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August 29, 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
January 1, 2013 through June 30, 2013

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 January 1, 2013 through June 30, 2013.

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

Yours very truly,

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
(January through June 2013)

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

August 29, 2013

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WHITE MESA URANIUM MILL
SEMI-ANNUAL EFFLUENT REPORT, JANUARY THROUGH JUNE 2013

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 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 in 2012 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. 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 consistent with NRC Regulatory Guide 4.14 were maintained by the Mill's contract analytical laboratory for this reporting period.

[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

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) 1st and 2nd Quarters 2013

Monitoring Station	1st Qtr. Result (uCi/ml)	2nd Qtr. Result (uCi/ml)	Effluent Concentration Limit (ECL) (uCi/ml)	Average Percent ECL
BHV1	9.91E-16	1.46E-15	9.00E-14	1.36E+00
BHV2	3.38E-16	4.06E-16	9.00E-14	4.13E-01
BHV4	3.04E-15	2.50E-15	9.00E-14	3.08E+00
BHV5	6.66E-15	7.35E-15	9.00E-14	7.78E+00
BHV6	4.52E-15	5.91E-15	9.00E-14	5.79E+00

Table 3- Air Monitoring Station Results Th-230 (Comparison to Limits) 1st and 2nd Quarters 2013

Monitoring Station	1st Qtr. Result (uCi/ml)	2nd Qtr. Result (uCi/ml)	Effluent Concentration Limit (ECL) (uCi/ml)	Average Percent ECL
BHV1	1.86E-16	3.34E-16	2.00E-14	1.30E+00
BHV2	3.94E-17	4.89E-17	2.00E-14	2.21E-01
BHV4	4.99E-16	3.62E-16	2.00E-14	2.15E+00
BHV5	1.48E-15	1.72E-15	2.00E-14	8.00E+00
BHV6	7.93E-16	6.74E-16	2.00E-14	3.67E+00

Table 4- Air Monitoring Station Results Ra-226 (Comparison to Limits) 1st and 2nd Quarters 2013

Monitoring Station	1st Qtr. Result (uCi/ml)	2nd Qtr. Result (uCi/ml)	Effluent Concentration Limit (ECL) (uCi/ml)	Average Percent ECL
BHV1	2.04E-16	3.91E-16	9.00E-13	3.31E-02
BHV2	8.32E-17	8.06E-17	9.00E-13	9.10E-03
BHV4	2.79E-16	2.40E-16	9.00E-13	2.88E-02
BHV5	1.12E-15	2.02E-15	9.00E-13	1.74E-01
BHV6	4.91E-16	7.85E-16	9.00E-13	7.09E-02

Table 5- Air Monitoring Station Results Pb-210 (Comparison to Limits) 1st and 2nd Quarters 2013

Monitoring Station	1st Qtr. Result (uCi/ml)	2nd Qtr. Result (uCi/ml)	Effluent Concentration Limit (ECL) (uCi/ml)	Average Percent ECL
BHV1	1.82E-14	5.78E-15	6.00E-13	2.00E+00
BHV2	1.42E-14	4.93E-15	6.00E-13	1.59E+00
BHV4	2.13E-14	4.93E-15	6.00E-13	2.19E+00
BHV5	1.80E-14	6.67E-15	6.00E-13	2.06E+00
BHV6	1.70E-14	5.18E-15	6.00E-13	1.85E+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	1st Qtr Result (mrem)	2nd Qtr Result (mrem)	1st Qtr Result Less Background (mrem)	2nd Qtr Result Less Background (mrem)	Cumulative Semi-Annual Estimate* (mrem)
BHV1	32.0	32.7	4.8	5.0	9.8
BHV2	27.8	28.9	0.6	1.2	1.8
BHV3	27.2	27.7	0.0	0.0	0.0
BHV4	27.5	30.8	0.3	3.1	3.4
BHV5	30.0	30.9	2.8	3.2	6.0
BHV6	25.7	58.0	-1.5	30.3	30.3

*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.

As shown in Table 6 above, the second quarter result from BHV-6 was above historic values, and an investigation into the potential source was conducted. There was no site activity, or change in activity, at the Mill during the second quarter that could cause this type of result. EFRI believes this value is the result of a laboratory error, because it is clearly anomalous relative to all historic data.

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 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 2013 grazing season, two sets of samples were collected on April 30, 2013 and June 20, 2013. A third set of samples is planned for the fall season. The data from the fall season sampling will be included in the July through December 2013 Semi-Annual Effluent Report ("SAER") which will be submitted to the DRC on March 1, 2014. Data from the April and June sampling events 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 2013 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 Mill did not operate during January 2013. The grizzly baghouse operated periodically during February and March 2013. The south yellowcake dryer and yellowcake packaging baghouse operated only intermittently during February and March 2013 due to multiple dryer equipment shutdowns. As a result of the repeated startups and shutdowns, the dryers only achieved representative steady state conditions, suitable for stack monitoring, for approximately the last week in March (March 25-31), as discussed in detail below.

