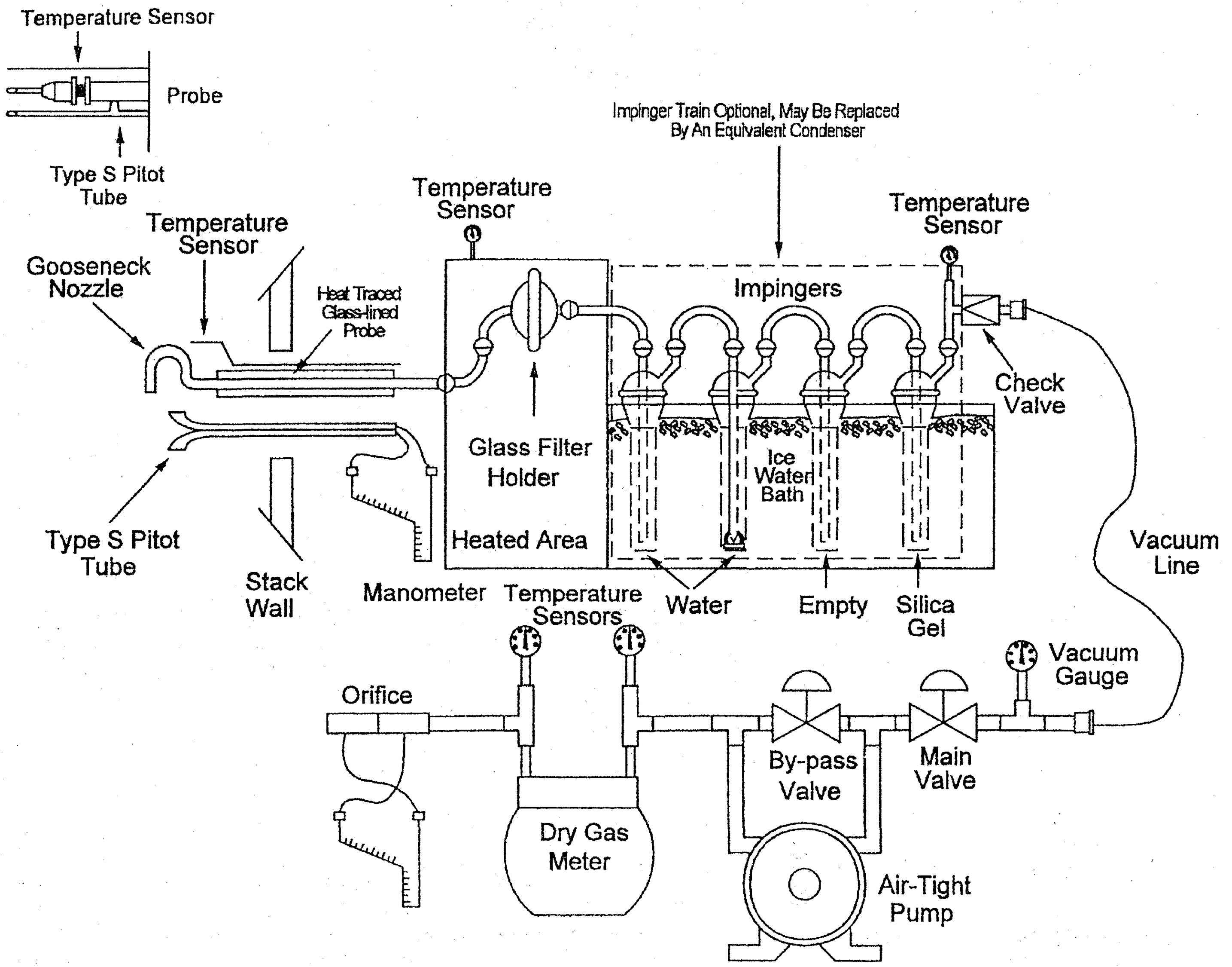


Figure 3 Schematic of Method 5/114 Sampling Train

METHOD 5 DRY GAS METER CALIBRATION USING CRITICAL ORIFICES

Quality - Service - Reliability

ENVIRONMENTAL SUPPLY COMPANY

1) Select three critical orifices to calibrate the dry gas meter which bracket the expected operating range.
2) Record barometric pressure before and after calibration procedure.
3) Run at tested vacuum (from Orifice Calibration Report), for a period of time necessary to achieve a minimum total volume of 5 cubic feet.
4) Record data and information in the GREEN cells, YELLOW cells are calculated.

Facility **New Calibration 2012**

DATE: 12/7/2011
METER PART #: Console 3
METER SERIAL #: 1522588
CRITICAL ORIFICE SET SERIAL #: 1453S
BAROMETRIC PRESSURE (in Hg): INITIAL 25.30 FINAL 25.30 AVG (P_{bar}) 25.3
EQUIPMENT ID #: **Console #3**

IF Y VARIATION EXCEEDS 2.00%, ORIFICE SHOULD BE RECALIBRATED

ORIFICE #	RUN #	K' FACTOR (AVG)	TESTED VACUUM (in Hg)	DGM READINGS (FT³) INITIAL	DGM READINGS (FT³) FINAL	DGM READINGS (FT³) NET (V_m)	TEMPERATURES °F AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	DGM OUTLET INITIAL	DGM OUTLET FINAL	DGM AVG	ELAPSED TIME (MIN) θ	DGM ΔH (in H_2O)	(1) V_m (STD)	(2) V_{cr} (STD)	(3) Y	Y VARIATION (%)	ΔH@
30	1	0.8137	13	548.140	553.420	5.280	75	73	73	73	76	73.75	5.00	2.90	4.4546	4.4515	0.999		1.736
	2	0.8137	13	553.420	558.698	5.278	75	73	75	76	80	76	5.00	2.90	4.4342	4.4515	1.004		1.729
	3	0.8137	13	558.698	564.244	5.546	75	75	76	80	83	78.50	5.25	2.90	4.6378	4.6740	1.008		1.721
																AVG =	1.004	-0.22	
19	1	0.5317	13	564.820	570.025	5.205	75	76	80	82	84	80.50	7.50	1.20	4.3152	4.3631	1.011		1.654
	2	0.5317	13	570.025	575.265	5.240	75	80	81	84	85	82.50	7.50	1.20	4.3282	4.3631	1.008		1.647
	3	0.5317	13	575.265	580.513	5.248	75	81	83	85	87	84.00	7.50	1.20	4.3229	4.3631	1.009		1.643
																AVG =	1.009	0.36	
12	1	0.3307	13	581.802	587.303	5.501	75	84	86	88	86	86.00	12.50	0.44	4.5047	4.5229	1.004		1.548
	2	0.3307	13	587.303	592.812	5.509	75	86	87	86	87	86.50	12.50	0.44	4.5072	4.5229	1.003		1.547
	3	0.3307	13	592.812	598.325	5.513	75	87	89	87	89	88.00	12.50	0.44	4.4981	4.5229	1.006		1.542
																AVG =	1.004	-0.15	

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:
The following equations are used to calculate the standard volumes of air passed through the DGM, V_m (std), and the critical orifice, V_{cr} (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = **1.006**

AVERAGE $\Delta H_@$ = **1.641**

(1) $$Vm_{(std)} = K_1 * Vm * \frac{Pbar + (\Delta H / 13.6)}{Tm}$$ = Net volume of gas sample passed through DGM, corrected to standard conditions

K_1 = 17.64 °R/in. Hg (English), 0.3858 °K/mm Hg (Metric)
T_m = Absolute DGM avg. temperature (°R - English, °K - Metric)

$$\Delta H_@ = \left(\frac{0.75\,\theta}{V_{cr}(std)}\right)^2 \Delta H \left(\frac{V_m(std)}{V_m}\right)$$

(2) $$Vcr_{(std)} = K' * \frac{Pbar * \Theta}{\sqrt{Tamb}}$$ = Volume of gas sample passed through the critical orifice, corrected to standard conditions

T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)
K' = Average K' factor from Critical Orifice Calibration

(3) $$Y = \frac{Vcr_{(std)}}{Vm_{(std)}}$$ = DGM calibration factor

Temperature Sensors

Reference °F	In °F	Out °F
34	35	35
67	68	68
202	203	203

Pre Calibration 2008

METHOD 5 DRY GAS METER CALIBRATION USING CRITICAL ORIFICES

Quality - Service - Reliability

ENVIRONMENTAL SUPPLY COMPANY

2012 Pre-Calibration Console 7

1) Select three critical orifices to calibrate the dry gas meter which bracket the expected operating range.
2) Record barometric pressure before and after calibration procedure.
3) Run at tested vacuum (from Orifice Calibration Report), for a period of time necessary to achieve a minimum total volume of 5 cubic feet.
4) Record data and information in the GREEN cells, YELLOW cells are calculated.

DATE: 12/27/2011

METER PART #: Console 7

METER SERIAL #: 68092

CRITICAL ORIFICE SET SERIAL #: 1453S

BAROMETRIC PRESSURE (in Hg): INITIAL 25.55 FINAL 25.55 AVG (P_{bar}) 25.55

EQUIPMENT ID #: Console #7

IF Y VARIATION EXCEEDS 2.00%, ORIFICE SHOULD BE RECALIBRATED

ORIFICE #	RUN #	K' FACTOR (AVG)	TESTED VACUUM (in Hg)	DGM READINGS (FT^3) INITIAL	DGM READINGS (FT^3) FINAL	DGM READINGS (FT^3) NET (V_m)	TEMPERATURES °F AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	DGM OUTLET INITIAL	DGM OUTLET FINAL	DGM AVG	ELAPSED TIME (MIN) θ	DGM ΔH (in H_2O)	(1) V_m (STD)	(2) V_{cr} (STD)	(3) Y	Y VARIATION (%)	$\Delta H_@$
30	1	0.8137	12	329.8090	337.470	7.661	68	92	93	89	91	91.25	7.00	3.10	6.3231	6.3353	1.002		1.757
	2	0.8137	12	337.470	345.174	7.704	68	93	94	96	97	95	7.00	3.10	6.3156	6.3353	1.003		1.745
	3	0.8137	12	345.174	352.898	7.724	68	94	95	98	100	96.75	7.00	3.10	6.3121	6.3353	1.004		1.740
																AVG =	1.003	0.49	
19	1	0.5317	12	295.10	300.815	5.715	70	80	82	85	86	83.25	8.00	1.25	4.7612	4.7221	0.992		1.681
	2	0.5317	12	300.815	306.502	5.687	70	81	82	86	88	84.25	8.00	1.25	4.7291	4.7221	0.999		1.678
	3	0.5317	12	306.502	312.205	5.703	70	82	86	88	89	86.25	8.00	1.25	4.7251	4.7221	0.999		1.672
																AVG =	0.997	-0.15	
12	1	0.3307	12	312.5510	317.867	5.316	70	82	83	85	86	84.00	12.00	0.47	4.4128	4.4055	0.998		1.628
	2	0.3307	12	317.867	323.241	5.374	70	85	87	86	87	86.25	12.00	0.47	4.4425	4.4055	0.992		1.622
	3	0.3307	12	323.241	328.625	5.384	70	88	89	86	91	88.50	12.00	0.47	4.4325	4.4055	0.994		1.615
																AVG =	0.995	-0.34	

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:

The following equations are used to calculate the standard volumes of air passed through the DGM, V_m (std), and the critical orifice, V_{cr} (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = 0.998

AVERAGE $\Delta H_@$ = 1.682

(1) $$Vm_{(std)} = K_1 * Vm * \frac{Pbar + (\Delta H / 13.6)}{Tm}$$

= Net volume of gas sample passed through DGM, corrected to standard conditions

K_1 = 17.64 °R/in. Hg (English), 0.3858 °K/mm Hg (Metric)

T_m = Absolute DGM avg. temperature (°R - English, °K - Metric)

$$\Delta H_@ = \left(\frac{0.75\,\theta}{V_{cr}(std)}\right)^2 \Delta H \left(\frac{V_m(std)}{V_m}\right)$$

(2) $$Vcr_{(std)} = K' * \frac{Pbar * \Theta}{\sqrt{Tamb}}$$

= Volume of gas sample passed through the critical orifice, corrected to standard conditions

T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)

K' = Average K' factor from Critical Orifice Calibration

(3) $$Y = \frac{Vcr_{(std)}}{Vm_{(std)}}$$

= DGM calibration factor

Temperature Sensors

Reference °F	In °F	Out °F
32	33	33
72	73	73
201	202	203

METHOD 5 DRY GAS METER CALIBRATION USING CRITICAL ORIFICES

Quality - Service - Reliability

ENVIRONMENTAL SUPPLY COMPANY

1) Select three critical orifices to calibrate the dry gas meter which bracket the expected operating range.
2) Record barometric pressure before and after calibration procedure.
3) Run at tested vacuum (from Orifice Calibration Report), for a period of time necessary to achieve a minimum total volume of 5 cubic feet.
4) Record data and information in the **GREEN** cells, YELLOW cells are calculated.

Facility **Energy Fuels**

DATE: 10/1/2012

METER PART #: Console 3

METER SERIAL #: 1522588

CRITICAL ORIFICE SET SERIAL #: 1453S

EQUIPMENT ID #: Console #3

	INITIAL	FINAL	AVG (P_{bar})
BAROMETRIC PRESSURE (in Hg):	25.60	25.60	25.60

IF Y VARIATION EXCEEDS 2.00%, ORIFICE SHOULD BE RECALIBRATED

ORIFICE #	RUN #	K' FACTOR (AVG)	TESTED VACUUM (in Hg)	DGM READINGS (FT^3) INITIAL	FINAL	NET (V_m)	TEMPERATURES °F AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	DGM OUTLET INITIAL	DGM OUTLET FINAL	DGM AVG	ELAPSED TIME (MIN) θ	DGM ΔH (in H_2O)	(1) V_m (STD)	(2) V_{cr} (STD)	(3) Y	Y VARIATION (%)	$\Delta H_@$
	1					.0						0							
	2					.0						0							
	3					.0						0.00							
																AVG =			
25	1	0.6808	13	830.903	836.165	5.262	70	74	75	78	80	76.75	6.00	2.00	4.4551	4.5436	1.020		1.661
	2	0.6808	13	836.165	841.465	5.30	70	75	77	80	82	78.50	6.00	2.00	4.4727	4.5436	1.016		1.656
	3	0.6808	13	841.465	847.20	5.735	70	77	78	82	82	79.75	6.50	2.00	4.8285	4.9222	1.019		1.652
																AVG =	1.018	0.00	
	1					.0						0.00							
	2					.0						0.00							
	3					.0						0.00							
																AVG =			

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:
The following equations are used to calculate the standard volumes of air passed through the DGM, V_m (std), and the critical orifice, V_{cr} (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = 1.018

AVERAGE $\Delta H_@$ = 1.656

(1) $$Vm_{(std)} = K_1 * Vm * \frac{Pbar + (\Delta H / 13.6)}{Tm}$$

= Net volume of gas sample passed through DGM, corrected to standard conditions

K_1 = 17.64 °R/in. Hg (English), 0.3858 °K/mm Hg (Metric)

T_m = Absolute DGM avg. temperature (°R - English, °K - Metric)

$$\Delta H_@ = \left(\frac{0.75\ \theta}{V_{cr}(std)}\right)^2 \Delta H \left(\frac{V_m(std)}{V_m}\right)$$

(2) $$Vcr_{(std)} = K' * \frac{Pbar * \Theta}{\sqrt{Tamb}}$$

= Volume of gas sample passed through the critical orifice, corrected to standard conditions

T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)

K' = Average K' factor from Critical Orifice Calibration

(3) $$Y = \frac{Vcr_{(std)}}{Vm_{(std)}}$$

= DGM calibration factor

Temperature Sensors

Reference °F	In °F	Out °F
34	35	35
67	68	68
202	203	203

METHOD 5 DRY GAS METER CALIBRATION USING CRITICAL ORIFICES

Quality - Service - Reliability

ENVIRONMENTAL SUPPLY COMPANY

Energy Fuels Resources

1) Select three critical orifices to calibrate the dry gas meter which bracket the expected operating range.
2) Record barometric pressure before and after calibration procedure.
3) Run at tested vacuum (from Orifice Calibration Report), for a period of time necessary to achieve a minimum total volume of 5 cubic feet.
4) Record data and information in the **GREEN** cells, YELLOW cells are calculated.

DATE: 10/4/2012

METER PART #: Console 7

METER SERIAL #: 68092

CRITICAL ORIFICE SET SERIAL #: 1453S

BAROMETRIC PRESSURE (in Hg): INITIAL 25.45 FINAL 25.45 AVG (P_{bar}) 25.45

EQUIPMENT ID #: Console #7

IF Y VARIATION EXCEEDS 2.00%, ORIFICE SHOULD BE RECALIBRATED

ORIFICE #	RUN #	K' FACTOR (AVG)	TESTED VACUUM (in Hg)	DGM READINGS (FT^3) INITIAL	FINAL	NET (V_m)	TEMPERATURES °F AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	DGM OUTLET INITIAL	DGM OUTLET FINAL	DGM AVG	ELAPSED TIME (MIN) θ	DGM ΔH (in H_2O)	(1) V_m (STD)	(2) V_{cr} (STD)	(3) Y	Y VARIATION (%)	$\Delta H_@$
	1					.0						0							
	2					.0						0							
	3					.0						0							
																AVG =			
19	1	0.5317	12	786.10	791.746	5.646	70	78	78	81	83	80.00	8.00	1.25	4.7136	4.7036	0.998		1.698
	2	0.5317	12	791.746	797.416	5.670	70	78	80	83	87	82.00	8.00	1.25	4.7161	4.7036	0.997		1.692
	3	0.5317	12	797.416	803.070	5.654	70	80	82	87	90	84.75	8.00	1.25	4.6791	4.7036	1.005		1.683
																AVG =	1.000	0.00	
	1					.0						0.00							
	2					.0						0.00							
	3					.0						0.00							
																AVG =			

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:
The following equations are used to calculate the standard volumes of air passed through the DGM, V_m (std), and the critical orifice, V_{cr} (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = 1.000

AVERAGE $\Delta H_@$ = 1.691

(1) $$Vm_{(std)} = K_1 * Vm * \frac{Pbar + (\Delta H / 13.6)}{Tm}$$

= Net volume of gas sample passed through DGM, corrected to standard conditions

K_1 = 17.64 °R/in. Hg (English), 0.3858 °K/mm Hg (Metric)

T_m = Absolute DGM avg. temperature (°R - English, °K - Metric)

$$\Delta H_@ = \left(\frac{0.75\,\theta}{V_{cr}(std)}\right)^2 \Delta H \left(\frac{V_m(std)}{V_m}\right)$$

(2) $$Vcr_{(std)} = K' * \frac{Pbar * \Theta}{\sqrt{Tamb}}$$

= Volume of gas sample passed through the critical orifice, corrected to standard conditions

T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)

K' = Average K' factor from Critical Orifice Calibration

(3) $$Y = \frac{Vcr_{(std)}}{Vm_{(std)}}$$

= DGM calibration factor

Temperature Sensors

Reference °F	In °F	Out °F
32	33	33
72	73	73
201	202	203

7 console Post 2012

APPENDIX F

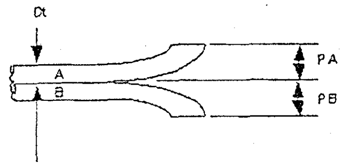
The testing followed the same procedures as outlined in previous protocols and tests at this facility.

Type S Pitot Tube Inspection Data

Date. 12-12-11

Pitot Tube Identification: 9-18

Technician: K. McNamara



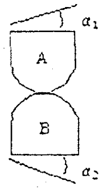
Dt= .375 in.

Is $P_A = P_B$? Yes

Is $1.05 \cdot D_t \leq D_t \leq 1.50 \cdot D_t$? yes

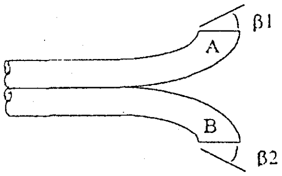
P_A = .450 in.

P_B = .460 in.



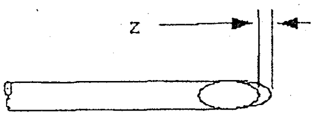
$\alpha_1 < 10°$ α_1 = 1 °

$\alpha_2 < 10°$ α_2 = 1 °

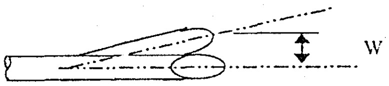


$\beta_1 < 5°$ β_1 = 2 °

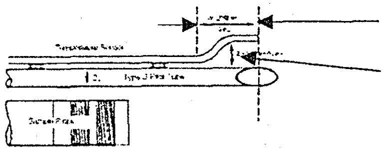
$\beta_2 < 5°$ β_2 = 1 °



Z ≤ 0.125 in. Z = .007 in.

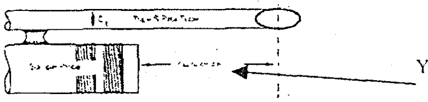


W ≤ 0.03125 in. W = .004 in.



W > 3 inches W = 6½ in.

Z > 3/4 inch Z = 1¼ in.



Y ≥ 3 inches Y = 3½ in

The pitot tube meets the specifications for a calibration factor of 0 84? Yes

Temperature Sensor Calibration

Reference

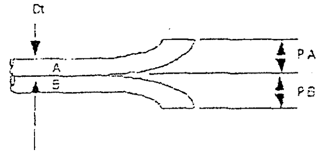
	Temperature Source (Medium)	Temperature Reference (°F)	Temperature Sensor (°F)	Temperature Difference (°F)
Probe	AIR	65	64	1
	Continuity	→		Yes
	Heat Check 248	→	yes	280
Stack	AIR	65	64	1
	ICE WATER	32	31	-1
	BOIL WATER	202	201	1
	SILICONE OIL			

Type S Pitot Tube Inspection Data

Date 12-20-11

Pitot Tube Identification: 27-6a

Technician: K. McNamara



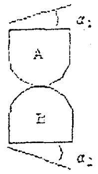
Dt= .375 in.

Is $P_A = P_B$? Yes

Is $1.05 \cdot D_t \leq D_t \leq 1.50 \cdot D_t$? Yes

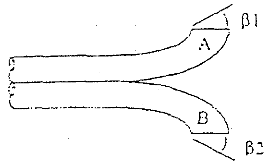
P_A = .443 in.

P_B = .443 in



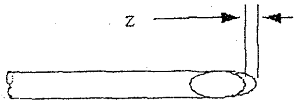
$\alpha_1 < 10°$ α_1 = 1 °

$\alpha_2 < 10°$ α_2 = 0 °

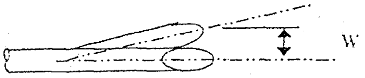


$\beta_1 < 5°$ β_1 = 2 °

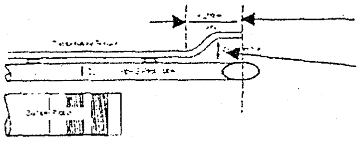
$\beta_2 < 5°$ β_2 = 2 °



$Z \leq 0.125$ in Z = .064 in

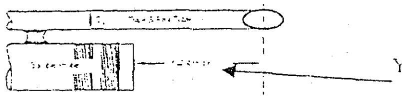


$W \leq 0.03125$ in. W = .009 in



W > 3 inches W = 3 in

Z > 3/4 inch Z = 1 in



Y ≥ 3 inches Y = 3 3/4 in

The pitot tube meets the specifications for a calibration factor of 0.84? Yes

Temperature Sensor Calibration

Reference

	Temperature Source (Medium)	Temperature Reference (°F)	Temperature Sensor (°F)	Temperature Difference (°F)
Probe	AIR	70	70	0
	Continuity	—	—	yes
	Heat Check 248	—	yes	260
Stack	AIR	70	70	0
	ICE WATER	32	32	0
	BOIL WATER	204	204	0
	SILICONE OIL			

TETCO

Sample Box Temperature Sensor Calibration

Date: 12/29/11 Calibrator: Kawai McNamara Reference: Omega CL3512A

Unit ID	Thermocouple Location	Temperature Source (Medium)	Temperature		Temp. Diff. or Result (°F), P/F
			Reference (°F)	Sensor (°F)	
A	Oven	Water	33	33	0
		Water	205	205	0
	Probe Out	Water	33	33	0
		Water	205	205	0
	Impinger Out	Water	33	32	1
		Water	205	203	2
B	Oven	Water	33	33	0
		Water	205	206	-1
	Probe Out	Water	33	33	0
		Water	205	204	1
	Impinger Out	Water	33	34	-1
		Water	202	200	2
C	Oven	Water	33	31	2
		Water	205	205	0
	Probe Out	Water	33	31	2
		Water	205	205	0
	Impinger Out	Water	33	34	-1
		Water	202	201	1
D	Oven	Water	33	31	2
		Water	205	204	1
	Probe Out	Water	33	31	2
		Water	205	204	1
	Impinger Out	Water	33	34	-1
		Water	202	202	0
E	Oven	Water	33	34	-1
		Water	205	204	1
	Probe Out	Water	33	34	-1
		Water	205	203	2
	Impinger Out	Water	33	31	2
		Water	202	200	2
F	Oven	Water	33	33	0
		Water	202	205	-3
	Probe Out	Water	33	33	0
		Water	202	205	-3
	Impinger Out	Water	33	34	-1
		Water	202	200	2
	Impinger Out G	Water	33	33	0
		Water	202	200	2
	Impinger Out H	Water	33	31	2
		Water	202	200	2
	Impinger Out I	Water	33	33	0
		Water	202	202	0
	Impinger Out J	Water	33	33	0
		Water	202	202	0
	Impinger Out K	Water	33	33	0
		Water	202	202	0

FOURTH QUARTER
RADIONUCLIDE EMISSIONS TEST
CONDUCTED AT
ENERGY FUELS RESOURCES
NORTH YELLOW CAKE SCRUBBER
YELLOW CAKE DRYER BAGHOUSE
GRIZZLY BAGHOUSE

BLANDING, UTAH

November 26-28, 2012

by:

TETCO
391 East 620 South
American Fork, UT 84003
Phone (801) 492-9106
Fax (801) 492-9107 fax

Prepared for:

Energy Fuels Resources
6425 S Hwy 91
Blanding, Utah 84511

Date of Report:

January 8, 2012

CERTIFICATION OF REPORT INTEGRITY

Technical Emissions Testing Company (TETCO) certifies that this report represents the truth as well as can be derived by the methods employed. Every effort was made to obtain accurate and representative data and to comply with procedures set forth in the Federal Register.

Dean Kitchen

Reviewer:______________________________

Date: 1-8-13

Mike McNamara

Reviewer:______________________________

Date: 1-8-13

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Test Purpose

This test project was conducted to determine the total radionuclide emissions from the South Yellow Cake Scrubber, Yellow Cake Dryer Baghouse, and Grizzly Baghouse exhausts in terms of Curies per dry standard cubic foot (Ci/dscf).

These tests were for U-Nat and Th-230 on the Grizzly Baghouse and U-Nat, Th-230, Ra-226, and Pb-210 on the South Yellow Cake Scrubber and Yellow Cake Dryer Baghouse.

Test Location and Type of Process

Energy Fuels Resources is located about 5 miles south of Blanding, Utah. Uranium ore is processed into yellow cake, which is shipped to other facilities for additional processing. There are two yellow cake dryers with individual scrubbers. Both dryer enclosures discharge into the Dryer Baghouse. The Packaging enclosure also discharges into the Dryer Baghouse. The South Yellow Cake (NYC) dryer was the only operating dryer at the time of the test. The North Yellow Cake Dryer was not operating at the time of the test. The Grizzly Baghouse serve as the main dust control device for the raw ore unloading and conveying to the processing building.

Stack schematics are shown as Figures 1 though 3 in Appendix D.

Test Dates

The first test run on the SYC Scrubber was split over three separate days, November 26-28, 2012. The reason for the split was production problems with the Dryer. The second test run was completed November 28, 2012.

One test run was completed on the Yellow Cake Dryer Baghouse November 28, 2012.

One run was completed on the Grizzly Baghouse November 27, 2012.

Pollutants Tested and Methods Applied

The tests were a determination of radionuclide emissions in accordance with EPA Method 5/114.

Test run filters and front wash residues were sent to Test America located in Richland. Washington for radionuclide analysis.

Test Participants

Test Facility	Garren Palmer	
State Agency	None	
TETCO	Dean Kitchen Mike McNamara	Doug Olsen Jeff Graton

Deviations From EPA Methods

None

Quality Assurance

Testing procedures and sample recovery techniques were according to those outlined in the Federal Register and the *Quality Assurance Handbook for Air Pollution Measurement Systems*.

SUMMARY OF RESULTS

Emission Results

Table I presents the findings of the test in Curies per dry standard cubic foot. Tables IV-VII in Appendix A have more detailed information.

Table I. Measured Radionuclide Emissions

Run #	South Yellow Cake Scrubber		Yellow Cake Dryer Baghouse		Grizzly Baghouse	
	pCi/dscf	pCi/hr	pCi/dscf	pCi/hr	pCi/dscf	pCi/hr
1	36.2	4.304E+06	82.7	1.730E+07	0.678	4.122E+04
2	17.8	2.185E+06				
AVE	**27.0**	**3.245E+06**	**82.7**	**1.730E+07**	**0.678**	**4.122E+04**

Process Data

The process was operated according to standard procedures. All pertinent process data was available for recording by agency personnel. Scrubber water flow, pressure drop readings (Δp) were recorded and are found in Appendix D. The Dryer Baghouse pressure drop readings (Δp) were recorded and are found on the test run sheets. Production data is retrained bEnergy Fuels Resources.

Description of Collected Samples

The test filters for the South Yellow Cake Scrubber were heavily covered with an off- white colored particulate. The front washes were clear in appearance.

The test filters for the Yellow Cake Dryer Baghouse were lightly colored with a tan colored particulate. The front wash was clear in appearance.

The test filters for the Grizzly Baghouse were had no visible particulate. The front wash was clear in appearance.

Discussion of Errors or Irregularities

None

Percent Isokinetic Sampling

Each of the tests were isokinetic within the ±10% of 100% criterion specified in the Federal Register. They also meet the Utah State Department of Environmental Quality, Division of Air Quality specification of isokinetic sampling point by point. Isokinetic values for each test run are presented in Table II.