The south yellowcake dryer, yellowcake baghouse, and grizzly baghouse operated during the 2nd quarter of 2013. The north yellowcake dryer has not been in operation since the 3rd quarter of 2012, and therefore, has not been sampled since it was last in operation.

NRC Regulatory Guide 4.14 requires that stack sampling should be "isokinetic, representative, and adequate for determination of release rates and concentrations of uranium." Due to operational conditions at the Mill during the 1st quarter of 2013, EFRI was unable to achieve the steady state required for representative stack sampling at the yellowcake dryers and the yellowcake baghouse as required by NRC Regulatory Guide 4.14. EFRI field personnel originally scheduled the sampling event with the stack sampling contract company, Technical Emissions Testing Company ("TETCO"), on February 19-21, 2013. The yellowcake dryers were shut down due to equipment issues on February 18, 2013 and did not become operational again until February 22, 2013. TETCO was unable to conduct the scheduled stack sampling at that time, and rescheduled with EFRI field personnel to conduct sampling on March 4, 2013.

When TETCO returned on March 4, 2013, they were unable to conduct sampling again, because the yellowcake dyers had been shut down and required equipment maintenance. The yellowcake dryers continued to have operational issues sporadically during March of 2013. EFRI field personnel contacted TETCO on March 25, 2013 in an attempt to

schedule a sampling event during the 1st quarter of 2013; however, TETCO was not available to return to the Mill during the last week of March. Operation during the first quarter was so sporadic that, despite three attempts, it was not possible to have TETCO on site for the few days that the dryers were operating at conditions suitable for testing.

Due to the operational conditions in the 1st quarter of 2013, the 2nd quarter samples were taken very early in the quarter, which resulted in a miscommunication with the analytical laboratory. The yellowcake packaging baghouse was analyzed for only U-nat, as is required for the first quarterly sample, excluding the analyses for Th-230, Ra-226, and Pb-210 as is routinely performed for the second quarter samples. EFRI's QA Manager identified the issue, noted that the sample were still within the method specified holding time, and requested the laboratory analyze the samples for all required analyses. As a result, all required analyses for the second quarter samples have been completed. However, the laboratory was unable to deliver the Th-230, Ra-226, and Pb-210 results for the yellowcake packaging baghouse in time to be included in this report. The complete analytical data and the 2nd quarter 2013 results for Table 8, below, will be provided in a separate addendum to this report after EFRI receives TETCO's report and analytical data.

The available analytical results of stack sampling conducted for the 2nd quarter of 2013, 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 partial analytical results received to date, reported by the laboratory for the 2nd quarter of 2013 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
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	1.12E-08	5.60E-03	1.54E-13	7.72E-08	1.37E-14	6.84E-09	3.25E-12	1.63E-06
South 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	2.38E-11	1.13E-05	2.17E-13	1.04E-07	Not Required	Not Required	Not Required	Not Required
1st Qtr, 2013*								
South YC Dryer, Run 1	EFRI was unable to sample in the 1st quarter of 2013 due to operational conditions at the Mill. See Section 5.0 above for a more detailed explanation.		Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
South YC Dryer, Run 2			Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
Yellowcake Baghouse			Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
2nd Qtr, 2013*								
South YC Dryer, Run 1	2.94E-09	2.61E-03	8.51E-14	7.55E-08	3.01E-18	2.67E-12	3.59E-13	3.19E-07
South YC Dryer, Run 2	2.86E-09	2.56E-03	8.75E-14	7.85E-08	1.54E-17	1.38E-11	3.95E-13	3.54E-07
Yellowcake Baghouse	3.93E-08	6.29E-02	**	**	**	**	**	**
Grizzly Baghouse	1.68E-11	1.11E-05	1.80E-13	1.18E-07	Not Required	Not Required	Not Required	Not Required

*The North Yellowcake Dryer was not in operation during the 4th quarter of 2012, or the 1st and 2nd quarters of 2013.

**Due to laboratory error, these data were not available prior to the due date for this SAER, September 1, 2013. EFRI will submit an addendum to this SAER as soon as these data are available.

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 where surface water is not available for sampling. Westwater Canyon surface water was not sampled in the first or second quarter of 2013, because no water was present during this reporting period. Attempts to collect a surface water sample from Westwater Canyon will continue through the next reporting period. If no surface water is available, a sediment sample will be collected as required.