Table II. Percent Isokinetic Sampling

Run #	South Yellow Cake Scrubber	Yellow Cake Dryer Baghouse	Grizzly Baghouse
1	99	99	99
2	98		

SOURCE OPERATION

Process Control Devices Operation

All process control devices were operated normally. Recorded scrubber water flow, pressure and baghouse Δp readings were recorded and are found on the test run sheets or in Appendix D.

Process Representativeness

The facility was operated normally. Production data was retained by Energy Fuels Resources.

SAMPLING AND ANALYSIS PROCEDURES

Sampling Port Location

The inside diameter of the South Yellow Cake Scrubber stack is 12.75 inches. The two, four-inch diameter sample port are located 28.24 diameters (30 feet) downstream from the last disturbance and 6.59 diameters (7 feet) upstream from the next disturbance. Figure 1 in Appendix D is a schematic of the stack.

The inside diameter of the Yellow Cake Dryer Baghouse stack is 16.0 inches. The two, four-inch diameter sample ports are located 28.38 diameters (454 inches) downstream from the last disturbance and 3.56 diameters (57 inches) upstream from the next disturbance. The sample port locations are depicted in Figure 2 in Appendix D.

The inside diameter of the Grizzly Baghouse stack is 18.75 inches. There are two, three-inch diameter sample ports located 2.56 diameters (48 inches) downstream from the last disturbance and 1.31 diameters (24.5 inches) upstream from the next disturbance. The sample port locations are depicted in Figure 3 in Appendix D.

Sampling Point Location

Table III shows the distance of each sampling point from the inside wall according to EPA Method 1. Each point is marked and identified with a wrapping of glass tape and numbered. These points are determined by measuring the distance from the inside wall.

Table III. Sampling Point Location

Sample Point	Distance (inches) from Inside Wall		
	NYC Scrubber	Dryer Baghouse	Grizzly Baghouse
1	0.85	0.70	0.50
2	3.19	2.34	1.26
3	9.56	4.74	2.21
4	11.90	11.26	3.32
5		13.66	4.69
6		15.30	6.68
7			12.08
8			14.06
9			15.43
10			16.54
11			17.48
12			18.25

Sampling Train Description

To determine the actual emission rates for this stack, 40 CFR 60, Appendix A, Methods 1-5/114 were followed.

All sampling trains were made of inert materials, (Teflon, stainless steel and glass) to prevent interference of the sampled gas and particulate.

The stack analyzers used to conduct Methods 1-5/114 are constructed to meet the specifications outlined in the CFR. The temperature sensors are K-type thermocouples. Heater, vacuum and pitot line connections have been designed to be interchangeable with all units used by the tester. A 316 stainless steel probe liner was used for the tests. Figure 4 in Appendix E is a sketch of the Methods 5/114 sampling train.

Sample boxes were prepared for testing by following the prescribed procedures outlined in Methods 5/114.

Sampling and Analytical Procedures

All sampling and analytical test procedures were as specified in 40 CFR 60, Appendix A, Methods 5/114.

Quality Assurance

All equipment set-up, sampling procedures, sample recovery and equipment calibrations were carried out according to the procedures specified in 40 CFR 60 and the *Quality Assurance Handbook for Air Pollution Measurement Systems*.

APPENDIX

APPENDIX A

TABLE IV
COMPLETE RESULTS
ENERGY FUELS RESOURCES, BLANDING, UTAH
SOUTH YELLOWCAKE SCRUBBER EXHAUST

Symbol	Description	Dimensions	Run #1	Run #2	
Date			11/26-28/12	11/28/13	
Filter #			6065	6066	
Begin	Time Test Began		14:42	10:27	
End	Time Test Ended		10:13	20:27	
Pb_m	Meter Barometric Pressure **	In. Hg. Abs	24.64	24.70	
ΔH	Orifice Pressure Drop	In. H_2O	1.255	2.062	
Y	Meter Calibration Y Factor	dimensionless	1.004	1.004	
Vm	Volume Gas Sampled--Meter Conditions	cf	366.358	352.274	
T_m	Avg Meter Temperature	°F	85.4	97.8	
$\sqrt{\Delta P}$	Sq Root Velocity Head	Root In. H_2O	0.7851	0.8106	
Wt_{wc}	Weight Water Collected	Grams	290.2	278.1	
T_t	Duration of Test	Minutes	480	360	
C_p	Pitot Tube Coefficient	Dimensionless	0.84	0.84	
D_n	Nozzle Diameter	Inches	0.2250	0.2505	
CO_2	Volume % Carbon Dioxide	Percent	2.00	1.80	
O_2	Volume % Oxygen	Percent	18.40	18.40	
N_2 & CO	Volume % Nitrogen and Carbon Monoxide	Percent	79.60	79.80	
Vm_{std}	Volume Gas Sampled (Standard)	dscf	294.393	278.076	
Vw	Volume Water Vapor	scf	13.683	13.112	
$Bw_{s\,(measured)}$	Fraction H_2O in Stack Gas (Measured)	Fraction	0.044	0.045	
$Bw_{s\,(saturated)}$	Fraction H_2O in Stack Gas (Saturated)	Fraction	0.079	0.080	
Bw_s	Fraction H_2O in Stack Gas *	Fraction	0.044	0.045	
X_d	Fraction of Dry Gas	Fraction	0.956	0.955	
M_d	Molecular Wt. Dry Gas	lb/lbmol	29.06	29.02	
M_s	Molecular Wt. Stack Gas	lb/lbmol	28.56	28.53	
%I	Percent Isokinetic	Percent	99.4	97.8	**AVG**
T_s	Avg Stack Temperature	°F	100.2	100.7	**100.5**
A_s	Stack Cross Sectional Area	Sq. Ft.	0.887	0.887	
P_G	Stack Static Pressure	In. H_2O	-0.420	-0.420	
Pb_p	Sample Port Barometric Pressure	In. Hg. Abs	24.57	24.63	
P_s	Stack Pressure	In. Hg. Abs	24.543	24.599	
Q_s	Stack Gas Volumetric Flow Rate (Std)	dscfm	1.98E+03	2.05E+03	**2.01E+03**
Q_a	Stack Gas Volumetric Flow Rate (Actual)	cfm	2.68E+03	2.77E+03	**2.73E+03**
V_s	Velocity of Stack Gas	fpm	3.02E+03	3.12E+03	**3.07E+03**
Curies	Radionuclides per sample	pCi	10656.5	4946.9	
Crad	Concentration of Radionuclides	pCi/dscf	36.198	17.790	**26.994**
ERrad	Emission Rate of Radionuclides	pCi/hr	4.304E+06	2.185E+06	**3.245E+06**

* If the measured moisture content is greater than the saturated moisture level (supersaturated), the saturated moisture value will be used in all calculations (40 CFR 60, Method 4, Section 12.1.7).

** Barometric pressure for run 1 is a time-weighted average (24.6438) for the 3 days testing occurred.

TABLE V
COMPLETE RESULTS, PM
ENERGY FUELS RESOURCES, BLANDING, UTAH
YELLOW CAKE DRYER BAGHOUSE

Symbol	Description	Dimensions	Run #1
Date	Date		5/27/11
Filter #			6067
Begin	Time Test Began		8:41
End	Time Test Ended		12:14
Pb_m	Meter Barometric Pressure	In. Hg. Abs	24.70
ΔH	Orifice Pressure Drop	In. H_2O	1.589
Y	Meter Calibration Y Factor	dimensionless	1.006
Vm	Volume Gas Sampled--Meter Conditions	cf	97.336
T_m	Avg Meter Temperature	°F	83.3
$\sqrt{\Delta P}$	Sq Root Velocity Head	Root In. H_2O	0.8395
Wt_{wc}	Weight Water Collected	Grams	10.0
T_t	Duration of Test	Minutes	120
C_p	Pitot Tube Coefficient	Dimensionless	0.84
D_n	Nozzle Diameter	Inches	0.2210
CO_2	Volume % Carbon Dioxide	Percent	0.00
O_2	Volume % Oxygen	Percent	20.90
N_2 & CO	Volume % Nitrogen and Carbon Monoxide	Percent	79.10
Vm_{std}	Volume Gas Sampled (Standard)	dscf	78.932
Vw	Volume Water Vapor	scf	0.472
Bw_s	Fraction H_2O in Stack Gas	Fraction	0.006
X_d	Fraction of Dry Gas	Fraction	0.994
M_d	Molecular Wt. Dry Gas	lb/lbmol	28.84
M_s	Molecular Wt. Stack Gas	lb/lbmol	28.77
%I	Percent Isokinetic	Percent	99.1
T_s	Avg Stack Temperature	°F	93.1
A_s	Stack Cross Sectional Area	Sq. Ft.	1.396
P_G	Stack Static Pressure	In. H_2O	-1.10
Pb_p	Sample Port Barometric Pressure	In. Hg. Abs	24.63
P_s	Stack Pressure	In. Hg. Abs	24.549
Q_s	Stack Gas Volumetric Flow Rate (Std)	dscfm	3.48E+03
Q_a	Stack Gas Volumetric Flow Rate (Actual)	cfm	4.47E+03
V_s	Velocity of Stack Gas	fpm	3.20E+03
Curies	Radionuclides per sample	pCi	6540.7
Crad	Concentration of Radionuclides	pCi/dscf	82.8650
ERrad	Emission Rate of Radionuclides	pCi/hr	1.730E+07

TABLE VI
COMPLETE RESULTS, PM
ENERGY FUELS RESOURCES, BLANDING, UTAH
GRIZZLY BAGHOUSE

Symbol	Description	Dimensions	Run #1
Date	Date		11/27/12
Filter #			6068
Begin	Time Test Began		8:38
End	Time Test Ended		16:43
Pb_m	Meter Barometric Pressure	In. Hg. Abs	24.65
ΔH	Orifice Pressure Drop	In. H_2O	1.031
Y	Meter Calibration Y Factor	dimensionless	0.999
Vm	Volume Gas Sampled--Meter Conditions	cf	332.974
T_m	Avg Meter Temperature	°F	80.3
$\sqrt{\Delta P}$	Sq Root Velocity Head	Root In. H_2O	0.1722
Wt_{wc}	Weight Water Collected	Grams	11.3
T_t	Duration of Test	Minutes	480
C_p	Pitot Tube Coefficient	Dimensionless	0.84
D_n	Nozzle Diameter	Inches	0.4425
CO_2	Volume % Carbon Dioxide	Percent	0.00
O_2	Volume % Oxygen	Percent	20.90
N_2 & CO	Volume % Nitrogen and Carbon Monoxide	Percent	79.10
Vm_{std}	Volume Gas Sampled (Standard)	dscf	268.636
Vw	Volume Water Vapor	scf	0.533
Bw_s	Fraction H_2O in Stack Gas	Fraction	0.002
X_d	Fraction of Dry Gas	Fraction	0.998
M_d	Molecular Wt. Dry Gas	lb/lbmol	28.84
M_s	Molecular Wt. Stack Gas	lb/lbmol	28.81
%I	Percent Isokinetic	Percent	99.2
T_s	Avg Stack Temperature	°F	62.3
A_s	Stack Cross Sectional Area	Sq. Ft.	1.917
P_G	Stack Static Pressure	In. H_2O	-0.30
Pb_p	Sample Port Barometric Pressure	In. Hg. Abs	24.62
P_s	Stack Pressure	In. Hg. Abs	24.598
Q_s	Stack Gas Volumetric Flow Rate (Std)	dscfm	1.01E+03
Q_a	Stack Gas Volumetric Flow Rate (Actual)	cfm	1.22E+03
V_s	Velocity of Stack Gas	fpm	6.37E+02
Curies	Radionuclides per sample	pCi	182.2
Crad	Concentration of Radionuclides	pCi/dscf	0.6783
ERrad	Emission Rate of Radionuclides	pCi/hr	4.122E+04

General Nomenclature

%I = percent isokinetic, percent
$A_s = (D_s^2 / 4) \bullet \pi$
$AS\Delta P$ = see $\sqrt{\Delta P}$
Btu = unit heat value (British thermal unit)
B_{ws} = fraction of water in stack gas (may have designation of "measured" or "saturated")
"measured" represents measured moisture based upon sample volume and water collected
"saturated" is a calculated value based upon stack pressure and temperature
C_0 = average of initial and final system zero gas calibration bias checks (ppm, percent)
C_{avg} = average gas concentration (as measured)
C_B = concentration of particulate matter, back half (gr/dscf,lb/dscf, etc.)
C_{cond} = concentration of condensibles (grain/dscf)
C_{cors} = concentration of coarse particulate (gr/dscf)
C_{Dir} = measured concentration of a calibration gas when introduced in direct calibration mode
C_{fa} = concentration of particulate matter, front half, actual stack flow (gr /acf)
C_F = concentration of particulate matter, front half (gr/dscf,lb/dscf, etc.)
C_{gas} = C_{avg} corrected for initial and final system bias checks (Equation 7E-5)
C_m = average of initial and final system upscale gas calibration bias checks (ppm, percent)
C_{ma} = actual concentration of upscale calibration gas
C_{metal} = concentration of metals (ppm, $\mu g/ft^3$, etc.) atomic symbol replaces "metal"
CO_2 = percent carbon dioxide in the stack gas
C_p = pitot tube coefficient (0.84)
C_{PM10} = concentration of PM_{10} particulate (gr/dscf)
C_{rad} = concentration of radionuclides (pCi/dscf)
CS = measured concentration of a calibration gas when introduced in system calibration mode
C_X = Any species symbol may replace X. Units may be expressed as ppm, lb/dscf, etc.
$C_{X\,(corr)}$ = actual gas concentration corrected to required percent O_2
Curies = Measured radionuclides per sample. Units may be pCi or uCi.
D_c = jet diameter (cm)
D/F = Dioxins and Furans (See laboratory report for D/F descriptions and nomenclacture)
ΔH = orifice pressure drop (inches H_2O)
$\Delta H_@$ = orifice pressure (inches H_2O)
ΔH_d = orifice pressure head (inches H_2O) needed for impactor flow rate
D_n = nozzle diameter (inches)
ΔP = stack flow pressure differential (inches H_2O)
Dp_{50} = 50% effective cutoff diameter of particle (cm)
D_s = diameter of the stack (feet)
EA = percent excess air
ER_B = emission rate of back half particulate (lb/hr)
ER_{cond} = emission rate of condensibles (lb/hr)
ER_{cors} = emission rate of coarse particulate (lb/hr)
ER_F = emission rate of front half particulate (lb/hr)
ER_{gas} = emission rate of a gas (lb/hr)
ER_{mmBtu} = emission rate per mmBtu of fuel
ER_{PM10} = emission rate of PM_{10} particulate (lb/hr)
ER_{rad} = emission rate of radionuclides (pCi/hr)
ER_X = emission rate of compound which replaces X. Units are usually in lb/hr.
F_D = Dry based fuel factor. Ratio of the gas volume of the products of combustion to the heat content
See 40 CFR 60, Appendix A, Method 19, Table 19-2 for fuel factor values.
K_c = Cunningham slip correction factor
λ = mean free path of molecules in gas phase (cm)
mmBtu = million Btu

General Nomenclature

M_{cond} = mass of condensibles (milligrams)
M_{cors} = mass of coarse particulate (milligrams)
M_d = molecular weight of stack gas, dry basis (lb/lb-mol)
M_F = mass of particulate on filter (mg)
M_{FP} = mass of particulate matter on filter and probe (mg)
mmBtu = million Btu
M_P = mass of particulate matter in probe and front wash (mg)
M_{PM10} = mass of PM_{10} particulate (milligrams)
M_s = molecular weight of stack gas, wet basis (lb/lbmol)
M_X = mass of species "X". Units may vary and other descriptive subscripts may apply.
μ_s = gas viscosity (poise)
$M_{w,x}$ = molecular weight of gas species (g/gmol)
N = number of jets per plate
N_2 = percent nitrogen in the stack gas
O_2 = percent oxygen in the stack gas
$\sqrt{\Delta P}$ = average of the square roots of ΔP (may also be referred to as $AS\Delta P$)
$\sqrt{\Delta P_1}$ = square root of ΔP at point 1 of the current test, Method 201A
$\sqrt{\Delta P_1'}$ = square root of ΔP at point 1 of the previous traverse, Method 201A
$\sqrt{\Delta P'_{ave}}$ = average of the square roots of ΔP from the previous traverse, Method 201A
Pb_m = absolute barometric pressure at the dry gas meter (inches Hg)
Pb_p = absolute barometric pressure at the sample location (inches Hg)
P_G = stack static pressure (inches H_2O)
P_s = absolute stack pressure (inches Hg)
P_{std} = absolute pressure at standard conditions (29.92 inches Hg.)
θ = time of test (minutes)
θ_1 = sample time (duration in minutes) at first sample point for Method 201A
θ_n = sample time (duration in minutes) at sample point "n" for Method 201A
θ_{test} = target test time for Method 201A (minutes)
Q_a = stack gas volumetric flow rate (acfm)
Q_s = stack gas volumetric flow rate (dscfm)
Q_{sc} = actual gas flow rate through the cyclone (acfm)
Q_{sce} = actual gas flow rate through the impactor (acfm)
Q_W = wet stack gas std. volumetric flow (ft^3/min, wscfm)
R = gas constant (21.85 inches Hg*ft^3/(lbmol*R))
ρ_p = particle density (1 g/cm^3)
ρ_s = stack gas density (g/cm^3)
T_m = stack temperature (°F)
T_s = stack temperature (°F)
T_{std} = absolute temperature at standard conditions (528°R)
Tt = Duration of test run in minutes. Also see θ
u_m = mean molecular speed (cm/s)
Vm = sample volume (ft^3) at meter conditions
Vm_{std} = volume standard (dscf), sample volume adjusted to 68°F and 29.92 inches Hg.
V_s = velocity of stack gas (fpm)
V_w = volume water vapor (scf) at 68°F and 29.92 inches Hg.
Wt_{wc} = weight of the condensed water collected (grams)
X_d = fraction of dry gas
Y = meter calibration Y-factor (dimensionless)
ψ = dimensionless inertial impaction parameter, 0.14

General Sample Equations

$$\%I = Vm_{std} \bullet (T_s + 460) \bullet 1039 / (\theta \bullet V_s \bullet P_s \bullet X_d \bullet D_n^2)$$

$$A_s = (D_s^2 / 4) \bullet \pi$$

$$B_{ws} = V_w / (Vm_{std} + V_w)$$

$$C_B = M_B \bullet 0.01543 / Vm_{std}$$

$$C_{cond} = M_{cond} \bullet 0.01543 / Vm_{std}$$

$$C_{cors} = M_{cors} \bullet 0.01543 / Vm_{std}$$

$$C_{fa} = T_{std} \bullet C_{fp} \bullet P_s \bullet X_d / [P_{std} \bullet (T_m + 460)]$$

$$C_f = M_{fp} \bullet 0.01543 / Vm_{std}$$

$$C_{PM10} = M_{PM10} \bullet 0.01543 / Vm_{std}$$

$$C_{rad} = \text{Curies}/Vm_{std}$$

$$C_{gas\ (corr)} = C_{gas} \bullet (20.9 - \text{desired } \%O_2) / (20.9 - \text{actual } \%O_2)$$

$$_{casc}\ Dp_{50} = \sqrt{[\mu s \bullet \psi \bullet N \bullet \pi \bullet D_c^3 \bullet 18 / (K_c \bullet \rho_p \bullet Q_{sce} \bullet 4)]}$$

$$_{PM_{10}}\ Dp_{50} = 0.15625 \bullet [(T_s + 460) / (M_s \bullet P_s)]^{0.2091} \bullet (\mu_s / Q_{sc})^{0.7091}$$

$$ER_{cond} = C_{cond} \bullet Q_s \bullet 0.00857$$

$$ER_{cors} = C_{cors} \bullet Q_s \bullet 0.00857$$

$$ER_F = C_f \bullet Q_s \bullet 0.00857$$

$$ER_{gas} = P_{std} \bullet Q_s \bullet M_{wgas} \bullet C_{gas} \bullet 60 / (R \bullet T_{std} \bullet 10^6)$$

$$ER_{gas} = C_{gas(lb/dscf)} \bullet Qs \bullet 60$$

(Either ER_{gas} equation gives equivalent lb/hr values to 3 sig. figures)

$ER_{mmBtu} = C_{gas(lb/dscf)} \bullet F_d \bullet (20.9/(20.9 - \%O_2)$, Method 19 Equation 19-1

$$ER_{PM10} = C_{PM10} \bullet Q_s \bullet 0.00857$$

$$ER_{rad} = C_{rad} \bullet Qs \bullet 60$$

$$K_c = 1 + 2 \bullet \lambda \bullet 1.257 / Dp_{50}$$

$$\lambda = \mu_s / (0.499 \bullet \rho_s \bullet u_m)$$

$$M_d = CO_2 \bullet 0.44 + O_2 \bullet 0.32 + N_2 \bullet 0.28$$

$$M_s = (M_d \bullet X_d) + (18 \bullet B_{ws})$$

$$\mu_s = [51.05 + 0.207 \bullet (T_s + 460) + 3.24 \bullet 10^{-5} \bullet (T_s + 460)_2 + 0.53147 \bullet \%O_2 - 74.143 \bullet B_{ws}] \bullet 10^{-6}$$

$$P_s = Pb_p + (P_G / 13.6)$$

$$\theta_1 = (\sqrt{\Delta P_1'} / \sqrt{\Delta P'_{ave}}) \bullet (\theta_{test} / \text{pts})$$

$$\theta_n = \theta_1 \bullet \sqrt{\Delta P_n} / \sqrt{\Delta P_1}$$

$$Q_a = V_s \bullet A_s$$

$$Q_s = Qa \bullet Xd \bullet Ps \bullet T_{std} / [(Ts + 460) \bullet P_{std}]$$

$$Q_{sc} = [(T_s + 460) \bullet P_{std} / (T_{std} \bullet P_s)] \bullet [(Vm_{std} + V_w) / \theta]$$

$$Q_{sce} = [(T_s + 460) \bullet P_{std} / (T_{std} \bullet P_s)] \bullet [(Vm_{std} + V_w) / \theta]$$

$$Q_W = Q_s / X_d$$

$$\rho_s = P_s \bullet M_s \bullet 3386.39 \bullet 10^{-6} / [R \bullet (T_s + 460) / 1.8]$$

$$u_m = 100 \bullet \sqrt{\{[R \bullet (T_s + 460) / 1.8 \bullet 8 \bullet 10^3] / [\pi \bullet M_s]\}}$$

$$Vm_{std} = Vm \bullet Y \bullet T_{std} \bullet (Pb_m + \Delta H / 13.6) / [P_{std} \bullet (T_m + 460)]$$

$$V_s = 85.49 \bullet 60 \bullet Cp \bullet \sqrt{\Delta P} \bullet \sqrt{[(T_s + 460) / (P_s \bullet M_s)]}$$

$$V_w = Wt_{wc} \bullet 0.04715$$

$$X_d = 1 - B_{ws}$$

APPENDIX B

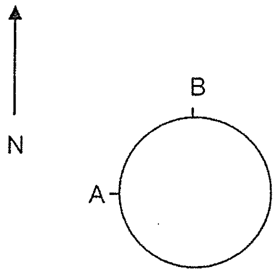
South Yellow Cake Scrubber
- Preliminary Velocity Traverse and Sampling Point Location Data
- Field Data Sheet

Yellow Cake Dryer Baghouse
- Preliminary Velocity Traverse and Sampling Point Location Data
- Field Field Data

Grizzly Baghouse
- Preliminary Velocity Traverse and Sampling Point Location Data
- Field Field Data

South Yellow Cake Dryer Scrubber

Prelim 8 pts blank



Stack Dia. 12.75 Reference: 0

Ports are 7' Upstream from next disturbance

Ports are 30' Downstream from last disturbance

Facility Energy Fuels Resources, Blanding, UT

Stack Identification South Yellow Cake Scrubber

Date 11-26-12

Barometric Pressure

Pb_m 24.55 in Hg Pb_p 24.45 in Hg

Static Pressure (P_G) -.42 in H_2O

Estimated Moisture (Bw_s) 3-10 %

Sample Height from Ground ≃70' feet

Comments:

Traverse Point	Percent Diameter	Distance From:		Ports					
		ID	Reference	A	B	C	D	E	F
1	6.7	0.85	0.85		88 .55 12				
2	25.0	3.19	3.19		95 .93 13				
3	75.0	9.56	9.56		101 .86 13				
4	93.3	11.90	11.90		101 .95 14				

Averages:

T_S ________ ∠ Flow ________

ΔP ________ $\sqrt{\Delta P}$ ________

KEY => | T_S ∠ Flow | ΔP |

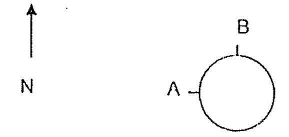
111 Field Data Sheet

TETCO
Filter 6665 Sample Box 2

Page 1 of 1 Run # 1

Plant: Energy Fuels Resources, Blanding, UT
Date: 11/26-28/12

Location: South Yellowcake Dryer Scrubber
Operator: R. Kitchen



Stack Diameter 12.75" Port Reference 0.0"
Ports are 7' Upstream from next disturbance
Ports are 30' Downstream from last disturbance

	Traverse Point	Time Clock	Time Min (0)	DGM (ft³)	ΔP (in H₂O)	ΔH (in H₂O) Desired	ΔH (in H₂O) Actual	Vacuum (in Hg)	Temperatures (°F) Stack (Tₛ)	Probe	Probe Out	Filter	Effluent	DGM Temp (Tₘ) Out	DGM Temp (Tₘ) In
A	1	1442	0	326.120	.61	1.19	1.19	3	105	245	264	267	68	76	74
	1		20	342.160	.61	1.21	1.21	3	110	246	261	265	57	81	84
	1		40	358.070	.55	1.10	1.10	3	110	247	260	264	54	84	102
	2		60	372.056	.55	1.10	1.10	3	108	252	259	264	56	95	105
	2		80	387.580	.55	1.10	1.10	3	107	252	257	261	60	98	107
	2		100	402.400	.54	1.07	1.07	3	108	253	257	260	59	98	106
	3		120	416.966	.61	1.21	1.21	3	110	255	255	259	61	99	103
	3		140	431.660	.62	1.23	1.23	3	108	254	253	255	56	91	102
	3		160	447.200	.62	1.23	1.23	4	107	251	250	256	48	87	97
*	4	7:16	180	462.904	.61	1.26	1.26	4	84	250	240	257	43	62	62
	4		200	477.800	.57	1.18	1.18	3	81	242	238	242	43	67	73
	4		220	492.630	.50	1.04	1.04	4	88	240	240	247	57	73	83
			240	507.266	—	—	—	—	—	—	—	—	—	—	—
B	1	8:15	240	507.260	.68	1.41	1.41	4	67	238	245	224	46	77	85
	1		260	523.205	.71	1.47	1.47	4	88	236	251	258	58	81	92
	1		280	540.060	.70	1.45	1.45	4	88	237	243	260	67	84	95
**, **	2	5:13	300	558.417	.64	1.33	1.33	3	98	263	224	227	46	54	55
	2		320	572.750	.66	1.32	1.32	4	102	230	263	242	48	60	68
	2		340	588.045	.65	1.30	1.30	4	103	256	272	266	49	67	80
	3		360	603.310	.68	1.36	1.36	5	101	265	260	259	57	75	87
	3		380	619.300	.67	1.34	1.34	6	99	255	254	256	53	79	91
	3		400	635.125	.67	1.34	1.34	6	98	262	260	258	53	84	97
	4		420	650.815	.62	1.24	1.24	6	99	246	263	261	56	88	100
	4		440	666.210	.60	1.20	1.20	6	100	243	264	262	59	92	104
	4		460	681.670	.60	1.20	1.20	6	101	245	266	264	61	94	105
		10:17	480	696.807											
	Total			366.358	√18.845	30.1			2464					4101	
	Average				√.785	1.25			100.7					85.4	

Assumed Moisture 5-13 %
Probe 2-1 Cp 0.84
Nozzle Calibration
.225 .226 .226 .224
Avg Dₙ .2250 inches
Gas Bag H6-2
Console 5
Y-Factor 1.004
ΔH@ 1.448 in H₂O

Barometric Pressures 11/26/12 11-27-12 11-28-12
Pbₘ 24.55 / 24.70 in Hg 24.70
Pbₚ 24.48 / 24.62 in Hg 24.63
Ave 24.644
P_G -.74 in H₂O

Leak Check	Pre 11-26-12	Post 11-28-12
ft³/min	0.004	0.001
vac in Hg	22.0	10.0
Pitot Rate	0.0	0.0
In H₂O	8.0	8.0

Water Collected 290.2 g
Time Sampled 480 min
Review OK

K @Tₘ
K @Tₘ

Additional (Extra) Leak Check Information Dryer down 11/27/12 at approx. 9:18

	DGM before Leak Check	Vac ("Hg)	Rate (ft³/min)	DGM After Leak Check	Vac ("Hg)	Rate (ft³/min)
*	462.563 11-26-12 17:20	6.0	0.008	462.904 11-27 7:10	10.0	0.007
**	556.400 11-27 16:00	6.0	0.006	557.450 11-27 16:05	8.0	.004

Pitot
0.0 0.0 0.0 0.0
8.0 8.0 8.0 8.0

110 Field Data Sheet

TETCO

Filter 6066 Sample Box F
6075

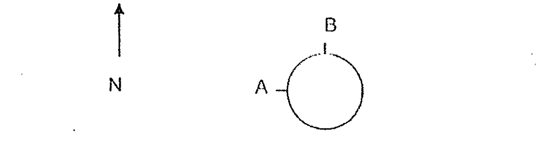
Page 1 of 2 Run # 3

Plant: Energy Fuels Resources, Blanding, UT

Location: South Yellowcake Dryer Scrubber

Date: 11-25-12

Operator: D. Cloe



Stack Diameter 12.75"

Port Reference 0.0"

Ports are 7' Upstream from next disturbance

Ports are 30' Downstream from last disturbance

	Traverse Point	Time Clock	Time Min (0)	DGM (ft³)	ΔP (in H₂O)	ΔH (in H₂O) Desired	ΔH (in H₂O) Actual	Vacuum (in Hg)	Temperatures (°F) Stack (Tₛ)	Probe	Probe Out	Filter	Effluent	DGM Temp (Tₘ) Out	DGM Temp (Tₘ) In
	A 1	1021	0	697.407	.61	1.91	1.91	4	98	271	267	259	51	89	92
	1		15	711.940	.66	2.07	2.07	4	99	272	268	267	47	88	97
	1		30	726.680	.67	2.10	2.10	3	100	267	262	261	57	86	96
	2		45	741.312	.67	2.10	2.10	3	100	272	271	269	54	86	97
1200	2		60	755.555	.67	2.16	2.10	5	100	240	261	259	51	87	96
1:05	2		75	769.375	.67	2.10	2.10	2	99	240	261	257	56	88	99
1:30	3		90	784.600	.74	2.22	2.22	7	100	235	259	257	59	90	103
1:45	3		105	800.100	.73	2.29	2.29	7	99	241	258	256	59	96	104
2:00	3		120	815.416	.73	2.29	2.29	7	99	233	250	252	61	91	105
2:15	4		135	830.075	.71	2.23	2.23	6	100	249	250	249	63	101	107
2:30	4		150	845.900	.74	2.32	2.32	7	95	241	240	237	52	89	105
2:45	4		165	861.477	.74	2.32	2.32	8	96	269	247	230	53	92	110
3:00			180	877.158	~~.64~~	—									
3:00	D 1	13:35	180	878.102	.64	2.01	2.01	3	98	265	229	230	57	95	103
3:15	1		195	892.895	.64	2.01	2.01	4	99	262	240	240	46	96	109
3:30	1		210	907.480	.65	2.04	2.04	4	98	267	267	260	46	95	108
3:45	2		225	922.269	.62	1.94	1.94	4	100	268	265	265	47	94	108
4:00	2		240	936.727	.63	1.97	1.97	4	101	265	275	270	47	93	107
4:15	2		255	951.140	.61	1.91	1.91	5	107	268	271	270	48	93	106
4:30	3		270	965.154	.61	1.91	1.91	5	106	265	269	269	50	93	106
4:45	3		285	979.438	.62	1.94	1.94	5	103	270	270	271	45	93	105
5:00	3		300	993.642	.61	1.91	1.91	6	103	266	271	271	46	93	107
5:15	4		315	1007.745	.63	1.97	1.97	7	102	254	270	270	47	93	106
5:30	4		330	1022.171	.60	1.88	1.88	7	106	266	271	271	48	93	108
5:45	4		345	1036.424	.60	1.88	1.88	8	105	262	270	271	49	93	108
6:00		16:35	360	1050.625											
	Total			179.75 ~~229.457~~ 172.523	√ 19.4543		49.49		2417					4695	
	Average			~~402.274~~ 352.274	√ .8106		2.062		100.7					97.8	

Assumed Moisture 5-13 %

Probe 2-10 Cp 0.84

Nozzle Calibration

.250 .251 .251 .250

Avg Dₙ .2505 inches

Gas Bag 11C-2

Console 5

Y-Factor 1.004

ΔH@ 1.444 in H₂O

Barometric Pressures

Pb_m 24.26 in Hg

Pb_p 24.62 in Hg

P_G -.42 in H₂O

Leak Check	Pre 10:17 11-19-12	Post
ft³/min	.007	
vac in Hg	24.0	
Pitot Rate	0.0	
In H₂O	8.0	

Water Collected 278.1 g

Time Sampled 360 min

Review

K @Tₘ

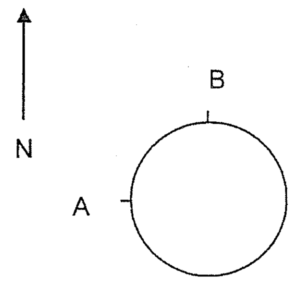
K @Tₘ

Additional (Extra) Leak Check Information

	DGM before Leak Check	Vac ("Hg)	Rate (ft³/min)	DGM After Leak Check	Vac ("Hg)	Rate (ft³/min)
	877.158	11	0.005	878.102	11	0.006

Yellow Cake Dryer Baghouse

Prelim 6 pts blank



Stack Dia. 16 Reference: 0

Ports are 57" Upstream from next disturbance

Ports are 468" Downstream from last disturbance

Facility Energy Fuels Resources, Blanding, UT

Stack Identification North Yellow Cake Dryer Baghouse

Date ______

Barometric Pressure

Pb_m ______ in Hg Pb_p ______ in Hg

Static Pressure (P_G) ______ in H_2O

Estimated Moisture (Bw_s) 1 %

Sample Height from Ground ______ feet

Comments: ______

Traverse Point	**Percent Diameter**	**Distance From:**		**Ports**					
		ID	**Reference**	**A**	**B**	**C**	**D**	**E**	**F**
1	4.4	0.70	0.70						
2	14.6	2.34	2.34	56 64					
3	29.6	4.74	4.74						
4	70.4	11.26	11.26	57 .48					
5	85.4	13.66	13.66						
6	95.6	15.30	15.30	54 92					

Averages:

T_S ______ ∠ Flow ______

ΔP ______ $\sqrt{\Delta P}$ ______

KEY => | T_S ∠ Flow ΔP |

114

Field Data Sheet

Filter 6067 FETCO Sample Box B

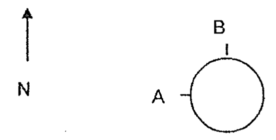
Page 1 of 1 Run # 1

Plant: Energy Fuels Resources, Blanding, UT

Date: 11/28/12

Location: North Yellowcake Dryer Baghouse

Operator: Rg



Stack Diameter 16"
Port Reference 0.0"
Ports are 57" Upstream from next disturbance
Ports are 468" Downstream from last disturbance

Traverse Point	Time		DGM (ft³)	ΔP (in H₂O)	ΔH (in H₂O)		Vacuum (in Hg)	Temperatures (°F)					DGM Temp (Tₘ)	
	Clock	Min (0)			Desired	Actual		Stack (Tₛ)	Probe	Probe Out	Filter	Effluent	Out	In
1	8:41	0	653.103	.72	1.61	1.61	3	87	265	254	243	54	73	73
2		10	661.272	.71	1.59	1.59	3	84	233	252	241	52	74	78
3		20	669.194	.85	1.90	1.90	4	89	230	249	240	56	79	84
4		30	677.988	.91	2.03	2.03	4	90	245	253	243	61	83	89
5		40	687.100	.88	1.97	1.97	4	91	265	256	246	65	86	92
6		50	696.101	.77	1.72	1.72	4	92	266	252	240	67	89	93
1	11:14	60	701.716	.50	1.12	1.12	3	95	236	256	249	55	75	76
2		70	711.711	.49	1.10	1.10	3	96	230	251	243	56	77	80
3		80	718.577	.66	1.52	1.52	3	96	270	252	245	59	81	84
4		90	726.461	.73	1.63	1.63	4	98	265	253	242	63	84	88
5		100	734.719	.68	1.52	1.52	4	97	266	251	245	65	87	92
6		110	742.772	.61	1.36	1.36	4	99	267	256	247	66	89	92
		120	750.439											
Total			97.336	√10.0744		19.07		1117					1996	
Average				√.8395		1.589		93.1					83.3	

Assumed Moisture 1 %
Probe 18-6 Cp 0.84
Nozzle Calibration .221 .221 .221 .221
Avg Dₙ .221 inches
Gas Bag Ambient Air
Console 5 3
Y-Factor 1.006
ΔH@ 1.641 in H₂O

Barometric Pressures
Pbₘ 24.70 in Hg
Pbₚ 24.63 in Hg
P_G -1.10 in H₂O

Leak Check:	Pre	Post
ft³/min	0.007	0.004
vac in Hg	25	12
Pitot Rate	0.0	0.0
In H₂O	4.5	4.5

Water Collected 10.0 g
Time Sampled 128 min
Review Jm
Jm

K = @Tₘ
K @Tₘ

Comments:

4.5 Burds

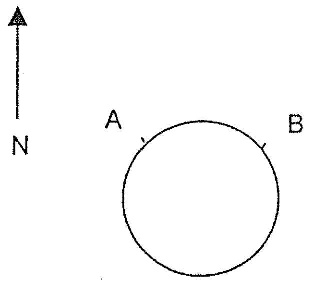
Time	Baghouse ΔP
8:41	5
9:00	5
9:30	3
10:00	

Time	Baghouse ΔP
10:30	
11:00	4.5
11:30	4.5
12:00	5.0
12:15	5.0

scale Broke Down At Port change 9:40

Grizzly Baghouse

Prelim 12 pts blank



Stack Dia. 18.75 Reference: 3.0

Ports are 24.5" Upstream from next disturbance

Ports are 48" Downstream from last disturbance

Facility ~~Denison Mines~~ Energy Fuel Res.

Stack Identification Grizzly Baghouse

Date ______

Barometric Pressure

Pb_m ______ in Hg Pb_p ______ in Hg

Static Pressure (P_G) ______ in H_2O

Estimated Moisture (Bw_s) 1 %

Sample Height from Ground ______ feet

Comments:

Must use 36" probe or longer to keep box outside handrail # Extensions needed to take measurements

Traverse Point	Percent Diameter	Distance From: ID	Distance From: Reference	Ports A	B	C	D	E	F
1	2.1	0.50	3.50						
2	6.7	1.26	4.26		44° .031				
3	11.8	2.21	5.21						
4	17.7	3.32	6.32		45° .035				
5	25.0	4.69	7.69						
6	35.6	6.68	9.68		44 .030				
7	64.4	12.08	15.08						
8	75.0	14.06	17.06						
9	82.3	15.43	18.43						
10	88.2	16.54	19.54		44 .030				
11	93.2	17.48	20.48		44 .032				
12	97.9	18.25	21.25						

Averages:

T_S ______ ∠ Flow ______

ΔP ______ $\sqrt{\Delta P}$ ______

KEY => T_S ∠ Flow ΔP

Field Data Sheet

TETCO

Filter 6068 Sample Box C

Page 1 of 1 Run # 1

Plant: ~~Denison Mines~~ Energy Fuels Res.

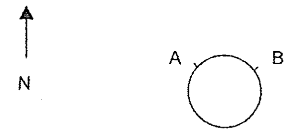
Date: 11/27/17

Location: Grizzly Baghouse

Operator: Mike McNamara

	Traverse Point	Time Clock	Time Min (θ)	DGM (ft³)	ΔP (in H₂O)	ΔH (in H₂O) Desired	ΔH (in H₂O) Actual	Vacuum (in Hg)	Temperatures (°F) Stack (Tₛ)	Probe	Probe Out	Filter	Effluent	DGM Temp (Tₘ) Out	DGM Temp (Tₘ) In
B	1	8:39	0	900.002	.025	.89	.89	2	47	276	250	250	54	49	48
	2		20	912.625	.030	1.02	1.02	2	49	242	255	246	54	52	60
	3		40	926.090	.030	1.02	1.02	2	50	234	255	245	59	59	69
	4		60	934.685	.030	1.02	1.02	2	52	268	260	250	62	67	78
	5		80	953.303	.033	1.14	1.14	2	53	231	260	249	65	73	84
	6		100	968.035	.035	1.22	1.22	3	54	234	250	240	61	78	89
	7		120	982.820	.031	1.08	1.08	3	56	255	253	243	63	82	93
	8		140	997.065	.032	1.11	1.11	3	58	257	254	240	60	86	96
	9		160	1011.435	.031	1.08	1.08	3	62	235	259	246	60	87	96
	10		180	1025.430	.027	.94	.94	3	65	247	254	243	59	86	94
	11		200	1038.090	.024	1.01	1.01	3	66	250	253	246	58	85	92
	12	12:38	220	1052.915	.027	.94	.94	2	68	253	260	248	59	85	92
A	1	12:43	240	1066.486	.026	.90	.90	2	69	270	259	252	61	80	81
	2		260	1079.675	.027	.94	.94	2	69	250	245	240	53	77	83
	3		280	1092.970	.025	.87	.87	2	70	260	249	244	54	78	84
	4		300	1105.875	.026	.90	.90	2	70	260	249	245	55	79	85
	5		320	1119.145	.030	1.04	1.04	2	70	265	245	240	58	78	84
	6		340	1133.360	.032	1.11	1.11	2	70	262	254	248	59	79	87
	7		360	1147.475	.031	1.08	1.08	2	71	270	271	265	60	81	88
	8		380	1161.530	.031	1.08	1.08	2	71	255	260	252	61	81	88
	9		400	1175.507	.033	1.15	1.15	2	67	250	270	265	60	81	89
	10		420	1190.400	.033	1.15	1.15	2	64	246	248	241	59	80	87
	11		440	1204.995	.024	1.01	1.01	2	63	246	248	244	56	78	86
	12		460	1218.965	.030	1.04	1.04	2	62	224	243	238	55	76	83
		16:43	480	1232.476											
	Total			332.474	√ 4.1364		24.740		1496					3853	
	Average				√ .1722		1.031		62.3					80.3	

Comments



Stack Diameter 18.75" Port Reference 3.0"

Ports are 24.5" Upstream from next disturbance

Ports are 48" Downstream from last disturbance

Assumed Moisture 1 %

Probe 51-C Cp 0.84

Nozzle Calibration .442 .442 .443 .443

Avg Dₙ .4425 inches

Gas Bag Ambient Air

Console 4

Y-Factor .999

ΔH@ 1.493 in H₂O

Barometric Pressures

Pbₘ 24.65 in Hg

Pbₚ 24.62 in Hg

P_G -.30 in H₂O

Leak Check	Pre	Post
ft³/min	0.006	0.002
vac in Hg	19	12
Pitot Rate	0.0	0.0
In H₂O	.20	.20

Water Collected 11.3 g

Time Sampled 480 min

Review

K = @Tₘ

K = @Tₘ

APPENDIX C

South Yellow Cake Scrubber
  Sample Recovery
  Gas Analysis Data (ORSAT)

Yellow Cake Dryer Baghouse
  Sample Recovery
  Gas Analysis Data (Ambient)

Grizzly Baghouse
  Sample Recovery
  Gas Analysis Data (Ambient)

Chain of Custody

Lab Analysis

South Yellow Cake Dryer Scrubber

SYC

Facility: ~~Denison Mines~~ Energy Fuels Res Date:

Stack Identification: SYC Scrubber

IMPINGERS

Run: 1 Sample Box: A 11/26-28/12

Filter Number: 6065

Impinger Number

	1	2	3	4	5	6
Initial Volume of liquid (H_2O) in impingers, (ml)	drop out	100	drop out	100	MT	SG
	1	2	3	4	5	6
Final (g)	601.3	778.3	496.4	715.9	616.1	902.0
Initial (g)	553.6	655.8	473.5	692.1	607.6	837.2
Net (g)	47.7	122.5	22.9	23.8	8.5	64.8

Total (g) 296.2

IMPINGERS

Run: 2 Sample Box: E 11-28-12

Filter Number: 6066

Impinger Number

	1	2	3	4	5	6
Initial Volume of liquid (H_2O) in impingers, (ml)	drop out	100	drop out	100	MT	SG
	1	2	3	4	5	6
Final (g)	647.3	735.0	559.0	649.0	533.6	946.6
Initial (g)	560.5	680.9	497.8	636.3	529.1	887.8
Net (g)	86.8	54.1	61.2	12.7	4.5	58.8

Total (g) 278.1

IMPINGERS

Run: Sample Box:

Filter Number:

Impinger Number

	1	2	3	4	5	6
Initial Volume of liquid (H_2O) in impingers, (ml)	drop out	100	drop out	100	MT	SG
	1	2	3	4	5	6
Final (g)						
Initial (g)						
Net (g)						

Total (g)

Plant Energy Fuels

Location SYC Scrubber

Analytical Method ORSAT

Date 11/25-28/12
Test No. 1
Gas Bag No. HC-2
Ambient Temp 68
Operator DAh

Gas	RUN						Average Net Volume
	1		2		3		
	Actual Reading	Net	Actual Reading	Net	Actual Reading	Net	
CO_2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
O_2 (Net is Actual O_2 Reading Minus Actual CO_2 Reading).	20.4	18.4	20.4	18.4	20.4	18.4	18.4
N_2 (Net is 100 Minus Actual O_2 Reading).	▨		▨		▨		

Date 11-28-12
Test No. 2
Gas Bag No. HC-2
Ambient Temp 70
Operator DAh

Gas	RUN						Average Net Volume
	1		2		3		
	Actual Reading	Net	Actual Reading	Net	Actual Reading	Net	
CO_2	1.8	1.8	1.8	1.8	1.8	1.8	1.8
O_2 (Net is Actual O_2 Reading Minus Actual CO_2 Reading).	20.2	18.4	20.2	18.4	20.2	18.4	18.4
N_2 (Net is 100 Minus Actual O_2 Reading).	▨		▨		▨		

Date
Test No.
Gas Bag No.
Ambient Temp
Operator

Gas	RUN						Average Net Volume
	1		2		3		
	Actual Reading	Net	Actual Reading	Net	Actual Reading	Net	
CO_2							
O_2 (Net is Actual O_2 Reading Minus Actual CO_2 Reading).							
N_2 (Net is 100 Minus Actual O_2 Reading).	▨		▨		▨		

CO is not measured, as it has the same molecular weight as N_2

Yellow Cake Dryer Baghouse

Dryer Baghouse

Facility: ~~Denison Mines~~ Energy Fuels Res.

Date: 11-28-12

Stack Identification: Yellow Cake Dryer Baghouse

IMPINGERS

Run: 1

Sample Box: 13

Filter Number: 6067

	Impinger Number					
	1	2	3	4	5	6
	Initial Volume of liquid (H_2O) in impingers, (ml)					
	100	100	-	SG		
	1	2	3	4	5	6
Final (g)	677.4	994.5	618.2	852.1		
Initial (g)	702.7	688.7	614.1	826.7		
Net (g)	-25.3	5.8	4.1	25.4		

Total (g) 10.0

IMPINGERS

Run:

Sample Box:

Filter Number:

	Impinger Number					
	1	2	3	4	5	6
	Initial Volume of liquid (H_2O) in impingers, (ml)					
	100	100	-	SG		
	1	2	3	4	5	6
Final (g)						
Initial (g)						
Net (g)						

Total (g)

IMPINGERS

Run:

Sample Box:

Filter Number:

	Impinger Number					
	1	2	3	4	5	6
	Initial Volume of liquid (H_2O) in impingers, (ml)					
	100	100	-	SG		
	1	2	3	4	5	6
Final (g)						
Initial (g)						
Net (g)						

Total (g)

Grizzly Baghouse

Dryer Baghouse

Facility: ~~Denison Mines~~ Energy Fuels Res.

Date: 11/~~22~~ 27/12

Stack Identification: Yellow Cake Dryer Baghouse 61.221Y

IMPINGERS

Run: 1

Sample Box:

Filter Number: 6068

	Impinger Number					
	1	**2**	**3**	**4**	**5**	**6**
Initial Volume of liquid (H_2O) in impingers, (ml)	100	100	-	SG		
	1	2	3	4	5	6
Final (g)	564	605.4	570.4	956.5		
Initial (g)	643.2	584.5	559.4	898.8		
Net (g)	-79.2	21.3	11.5	57.7		

Total (g) 11.3

IMPINGERS

Run:

Sample Box:

Filter Number:

	Impinger Number					
	1	**2**	**3**	**4**	**5**	**6**
Initial Volume of liquid (H_2O) in impingers, (ml)	100	100	-	SG		
	1	2	3	4	5	6
Final (g)						
Initial (g)						
Net (g)						

Total (g)

IMPINGERS

Run:

Sample Box:

Filter Number:

	Impinger Number					
	1	**2**	**3**	**4**	**5**	**6**
Initial Volume of liquid (H_2O) in impingers, (ml)	100	100	-	SG		
	1	2	3	4	5	6
Final (g)						
Initial (g)						
Net (g)						

Total (g)

Chain of Custody Record

Temperature on Receipt ______

Drinking Water? Yes ☐ No ☐

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client: Tetco

Project Manager: Dean Kitchen

Date: 11/30/2012

Chain of Custody Number:

Address: 391 East 620 South

Telephone Number (Area Code)/Fax Number: 801-492-9106

Lab Number:

Page 1 of 1

City: American Fork

State: Ut

Zip Code: 84003

Site Contact: Scott Christensen, Garren Palmer

Lab Contact:

Project Name and Location (State): Denison Mine 2012 4th Quarter

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): U-Nat	TH-230	Ra-226	Lead-210	Special Instructions/ Conditions of Receipt
R 1 Baghouse filter (6067) and beaker	11/27/12	8:00	X										X	X	X	X	
R 1 SYC filter (6065) and beaker	11/26-28/12	8:00	X										X	X	X	X	
R 2 SYC filters (6066,6075) and beaker	11/28/12	8:00	X										X	X	X	X	
R 1 Grizzly filter (6068) and beaker	11/27/12	8:00	X										X	X			

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other as per method

QC Requirements (Specify)

1. Relinquished By | Date 11/30/12 | Time 12

1. Received By | Date | Time

2. Relinquished By | Date | Time

2. Received By | Date | Time

3. Relinquished By | Date | Time

3. Received By | Date | Time

Comments

When Complete Email to: Dean or Paul tetco@tetco-ut.com

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Analytical Data Package Prepared For

Denison Mines (USA) Corp.

Radiochemical Analysis By

TestAmerica

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code:

Data Package Contains 17 *Pages*

Report No.: 54130

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
46099		R 1 BAGHOUSE FILTER (6067) AND	J2L040424-1	MXGQT1AD	9MXGQT10	2340042
		R 1 BAGHOUSE FILTER (6067) AND	J2L040424-1	MXGQT1AC	9MXGQT10	2340043
		R 1 BAGHOUSE FILTER (6067) AND	J2L040424-1	MXGQT2AA	9MXGQT20	2340044
		R 1 BAGHOUSE FILTER (6067) AND	J2L040424-1	MXGQT1AE	9MXGQT10	2340045
		R 1 GRIZZLY FILTER (6068) AND	J2L040424-4	MXGQX1AA	9MXGQX10	2340044
		R 1 GRIZZLY FILTER (6068) AND	J2L040424-4	MXGQX1AC	9MXGQX10	2340045
		R 1 SYC FILTER (6065) AND BEAK	J2L040424-2	MXGQV1AD	9MXGQV10	2340042
		R 1 SYC FILTER (6065) AND BEAK	J2L040424-2	MXGQV1AC	9MXGQV10	2340043
		R 1 SYC FILTER (6065) AND BEAK	J2L040424-2	MXGQV1AA	9MXGQV10	2340044
		R 1 SYC FILTER (6065) AND BEAK	J2L040424-2	MXGQV1AE	9MXGQV10	2340045
		R 2 SYC FILTERS (6066,6075) AN	J2L040424-3	MXGQW1AD	9MXGQW10	2340042
		R 2 SYC FILTERS (6066,6075) AN	J2L040424-3	MXGQW1AC	9MXGQW10	2340043
		R 2 SYC FILTERS (6066,6075) AN	J2L040424-3	MXGQW1AA	9MXGQW10	2340044
		R 2 SYC FILTERS (6066,6075) AN	J2L040424-3	MXGQW1AE	9MXGQW10	2340045

Certificate of Analysis

December 31, 2012

Denison Mines (USA) Corp
1050 17th Street, Suite 950
Denver, CO 80265

Attention: Dean Kitchen

Date Received at Lab	:	December 4, 2012
Project Name	:	Denison Mine 2012 4th Quarter
Sample Type	:	Four (4) Stack Filter Samples
SDG Number	:	46099

CASE NARRATIVE

I. Introduction

On December 4, 2012, four stack filter samples were received at TestAmerica's Richland laboratory for radiochemical analysis. Upon receipt, the samples were assigned the TestAmerica identification numbers as described on the cover page of the Analytical Data Package report form. The samples were assigned to Lot Numbers J2L040424.

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical uncertainties.

The analysis requested was:

Alpha Spectroscopy
Thorium-228, -230, -232 by method RL-ALP-001
Uranium-234, -235, -238 by method RL-ALP-004
Gas Proportional Counting
Pb-210 by method RL-ALP-011
Alpha Scintillation
Radium-226 by method RL-RA-001

IV. Quality Control

The analytical result for each analysis performed includes a minimum of one laboratory control sample (LCS), and one reagent blank sample analysis. Any exceptions have been noted in the "Comments" section.

V. Comments

Alpha Spectroscopy

Thorium-228, 230, 232

Sample R 1 BAGHOUSE, the blank and LCS were recounted due to high tracer yields. The recount on the sample and blank are within limits. The LCS is slightly elevated at 121%. The data is accepted. Except as noted, the LCS, batch blank and sample results are within acceptance limits.

Uranium-234, 235, 238

The achieved MDA of the batch exceeds the detection limit from reduced aliquot sizes taken due to historical process knowledge. The sample activities exceed the MDAs. Data is accepted. Except as noted, the LCS, batch blank and sample results are within acceptance limits.

Gas Proportional Counting

Pb-210

The achieved MDA of the batch exceeds the detection limit from reduced aliquot sizes taken due to historical process knowledge. The sample activities exceed the MDAs. Data is accepted. Except as noted, the LCS, batch blank and sample results are within acceptance limits.

Alpha Scintillation

Radium-226

The achieved MDA of the samples exceeds the detection limit due insufficient sample volume. There is no sample volume remaining for re-analysis. Data is reported. Except as noted, the LCS, batch blank and sample results are within acceptance limits.

I certify that this Certificate of Analysis is in compliance with the SOW and/or NELAC, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Erika Jordan

Erika Jordan
2012.12.31
16:00:24 -08'00'

Erika Jordan
Customer Service Manager

Drinking Water Method Cross References

	DRINKING WATER ASTM METHOD CROSS REFERENCES	
Referenced Method	Isotope(s)	TestAmerica Richland's SOP No.
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

Results in this report relate only to the sample(s) analyzed.

Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/?n), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or TestAmerica.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) u_c *- Combined Uncertainty.*	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, u_c *the combined uncertainty*. The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC|MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. MDC = (4.65 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = (S-D)/[sqrt($TPUs^2 + TPUd^2$)] as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

TestAmerica

Ordered by Method, Batch No., Client Sample ID.

Date: 31-Dec-12

Report No. : 54130

SDG No: 46099

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RER2
2340044 RICHRC5011									
	R 1 BAGHOUSE FILTER (6067) AND								
	MXGQT2AA	TH-228	-1.75E-09 +- 4.4E-08	U	UCI/SA	108%	8.83E-08		
		TH-230	3.46E-06 +- 9.6E-07		UCI/SA	108%	1.10E-07	3.00E-15	
		TH-232	2.04E-08 +- 4.3E-08	U	UCI/SA	108%	7.74E-08		
	R 1 GRIZZLY FILTER (6068) AND								
	MXGQX1AA	TH-228	1.45E-08 +- 3.5E-08	U	UCI/SA	115%	7.91E-08		
		TH-230	1.62E-06 +- 4.7E-07		UCI/SA	115%	6.16E-08	3.00E-15	
		TH-232	1.62E-08 +- 3.4E-08	U	UCI/SA	115%	6.16E-08		
	R 1 SYC FILTER (6065) AND BEAK								
	MXGQV1AA	TH-228	-2.78E-09 +- 3.5E-08	U	UCI/SA	104%	7.93E-08		
		TH-230	1.95E-06 +- 5.5E-07		UCI/SA	104%	6.18E-08	3.00E-15	
		TH-232	1.63E-08 +- 3.4E-08	U	UCI/SA	104%	6.18E-08		
	R 2 SYC FILTERS (6066,6075) AN								
	MXGQW1A	TH-228	-7.36E-10 +- 3.7E-08	U	UCI/SA	100%	6.69E-08		
		TH-230	1.56E-06 +- 4.8E-07		UCI/SA	100%	6.54E-08	3.00E-15	
		TH-232	0.00E+00 +- 3.6E-08	U	UCI/SA	100%	6.54E-08		
2340045 FFSR									
	R 1 BAGHOUSE FILTER (6067) AND								
	MXGQT1AE	U-234	3.21E-03 +- 5.7E-04		UCI/SA	81%	2.45E-05	9.00E-15	
		U-235	1.16E-04 +- 5.6E-05		UCI/SA	81%	2.45E-05	9.00E-15	
		U-238	3.21E-03 +- 5.7E-04		UCI/SA	81%	2.45E-05	9.00E-15	
	R 1 GRIZZLY FILTER (6068) AND								
	MXGQX1AC	U-234	8.81E-05 +- 4.5E-05		UCI/SA	94%	2.39E-05	9.00E-15	
		U-235	4.39E-06 +- 1.1E-05	U	UCI/SA	94%	2.39E-05	9.00E-15	
		U-238	8.81E-05 +- 4.5E-05		UCI/SA	94%	2.39E-05	9.00E-15	
	R 1 SYC FILTER (6065) AND BEAK								
	MXGQV1AE	U-234	5.07E-03 +- 9.2E-04		UCI/SA	70%	4.18E-05	9.00E-15	
		U-235	2.01E-04 +- 8.8E-05		UCI/SA	70%	3.37E-05	9.00E-15	
		U-238	5.38E-03 +- 9.7E-04		UCI/SA	70%	5.39E-05	9.00E-15	
	R 2 SYC FILTERS (6066,6075) AN								
	MXGQW1A	U-234	2.41E-03 +- 8.3E-04		UCI/SA	85%	2.33E-05	9.00E-15	
		U-235	9.25E-05 +- 5.5E-05		UCI/SA	85%	2.33E-05	9.00E-15	
		U-238	2.44E-03 +- 8.4E-04		UCI/SA	85%	3.09E-05	9.00E-15	
2340042 RICHRC5011									
	R 1 BAGHOUSE FILTER (6067) AND								
	MXGQT1AD	Pb-210	1.12E-06 +- 3.2E-07		UCI/SA	78%	3.70E-07	6.00E-14	

TestAmerica

rptSTLRchSaSum
mary2 V5.2.23
A2002

RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

Date: 31-Dec-12

Sample Results Summary

TestAmerica

Ordered by Method, Batch No., Client Sample ID.