The Mill's *Environmental Protection Manual* requires that samples from Cottonwood Creek be analyzed for total dissolved solids ("TDS") and total suspended solids ("TSS") quarterly, and the License, Part 11.2 B requires that samples from Cottonwood Creek be analyzed for dissolved and suspended radionuclides including Gross Alpha, U-nat, Ra-226, and Th-230 semi-annually. In accordance with these requirements, Cottonwood Creek was sampled for TDS and TSS during the 1st quarter, and was sampled for TDS, TSS, and all radionuclides during the 2nd 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 will be collected during the third quarter of 2013 and will be discussed in the July through December 2013 report.

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 January through June 2013. 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 August 29, 2013.

Energy Fuels Resources (USA) Inc.

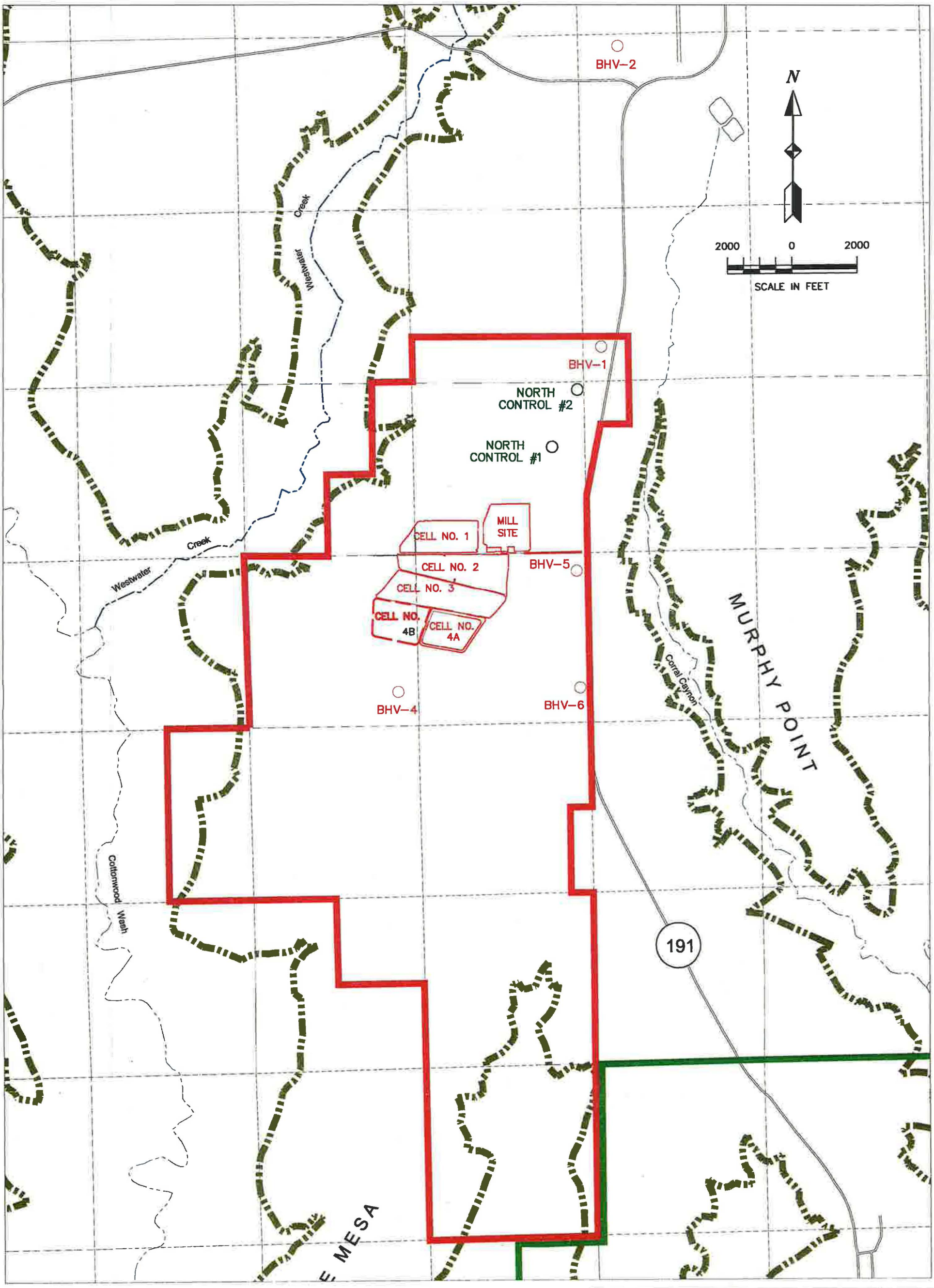
By:

Harold R. Roberts
Executive Vice President and Chief Operating Officer

ATTACHMENT A

HIGH VOLUME AIR MONITORING STATIONS

W:\USA\UTAH\MILL\DWGs\Reclamation Plans\RecPlan 3.2-final\Figure 2.3-1 Air Monitoring.dwg Figure 2.3-1 31/10/2011 GMoseley



Property Boundary

Reservation Boundary

Canyon Rim

Air Monitor Stations

Energy Fuels Resources (USA) Inc.