Report No. : 54130

SDG No: 46099

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RER2
2340042	RICHRC5011								
	R 1 SYC FILTER (6065) AND BEAK								
	MXGQV1AD	Pb-210	✓3.46E-06 +- 7.2E-07		UCI/SA	57%	5.33E-07	6.00E-14	
	R 2 SYC FILTERS (6066,6075) AN								
	MXGQW1A	Pb-210	✓2.78E-06 +- 7.0E-07		UCI/SA	44%	7.15E-07	6.00E-14	
2340043	RL-RA-001								
	R 1 BAGHOUSE FILTER (6067) AND								
	MXGQT1AC	RA-226	✓1.01E-07 +- 4.9E-08			100%	6.62E-08	9.00E-14	
	R 1 SYC FILTER (6065) AND BEAK								
	MXGQV1AC	RA-226	✓1.20E-07 +- 1.0E-07	U		51%	1.61E-07	9.00E-14	
	R 2 SYC FILTERS (6066,6075) AN								
	MXGQW1A	RA-226	✓8.24E-08 +- 1.4E-07	U		33%	2.36E-07	9.00E-14	

No. of Results: 30

TestAmerica

rptSTLRchSaSummary2 V5.2.23 A2002

RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

QC Results Summary

Date: 31-Dec-12

TestAmerica

Ordered by Method, Batch No, QC Type,.

Report No. : 54130

SDG No.: 46099

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
RICHRC5011								
2340044 BLANK QC,								
MXG752AA	TH-228	-9.03E-10 +- 4.5E-08	U	UCI/SA	98%			8.22E-08
	TH-230	6.39E-08 +- 7.7E-08	U	UCI/SA	98%			8.81E-08
	TH-232	-1.75E-09 +- 4.4E-08	U	UCI/SA	98%			8.81E-08
2340044 LCS,								
MXG752AC	TH-230	2.73E-06 +- 8.8E-07	J	UCI/SA	121%	121%	0.2	1.28E-07
FFSR								
2340045 BLANK QC,								
MXG771AA	U-234	3.51E-08 +- 1.2E-07	U	UCI/SA	87%			3.30E-07
	U-235	1.57E-07 +- 2.0E-07	U	UCI/SA	87%			3.12E-07
	U-238	9.35E-08 +- 1.7E-07	U	UCI/SA	87%			3.30E-07
2340045 LCS,								
MXG771AC	U-234	6.78E-06 +- 1.5E-06		UCI/SA	96%	90%	-0.1	2.39E-07
	U-238	7.49E-06 +- 1.6E-06		UCI/SA	96%	95%	-0.1	2.53E-07
RICHRC5011								
2340042 BLANK QC,								
MXG721AA	Pb-210	7.48E-08 +- 2.3E-07	U	UCI/SA	76%			3.82E-07
2340042 LCS,								
MXG721AC	Pb-210	9.19E-06 +- 1.7E-06		UCI/SA	79%	102%	0.0	4.02E-07
RL-RA-001								
2340043 BLANK QC,								
MXG731AA	RA-226	4.53E-08 +- 4.2E-08	U		95%			6.50E-08
2340043 LCS,								
MXG731AC	RA-226	1.21E-05 +- 2.7E-06	J		77%	120%	0.2	9.60E-08

No. of Results: 13

TestAmerica	Bias - (Result/Expected)-1 as defined by ANSI N13.30.
rptSTLRchQcSummary V5.2.23 A2002	J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated. U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 31-Dec-12

Lab Name: TestAmerica
Lot-Sample No.: J2L040424-1
Client Sample ID: R 1 BAGHOUSE FILTER (6067) AND

SDG: 46099
Report No. : 54130
COC No. :

Collection Date: 11/27/2012 8:00:00 AM
Received Date: 12/4/2012 10:15:00 AM
Matrix: FILTER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2340042	RICHRC5011			**Work Order:**	MXGQT1AD		**Report DB ID:** 9MXGQT10					
Pb-210	1.12E-06		2.5E-07	3.2E-07	3.70E-07	UCI/SA	78%	*(3.)*	12/28/12 05:52 p	1.0	0.98619	GPC31D
						1.80E-07	6.00E-14	*(7.1)*		Sample	Sample	
Batch: 2340043	RL-RA-001			**Work Order:**	MXGQT1AC		**Report DB ID:** 9MXGQT10					
RA-226	1.01E-07		4.5E-08	4.9E-08	6.62E-08		100%	*(1.5)*	12/30/12 08:29 p	1.0	0.9862	ASC3RA
						3.13E-08	9.00E-14	*(4.1)*		Sample	Sample	
Batch: 2340044	RICHRC5011			**Work Order:**	MXGQT2AA		**Report DB ID:** 9MXGQT20					
TH-228	-1.75E-09	U	4.4E-08	4.4E-08	8.83E-08	UCI/SA	108%	*-0.02*	12/28/12 10:17 a	1.0	1.0	ALP171
						1.44E-08		*-0.08*		Sample	Sample	
TH-230	3.46E-06		5.4E-07	9.6E-07	1.10E-07	UCI/SA	108%	*(31.5)*	12/28/12 10:17 a	1.0	1.0	ALP171
						2.62E-08	3.00E-15	*(7.2)*		Sample	Sample	
TH-232	2.04E-08	U	4.3E-08	4.3E-08	7.74E-08	UCI/SA	108%	*0.26*	12/28/12 10:17 a	1.0	1.0	ALP171
						9.89E-09		*0.95*		Sample	Sample	
Batch: 2340045	FFSR			**Work Order:**	MXGQT1AE		**Report DB ID:** 9MXGQT10					
U-234	3.21E-03		2.8E-04	5.7E-04	2.45E-05	UCI/SA	81%	*(130.7)*	12/20/12 02:14 p	1.0	0.00109	ALP6
						4.01E-06	9.00E-15	*(11.2)*		Sample	Sample	
U-235	1.16E-04		5.3E-05	5.6E-05	2.45E-05	UCI/SA	81%	*(4.7)*	12/20/12 02:14 p	1.0	0.00109	ALP6
						4.01E-06	9.00E-15	*(4.1)*		Sample	Sample	
U-238	3.21E-03		2.8E-04	5.7E-04	2.45E-05	UCI/SA	81%	*(130.9)*	12/20/12 02:14 p	1.0	0.00109	ALP6
						4.01E-06	9.00E-15	*(11.2)*		Sample	Sample	

Ratio U-234/238 = 1.0

TestAmerica

rptSTLRchSample
V5.2.23 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 31-Dec-12

Lab Name:	TestAmerica	**SDG:**	46099	**Collection Date:**	11/27/2012 8:00:00 AM
Lot-Sample No.:	J2L040424-4	**Report No. :**	54130	**Received Date:**	12/4/2012 10:15:00 AM
Client Sample ID:	R 1 GRIZZLY FILTER (6068) AND	**COC No. :**		**Matrix:**	FILTER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2340044	RICHRC5011			Work Order:	MXGQX1AA		Report DB ID: 9MXGQX10					
TH-228	1.45E-08	U	3.5E-08	3.5E-08	7.91E-08	UCI/SA	115%	*0.18*	12/20/12 06:47 p	1.0	0.98439	ALP23
						1.61E-08		*0.83*		Sample	Sample	
TH-230	1.62E-06		3.3E-07	4.7E-07	6.16E-08	UCI/SA	115%	*(26.4)*	12/20/12 06:47 p	1.0	0.98439	ALP23
						7.88E-09	3.00E-15	*(6.9)*		Sample	Sample	
TH-232	1.62E-08	U	3.4E-08	3.4E-08	6.16E-08	UCI/SA	115%	*0.26*	12/20/12 06:47 p	1.0	0.98439	ALP23
						7.88E-09		*0.95*		Sample	Sample	
Batch: 2340045	FFSR			Work Order:	MXGQX1AC		Report DB ID: 9MXGQX10					
U-234	8.81E-05		4.3E-05	4.5E-05	2.39E-05	UCI/SA	94%	*(3.7)*	12/20/12 02:15 p	1.0	0.00119	ALP9
						4.87E-06	9.00E-15	*(3.9)*		Sample	Sample	
U-235	4.39E-06	U	1.1E-05	1.1E-05	2.39E-05	UCI/SA	94%	*0.18*	12/20/12 02:15 p	1.0	0.00119	ALP9
						4.87E-06	9.00E-15	*0.83*		Sample	Sample	
U-238	8.81E-05		4.3E-05	4.5E-05	2.39E-05	UCI/SA	94%	*(3.7)*	12/20/12 02:15 p	1.0	0.00119	ALP9
						4.87E-06	9.00E-15	*(3.9)*		Sample	Sample	

Ratio U-234/238 = 1.0

No. of Results: 6 **Comments:**

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 31-Dec-12

Lab Name:	TestAmerica	**SDG:**	46099	**Collection Date:**	11/28/2012 8:00:00 AM
Lot-Sample No.:	J2L040424-2	**Report No. :**	54130	**Received Date:**	12/4/2012 10:15:00 AM
Client Sample ID:	R 1 SYC FILTER (6065) AND BEAK	**COC No. :**		**Matrix:**	FILTER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2340042	RICHRC5011			Work Order:	MXGQV1AD	Report DB ID: 9MXGQV10						
Pb-210	3.46E-06		4.1E-07	7.2E-07	5.33E-07	UCI/SA	57%	(6.5)	12/28/12 05:53 p	1.0	0.98211	GPC32A
						2.59E-07	6.00E-14	(9.6)		Sample	Sample	
Batch: 2340043	RL-RA-001			Work Order:	MXGQV1AC	Report DB ID: 9MXGQV10						
RA-226	1.20E-07	U	1.0E-07	1.0E-07	1.61E-07		51%	0.75	12/30/12 08:31 p	1.0	0.9821	ASC6RA
						7.69E-08	9.00E-14	(2.3)		Sample	Sample	
Batch: 2340044	RICHRC5011			Work Order:	MXGQV1AA	Report DB ID: 9MXGQV10						
TH-228	-2.78E-09	U	3.5E-08	3.5E-08	7.93E-08	UCI/SA	104%	-0.04	12/20/12 01:42 p	1.0	0.98211	ALP23
						1.62E-08		-0.16		Sample	Sample	
TH-230	1.95E-06		3.6E-07	5.5E-07	6.18E-08	UCI/SA	104%	(31.6)	12/20/12 01:42 p	1.0	0.98211	ALP23
						7.90E-09	3.00E-15	(7.)		Sample	Sample	
TH-232	1.63E-08	U	3.4E-08	3.4E-08	6.18E-08	UCI/SA	104%	0.26	12/20/12 01:42 p	1.0	0.98211	ALP23
						7.90E-09		0.95		Sample	Sample	
Batch: 2340045	FFSR			Work Order:	MXGQV1AE	Report DB ID: 9MXGQV10						
U-234	5.07E-03		4.1E-04	9.2E-04	4.18E-05	UCI/SA	70%	(121.2)	12/20/12 02:14 p	1.0	0.00106	ALP7
						9.56E-06	9.00E-15	(11.)		Sample	Sample	
U-235	2.01E-04		8.2E-05	8.8E-05	3.37E-05	UCI/SA	70%	(6.)	12/20/12 02:14 p	1.0	0.00106	ALP7
						5.52E-06	9.00E-15	(4.6)		Sample	Sample	
U-238	5.38E-03		4.3E-04	9.7E-04	5.39E-05	UCI/SA	70%	(99.9)	12/20/12 02:14 p	1.0	0.00106	ALP7
						1.56E-05	9.00E-15	(11.1)		Sample	Sample	

Ratio U-234/238 = 0.9

TestAmerica

rptSTLRchSample
V5.2.23 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 31-Dec-12

Lab Name:	TestAmerica	**SDG:**	46099	**Collection Date:**	11/28/2012 8:00:00 AM
Lot-Sample No.:	J2L040424-3	**Report No. :**	54130	**Received Date:**	12/4/2012 10:15:00 AM
Client Sample ID:	R 2 SYC FILTERS (6066,6075) AN	**COC No. :**		**Matrix:**	FILTER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2340042	RICHRC5011			**Work Order:**	MXGQW1AD		**Report DB ID:**	9MXGQW10				
Pb-210	2.78E-06		5.1E-07	7.0E-07	7.15E-07	UCI/SA 3.48E-07	44% 6.00E-14	*(3.9)* *(8.)*	12/28/12 05:53 p	1.0 Sample	0.97896 Sample	GPC32B
Batch: 2340043	RL-RA-001			**Work Order:**	MXGQW1AC		**Report DB ID:**	9MXGQW10				
RA-226	8.24E-08	U	1.4E-07	1.4E-07	2.36E-07	1.13E-07	33% 9.00E-14	*0.35* *(1.2)*	12/30/12 08:25 p	1.0 Sample	0.979 Sample	ASC7HA
Batch: 2340044	RICHRC5011			**Work Order:**	MXGQW1AA		**Report DB ID:**	9MXGQW10				
TH-228	-7.36E-10	U	3.7E-08	3.7E-08	6.69E-08	UCI/SA 8.56E-09	100%	*-0.01* *-0.04*	12/20/12 06:47 p	1.0 Sample	0.97896 Sample	ALP21
TH-230	1.56E-06		3.4E-07	4.8E-07	6.54E-08	UCI/SA 8.37E-09	100% 3.00E-15	*(23.9)* *(6.5)*	12/20/12 06:47 p	1.0 Sample	0.97896 Sample	ALP21
TH-232	0.00E+00	U	0.0E+00	3.6E-08	6.54E-08	UCI/SA 8.37E-09	100%	*0.* *0.*	12/20/12 06:47 p	1.0 Sample	0.97896 Sample	ALP21
Batch: 2340045	FFSR			**Work Order:**	MXGQW1AE		**Report DB ID:**	9MXGQW10				
U-234	2.41E-03		2.4E-04	8.3E-04	2.33E-05	UCI/SA 3.81E-06	85% 9.00E-15	*(103.6)* *(5.8)*	12/20/12 02:14 p	1.0 Sample	0.00119 Sample	ALP8
U-235	9.25E-05		4.6E-05	5.5E-05	2.33E-05	UCI/SA 3.81E-06	85% 9.00E-15	*(4.)* *(3.3)*	12/20/12 02:14 p	1.0 Sample	0.00119 Sample	ALP8
U-238	2.44E-03		2.4E-04	8.4E-04	3.09E-05	UCI/SA 7.62E-06	85% 9.00E-15	*(79.1)* *(5.8)*	12/20/12 02:14 p	1.0 Sample	0.00119 Sample	ALP8

Ratio U-234/238 = 1.0

TestAmerica

rptSTLRchSample
V5.2.23 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 31-Dec-12

Lab Name: TestAmerica
Matrix: FILTER

SDG: 46099
Report No. : 54130

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2340042	RICHRC5011			**Work Order:**	MXG721AA	**Report DB ID:**		MXG721AB				
Pb-210	7.48E-08	U	2.3E-07	2.3E-07	3.82E-07	UCI/SA	76%	0.2	12/28/12 05:53 p	1.0	1.0	GPC32C
					1.86E-07	6.00E-14		0.65		Sample	Sample	
Batch: 2340043	RL-RA-001			**Work Order:**	MXG731AA	**Report DB ID:**		MXG731AB				
RA-226	4.53E-08	U	4.0E-08	4.2E-08	6.50E-08		95%	0.7	12/30/12 08:28 p	1.0	1.0	ASC9MA
					3.07E-08	9.00E-14		(2.2)		Sample	Sample	
Batch: 2340045	FFSR			**Work Order:**	MXG771AA	**Report DB ID:**		MXG771AB				
U-234	3.51E-08	U	1.2E-07	1.2E-07	3.30E-07	UCI/SA	87%	0.11	12/20/12 02:15 p	1.0	0.12	ALP10
					8.60E-08	9.00E-15		0.59		Sample	Sample	
U-235	1.57E-07	U	2.0E-07	2.0E-07	3.12E-07	UCI/SA	87%	0.5	12/20/12 02:15 p	1.0	0.12	ALP10
					7.70E-08	9.00E-15		(1.5)		Sample	Sample	
U-238	9.35E-08	U	1.7E-07	1.7E-07	3.30E-07	UCI/SA	87%	0.28	12/20/12 02:15 p	1.0	0.12	ALP10
					8.60E-08	9.00E-15		(1.1)		Sample	Sample	
								Ratio U-234/238 = 0.4				
Batch: 2340044	RICHRC5011			**Work Order:**	MXG752AA	**Report DB ID:**		MXG752AB				
TH-228	-9.03E-10	U	4.5E-08	4.5E-08	8.22E-08	UCI/SA	98%	-0.01	12/28/12 10:17 a	1.0	1.0	ALP172
					1.05E-08			-0.04		Sample	Sample	
TH-230	6.39E-08	U	7.6E-08	7.7E-08	8.81E-08	UCI/SA	98%	0.73	12/28/12 10:17 a	1.0	1.0	ALP172
					1.44E-08	1.00E+00		(1.7)		Sample	Sample	
TH-232	-1.75E-09	U	4.4E-08	4.4E-08	8.81E-08	UCI/SA	98%	-0.02	12/28/12 10:17 a	1.0	1.0	ALP172
					1.44E-08			-0.08		Sample	Sample	

No. of Results: 8 **Comments:**

TestAmerica
rptSTLRchBlank
V5.2.23 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II

LCS RESULTS

Date: 31-Dec-12

Lab Name: TestAmerica

Matrix: FILTER

SDG: 46099

Report No. : 54130

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 2340042	RICHRC5011			**Work Order:**	MXG721AC		**Report DB ID:**	MXG721CS					
Pb-210	9.19E-06		4.4E-07	1.7E-06	4.02E-07	UCI/SA	79%	9.01E-06	1.51E-07	102%	12/28/12 05:53 p	1.0	GPC32D
							Rec Limits:	20	115	0.0		Sample	
Batch: 2340043	RL-RA-001			**Work Order:**	MXG731AC		**Report DB ID:**	MXG731CS					
RA-226	1.21E-05		3.0E-07	2.7E-06	9.60E-08		77%	1.01E-05	1.02E-07	120%	12/30/12 08:28 p	1.0	ASCBMA
							Rec Limits:	70	130	0.2		Sample	
Batch: 2340045	FFSR			**Work Order:**	MXG771AC		**Report DB ID:**	MXG771CS					
U-234	6.78E-06		1.1E-06	1.5E-06	2.39E-07	UCI/SA	96%	7.55E-06	4.57E-08	90%	12/20/12 02:15 p	0.13	ALP11
							Rec Limits:	70	130	-0.1		Sample	
U-238	7.49E-06		1.2E-06	1.6E-06	2.53E-07	UCI/SA	96%	7.91E-06	4.79E-08	95%	12/20/12 02:15 p	0.13	ALP11
							Rec Limits:	70	130	-0.1		Sample	
Batch: 2340044	RICHRC5011			**Work Order:**	MXG752AC		**Report DB ID:**	MXG752CS					
TH-230	2.73E-06		5.7E-07	8.8E-07	1.28E-07	UCI/SA	121%	2.25E-06	4.56E-08	121%	12/28/12 10:17 a	1.0	ALP173
							Rec Limits:	70	130	0.2		Sample	

No. of Results: 5 **Comments:**

TestAmerica Bias - (Result/Expected)-1 as defined by ANSI N13.30.

Chain of Custody Record

Temperature on Receipt ______

Drinking Water? Yes ☐ No ☐

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client: Tetco

Project Manager: Dean Kitchen

Date: 11/30/2012

Chain of Custody Number:

Address: 391 East 620 South

Telephone Number (Area Code)/Fax Number: 801-492-9106

Lab Number:

Page 1 of 1

City: American Fork

State: Ut

Zip Code: 84003

Site Contact: Scott Christensen, Garren Palmer

Lab Contact:

Project Name and Location (State): Denison Mine 2012 4th Quarter

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.:

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: U-Nat	TH-230	Ra-226	Lead-210	Special Instructions/ Conditions of Receipt
R 1 Baghouse filter (6067) and beaker	11/27/12	8:00	X										X	X	X	X	MXGQT
R 1 SYC filter (6065) and beaker	11/26-28/12	8:00	X										X	X	X	X	MXGQV
R 2 SYC filters (6066,6075) and beaker	11/28/12	8:00	X										X	X	X	X	MXGQW
R 1 Grizzly filter (6068) and beaker	11/27/12	8:00	X										X	X			MXGQX

J2L040424

SDG-46099

Due 1-1-13

J2L040424

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other as per method

QC Requirements (Specify)

1. Relinquished By — Date 11/30/12 — Time 12

1. Received By Julie Beck J. Beck TALR — Date 12-4-12 — Time 1015

2. Relinquished By — Date — Time

2. Received By — Date — Time

3. Relinquished By — Date — Time

3. Received By — Date — Time

Comments

When Complete Email to: Dean or Paul tetco@tetco-ut.com

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Check-in List

Date/Time Received: 12-4-12 / 1015 Container GM Screen Result: (Airlock) .08 Initials [JB]
Sample GM Screen Result (Sample Receiving) .20 Initials [JB]

Client: Den SDG #: 46099 NA [ ] SAF #: ____ NA [JB]

Lot Number: J2L040424

Chain of Custody # ____

Shipping Container ID: ____ NA [JB] Air Bill Number: ____ NA [JB]

Samples received inside shipping container/cooler/box Yes [JB] Continue with 1 through 4. Initial appropriate response.
No [ ] Go to 5, add comment to #16.

1. Custody Seals on shipping container intact? Yes [ ] No [ ] No Custody Seal [JB]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [JB]
3. Cooler temperature: ____ °C NA [JB]
4. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [JB]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [JB] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 4
7. Containers received: 4 x gl beaker; 4 x filter
8. Sample holding times exceeded? NA [ ] Yes [ ] No [JB]
9. Samples have:
   - ____ tape
   - ____ custody seals
   - ____ hazard labels
   - JB appropriate sample labels
10. Matrix:
    - ____ A (FLT, Wipe, Solid, Soil)
    - ~~JB~~ S (Air, Niosh 7400) JB 12-4-12
    - ____ I (Water)
    - JB T (Biological, Ni-63)
11. Samples:
    - JB are in good condition
    - ____ are broken
    - ____ Other ____
    - ____ are leaking
    - ____ have air bubbles (Only for samples requiring no head space)
12. Sample pH appropriate for analysis requested Yes [ ] No [ ] NA [JB]
    (If acidification is necessary, then document sample ID, initial pH, amount of HNO_3 added and pH after addition on table overleaf)

    RPL ID # of preservative used : ____
13. Were any anomalies identified in sample receipt? Yes [ ] No [JB]
14. Description of anomalies (include sample numbers): NA [JB]

LS-023, Rev. 15, 07/11

See over for additional information.

15. Sample Location, Sample Collector Listed on COC? * Yes [JB] No [ ]
*For documentation only. No corrective action needed.

16. Additional Information:

[ ] Client/Courier denied temperature check. [ ] Client/Courier unpack cooler.

Sample Custodian: J. Bock Date: 12-4-12

Client Informed on ____ by ____ Person contacted ____

[X] No action necessary; process as is

Project Manager Erika Jord Date 12-4-12

SAMPLE ID	Initial pH	Acid Amt	Final pH	SAMPLE ID	Initial pH	Acid Amt	Final pH

JB 12-4-12

JB 12-4-12

See over for additional information.

APPENDIX D

South Yellow Cake Scrubber
    Figure 1. Facility Schematic Representation

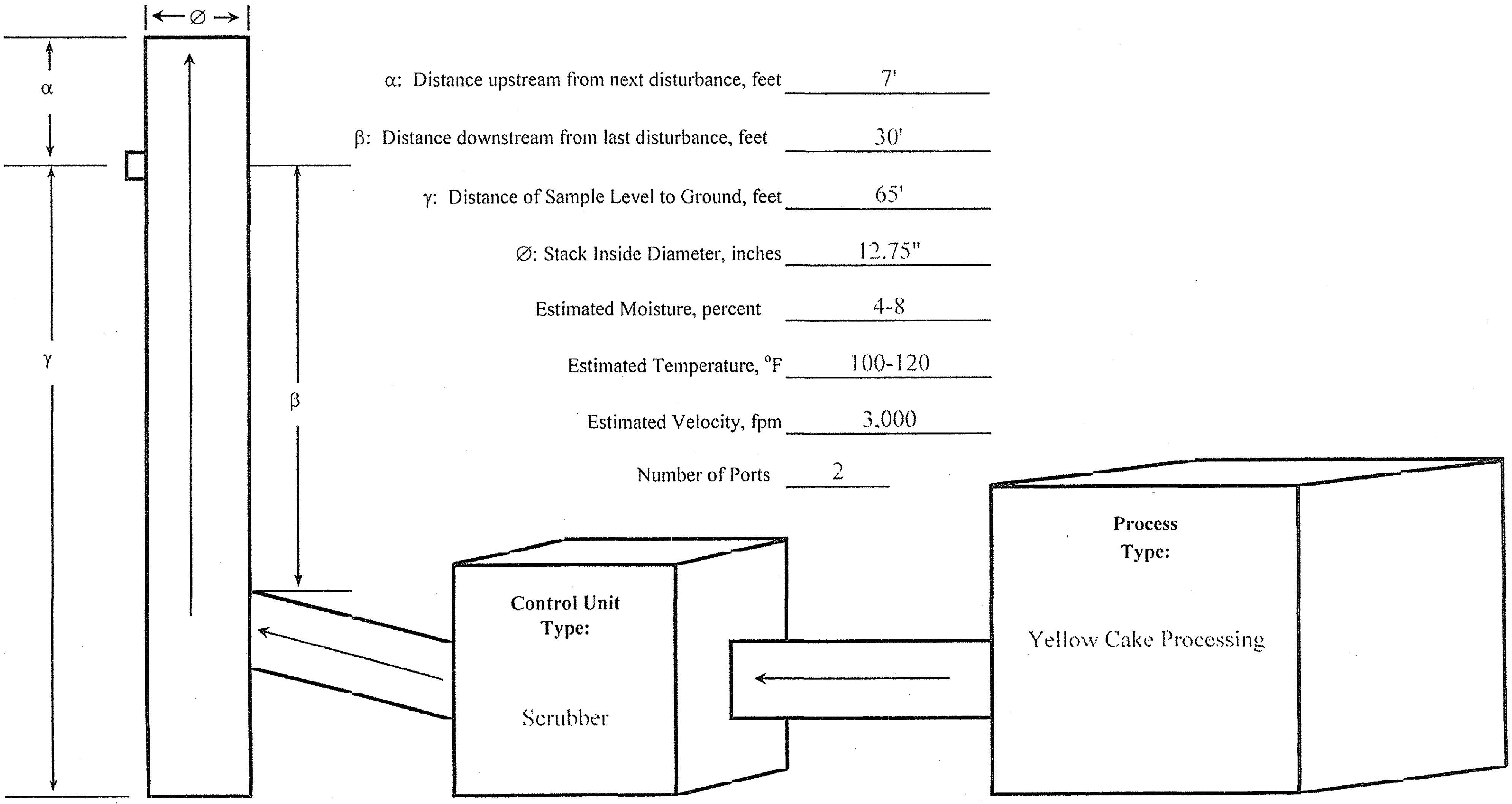
Yellow Cake Dryer Baghouse
    Figure 2. Facility Schematic Representation

Grizzly Baghouse
    Figure 3. Facility Schematic Representation

Production and Control Equipment Data
    South Yellow Cake (Scrubber Flow Rates)
    Yellow Cake Dryer Baghouse (Delta P readings on Field Data Sheets)
    Grizzly (tph of material and belt speed)

Facility: Energy Fuels Resources

Stack Identification: South Yellow Cake Scrubber



α: Distance upstream from next disturbance, feet 7'

β: Distance downstream from last disturbance, feet 30'

γ: Distance of Sample Level to Ground, feet 65'

Ø: Stack Inside Diameter, inches 12.75"

Estimated Moisture, percent 4-8

Estimated Temperature, °F 100-120

Estimated Velocity, fpm 3,000

Number of Ports 2

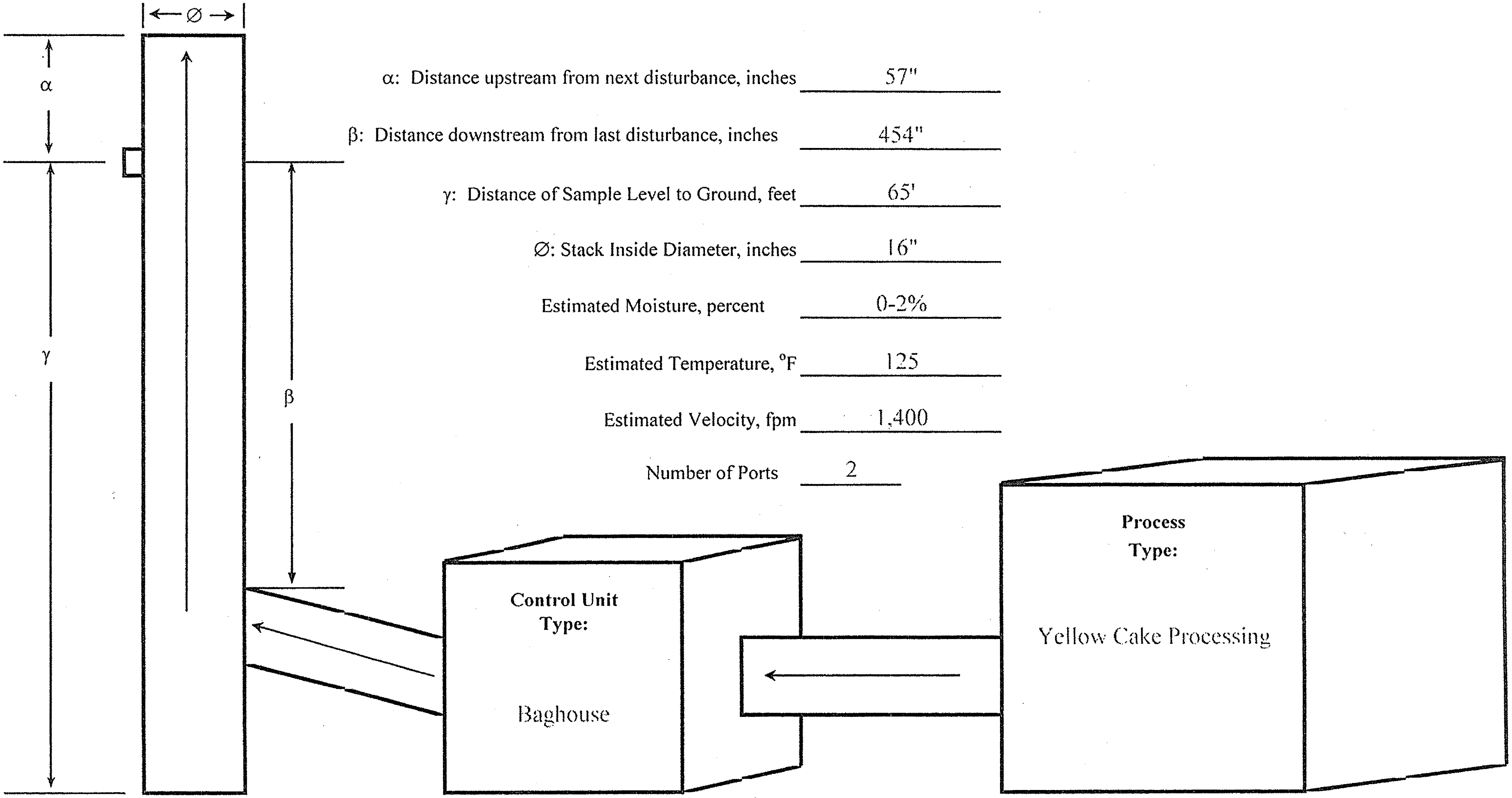
Control Unit Type: Scrubber

Process Type: Yellow Cake Processing

Figure 1. Facility Schematic Representation

Facility: Energy Fuels Resources

Stack Identification: Yellow Cake Dryer Baghouse



α: Distance upstream from next disturbance, inches 57"

β: Distance downstream from last disturbance, inches 454"

γ: Distance of Sample Level to Ground, feet 65'

Ø: Stack Inside Diameter, inches 16"

Estimated Moisture, percent 0-2%

Estimated Temperature, °F 125

Estimated Velocity, fpm 1,400

Number of Ports 2

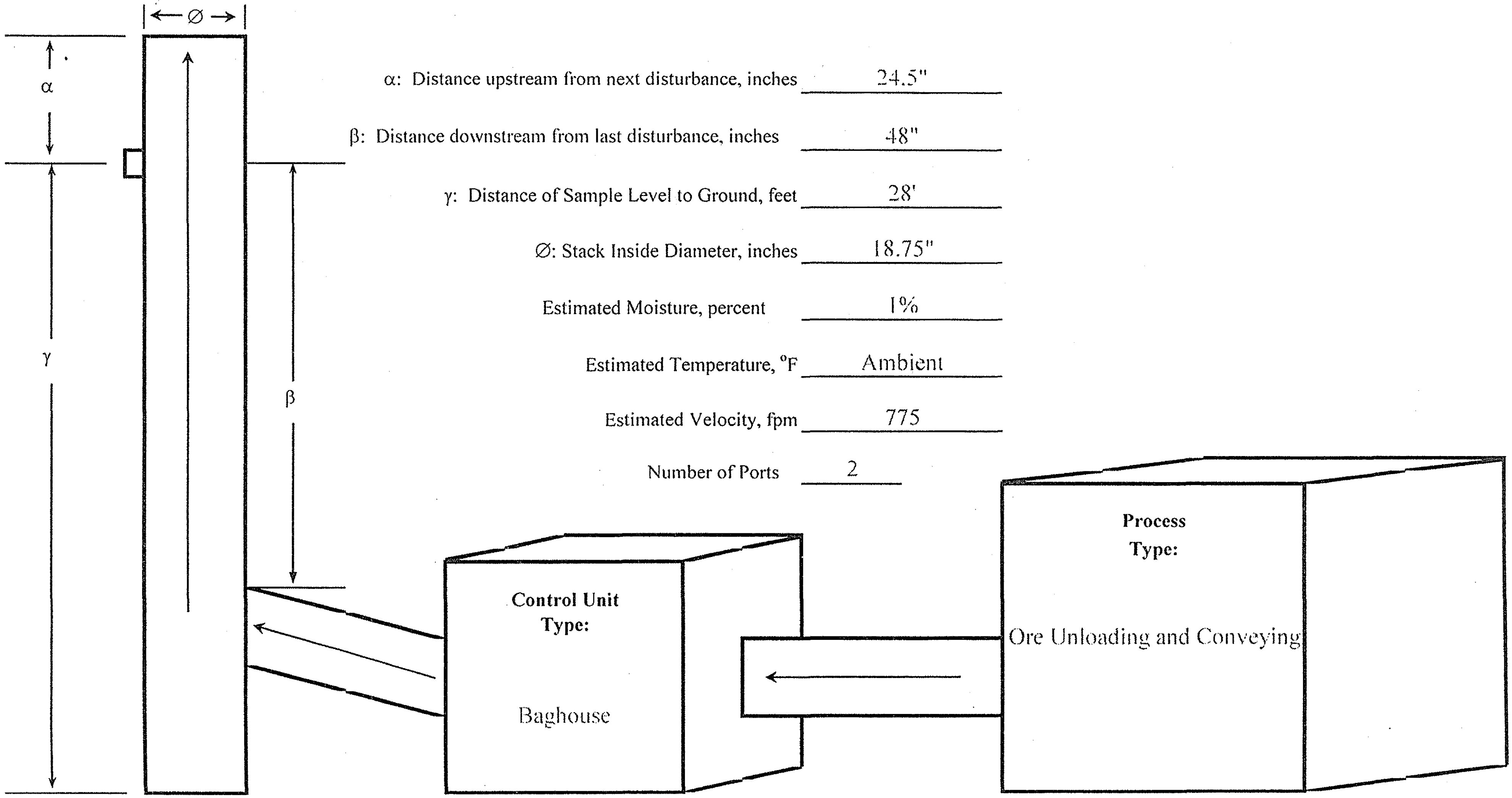
Control Unit Type: Baghouse

Process Type: Yellow Cake Processing

Figure 2. Facility Schematic Representation

Facility: Energy Fuels Resources

Stack Identification: Grizzly Baghouse



α: Distance upstream from next disturbance, inches 24.5"

β: Distance downstream from last disturbance, inches 48"

γ: Distance of Sample Level to Ground, feet 28'

∅: Stack Inside Diameter, inches 18.75"

Estimated Moisture, percent 1%

Estimated Temperature, °F Ambient

Estimated Velocity, fpm 775

Number of Ports 2

Figure 3. Facility Schematic Representation

Energy Fuels Resources, Blanding, UT Process Data

Source: South Yellow Cake

Date: 11-26-12

	Time	Scrubber Flow GPM #1	Scrubber Flow GPM #2	ΔP
11-26-12	14:40	30.9		10.7
	15:10	30.0		10.7
	15:40	30.9		10.7
	16:10	32.2		10.7
	16:40	31.7		10.7
	17:10	32.9		10.7
	17:40	32.7		10.7
11-27-12	7:15	33.3		10.7
	7:45	32.6		10.7
	8:15	33.3		10.7
	8:45	31.7		10.7
	9:15	29.2		10.7
	9:45			
	10:15			
[illegible]-2	7:15	32.6		10.7
	7:45	32.8		10.7
	8:15	32.2		10.7
	8:45	33.8		10.7
	9:15	32.6		10.7
	9:45	33.0		10.7
	10:15	[illegible]		[illegible]

Energy Fuels Resources, Blanding, UT Process Data

Source: South Yellow Cake		Date: 11-28-12	
	Scrubber Flow GPM		
Time	#1	#2	ΔP
10:30	33.2		10.7
11:00	32.6		10.7
11:30	33.5		10.7
12:00	32.6		10.7
12:30	33.6		10.7
13:00	33.6		10.7
13:30	33.1		10.7
14:00	33.3		10.7
14:30	32.0		10.7
15:00	32.2		10.7
15:30	33.2		10.7
16:00	33.6		10.7
16:30	33.0		10.7
17:00			

Energy Fuels Resources, Blanding, UT Process Data

Source: Grizzly Baghouse		Date: 11/27/12	
Time	Tons (Integrator)	tph	fpm
8:40	321020	80	108.6
9:00	321.130	93	108.7
9:30	321130	115	108.9
10:00	321195	95	108.8
10:30	321250	110	108.9
11:00	321335	100	108.8
11:30	321410	85	109.0
12:00	321625	115	108.9
12:30	321520	85	108.9
13:00	321595	110	109.4
13:30	321665	115	108.8
14:00	321725	80	108.9
14:~~00~~30	321795	80	108.8
15:00	321865	90	108.9
~~15:00~~	~~321435~~	~~85~~	~~108.9~~
15:30	321935	85	108.9
16:00	321995	105	108.7
16:30	322.070	80	108.9

APPENDIX E

Calibration of the console dry gas meter(s), pitot tubes, nozzles diameters, and temperature sensors were carried out in accordance with the procedures outlined in the Quality Assurance Handbook. The appropriate calibration data are presented in the following pages. The nozzle calibrations are recorded on the first page of the field data sheets.

Figure 4 Schematic of Method 5/114 Sampling Train
Meter Box Calibration Data and Calculations Forms
Post-test Dry Gas Meter Calibration Data Forms
Type S Pitot Tube Inspection Data
Sample Box Temperature Sensor Calibration

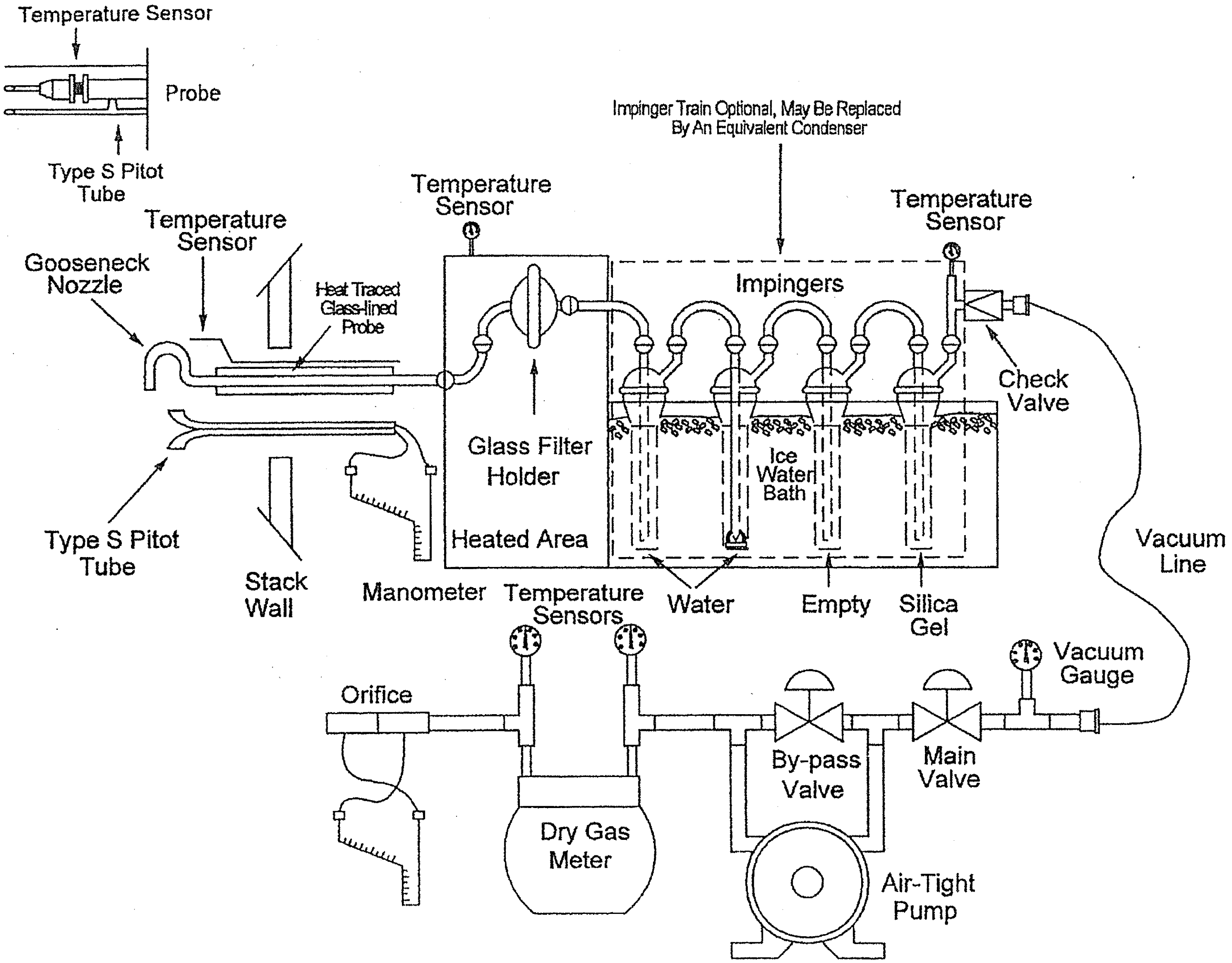


Figure 4 Schematic of Method 5/114 Sampling Train

METHOD 5 DRY GAS METER CALIBRATION USING CRITICAL ORIFICES

Quality - Service - Reliability

ENVIRONMENTAL SUPPLY COMPANY

1) Select three critical orifices to calibrate the dry gas meter which bracket the expected operating range.
2) Record barometric pressure before and after calibration procedure.
3) Run at tested vacuum (from Orifice Calibration Report), for a period of time necessary to achieve a minimum total volume of 5 cubic feet.
4) Record data and information in the GREEN cells, YELLOW cells are calculated.

Facility New Calibration 2012

DATE: 12/7/2011

METER PART #: Console 3

METER SERIAL #: 1522588

CRITICAL ORIFICE SET SERIAL #: 1453S

BAROMETRIC PRESSURE (in Hg): INITIAL 25.30 FINAL 25.30 AVG (P_{bar}) 25.3

EQUIPMENT ID #: **Console #3**

IF Y VARIATION EXCEEDS 2.00%, ORIFICE SHOULD BE RECALIBRATED

ORIFICE #	RUN #	K' FACTOR (AVG)	TESTED VACUUM (in Hg)	DGM READINGS (FT^3)			TEMPERATURES °F						ELAPSED TIME (MIN)	DGM ΔH	(1)	(2)	(3)	Y	
				INITIAL	FINAL	NET (V_m)	AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	DGM OUTLET INITIAL	DGM OUTLET FINAL	DGM AVG	θ	(in H_2O)	V_m (STD)	V_{cr} (STD)	Y	VARIATION (%)	$\Delta H_@$
30	1	0.8137	13	548.140	553.420	5.280	75	73	73	73	76	73.75	5.00	2.90	4.4546	4.4515	0.999		1.736
	2	0.8137	13	553.420	558.698	5.278	75	73	75	76	80	76	5.00	2.90	4.4342	4.4515	1.004		1.729
	3	0.8137	13	558.698	564.244	5.546	75	75	76	80	83	78.50	5.25	2.90	4.6378	4.6740	1.008		1.721
																AVG =	1.004	-0.22	
19	1	0.5317	13	564.820	570.025	5.205	75	76	80	82	84	80.50	7.50	1.20	4.3152	4.3631	1.011		1.654
	2	0.5317	13	570.025	575.265	5.240	75	80	81	84	85	82.50	7.50	1.20	4.3282	4.3631	1.008		1.647
	3	0.5317	13	575.265	580.513	5.248	75	81	83	85	87	84.00	7.50	1.20	4.3229	4.3631	1.009		1.643
																AVG =	1.009	0.36	
12	1	0.3307	13	581.802	587.303	5.501	75	84	86	88	86	86.00	12.50	0.44	4.5047	4.5229	1.004		1.548
	2	0.3307	13	587.303	592.812	5.509	75	86	87	86	87	86.50	12.50	0.44	4.5072	4.5229	1.003		1.547
	3	0.3307	13	592.812	598.325	5.513	75	87	89	87	89	88.00	12.50	0.44	4.4981	4.5229	1.006		1.542
																AVG =	1.004	-0.15	

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:
The following equations are used to calculate the standard volumes of air passed through the DGM, V_m (std), and the critical orifice, V_{cr} (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = **1.006**

AVERAGE $\Delta H_@$ = **1.641**

(1) $$Vm_{(std)} = K_1 * Vm * \frac{Pbar + (\Delta H / 13.6)}{Tm}$$ = Net volume of gas sample passed through DGM, corrected to standard conditions

K_1 = 17.64 °R/in. Hg (English), 0.3858 °K/mm Hg (Metric)

T_m = Absolute DGM avg. temperature (°R - English, °K - Metric)

(2) $$Vcr_{(std)} \quad K' * \frac{Pbar * \Theta}{\sqrt{Tamb}}$$ = Volume of gas sample passed through the critical orifice, corrected to standard conditions

T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)

K' = Average K' factor from Critical Orifice Calibration

(3) $$Y = \frac{Vcr_{(std)}}{Vm_{(std)}}$$ = DGM calibration factor

$$\Delta H_@ = \left(\frac{0.75\,\theta}{V_{cr}(std)}\right)^2 \Delta H \left(\frac{V_m(std)}{V_m}\right)$$

Temperature Sensors

Reference °F	In °F	Out °F
34	35	35
67	68	68
202	203	203

METHOD 5 DRY GAS METER CALIBRATION USING CRITICAL ORIFICES

1) Select three critical orifices to calibrate the dry gas meter which bracket the expected operating range.
2) Record barometric pressure before and after calibration procedure.
3) Run at tested vacuum (from Orifice Calibration Report), for a period of time necessary to achieve a minimum total volume of 5 cubic feet.
4) Record data and information in the GREEN cells, YELLOW cells are calculated.

2012 Pre-Calibration

DATE: 12/20/2011
METER PART #: Console 4
METER SERIAL #: 27863
CRITICAL ORIFICE SET SERIAL #: 1453S
EQUIPMENT ID #: Console #4

	INITIAL	FINAL	AVG (P_{bar})
BAROMETRIC PRESSURE (in Hg):	25.5	25.5	25.5

IF Y VARIATION EXCEEDS 2.00%, ORIFICE SHOULD BE RECALIBRATED

		K'	TESTED	DGM READINGS (FT³)			TEMPERATURES °F						ELAPSED						
		FACTOR	VACUUM				AMBIENT	DGM INLET		DGM OUTLET		DGM	TIME (MIN)	DGM ΔH	(1)	(2)	(3)	Y	
ORIFICE #	RUN #	(AVG)	(in Hg)	INITIAL	FINAL	NET (V_m)		INITIAL	FINAL	INITIAL	FINAL	AVG	θ	(in H_2O)	V_m (STD)	V_{cr} (STD)	Y	VARIATION (%)	$\Delta H_@$
30	1	0.8137	13	110.501	118.685	8.184	72	87	87	87	87	87	7.50	2.60	6.7843	6.7490	0.995		1.497
	2	0.8137	13	118.685	125.253	6.568	72	88	88	88	88	88	6.00	2.60	5.4348	5.3992	0.993		1.494
	3	0.8137	13	125.253	131.839	6.586	72	89	89	89	89	89.00	6.00	2.60	5.4397	5.3992	0.993		1.492
																AVG =	0.994	-0.50	
19	1	0.5317	13	74.902	80.511	5.609	72	75	77	75	78	76.25	8.00	1.12	4.7229	4.7040	0.996		1.534
	2	0.5317	13	80.511	86.136	5.625	72	80	80	80	80	80.00	8.00	1.12	4.7035	4.7040	1.000		1.524
	3	0.5317	13	86.136	91.775	5.639	72	83	83	83	83	83.00	8.00	1.12	4.6891	4.7040	1.003		1.515
																AVG =	1.000	0.12	
12	1	0.3307	13	92.1010	97.376	5.275	72	85	85	85	85	85.00	12.00	0.42	4.3615	4.3886	1.006		1.460
	2	0.3307	13	97.376	104.211	6.835	72	85	85	85	85	85.00	15.50	0.42	5.6514	5.6686	1.003		1.460
	3	0.3307	13	104.211	109.766	5.555	72	86	86	87	87	86.50	12.50	0.42	4.5804	4.5715	0.998		1.456
																AVG =	1.002	0.38	

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:
The following equations are used to calculate the standard volumes of air passed through the DGM, V_m (std), and the critical orifice, V_{cr} (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = 0.999

AVERAGE $\Delta H_@$ = 1.493

(1) $$Vm_{(std)} = K_1 * Vm * \frac{Pbar + (\Delta H / 13.6)}{Tm}$$ = Net volume of gas sample passed through DGM, corrected to standard conditions

K_1 = 17.64 °R/in. Hg (English), 0.3858 °K/mm Hg (Metric)

T_m = Absolute DGM avg. temperature (°R - English, °K - Metric)

$$\Delta H_@ = \left(\frac{0.75\,\theta}{V_{cr}(std)}\right)^2 \Delta H \left(\frac{V_m(std)}{V_m}\right)$$

(2) $$Vcr_{(std)} = K' * \frac{Pbar * \Theta}{\sqrt{Tamb}}$$ = Volume of gas sample passed through the critical orifice, corrected to standard conditions

T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)

K' = Average K' factor from Critical Orifice Calibration

(3) $$Y = \frac{Vcr_{(std)}}{Vm_{(std)}}$$ = DGM calibration factor

Temperature Sensors

Reference °F	In °F	Out °F
33	34	34
67	67	67
201	202	202

METHOD 5 DRY GAS METER CALIBRATION USING CRITICAL ORIFICES

Quality - Service - Reliability

1) Select three critical orifices to calibrate the dry gas meter which bracket the expected operating range.
2) Record barometric pressure before and after calibration procedure.
3) Run at tested vacuum (from Orifice Calibration Report), for a period of time necessary to achieve a minimum total volume of 5 cubic feet.
4) Record data and information in the GREEN cells, YELLOW cells are calculated.

2012 Pre-Calibration

DATE: 12/19/2011
METER PART #: Console 5
METER SERIAL #: 68092
CRITICAL ORIFICE SET SERIAL #: 1453S
EQUIPMENT ID #: Console #5

BAROMETRIC PRESSURE (in Hg):	INITIAL	FINAL	AVG (P_{bar})
	25.45	25.45	25.45

IF Y VARIATION EXCEEDS 2.00%, ORIFICE SHOULD BE RECALIBRATED

ORIFICE #	RUN #	K' FACTOR (AVG)	TESTED VACUUM (in Hg)	DGM READINGS (FT^3) INITIAL	DGM READINGS (FT^3) FINAL	DGM READINGS (FT^3) NET (V_m)	TEMPERATURES °F AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	DGM OUTLET INITIAL	DGM OUTLET FINAL	DGM AVG	ELAPSED TIME (MIN) θ	DGM ΔH (in H_2O)	(1) V_m (STD)	(2) V_{cr} (STD)	(3) Y	Y VARIATION (%)	$\Delta H_@$
30	1	0.8137	12	857.685	863.696	6.011	75	89	90	98	100	94.25	5.50	2.55	4.9075	4.9257	1.004		1.460
	2	0.8137	12	863.696	869.730	6.034	75	90	91	100	104	96.25	5.50	2.55	4.9085	4.9257	1.003		1.455
	3	0.8137	12	869.730	875.755	6.025	75	91	91	104	107	98.25	5.50	2.55	4.8836	4.9257	1.009		1.450
																AVG =	1.005	0.12	
19	1	0.5317	13	840.0900	845.380	5.290	75	82	85	91	92	87.50	7.50	1.11	4.3541	4.3890	1.008		1.501
	2	0.5317	13	845.380	850.723	5.343	75	85	87	92	95	89.75	7.50	1.11	4.3797	4.3890	1.002		1.494
	3	0.5317	13	850.723	856.048	5.325	75	87	89	95	98	92.25	7.50	1.11	4.3451	4.3890	1.010		1.488
																AVG =	1.007	0.27	
12	1	0.3307	20	800.747	806.875	6.128	68	75	79	75	81	77.50	14.00	0.40	5.1272	5.1293	1.000		1.402
	2	0.3307	20	806.875	812.608	5.733	68	79	80	81	84	81.00	13.00	0.40	4.7656	4.7629	0.999		1.393
	3	0.3307	20	812.608	817.910	5.302	68	80	83	84	83	82.50	12.00	0.40	4.3952	4.3966	1.000		1.389
																AVG =	1.000	-0.40	

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:
The following equations are used to calculate the standard volumes of air passed through the DGM, V_m (std), and the critical orifice, V_{cr} (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = 1.004

AVERAGE $\Delta H_@$ = 1.448

(1) $$Vm_{(std)} = K_1 * Vm * \frac{Pbar + (\Delta H / 13.6)}{Tm}$$ = Net volume of gas sample passed through DGM, corrected to standard conditions

K_1 = 17.64 °R/in. Hg (English), 0.3858 °K/mm Hg (Metric)

T_m = Absolute DGM avg. temperature (°R - English, °K - Metric)

$$\Delta H_@ = \left(\frac{0.75\,\theta}{V_{cr}(std)}\right)^2 \Delta H \left(\frac{V_m(std)}{V_m}\right)$$

(2) $$Vcr_{(std)} = K' * \frac{Pbar * \Theta}{\sqrt{Tamb}}$$ = Volume of gas sample passed through the critical orifice, corrected to standard conditions

T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)

K' = Average K' factor from Critical Orifice Calibration

(3) $$Y = \frac{Vcr_{(std)}}{Vm_{(std)}}$$ = DGM calibration factor

Temperature Sensors

Reference °F	In °F	Out °F
32	33	32
72	73	73
203	202	202

METHOD 5 DRY GAS METER CALIBRATION USING CRITICAL ORIFICES

ENVIRONMENTAL SUPPLY COMPANY

1) Select three critical orifices to calibrate the dry gas meter which bracket the expected operating range.
2) Record barometric pressure before and after calibration procedure.
3) Run at tested vacuum (from Orifice Calibration Report), for a period of time necessary to achieve a minimum total volume of 5 cubic feet.
4) Record data and information in the GREEN cells, YELLOW cells are calculated.

Facility **Energy Fuels Resources**
North Yellowcake Dryer Baghouse

DATE: 1/29/12
METER PART #: Console 3
METER SERIAL #: 1522588
CRITICAL ORIFICE SET SERIAL #: 1453S
BAROMETRIC PRESSURE (in Hg): INITIAL 25.45 FINAL 25.45 AVG (P_{bar}) 25.45
EQUIPMENT ID #: Console #3

IF Y VARIATION EXCEEDS 2.00%,
ORIFICE SHOULD BE RECALIBRATED

		K'	TESTED	DGM READINGS (FT^3)			TEMPERATURES °F						ELAPSED						
		FACTOR	VACUUM				AMBIENT	DGM INLET		DGM OUTLET		DGM	TIME (MIN)	DGM ΔH	(1)	(2)	(3)	Y	
ORIFICE #	RUN #	(AVG)	(in Hg)	INITIAL	FINAL	NET (V_m)		INITIAL	FINAL	INITIAL	FINAL	AVG	0	(in H_2O)	V_m (STD)	V_{cr} (STD)	Y	VARIATION (%)	$\Delta H_@$
	1					.0						0							
	2					.0						0							
	3					.0						0.00							
																AVG =			
25	1	0.6808	13	755.104	760.818	5.714	70	62	67	67	74	67.50	6.50	1.95	4.8933	4.8934	1.000		1.657
	2	0.6808	13	760.818	766.566	5.748	70	67	70	74	77	72.00	6.50	1.95	4.8807	4.8934	1.003		1.643
	3	0.6808	13	766.566	772.361	5.795	70	70	74	77	80	75.25	6.50	1.95	4.8907	4.8934	1.001		1.633
																AVG =	1.001	0.00	
	1					.0						0.00							
	2					.0						0.00							
	3					.0						0.00							
																AVG =			

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:
The following equations are used to calculate the standard volumes of air passed through the DGM, V_m (std), and the critical orifice, V_{cr} (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = 1.001

AVERAGE $\Delta H_@$ = 1.645

(1) $$Vm_{(std)} = K_1 * Vm * \frac{Pbar + (\Delta H / 13.6)}{Tm}$$ = Net volume of gas sample passed through DGM, corrected to standard conditions

K_1 = 17.64 °R/in. Hg (English), 0.3858 °K/mm Hg (Metric)
T_m = Absolute DGM avg. temperature (°R - English, °K - Metric)

(2) $$Vcr_{(std)} = K' * \frac{Pbar * \Theta}{\sqrt{Tamb}}$$ = Volume of gas sample passed through the critical orifice, corrected to standard conditions

T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)
K' = Average K' factor from Critical Orifice Calibration

(3) $$Y = \frac{Vcr_{(std)}}{Vm_{(std)}}$$ = DGM calibration factor

$$\Delta H_@ = \left(\frac{0.75\,\theta}{V_{cr}(std)}\right)^2 \Delta H \left(\frac{V_m(std)}{V_m}\right)$$

Temperature Sensors

Reference °F	In °F	Out °F
34	35	35
67	68	68
202	203	203

Pre Calibration 2008

METHOD 5 DRY GAS METER CALIBRATION USING CRITICAL ORIFICES

Quality - Service - Reliability

1) Select three critical orifices to calibrate the dry gas meter which bracket the expected operating range.
2) Record barometric pressure before and after calibration procedure.
3) Run at tested vacuum (from Orifice Calibration Report), for a period of time necessary to achieve a minimum total volume of 5 cubic feet.
4) Record data and information in the **GREEN** cells, YELLOW cells are calculated.

Facility Energy Fuels Resources Grizzly

DATE: 11/29/2012

METER PART #: Console #4

METER SERIAL #:

CRITICAL ORIFICE SET SERIAL #: 1453S

EQUIPMENT ID #: Console #4

	INITIAL	FINAL	AVG (P_{bar})
BAROMETRIC PRESSURE (in Hg):	25.45	25.45	25.45

IF Y VARIATION EXCEEDS 2.00%, ORIFICE SHOULD BE RECALIBRATED

ORIFICE #	RUN #	K' FACTOR (AVG)	TESTED VACUUM (in Hg)	DGM READINGS (FT³) INITIAL	DGM READINGS (FT³) FINAL	DGM READINGS (FT³) NET (V_m)	TEMPERATURES °F AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	DGM OUTLET INITIAL	DGM OUTLET FINAL	DGM AVG	ELAPSED TIME (MIN) θ	DGM ΔH (in H_2O)	(1) V_m (STD)	(2) V_{cr} (STD)	(3) Y	Y VARIATION (%)	$\Delta H_@$
19	1	0.5317	13	237.605	242.814	5.209	70	69	71	70	75	71.25	7.50	1.10	4.418	4.41	0.998		1.518
	2	0.5317	13	242.814	248.050	5.236	70	71	74	75	77	74.25	7.50	1.10	4.416	4.41	0.998		1.510
	3	0.5317	13	248.050	253.294	5.244	70	74	74	77	77	75.5	7.50	1.10	4.413	4.41	0.999		1.506
																AVG =	0.999	0.00	
	1					.0						0.00							
	2					.0						0.00							
	3					.0						0.00							
																AVG =			
	1					.0						0.00							
	2					.0						0.00							
	3					.0						0.00							
																AVG =			

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:
The following equations are used to calculate the standard volumes of air passed through the DGM, V_m (std), and the critical orifice, V_{cr} (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = **0.999**

AVERAGE $\Delta H_@$ = **1.511**

(1) $$Vm_{(std)} = K_1 * Vm * \frac{Pbar + (\Delta H / 13.6)}{Tm}$$

= Net volume of gas sample passed through DGM, corrected to standard conditions

K_1 = 17.64 °R/in. Hg (English), 0.3858 °K/mm Hg (Metric)

T_m = Absolute DGM avg. temperature (°R - English, °K - Metric)

$$\Delta H_@ = \left(\frac{0.75\ \theta}{V_{cr}(std)}\right)^2 \Delta H \left(\frac{V_m(std)}{V_m}\right)$$

(2) $$Vcr_{(std)} = K' * \frac{Pbar * \Theta}{\sqrt{Tamb}}$$

= Volume of gas sample passed through the critical orifice, corrected to standard conditions

T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)

K' = Average K' factor from Critical Orifice Calibration

(3) $$Y = \frac{Vcr_{(std)}}{Vm_{(std)}}$$

= DGM calibration factor

Post test #4 Calibration 2012

METHOD 5 DRY GAS METER CALIBRATION USING CRITICAL ORIFICES

Quality - Service - Reliability

1) Select three critical orifices to calibrate the dry gas meter which bracket the expected operating range.
2) Record barometric pressure before and after calibration procedure.
3) Run at tested vacuum (from Orifice Calibration Report), for a period of time necessary to achieve a minimum total volume of 5 cubic feet.
4) Record data and information in the **GREEN** cells, YELLOW cells are calculated.

Facility Energy Fuels Resources
South Yellowcake Dryer Scrubber

DATE: 11/29/2012
METER PART #: Console 5
METER SERIAL #: 554840
CRITICAL ORIFICE SET SERIAL #: 1453S
BAROMETRIC PRESSURE (in Hg): INITIAL 25.35 FINAL 25.35 AVG (P_{bar}) 25.35
EQUIPMENT ID #: **Console #5**

IF Y VARIATION EXCEEDS 2.00%, ORIFICE SHOULD BE RECALIBRATED

ORIFICE #	RUN #	K' FACTOR (AVG)	TESTED VACUUM (in Hg)	DGM READINGS (FT^3) INITIAL	DGM READINGS (FT^3) FINAL	DGM READINGS (FT^3) NET (V_m)	TEMPERATURES °F AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	DGM OUTLET INITIAL	DGM OUTLET FINAL	DGM AVG	ELAPSED TIME (MIN) θ	DGM ΔH (in H_2O)	(1) V_m (STD)	(2) V_{cr} (STD)	(3) Y	Y VARIATION (%)	$\Delta H_@$
25	1	0.6808	13	56.523	62.732	6.209	70	64	67	66	73	67.5	7.00	1.90	5.2956	5.2491	0.991		1.621
	2	0.6808	13	62.732	69.992	7.260	70	67	70	73	79	72.25	7.00	1.90	6.1367	5.2491	0.855		1.607
	3	0.6808	13	69.992	75.30	5.308	70	70	73	79	83	76.25	7.00	1.90	4.4533	5.2491	1.179		1.595
																AVG =	1.008	0.45	
19	1	0.5317	13	75.30	80.550	5.250	70	75	77	75	79	76.50	7.50	1.10	4.3924	4.3923	1.000		1.51
	2	0.5317	13	80.550	85.845	5.295	70	77	79	79	84	79.75	7.50	1.10	4.4033	4.3923	0.997		1.50
	3	0.5317	13	85.845	91.151	5.306	70	79	80	84	87	82.50	7.50	1.10	4.3901	4.3923	1.001		1.49
																AVG =	0.999	-0.45	
	1					.0						0.00							
	2					.0						0.00							
	3					.0						0.00							
																AVG =			

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:
The following equations are used to calculate the standard volumes of air passed through the DGM, V_m (std), and the critical orifice, V_{cr} (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = **1.004**

AVERAGE $\Delta H_@$ = **1.554**

(1) $$Vm_{(std)} = K_1 * Vm * \frac{Pbar + (\Delta H / 13.6)}{Tm}$$

= Net volume of gas sample passed through DGM, corrected to standard conditions
K_1 = 17.64 °R/in. Hg (English), 0.3858 °K/mm Hg (Metric)
T_m = Absolute DGM avg. temperature (°R - English, °K - Metric)

$$\Delta H_@ = \left(\frac{0.75\ \theta}{V_{cr}(std)}\right)^2 \Delta H \left(\frac{V_m(std)}{V_m}\right)$$

(2) $$Vcr_{(std)} = K' * \frac{Pbar * \Theta}{\sqrt{Tamb}}$$

= Volume of gas sample passed through the critical orifice, corrected to standard conditions
T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)
K' = Average K' factor from Critical Orifice Calibration

(3) $$Y = \frac{Vcr_{(std)}}{Vm_{(std)}}$$

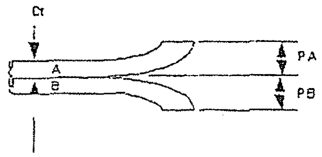
= DGM calibration factor

Type S Pitot Tube Inspection Data

Date: 12-12-11

Pitot Tube Identification: 9-18

Technician: K. McNamara



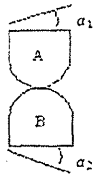
Dt= .375 in.

Is $P_A = P_B$? Yes

Is $1.05 \cdot D_t \le D_t \le 1.50 \cdot D_t$? yes

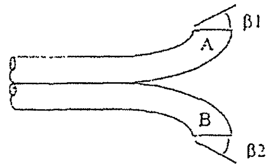
P_A = .450 in.

P_B = .460 in.



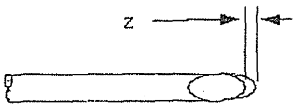
$\alpha_1 < 10°$ α_1 = 1 °

$\alpha_2 < 10°$ α_2 = 1 °

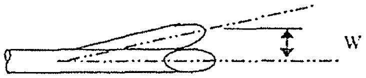


$\beta_1 < 5°$ β_1 = 2 °

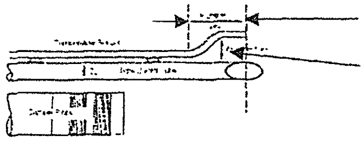
$\beta_2 < 5°$ β_2 = 1 °



$Z \le 0.125$ in. Z = .007 in.

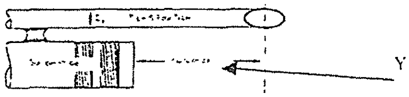


$W \le 0.03125$ in. W = .004 in



W > 3 inches W = 6½ in.

Z > 3/4 inch Z = 1¼ in.



Y ≥ 3 inches Y = 3½ in

The pitot tube meets the specifications for a calibration factor of 0.84? Yes

Temperature Sensor Calibration

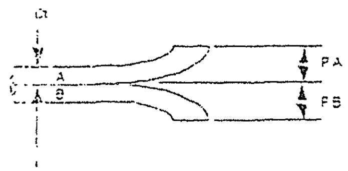
Reference ______

	Temperature Source (Medium)	Temperature Reference (°F)	Temperature Sensor (°F)	Temperature Difference (°F)
Probe	AIR	65	64	1
	Continuity	→		Yes
	Heat Check 248	→	yes	280
Stack	AIR	65	64	1
	ICE WATER	32	31	-1
	BOIL WATER	202	201	1
	SILICONE OIL			

Date 2-15-12

Pitot Tube Identification 21

Technician: K. McNamara



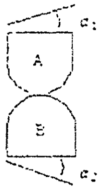
Dt= .375 in

Is $P_A = P_B$? Yes

Is $1.05 \cdot D_t \le D_t \le 1.50 \cdot D_t$? Yes

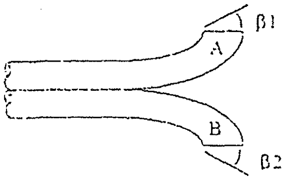
P_A = .495 in

P_B = .495 in



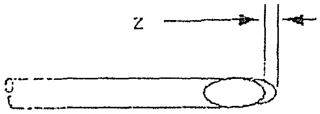
$\alpha_1 < 10°$ α_1 = 2 °

$\alpha_2 < 10°$ α_2 = 2 °

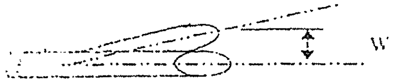


$\beta_1 < 5°$ β_1 = 2 °

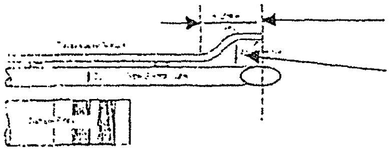
$\beta_2 < 5°$ β_2 = 1 °



Z ≤ 0.125 in Z = .035 in

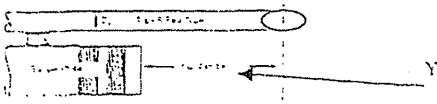


W ≤ 0.03125 in W = .030 in



W > 3 inches W = 6 1/2 in

Z > 3/4 inch Z = 3/4 in.



Y ≥ 3 inches Y = 4 in

The pitot tube meets the specifications for a calibration factor of 0.84? Yes

Temperature Sensor Calibration

Reference ______

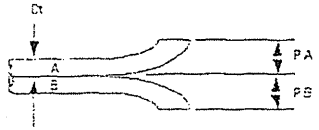
	Temperature Source (Medium)	Temperature Reference (°F)	Temperature Sensor (°F)	Temperature Difference (°F)
Probe	AIR	67	68	0
	Continuity	—	—	Yes
	Heat Check 248	—	Yes	200
Stack	AIR	67	68	1
	ICE WATER	33	34	1
	BOIL WATER	203	201.	2
	SILICONE OIL			

Type S Pitot Tube Inspection Data

Date 12-20-11

Pitot Tube Identification 27 - Ca

Technician K. McNamara



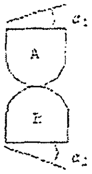
Dt= .375 in.

Is $P_A = P_B$? Yes

Is $1.05 \cdot D_t \leq D_t \leq 1.50 \cdot D_t$? Yes

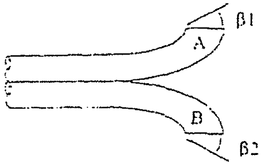
P_A = .443 in.

P_B = 443 in.



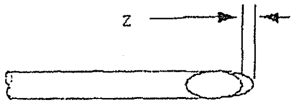
$\alpha_1 < 10°$ α_1 = 1 °

$\alpha_2 < 10°$ α_2 = 0 °

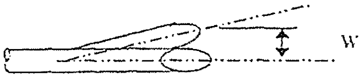


$\beta_1 < 5°$ β_1 = 2 °

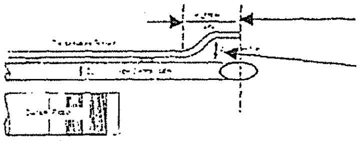
$\beta_2 < 5°$ β_2 = 2 °



$Z \leq 0.125$ in Z = .064 in

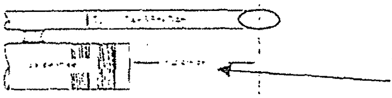


$W \leq 0.03125$ in. W = .009 in



W > 3 inches W = 3 in

Z > 3/4 inch Z = 1 in



$Y \geq 3$ inches Y = 3 3/4 in

The pitot tube meets the specifications for a calibration factor of 0.84? Yes

Temperature Sensor Calibration

Reference

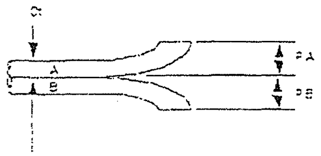
	Temperature Source (Medium)	Temperature Reference (°F)	Temperature Sensor (°F)	Temperature Difference (°F)
Probe	AIR	70	70	0
	Continuity	—	—	yes
	Heat Check 248	—	yes	260
Stack	AIR	70	70	0
	ICE WATER	32	32	0
	BOIL WATER	204	204	0
	SILICONE OIL			

Type S Pitot Tube Inspection Data

Date 12-13-11

Pitot Tube Identification 51-G

Technician K. McNamara



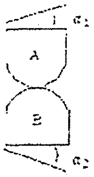
Dt= .250 in

Is $P_A = P_B$? Yes

Is $1.05 \cdot D_t \le D_t \le 1.50 \cdot D_t$? Yes

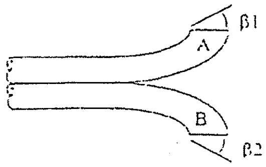
P_A = .356 in.

P_B = .356 in



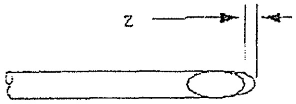
$\alpha_1 < 10°$ α_1 = 1 °

$\alpha_2 < 10°$ α_2 = 1 °

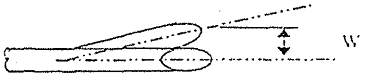


$\beta_1 < 5°$ β_1 = 0 °

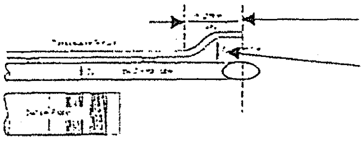
$\beta_2 < 5°$ β_2 = 0 °



$Z \le 0.125$ in Z = .050 in

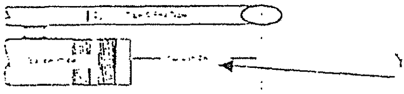


$W \le 0.03125$ in W = .009 in.



W > 3 inches W = 6 in.

Z > 3/4 inch Z = 1½ in



Y ≥ 3 inches Y = 4 in.

The pitot tube meets the specifications for a calibration factor of 0.84? Yes

Temperature Sensor Calibration

Reference

	Temperature Source (Medium)	Temperature Reference (°F)	Temperature Sensor (°F)	Temperature Difference (°F)
Probe	AIR	69	68	1
	Continuity	—	—	Yes
	Heat Check 248	—	Yes	2600
Stack	AIR	69	68	1
	ICE WATER	32	31	1
	BOIL WATER	205	205	1
	SILICONE OIL			

TETCO
Sample Box Temperature Sensor Calibration

Date: 12/29/11 Calibrator: Kawai McNamara Reference: Omega CL3512A

Unit ID	Thermocouple Location	Temperature Source (Medium)	Temperature		Temp. Diff. or Result (°F), P/F
			Reference (°F)	Sensor (°F)	
A	Oven	Water	33	33	0
		Water	205	205	0
	Probe Out	Water	33	33	0
		Water	205	205	0
	Impinger Out	Water	33	32	1
		Water	205	203	2
B	Oven	Water	33	33	0
		Water	205	206	-1
	Probe Out	Water	33	33	0
		Water	205	204	1
	Impinger Out	Water	33	34	-1
		Water	202	200	2
C	Oven	Water	33	31	2
		Water	205	205	0
	Probe Out	Water	33	31	2
		Water	205	205	0
	Impinger Out	Water	33	34	-1
		Water	202	201	1
D	Oven	Water	33	31	2
		Water	205	204	1
	Probe Out	Water	33	31	2
		Water	205	204	1
	Impinger Out	Water	33	34	-1
		Water	202	202	0
E	Oven	Water	33	34	-1
		Water	205	204	1
	Probe Out	Water	33	34	-1
		Water	205	203	2
	Impinger Out	Water	33	31	2
		Water	202	200	2
F	Oven	Water	33	33	0
		Water	202	205	-3
	Probe Out	Water	33	33	0
		Water	202	205	-3
	Impinger Out	Water	33	34	-1
		Water	202	200	2
	Impinger Out G	Water	33	33	0
		Water	202	200	2
	Impinger Out H	Water	33	31	2
		Water	202	200	2
	Impinger Out I	Water	33	33	0
		Water	202	202	0
	Impinger Out J	Water	33	33	0
		Water	202	202	0
	Impinger Out K	Water	33	33	0
		Water	202	202	0

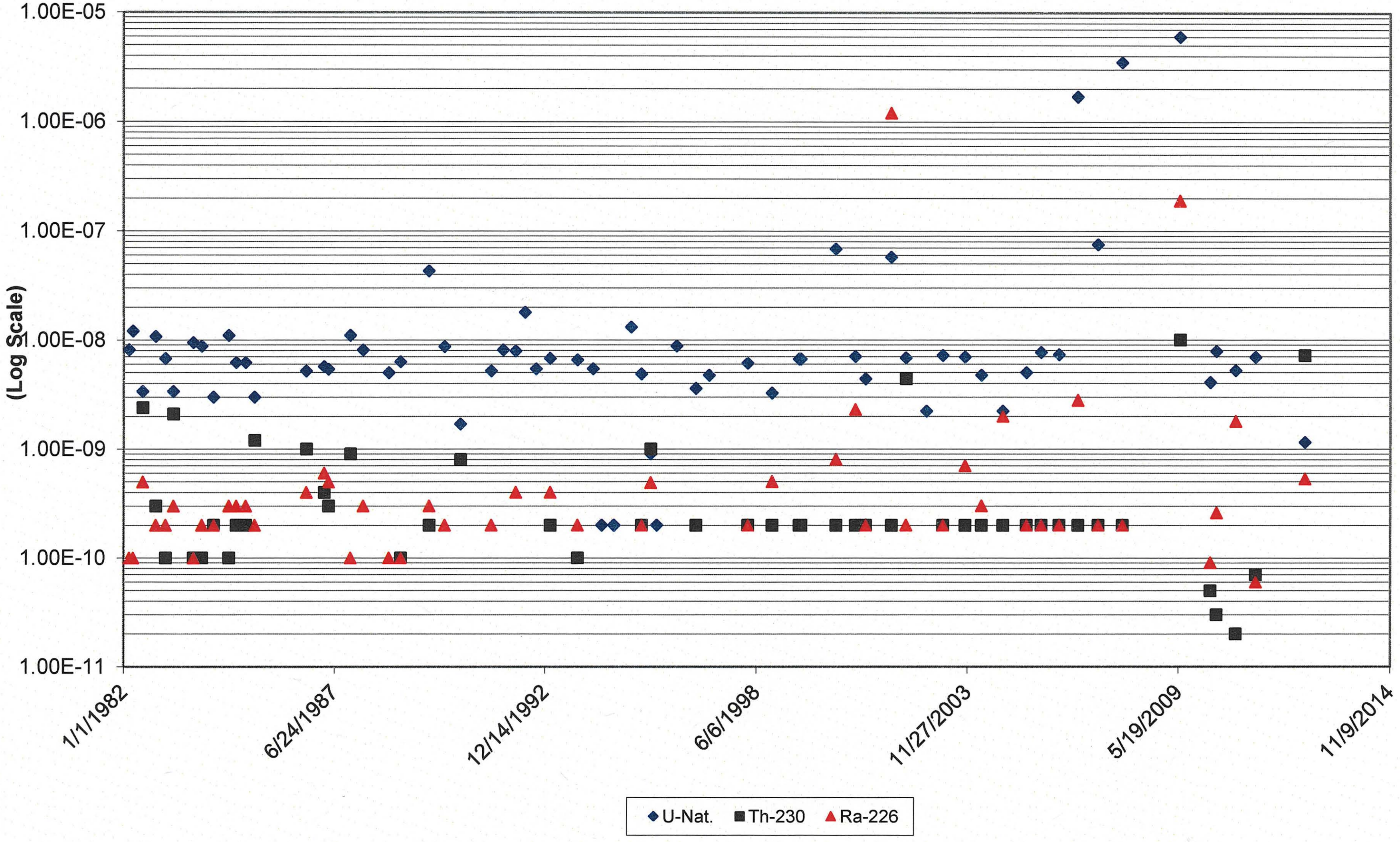
APPENDIX F

The testing followed the same procedures as outlined in previous protocols and tests at this facility.

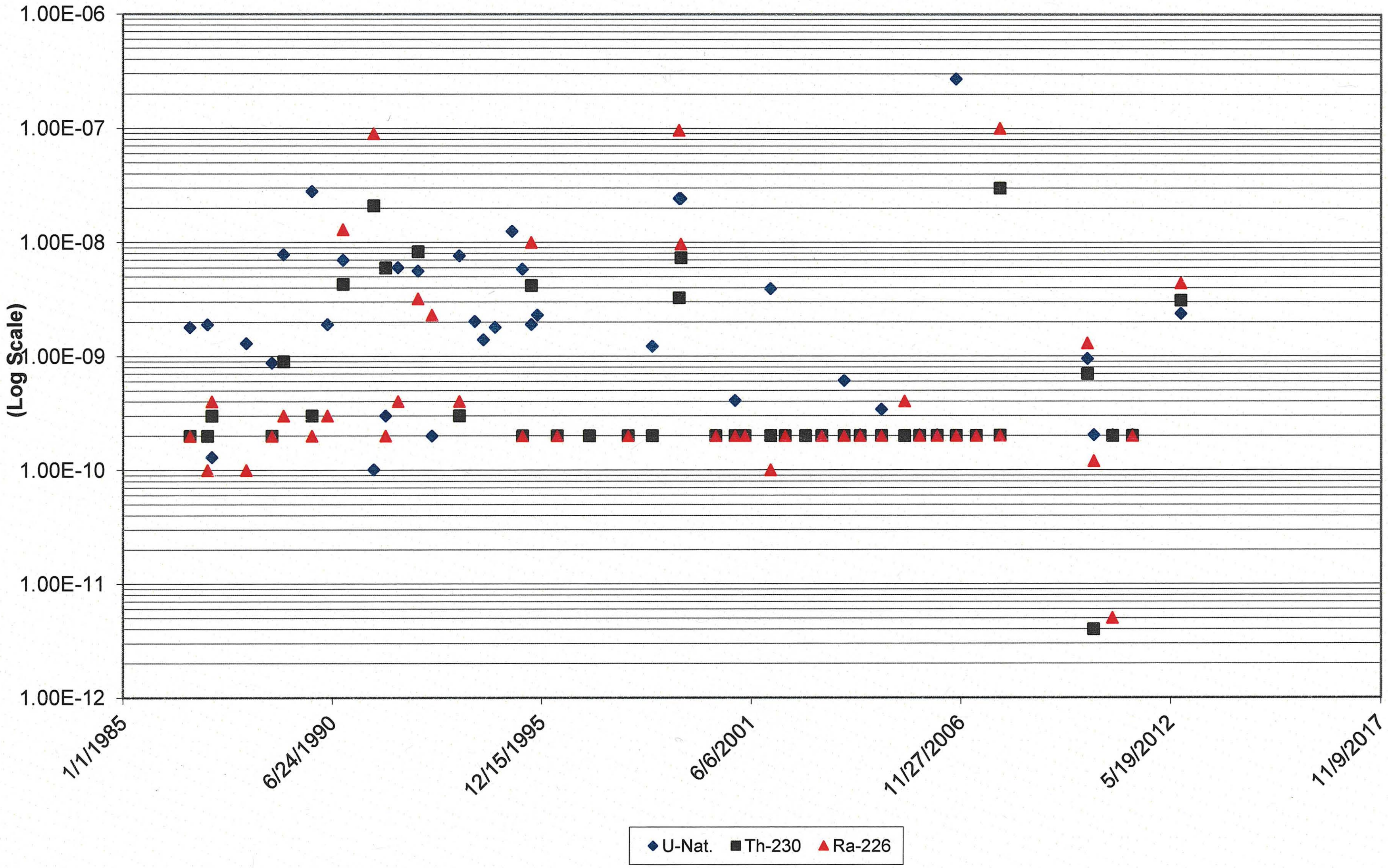
ATTACHMENT H

SURFACE WATER GRAPHS AND FIELD DATA SHEETS

Cottonwood Creek Dissolved Radionuclide Concentrations (uCi/ml)



Cottonwood Creek Suspended Radionuclide Concentrations (uCi/ml)



ANALYTICAL SUMMARY REPORT

September 25, 2012

Energy Fuels Resources (USA) Inc
6425 S Hwy 191
Blanding, UT 84511

Workorder No.: C12081141

Project Name: 3rd Quarter Surface Water 2012

Energy Laboratories, Inc. Casper WY received the following 3 samples for Energy Fuels Resources (USA) Inc on 8/28/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C12081141-001	Cottonwood Creek	08/24/12 9:30	08/28/12	Aqueous	Sample Filtering Uranium, Dissolved Uranium, 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
C12081141-002	Cottonwood 65	08/24/12 9:30	08/28/12	Aqueous	Same As Above
C12081141-003	Temp Blank	08/24/12 0:00	08/28/12	Aqueous	Temperature

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these test results, please call.

Report Approved By:

Stephanie D Waldrop
Reporting Supervisor

Digitally signed by
Stephanie Waldrop
Date: 2012.09.25 10:37:17 -06:00

CLIENT: Energy Fuels Resources (USA) Inc
Project: 3rd Quarter Surface Water 2012
Sample Delivery Group: C12081141

Report Date: 09/25/12

CASE NARRATIVE

RA226 ANALYSIS
USNRC Regulatory Guide 4.14 provides guidance on Minimum Detectable Concentrations (MDC) that should be achieved in samples for this radionuclide. The sample-specific MDC for this sample could not be achieved due to significant matrix interferences, restricting the volume of sample to be used in the analysis. Please consult with your local regulatory agency prior to using these results for compliance purposes.

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

SAMPLE TEMPERATURE COMPLIANCE: 4℃ (±2℃)
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.

GROSS ALPHA ANALYSIS
Method 900.0 for gross alpha and gross beta is intended as a drinking water method for low TDS waters. Data provided by this method for non potable waters should be viewed as inconsistent.

RADON IN AIR ANALYSIS
The desired exposure time is 48 hours (2 days). The time delay in returning the canister to the laboratory for processing should be as short as possible to avoid excessive decay. Maximum recommended delay between end of exposure to beginning of counting should not exceed 8 days.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS
Data for PCBs, Atrazine and Simazine are reported from EPA 525.2. PCB data reported by ELI reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

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.

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

CERTIFICATIONS:
USEPA: WY00002, Radiochemical WY00937; FL-DOH NELAC: E87641, Radiochemical E871017; California: 02118CA; Oregon: WY200001, Radiochemical WY200002; Utah: WY00002; Washington: C836

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Energy Fuels Resources (USA) Inc	**Report Date:**	09/25/12
Project:	3rd Quarter Surface Water 2012	**Collection Date:**	08/24/12 09:30
Lab ID:	C12081141-001	**DateReceived:**	08/28/12
Client Sample ID:	Cottonwood Creek	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	329	mg/L		10		A2540 C	08/29/12 15:30 / jz
Solids, Total Suspended TSS @ 105 C	1260	mg/L	D	60		A2540 D	08/29/12 14:59 / jz
METALS - DISSOLVED							
Uranium	0.0017	mg/L		0.0003		E200.8	09/14/12 11:45 / cp
METALS - SUSPENDED							
Uranium	0.0035	mg/L		0.0003		E200.8	09/18/12 22:40 / cp
RADIONUCLIDES - DISSOLVED							
Gross Alpha minus Rn & U	3.1	pCi/L				E900.1	09/07/12 07:26 / lbb
Gross Alpha minus Rn & U Precision (±)	1.8	pCi/L				E900.1	09/07/12 07:26 / lbb
Gross Alpha minus Rn & U MDC	2.1	pCi/L				E900.1	09/07/12 07:26 / lbb
Radium 226	0.53	pCi/L				E903.0	09/12/12 15:55 / dmf
Radium 226 precision (±)	0.28	pCi/L				E903.0	09/12/12 15:55 / dmf
Radium 226 MDC	0.33	pCi/L				E903.0	09/12/12 15:55 / dmf
Thorium 230	7.2	pCi/L				E908.0	09/11/12 08:59 / dmf
Thorium 230 precision (±)	1.2	pCi/L				E908.0	09/11/12 08:59 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	09/11/12 08:59 / dmf
RADIONUCLIDES - SUSPENDED							
Radium 226	4.4	pCi/L				E903.0	09/18/12 01:28 / dmf
Radium 226 precision (±)	0.49	pCi/L				E903.0	09/18/12 01:28 / dmf
Radium 226 MDC	0.28	pCi/L				E903.0	09/18/12 01:28 / dmf
Thorium 230	3.1	pCi/L				E908.0	09/17/12 10:26 / dmf
Thorium 230 precision (±)	0.9	pCi/L				E908.0	09/17/12 10:26 / dmf
Thorium 230 MDC	0.6	pCi/L				E908.0	09/17/12 10:26 / dmf

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Energy Fuels Resources (USA) Inc	**Report Date:**	09/25/12
Project:	3rd Quarter Surface Water 2012	**Collection Date:**	08/24/12 09:30
Lab ID:	C12081141-002	**DateReceived:**	08/28/12
Client Sample ID:	Cottonwood 65	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	391	mg/L		10		A2540 C	08/30/12 16:10 / jz
Solids, Total Suspended TSS @ 105 C	1400	mg/L	D	60		A2540 D	08/29/12 14:59 / jz
METALS - DISSOLVED							
Uranium	0.0019	mg/L		0.0003		E200.8	09/14/12 11:49 / cp
METALS - SUSPENDED							
Uranium	0.0030	mg/L		0.0003		E200.8	09/18/12 22:45 / cp
RADIONUCLIDES - DISSOLVED							
Gross Alpha minus Rn & U	0.8	pCi/L	U			E900.1	09/07/12 07:26 / lbb
Gross Alpha minus Rn & U Precision (±)	1.4	pCi/L				E900.1	09/07/12 07:26 / lbb
Gross Alpha minus Rn & U MDC	2.1	pCi/L				E900.1	09/07/12 07:26 / lbb
Radium 226	0.01	pCi/L	U			E903.0	09/12/12 17:27 / dmf
Radium 226 precision (±)	0.28	pCi/L				E903.0	09/12/12 17:27 / dmf
Radium 226 MDC	0.51	pCi/L				E903.0	09/12/12 17:27 / dmf
Thorium 230	0.3	pCi/L				E908.0	09/11/12 08:59 / dmf
Thorium 230 precision (±)	0.2	pCi/L				E908.0	09/11/12 08:59 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	09/11/12 08:59 / dmf
- See Case Narrative regarding Ra226 analysis.							
RADIONUCLIDES - SUSPENDED							
Radium 226	4.0	pCi/L				E903.0	09/18/12 01:28 / dmf
Radium 226 precision (±)	0.53	pCi/L				E903.0	09/18/12 01:28 / dmf
Radium 226 MDC	0.35	pCi/L				E903.0	09/18/12 01:28 / dmf
Thorium 230	1.7	pCi/L				E908.0	09/17/12 10:26 / dmf
Thorium 230 precision (±)	0.6	pCi/L				E908.0	09/17/12 10:26 / dmf
Thorium 230 MDC	0.5	pCi/L				E908.0	09/17/12 10:26 / dmf

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Energy Fuels Resources (USA) Inc	**Report Date:**	09/25/12
Project:	3rd Quarter Surface Water 2012	**Collection Date:**	08/24/12
Lab ID:	C12081141-003	**DateReceived:**	08/28/12
Client Sample ID:	Temp Blank	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Temperature	5.6	°C				E170.1	08/28/12 09:20 / kbh

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

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc

Project: 3rd Quarter Surface Water 2012

Report Date: 09/25/12

Work Order: C12081141

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C									Batch: TDS120829A	
Sample ID: MB-1_120829A		Method Blank				Run: BAL-1_120829A				08/29/12 15:20
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Sample ID: LCS-2_120829A		Laboratory Control Sample				Run: BAL-1_120829A				08/29/12 15:20
Solids, Total Dissolved TDS @ 180 C		1070	mg/L	10	96	90	110			
Sample ID: C12081138-002A MS		Sample Matrix Spike				Run: BAL-1_120829A				08/29/12 15:30
Solids, Total Dissolved TDS @ 180 C		2180	mg/L	10	99	90	110			
Sample ID: C12081168-001A DUP		Sample Duplicate				Run: BAL-1_120829A				08/29/12 15:32
Solids, Total Dissolved TDS @ 180 C		1310	mg/L	10				0.6	5	
Method: A2540 C									Batch: TDS120830A	
Sample ID: MB-1_120830A		Method Blank				Run: BAL-1_120830A				08/30/12 16:06
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Sample ID: LCS-2_120830A		Laboratory Control Sample				Run: BAL-1_120830A				08/30/12 16:06
Solids, Total Dissolved TDS @ 180 C		1090	mg/L	10	98	90	110			
Sample ID: C12081135-001A MS		Sample Matrix Spike				Run: BAL-1_120830A				08/30/12 16:09
Solids, Total Dissolved TDS @ 180 C		1150	mg/L	10	91	90	110			
Sample ID: C12081191-005A DUP		Sample Duplicate				Run: BAL-1_120830A				08/30/12 16:12
Solids, Total Dissolved TDS @ 180 C		30000	mg/L	10				2.8	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc

Project: 3rd Quarter Surface Water 2012

Report Date: 09/25/12

Work Order: C12081141

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D										Batch: R163991
Sample ID: MBLK1_	Method Blank					Run: BAL-1_120829B				08/29/12 14:57
Solids, Total Suspended TSS @ 105 C		ND	mg/L	60						
Sample ID: LCS1_	Laboratory Control Sample					Run: BAL-1_120829B				08/29/12 14:57
Solids, Total Suspended TSS @ 105 C		191	mg/L	6.0	95	60	110			
Sample ID: C12081137-003ADUP	Sample Duplicate					Run: BAL-1_120829B				08/29/12 14:58
Solids, Total Suspended TSS @ 105 C		ND	mg/L	6.0					5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc **Report Date:** 09/25/12
Project: 3rd Quarter Surface Water 2012 **Work Order:** C12081141

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS2-C_120918A		
Sample ID: ICV		Initial Calibration Verification Standard							09/18/12 13:25	
Uranium		0.0504	mg/L	0.00030	101	90	110			
Method: E200.8									Batch: 34899	
Sample ID: MB-34899		Method Blank				Run: ICPMS2-C_120918A			09/18/12 22:32	
Uranium		ND	mg/L	0.00030						
Sample ID: LCS2-34899		Laboratory Control Sample				Run: ICPMS2-C_120918A			09/18/12 22:34	
Uranium		0.0996	mg/L	0.00030	100	85	115			
Sample ID: C12081141-002DMS		Sample Matrix Spike				Run: ICPMS2-C_120918A			09/18/12 22:48	
Uranium		0.106	mg/L	0.00030	106	70	130			
Sample ID: C12081141-002DMSD		Sample Matrix Spike Duplicate				Run: ICPMS2-C_120918A			09/18/12 23:02	
Uranium		0.112	mg/L	0.00030	112	70	130	5.5	20	
Method: E200.8								Analytical Run: ICPMS4-C_120913A		
Sample ID: ICV		Initial Calibration Verification Standard							09/13/12 14:20	
Uranium		0.0504	mg/L	0.00030	101	90	110			
Method: E200.8									Batch: R164629	
Sample ID: LRB		Method Blank				Run: ICPMS4-C_120913A			09/13/12 15:12	
Uranium		0.00114	mg/L	0.00030						
Sample ID: LFB		Laboratory Fortified Blank				Run: ICPMS4-C_120913A			09/13/12 15:17	
Uranium		0.0515	mg/L	0.00030	101	85	115			
Sample ID: C12081091-001AMS		Sample Matrix Spike				Run: ICPMS4-C_120913A			09/14/12 10:52	
Uranium		0.0517	mg/L	0.00030	100	70	130			
Sample ID: C12081091-001AMSD		Sample Matrix Spike Duplicate				Run: ICPMS4-C_120913A			09/14/12 10:57	
Uranium		0.0523	mg/L	0.00030	101	70	130	1.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 3rd Quarter Surface Water 2012

Report Date: 09/25/12
Work Order: C12081141

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.1										Batch: GA-0581
Sample ID: LCS-GA-0581		Laboratory Control Sample				Run: BERTHOLD 770-1_120906A			09/07/12 07:26	
Gross Alpha minus Rn & U		23.2	pCi/L		117	80	120			
Sample ID: MB-GA-0581	3	Method Blank				Run: BERTHOLD 770-1_120906A			09/07/12 07:26	
Gross Alpha minus Rn & U		-0.539	pCi/L							U
Gross Alpha minus Rn & U Precision (±)		0.435	pCi/L							
Gross Alpha minus Rn & U MDC		1.03	pCi/L							
Sample ID: C12081275-002GMS		Sample Matrix Spike				Run: BERTHOLD 770-1_120906A			09/07/12 07:26	
Gross Alpha minus Rn & U		55.3	pCi/L		132	70	130			S
- Spike response is outside of the acceptance range for this analysis. Since the LCS and the RPD for the MS MSD pair are acceptable, the response is considered to be matrix related. The batch is approved.										
Sample ID: C12081275-002GMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-1_120906A			09/07/12 07:26	
Gross Alpha minus Rn & U		55.4	pCi/L		128	70	130	0.1	30.5	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc **Report Date:** 09/25/12

Project: 3rd Quarter Surface Water 2012 **Work Order:** C12081141

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-6211
Sample ID: LCS-RA226-6211		Laboratory Control Sample				Run: BERTHOLD 770-2_120905A				09/12/12 15:55
Radium 226		6.5	pCi/L		105	80	120			
Sample ID: C12081277-001FMS		Sample Matrix Spike				Run: BERTHOLD 770-2_120905A				09/12/12 15:55
Radium 226		14	pCi/L		107	70	130			
Sample ID: C12081277-001FMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-2_120905A				09/12/12 15:55
Radium 226		14	pCi/L		105	70	130	1.7	25.6	
Sample ID: MB-RA226-6211	3	Method Blank				Run: BERTHOLD 770-2_120905A				09/12/12 19:00
Radium 226		-0.11	pCi/L							U
Radium 226 precision (±)		0.078	pCi/L							
Radium 226 MDC		0.19	pCi/L							
Method: E903.0										Batch: RA226-6222
Sample ID: LCS-34864		Laboratory Control Sample				Run: G5000W_120910B				09/18/12 01:28
Radium 226		12	pCi/L		102	85	115			
Sample ID: MB-34864	3	Method Blank				Run: G5000W_120910B				09/18/12 01:28
Radium 226		0.098	pCi/L							U
Radium 226 precision (±)		0.12	pCi/L							
Radium 226 MDC		0.19	pCi/L							
Sample ID: C12081141-001DDUP	3	Sample Duplicate				Run: G5000W_120910B				09/18/12 01:28
Radium 226		4.4	pCi/L					0.0	33.1	
Radium 226 precision (±)		0.52	pCi/L							
Radium 226 MDC		0.32	pCi/L							
Sample ID: C12081141-002DMS		Sample Matrix Spike				Run: G5000W_120910B				09/18/12 01:28
Radium 226		57	pCi/L		113	70	130			

Qualifiers:

RL - Analyte reporting limit.	ND - Not detected at the reporting limit.
MDC - Minimum detectable concentration	U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc **Report Date:** 09/25/12
Project: 3rd Quarter Surface Water 2012 **Work Order:** C12081141

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0										Batch: RA-TH-ISO-1693
Sample ID: LCS-RA-TH-ISO-1693		Laboratory Control Sample				Run: ALPHANALYST_120907A				09/11/12 08:59
Thorium 230		3.3	pCi/L		63	80	120			S
- LCS response is outside of the acceptance range for this analysis. Since the MB, MS, MSD, and all tracer recoveries are acceptable the batch is approved.										
Sample ID: C12081268-002CMS		Sample Matrix Spike				Run: ALPHANALYST_120907A				09/11/12 08:59
Thorium 230		11	pCi/L		94	70	130			
Sample ID: C12081268-002CMSD		Sample Matrix Spike Duplicate				Run: ALPHANALYST_120907A				09/11/12 08:59
Thorium 230		11	pCi/L		97	70	130	2.9	40.4	
Sample ID: MB-RA-TH-ISO-1693	3	Method Blank				Run: ALPHANALYST_120907A				09/11/12 09:00
Thorium 230		0.033	pCi/L							U
Thorium 230 precision (±)		0.075	pCi/L							
Thorium 230 MDC		0.18	pCi/L							
Method: E908.0										Batch: R164775
Sample ID: LCS-34826		Laboratory Control Sample				Run: ALPHANALYST_120911C				09/17/12 10:25
Thorium 230		11.1	pCi/L		107	80	120			
Sample ID: MB-34826	3	Method Blank				Run: ALPHANALYST_120911C				09/17/12 10:26
Thorium 230		0.1	pCi/L							U
Thorium 230 precision (±)		0.1	pCi/L							
Thorium 230 MDC		0.3	pCi/L							
Sample ID: C12081141-002DMS		Sample Matrix Spike				Run: ALPHANALYST_120911C				09/17/12 10:26
Thorium 230		47	pCi/L		118	70	130			
Sample ID: C12081141-002DMSD		Sample Matrix Spike Duplicate				Run: ALPHANALYST_120911C				09/17/12 10:26
Thorium 230		45	pCi/L		114	70	130	3.8	45	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

Energy Fuels Resources (USA) Inc C12081141

Login completed by: Timothy I.. Houghteling
Reviewed by: BL2000\kschroeder
Reviewed Date: 9/6/2012

Date Received: 8/28/2012
Received by: th
Carrier name: NDA

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? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	5.6℃ On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

Samples were split, filtered, and preserved as necessary for dissolved and suspended parameters.

ENERGY

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT **(Provide as much information as possible.)**

Company Name: Energy Fuels

Project Name, PWS, Permit, Etc. 3rd Quarter Surface Water 2012

Sample Origin State: UT

EPA/State Compliance: Yes ☑ No ☐

Report Mail Address: P.O. Box 809
Blanding, UT 84511

Contact Name: Garrin Palmer

Phone/Fax: 435 678 2221

Email:

Sampler: (Please Print) Garrin Palmer

Invoice Address: Same

Invoice Contact & Phone: Same

Purchase Order:

Quote/Bottle Order:

Special Report/Formats:

☐ DW
☐ POTW/WWTP
☐ State: ____
☐ Other: ____

☐ EDD/EDT(Electronic Data)
Format: ____
☐ LEVEL IV
☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please filter & preserve as needed.

Shipped by: UPS-NDA

Cooler ID(s): Client

Receipt Temp 5.6 °C

On Ice: [✓ Y] N

Custody Seal
On Bottle Y N
On Cooler [✓ Y] N
Intact [✓ Y] N
Signature Match [✓ Y] N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	TDS	TSS	Gross Alpha	Sus/dis U-NAT	Sus/dis Ra 226	Sus/dis TH 230				SEE ATTACHED	Standard Turnaround (TAT)	RUSH
1	Cottonwood creek	8/24/12	0930	1-W	X	X	X	X	X	X						
2	Cottonwood 65	8/24/12	0930	1-W	X	X	X	X	X	X						
3																
4																
5																
6																
7																
8																
9																
10																

LABORATORY USE ONLY

C12081141

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Garrin Palmer	8/24/12/ 1100	Garrin Palmer			

Sample Disposal: Return to Client: ____ Lab Disposal: ____

Received by Laboratory: Date/Time: 8-28-12 / 920 Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
information, downloadable fee schedule, forms, and links.

Attachment A

FIELD WATER ANALYSIS SURFACE WATER
WHITE MESA MILL

LOCATION (Circle one) [✓ Cottonwood Creek] Westwater Canyon Other (describe)

DATE: 8/24/12

BY: Garrin Palmer G.P.
(Sampler's initials)

pH BUFFER 7.0 7.0

pH BUFFER 4.0 4.0

SPECIFIC CONDUCTIVITY 999 µMHOs

STEAM DEPTH: 1.5'

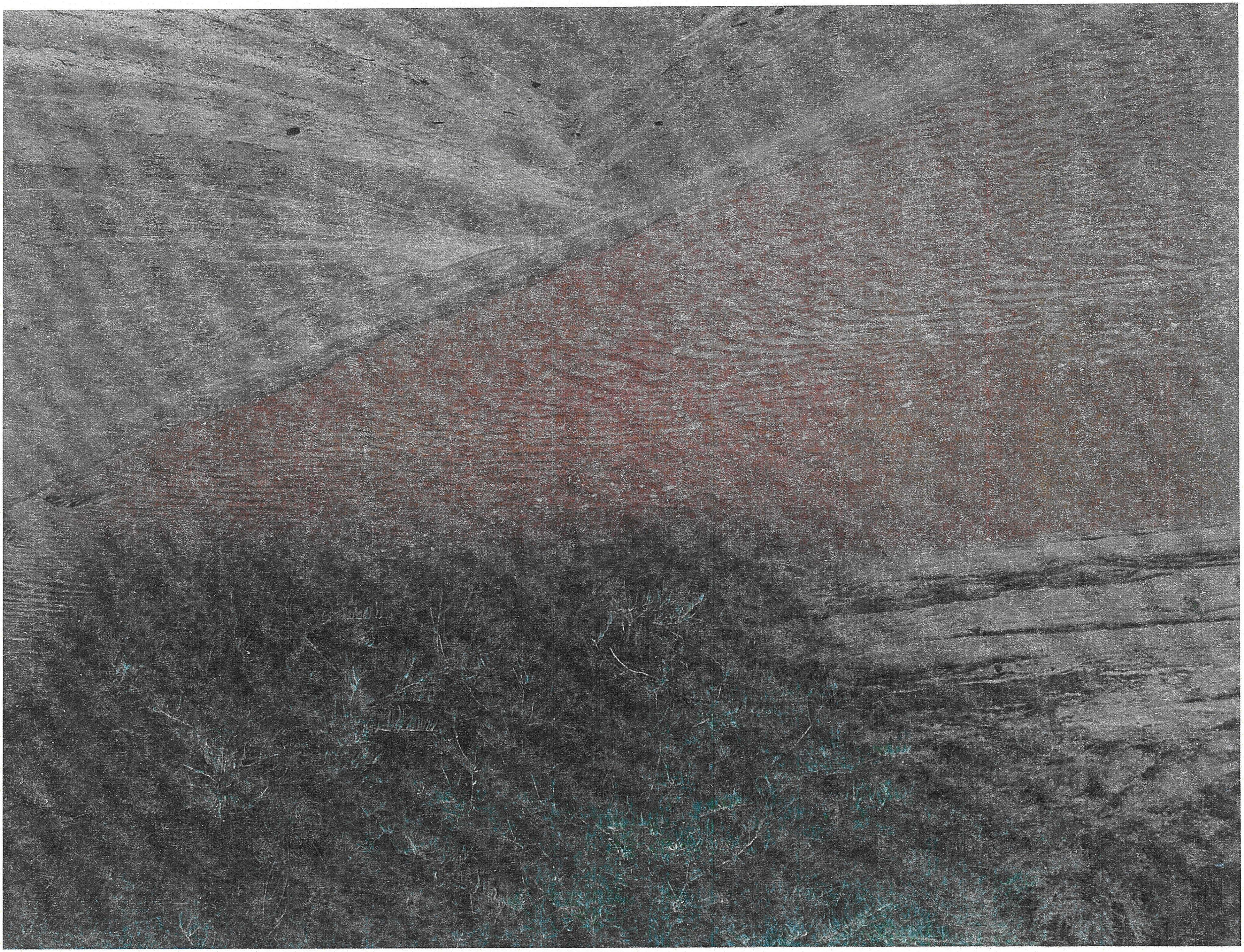
pH of WATER 7.95

TEMP 15°C ~~[illegible]~~

COND µmhos 201.0	COND µmhos 200.3
pH Units 7.98	pH units 8.01
Temp °C 17.91	Temp °C 18.11
COND µmhos 201.0	COND µmhos 201.1
pH units 8.00	pH units 8.02
Temp °C 18.09	Temp °C 18.20

Comments:

Arrived on site at 0915. Garrin Palmer present for sampling. Parameters were taken at 0920. Samples were collected at 0930. Stream was very dirty. Temperature was 15°C and sunny at the time of sampling. Left site at 0942.



Attachment A

FIELD WATER ANALYSIS SURFACE WATER
WHITE MESA MILL

LOCATION (Circle one): Cottonwood Creek [✓ Westwater Canyon] Other (describe)

DATE: 8/24/12

BY: Garrin Palmer G.P.
(Sampler's initials)

pH BUFFER 7.0 7.0

pH BUFFER 4.0 4.0

SPECIFIC CONDUCTIVITY 999 µMHOs

STEAM DEPTH: NA

pH of WATER NA

TEMP 15°C

COND µmhos

pH Units

Temp °C

COND µmhos

pH units

Temp °C

COND µmhos

pH units

Temp °C

COND µmhos

pH units

Temp °C

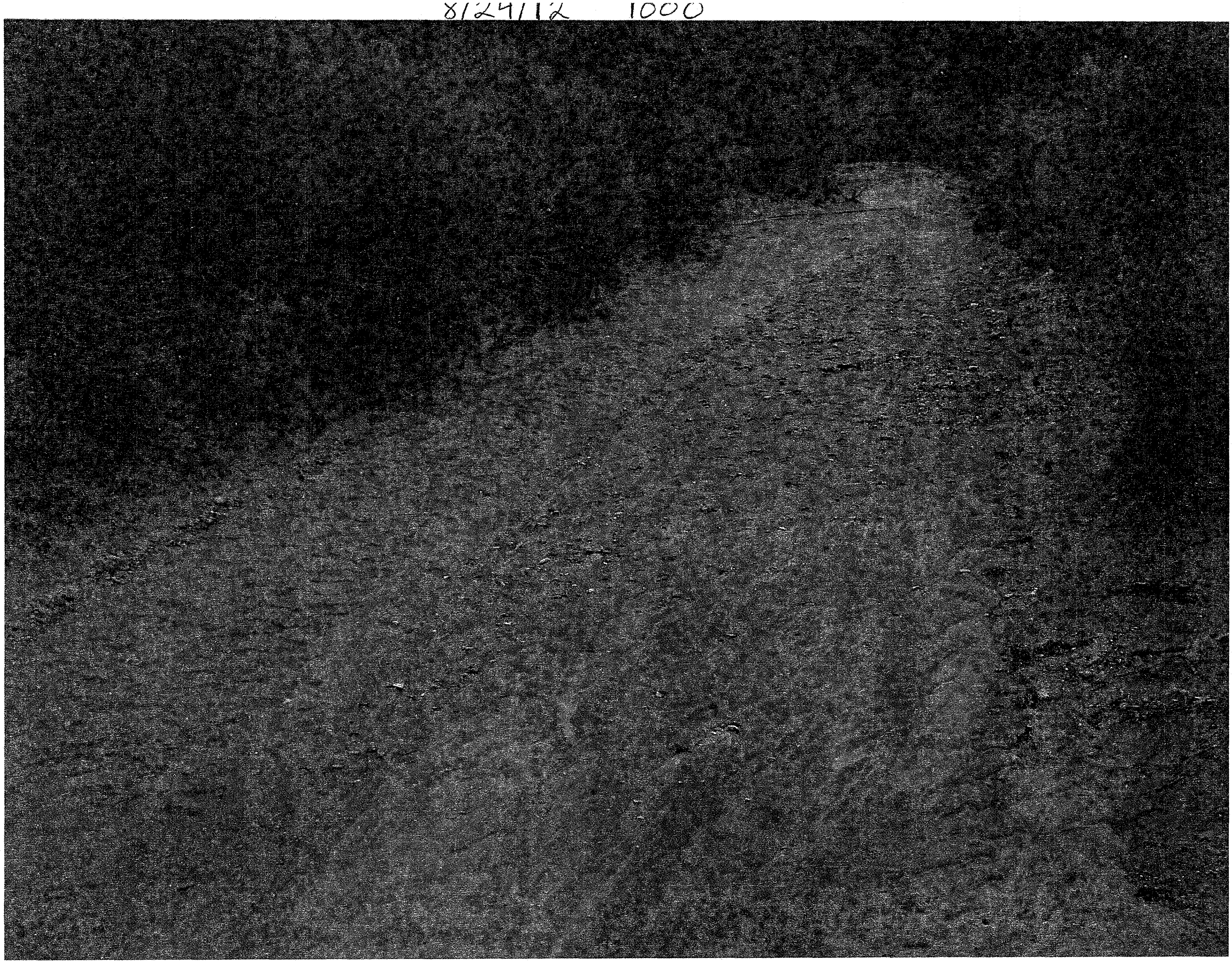
Comments:

8/24/12 Arrived on site at 1000. Creek was dry, pictures were taken.

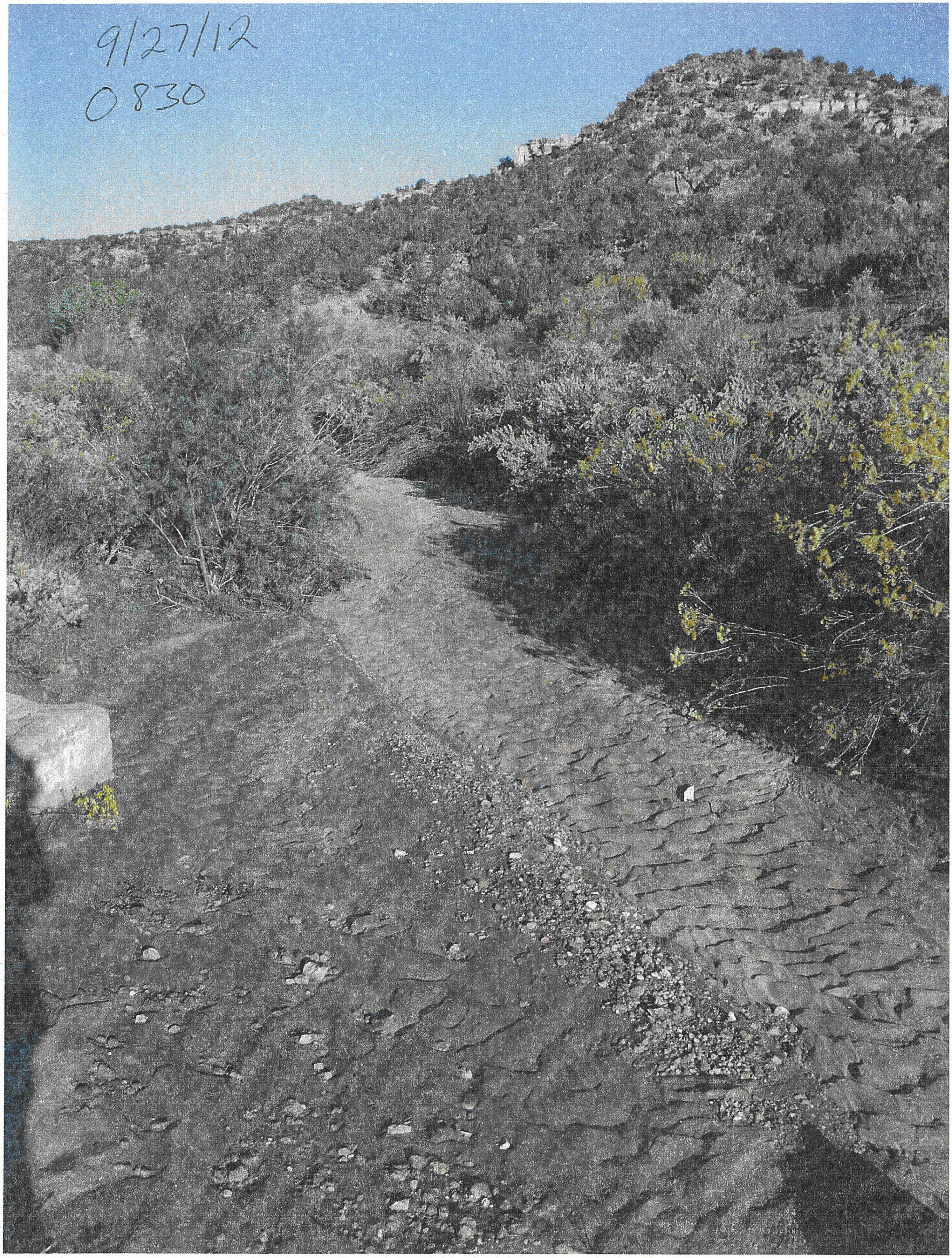
9/17/12 Arrived on site 0800. Creek was dry, pictures were taken.

9/27/12 Arrived on site at 0830. Creek was dry.

8/24/12 1000



4/17/11 0800



9/27/12
0830

Attachment A

FIELD WATER ANALYSIS SURFACE WATER
WHITE MESA MILL

LOCATION (Circle one) [✓ Cottonwood Creek] Westwater Canyon Other (describe)

DATE: 12/7/12

BY: Garrin Palmer / GP
(Sampler's initials)

pH BUFFER 7.0 7.0

pH BUFFER 4.0 4.0

SPECIFIC CONDUCTIVITY 999 µMHOs

STEAM DEPTH: N/A

pH of WATER

TEMP

COND µmhos

pH Units

Temp °C

COND µmhos

pH units

Temp °C

COND µmhos

pH units

Temp °C

COND µmhos

pH units

Temp °C

Comments:

Arrived on site at 1000. Garrin & Tanner present. Creek was dry see photo. Arrived on site at 0815 on 12/14/12. creek was dry. Arrived on site at 0845 on 12/21/12. Creek was Dry. See attached photos.

12/21/12 0845

4/14/02 6815

12/17/12 1000

Attachment A

FIELD WATER ANALYSIS SURFACE WATER
WHITE MESA MILL

LOCATION (Circle one): Cottonwood Creek [✓ Westwater Canyon] Other (describe)

DATE: 12/7/12

BY: Garrin Palmer / GP
(Sampler's initials)

pH BUFFER 7.0 7.0

pH BUFFER 4.0 4.0

SPECIFIC CONDUCTIVITY 999 μMHOs

STEAM DEPTH: NA

pH of WATER

TEMP

COND μmhos

pH Units

Temp °C

COND μmhos

pH units

Temp °C

COND μmhos

pH units

Temp °C

COND μmhos

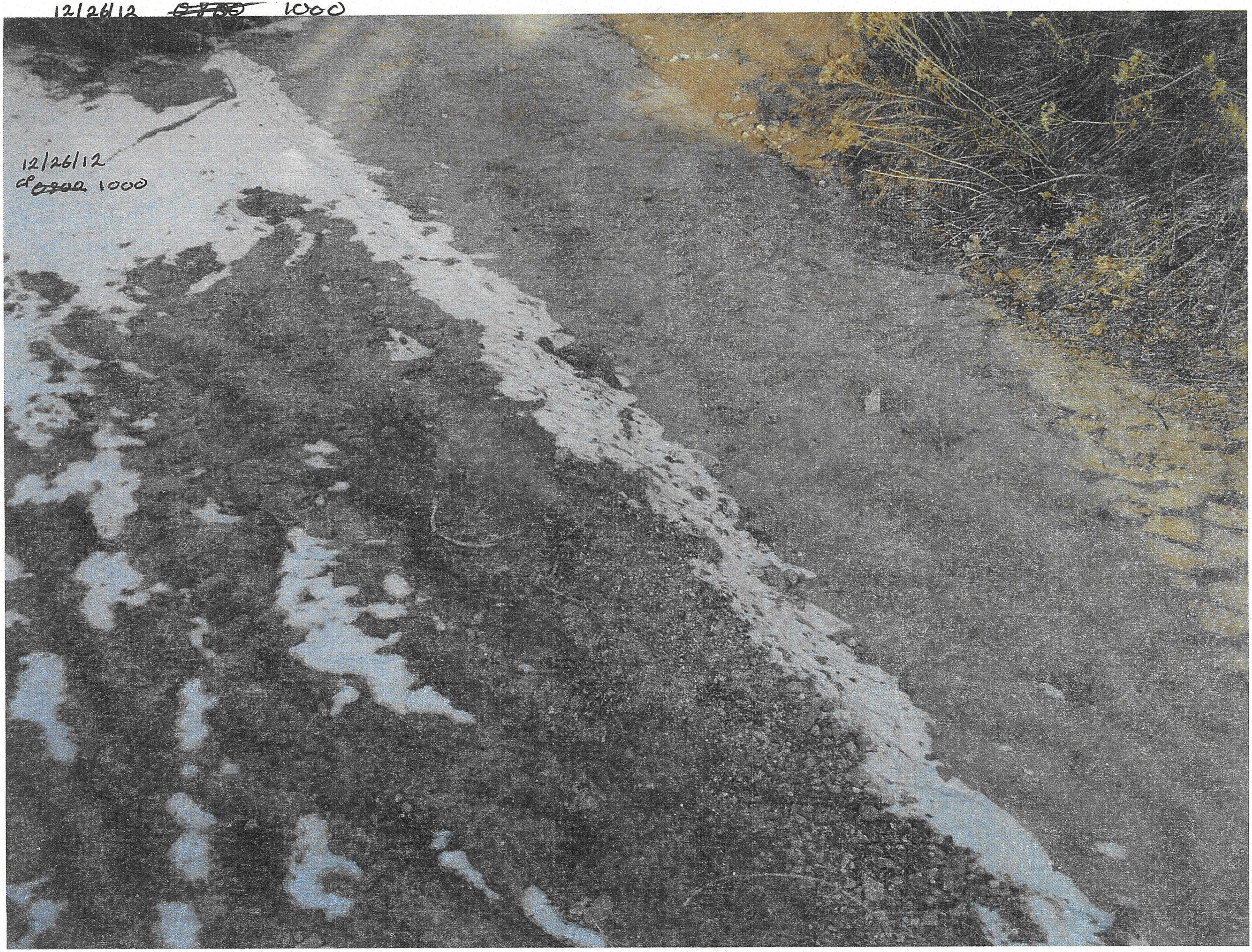
pH units

Temp °C

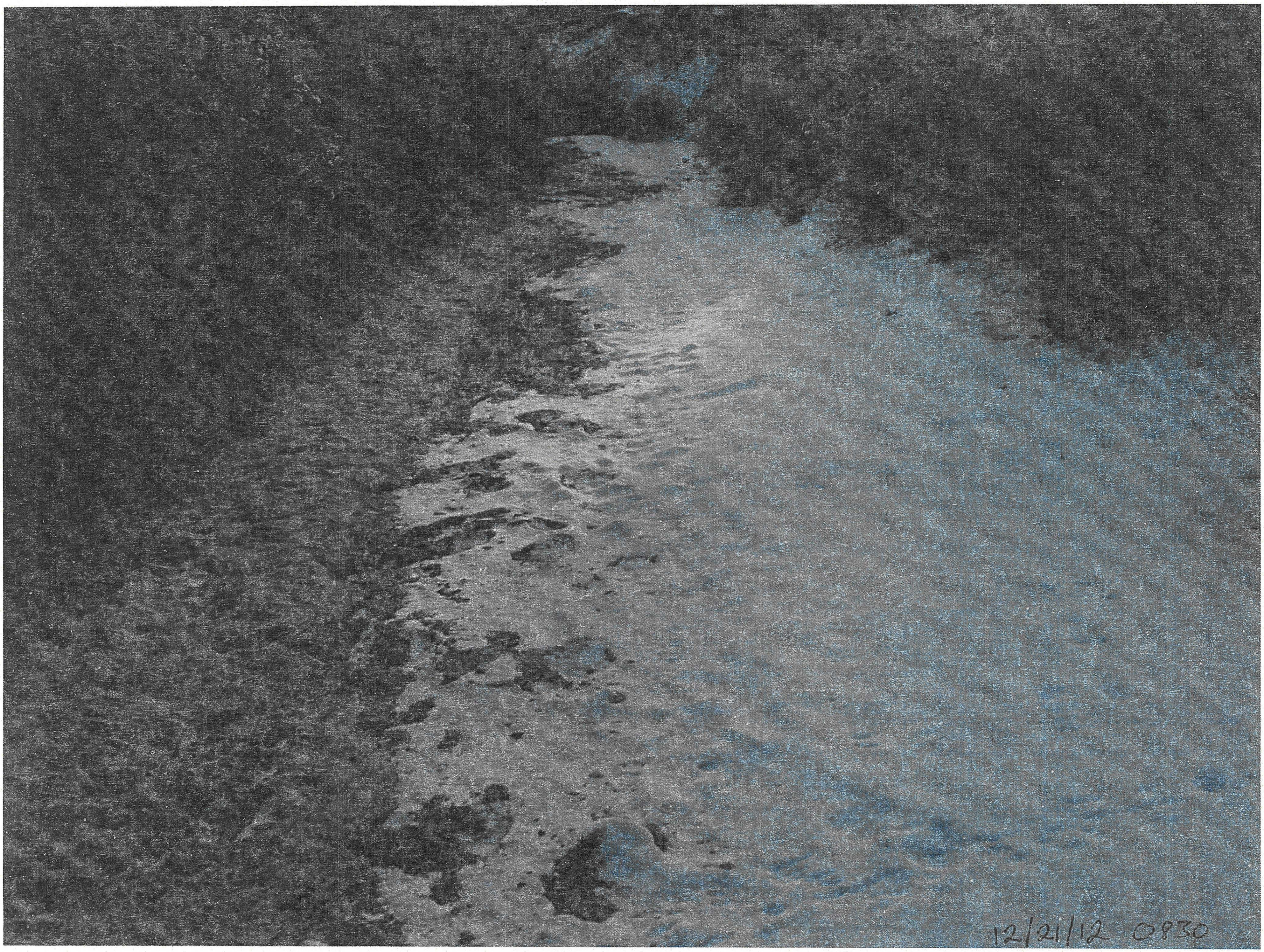
Comments:

Arrived on site at 0930. Garrin & Tanner present. Creek was dry, see photo. Arrived on site at 0900 on 12/14/12. Creek was Dry. Arrived on site at 0830 on 12/21/12. Creek was dry. Arrived on site at GP ~~0800~~ 1000 on 12/26/12. Creek was Dry. (four attempts were made at creek because photo on 12/7 didnt turn out well.

12/26/12 1000



12/26/12
cP 1000



12/21/12 0830

12/14/12 0900

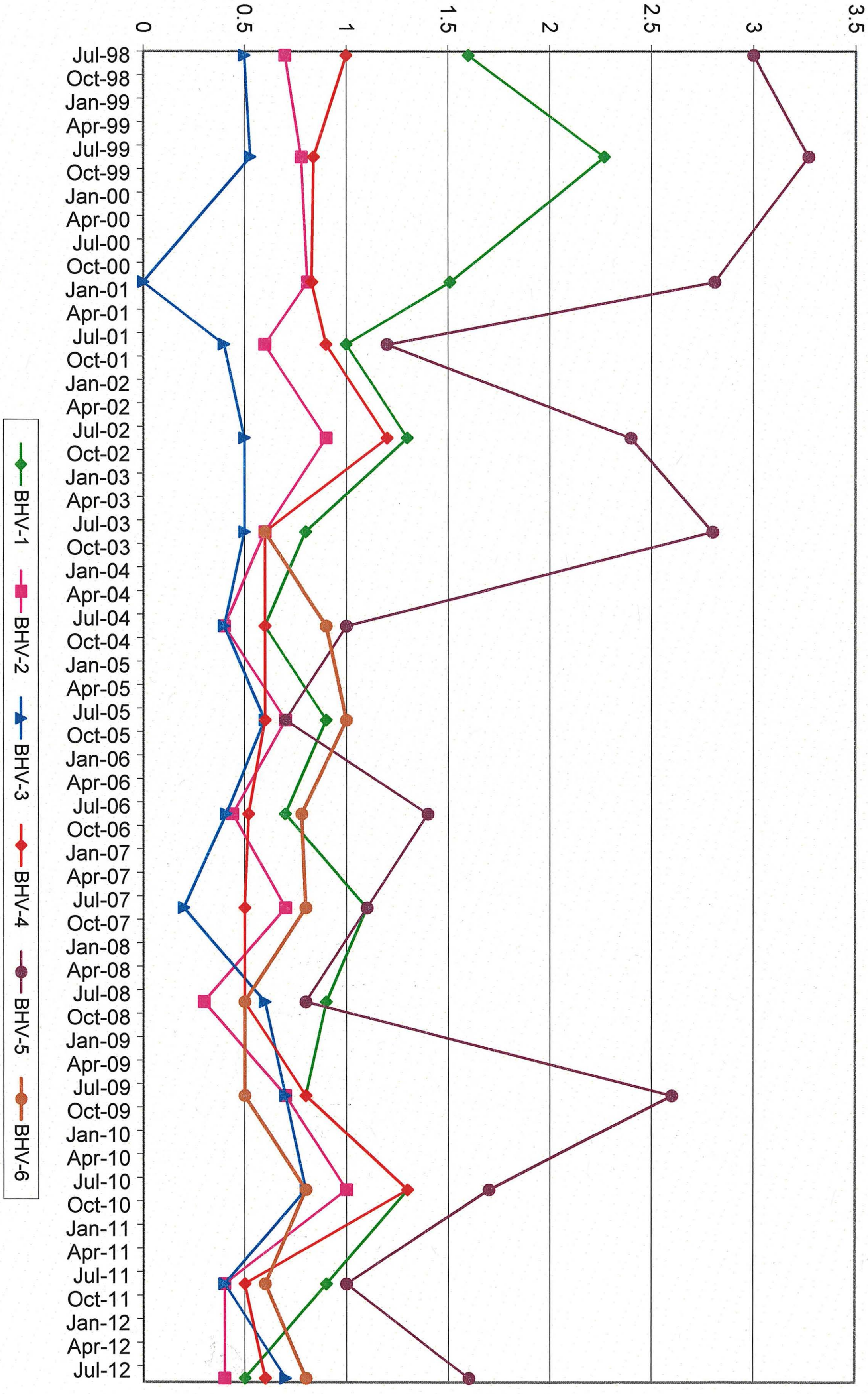
12/14/12 0900

12/11/12 0930

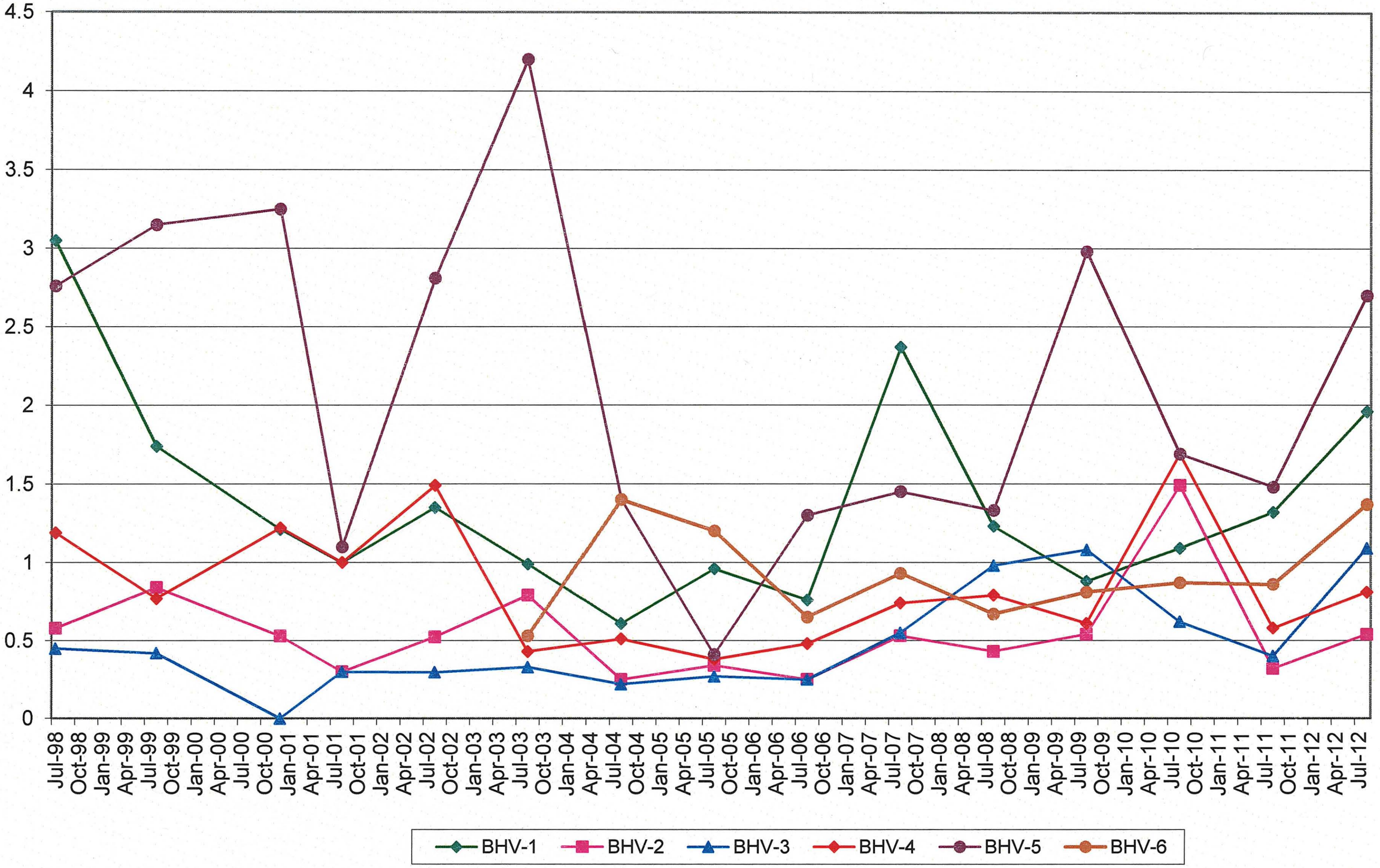
ATTACHMENT I

SOIL SAMPLE GRAPHS, DATA TABLE, LABORATORY RESULTS AND QA/QC

Radium-226 Concentrations In Soil (pCi/g)



Uranium-Nat. Concentrations In Soil (pCi/g)



WHITE MESA MILL
Soil Sampling Results
(VALUES) x 10-3 uCi/kg

Date	BHV-1		BHV-2		BHV-3		BHV-4		BHV-5		BHV-6	
	Ra-226	U-Nat	Ra-226	U-Nat	Ra-226	U-Nat	Ra-226	U-Nat	Ra-226	U-Nat	Ra-226	U-Nat
9/7/80	0.650	0.420	0.340	0.420	0.420	0.420	0.410	12.194	0.230	14.891	-	-
9/8/81	0.400	1.800	0.300	0.600	0.300	0.600	0.200	3.000	0.300	0.600	-	-
12/3/81	0.790	0.770	0.440	0.560	0.890	0.420	0.750	0.630	0.550	0.420	-	-
6/30/82	0.423	0.384	0.412	0.180	0.265	0.207	0.478	0.260	0.449	0.216	-	-
5/5/83	0.471	0.410	0.569	0.550	0.461	0.340	0.643	0.340	0.147	0.140	-	-
6/4/84	0.713	0.866	0.618	0.683	0.489	0.471	0.124	0.324	0.132	0.310	-	-
10/12/84	2.960	0.886	2.330	0.069	2.880	0.721	3.490	0.804	2.550	0.817	-	-
8/28/85	1.630	0.800	2.190	0.424	2.270	0.424	4.330	0.294	1.280	0.577	-	-
8/1/86	0.369	0.654	0.466	0.866	0.382	0.694	0.396	0.826	0.728	0.836	-	-
8/17/87	0.600	0.800	1.500	0.900	0.800	0.600	1.200	0.700	1.500	1.300	-	-
8/28/88	1.500	1.600	1.300	0.700	0.600	0.900	1.000	1.300	3.800	5.000	-	-
8/25/88	1.200	1.600	1.100	3.000	0.800	1.000	1.100	1.400	2.900	5.700	-	-
8/1/90	2.900	5.800	1.000	1.400	0.800	1.400	1.800	1.300	3.700	3.200	-	-
8/5/91	3.900	8.800	1.700	2.600	2.600	5.700	1.800	2.600	2.500	4.400	-	-
8/13/92	1.200	2.200	0.900	1.400	0.800	1.200	0.900	0.900	1.100	1.800	-	-
8/13/93	2.000	1.700	1.400	1.700	1.100	1.900	0.800	1.600	4.800	3.500	-	-
8/3/94	1.000	1.600	0.700	0.800	0.700	0.900	0.700	1.100	3.000	3.800	-	-
8/28/95	2.810	4.700	0.680	0.200	0.880	0.650	0.580	0.240	2.800	1.600	-	-
8/13/96	1.700	2.150	0.600	0.460	0.300	0.210	0.500	0.520	1.900	2.010	-	-
8/1/97	0.540	0.310	0.560	0.160	0.410	0.270	0.410	0.260	1.700	1.500	-	-
7/1/98	1.600	3.050	0.700	0.580	0.500	0.450	1.000	1.190	3.000	2.760	-	-
8/24/99	2.270	1.740	0.780	0.840	0.530	0.420	0.840	0.770	3.270	3.150	-	-
12/1/00	1.510	1.210	0.810	0.530	*	*	0.830	1.220	2.810	3.250	-	-
8/23/01	1.000	1.000	0.600	0.300	0.400	0.300	0.900	1.000	1.200	1.100	-	-
8/1/02	1.300	1.350	0.900	0.524	0.500	0.297	1.200	1.490	2.400	2.810	60.00	0.550
8/5/03	0.800	0.990	0.600	0.790	0.500	0.330	0.600	0.4300	0.280	0.420	0.600	0.530
8/9/04	0.600	0.610	0.400	0.250	0.400	0.220	0.600	0.5100	1.000	1.400	0.900	1.400
8/3/05	0.900	0.960	0.700	0.340	0.600	0.270	0.600	0.3800	0.700	0.410	1.000	1.200
8/7/06	0.700	0.760	0.440	0.250	0.410	0.250	0.520	0.480	1.400	1.300	0.780	0.650
8/8/07	1.100	2.370	0.700	0.530	0.200	0.550	0.500	0.740	1.100	1.450	0.800	0.930
8/20/08	0.900	1.230	0.300	0.430	0.600	0.980	0.500	0.790	0.800	1.330	0.500	0.670
8/10/09	0.800	0.880	0.700	0.540	0.700	1.080	0.800	0.610	2.600	2.980	0.500	0.810
8/2/10	1.3	1.09	1.0	1.49	0.8	0.62	1.3	1.69	1.7	1.69	0.8	0.87
8/23/11	0.9	1.32	0.4	0.32	0.4	0.4	0.5	0.58	1.0	1.48	0.6	0.86
8/20/12	0.5	1.96	0.4	0.54	0.7	1.09	0.6	0.81	1.6	2.70	0.8	1.37

*Data not available.

ANALYTICAL SUMMARY REPORT

September 21, 2012

Energy Fuels Resources (USA) Inc
6425 S Hwy 191
Blanding, UT 84511

Workorder No.: C12080965

Project Name: Annual Soils 2012

Energy Laboratories, Inc. Casper WY received the following 7 samples for Energy Fuels Resources (USA) Inc on 8/21/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C12080965-001	BHV-1	08/20/12 8:56	08/21/12	Soil	Metals by ICP/ICPMS, Total Digestion, Total Metals Digestion For RadioChemistry Radium 226
C12080965-002	BHV-2	08/20/12 9:26	08/21/12	Soil	Same As Above
C12080965-003	BHV-3/Black Mesa	08/20/12 9:47	08/21/12	Soil	Same As Above
C12080965-004	BHV-4	08/20/12 8:20	08/21/12	Soil	Same As Above
C12080965-005	BHV-5	08/20/12 8:32	08/21/12	Soil	Same As Above
C12080965-006	BHV-6	08/20/12 8:11	08/21/12	Soil	Same As Above
C12080965-007	West Water Creek	08/20/12 10:48	08/21/12	Soil	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these test results, please call.

Report Approved By:

Stephanie D Waldrop
Reporting Supervisor

Digitally signed by
Stephanie Waldrop
Date: 2012.09.21 13:43:29 -06:00

CLIENT: Energy Fuels Resources (USA) Inc
Project: Annual Soils 2012
Sample Delivery Group: C12080965

Report Date: 09/21/12

CASE NARRATIVE

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

SAMPLE TEMPERATURE COMPLIANCE: 4℃ (±2℃)
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.

GROSS ALPHA ANALYSIS
Method 900.0 for gross alpha and gross beta is intended as a drinking water method for low TDS waters. Data provided by this method for non potable waters should be viewed as inconsistent.

RADON IN AIR ANALYSIS
The desired exposure time is 48 hours (2 days). The time delay in returning the canister to the laboratory for processing should be as short as possible to avoid excessive decay. Maximum recommended delay between end of exposure to beginning of counting should not exceed 8 days.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS
Data for PCBs, Atrazine and Simazine are reported from EPA 525.2. PCB data reported by ELI reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

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.

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

CERTIFICATIONS:
USEPA: WY00002, Radiochemical WY00937; FL-DOH NELAC: E87641, Radiochemical E871017; California: 02118CA; Oregon: WY200001, Radiochemical WY200002; Utah: WY00002; Washington: C836

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Soils 2012
Lab ID: C12080965-001
Client Sample ID: BHV-1

Report Date: 09/21/12
Collection Date: 08/20/12 08:56
DateReceived: 08/21/12
Matrix: Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	1.96	mg/kg-dry		0.02		SW6020	09/20/12 11:38 / cp
RADIONUCLIDES							
Radium 226	0.5	pCi/g-dry				E903.0	09/17/12 21:54 / trs
Radium 226 precision (±)	0.05	pCi/g-dry				E903.0	09/17/12 21:54 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	09/17/12 21:54 / trs

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

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Energy Fuels Resources (USA) Inc	**Report Date:**	09/21/12
Project:	Annual Soils 2012	**Collection Date:**	08/20/12 09:26
Lab ID:	C12080965-002	**DateReceived:**	08/21/12
Client Sample ID:	BHV-2	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.54	mg/kg-dry		0.02		SW6020	09/20/12 11:42 / cp
RADIONUCLIDES							
Radium 226	0.4	pCi/g-dry				E903.0	09/17/12 21:54 / trs
Radium 226 precision (±)	0.04	pCi/g-dry				E903.0	09/17/12 21:54 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	09/17/12 21:54 / trs

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Energy Fuels Resources (USA) Inc	**Report Date:**	09/21/12
Project:	Annual Soils 2012	**Collection Date:**	08/20/12 09:47
Lab ID:	C12080965-003	**DateReceived:**	08/21/12
Client Sample ID:	BHV-3/Black Mesa	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	1.09	mg/kg-dry		0.02		SW6020	09/20/12 12:04 / cp
RADIONUCLIDES							
Radium 226	0.7	pCi/g-dry				E903.0	09/17/12 23:44 / trs
Radium 226 precision (±)	0.06	pCi/g-dry				E903.0	09/17/12 23:44 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	09/17/12 23:44 / trs

Report Definitions:

RL - Analyte reporting limit.

QCL - Quality control limit.

MDC - Minimum detectable concentration

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:	Energy Fuels Resources (USA) Inc	**Report Date:**	09/21/12
Project:	Annual Soils 2012	**Collection Date:**	08/20/12 08:20
Lab ID:	C12080965-004	**DateReceived:**	08/21/12
Client Sample ID:	BHV-4	**Matrix:**	Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.81	mg/kg-dry		0.02		SW6020	09/20/12 12:08 / cp
RADIONUCLIDES							
Radium 226	0.6	pCi/g-dry				E903.0	09/17/12 23:44 / trs
Radium 226 precision (±)	0.05	pCi/g-dry				E903.0	09/17/12 23:44 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	09/17/12 23:44 / trs

Report Definitions:

RL - Analyte reporting limit.

QCL - Quality control limit.

MDC - Minimum detectable concentration

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Soils 2012
Lab ID: C12080965-005
Client Sample ID: BHV-5

Report Date: 09/21/12
Collection Date: 08/20/12 08:32
DateReceived: 08/21/12
Matrix: Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	2.70	mg/kg-dry		0.02		SW6020	09/20/12 12:13 / cp
RADIONUCLIDES							
Radium 226	1.6	pCi/g-dry				E903.0	09/17/12 23:44 / trs
Radium 226 precision (±)	0.08	pCi/g-dry				E903.0	09/17/12 23:44 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	09/17/12 23:44 / trs

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

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Soils 2012
Lab ID: C12080965-006
Client Sample ID: BHV-6

Report Date: 09/21/12
Collection Date: 08/20/12 08:11
DateReceived: 08/21/12
Matrix: Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	1.37	mg/kg-dry		0.02		SW6020	09/20/12 12:17 / cp
RADIONUCLIDES							
Radium 226	0.8	pCi/g-dry				E903.0	09/17/12 23:44 / trs
Radium 226 precision (±)	0.06	pCi/g-dry				E903.0	09/17/12 23:44 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	09/17/12 23:44 / trs

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

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Soils 2012
Lab ID: C12080965-007
Client Sample ID: West Water Creek

Report Date: 09/21/12
Collection Date: 08/20/12 10:48
DateReceived: 08/21/12
Matrix: Soil

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
METALS - TOTAL							
Uranium	0.08	mg/kg-dry		0.02		SW6020	09/20/12 12:21 / cp
RADIONUCLIDES							
Radium 226	0.05	pCi/g-dry				E903.0	09/17/12 23:44 / trs
Radium 226 precision (±)	0.02	pCi/g-dry				E903.0	09/17/12 23:44 / trs
Radium 226 MDC	0.02	pCi/g-dry				E903.0	09/17/12 23:44 / trs

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc **Report Date:** 09/21/12
Project: Annual Soils 2012 **Work Order:** C12080965

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: R164780	
Sample ID: C12080965-002AMS		Sample Matrix Spike				Run: BERTHOLD 770-2_120910A			09/17/12 21:54	
Radium 226		1.9	pCi/g-dry		105	70	130			
Sample ID: C12080965-002AMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-2_120910A			09/17/12 21:54	
Radium 226		1.9	pCi/g-dry		104	70	130	1.8	23.1	
Sample ID: LCS-34814		Laboratory Control Sample				Run: BERTHOLD 770-2_120910A			09/17/12 21:54	
Radium 226		0.3	pCi/g-dry		105	70	130			
Sample ID: MB-34814	3	Method Blank				Run: BERTHOLD 770-2_120910A			09/17/12 23:44	
Radium 226		-0.0	pCi/g-dry							U
Radium 226 precision (±)		0.0	pCi/g-dry							
Radium 226 MDC		0.0	pCi/g-dry							
Sample ID: C12080965-007AMS		Sample Matrix Spike				Run: BERTHOLD 770-2_120910A			09/17/12 23:44	
Radium 226		0.5	pCi/g-dry		59	70	130			S
- Spike response and the RPD for the associated MSD are outside of the acceptance range for this analysis. Since all other QC parameters for the run are acceptable the batch is approved.										
Sample ID: C12080965-007AMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-2_120910A			09/17/12 23:44	
Radium 226		0.8	pCi/g-dry		98	70	130	46	26	R

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
S - Spike recovery outside of advisory limits.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.
U - Not detected at minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Soils 2012

Report Date: 09/21/12
Work Order: C12080965

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Analytical Run: ICPMS4-C_120919A
Sample ID: ICV		Initial Calibration Verification Standard								09/19/12 13:55
Uranium		0.0496	mg/L	0.00030	99	90	110			
Sample ID: ICSA		Interference Check Sample A								09/19/12 13:59
Uranium		9.73E-05	mg/L	0.00030						
Sample ID: ICSAB		Interference Check Sample AB								09/19/12 14:04
Uranium		2.35E-05	mg/L	0.00030						
Method: SW6020										Batch: 35074
Sample ID: MB-35074		Method Blank				Run: ICPMS4-C_120919A				09/20/12 11:08
Uranium		ND	mg/kg	0.020						
Sample ID: LFB-35074		Laboratory Fortified Blank				Run: ICPMS4-C_120919A				09/20/12 11:13
Uranium		26	mg/kg	1.0	106	80	120			
Sample ID: LCS3-35074		Laboratory Control Sample				Run: ICPMS4-C_120919A				09/20/12 11:17
Uranium		120	mg/kg	1.0	119	80	120			
Sample ID: C12090561-001ADIL		Serial Dilution				Run: ICPMS4-C_120919A				09/20/12 11:29
Uranium		13	mg/kg-dry	1.0				11	10	R
Sample ID: C12080965-007BMS3		Sample Matrix Spike				Run: ICPMS4-C_120919A				09/20/12 12:26
Uranium		25.5	mg/kg	1.0	103	75	125			
Sample ID: C12080965-007BMSD		Sample Matrix Spike Duplicate				Run: ICPMS4-C_120919A				09/20/12 12:30
Uranium		25.8	mg/kg	1.0	103	75	125	1.1	20	

Qualifiers:

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

Energy Fuels Resources (USA) Inc

C12080965

Login completed by: Timothy I.. Houghteling
Reviewed by: BL2000\kschroeder
Reviewed Date: 8/24/2012

Date Received: 8/21/2012
Received by: km
Carrier name: Ground

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? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☐	No ☐	Not Applicable ☑
Container/Temp Blank temperature:	N/A °C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Contact and Corrective Action Comments:

None

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: Energy Fuels

Report Mail Address: P.O. Box 809
Blanding, UT 84511

Invoice Address: Same

Project Name, PWS, Permit, Etc.: Annual Soils 2012

Contact Name: Garrin Palmer

Phone/Fax: 435 678 2221

Invoice Contact & Phone: Same

Sample Origin State: UT

Email:

Purchase Order:

EPA/State Compliance: Yes ☒ No ☐

Sampler: (Please Print) Tanner Holliday

Quote/Bottle Order:

Special Report/Formats:

☐ DW
☐ POTW/WWTP
☐ State: ______
☐ Other: ______

☐ EDD/EDT (Electronic Data)
Format: ______
☐ LEVEL IV
☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Ra 226	U-Nat
1	BHV-1	8/20/12	0856	1-S	X	X
2	BHV-2		0926	1-S	X	X
3	BHV-3 / Black Mesa		0947	1-S	X	X
4	BHV-4		0820	1-S	X	X
5	BHV-5		0832	1-S	X	X
6	BHV-6		0811	1-S	X	X
7	Westwater Creek	8/20/12	1048	1-S	X	X
8						
9						
10						

KLM
adal

Shipped by: UPS-GNDR

Cooler ID(s): Client

Receipt Temp N/A °C

On Ice: Y [✓ N]

Custody Seal
On Bottle Y [✓ N]
On Cooler [✓ Y] N

Intact Y [✓ N]

Signature Match Y [✓ N]

LABORATORY USE ONLY

C12080965

Custody Record MUST be Signed

Relinquished by (print): Garrin Palmer Date/Time: 8/20/12 / 1300 Signature: Garrin Palmer

Received by (print): Date/Time: Signature:

Relinquished by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Sample Disposal: Return to Client: ______ Lab Disposal: ______

Received by Laboratory: Kate Miller Date/Time: 8/21/12 910 Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.