Project	WHITE MESA MILL
County: SAN JUAN	State: UT
Location:	
High Volume Air Monitoring Stations	
Scale: as shown	Date: JAN 2011
Author: HRR	Drafted By: B. Munkhbaatar

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

ATTACHMENT B

BHV AIR SAMPLING GRAPHS AND DATA TABLES

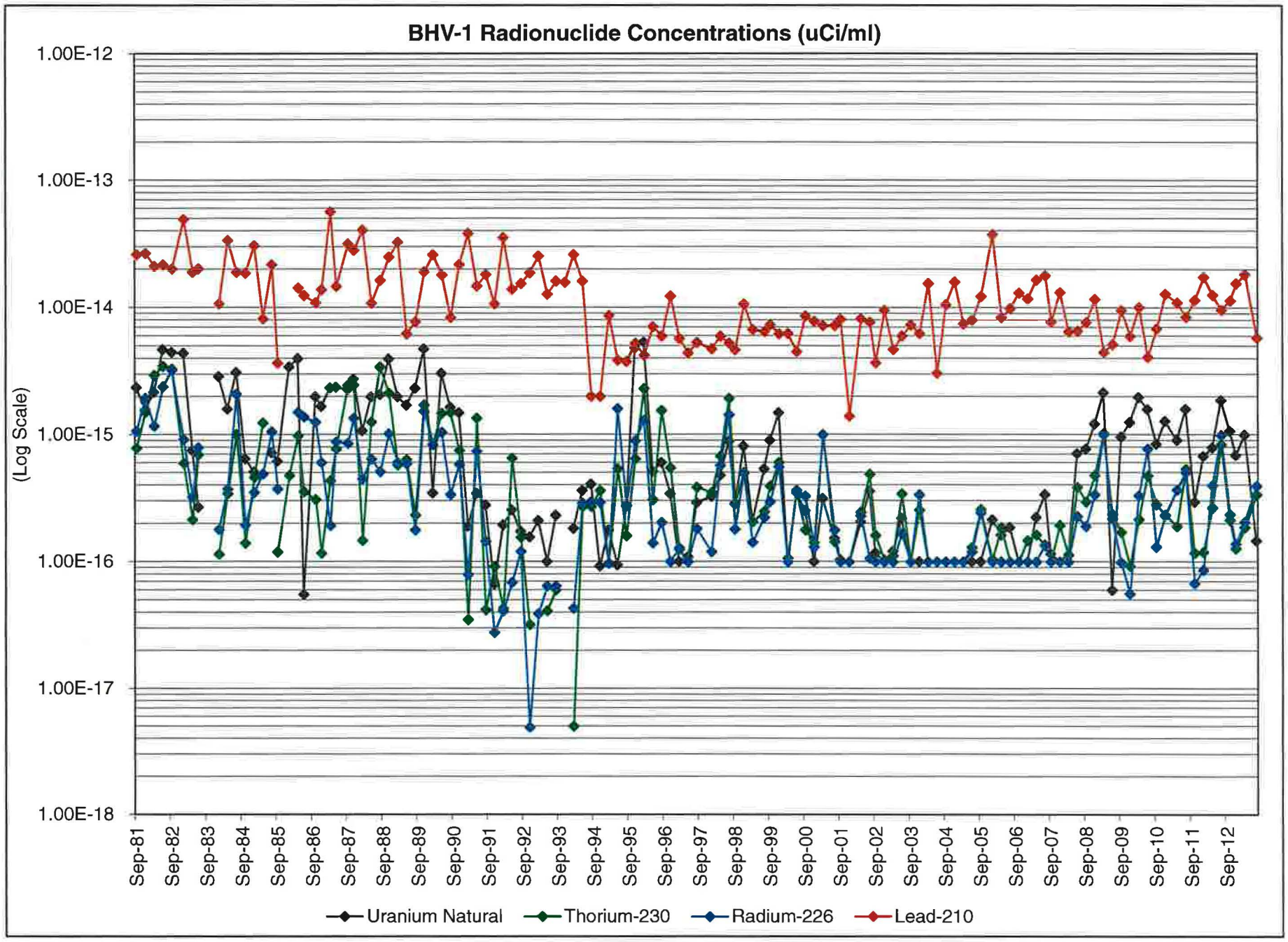
TAB 1

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
3/25/2013	9.91E-16	9.00E-14	2.25E-14	1.86E-16	2.00E-14	5.00E-15	2.04E-16	9.00E-13	2.25E-13	1.82E-14	6.00E-13	1.50E-13
7/2/2013	1.46E-16	9.00E-14	2.25E-14	3.34E-16	2.00E-14	5.00E-15	3.91E-16	9.00E-13	2.25E-13	5.78E-15	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
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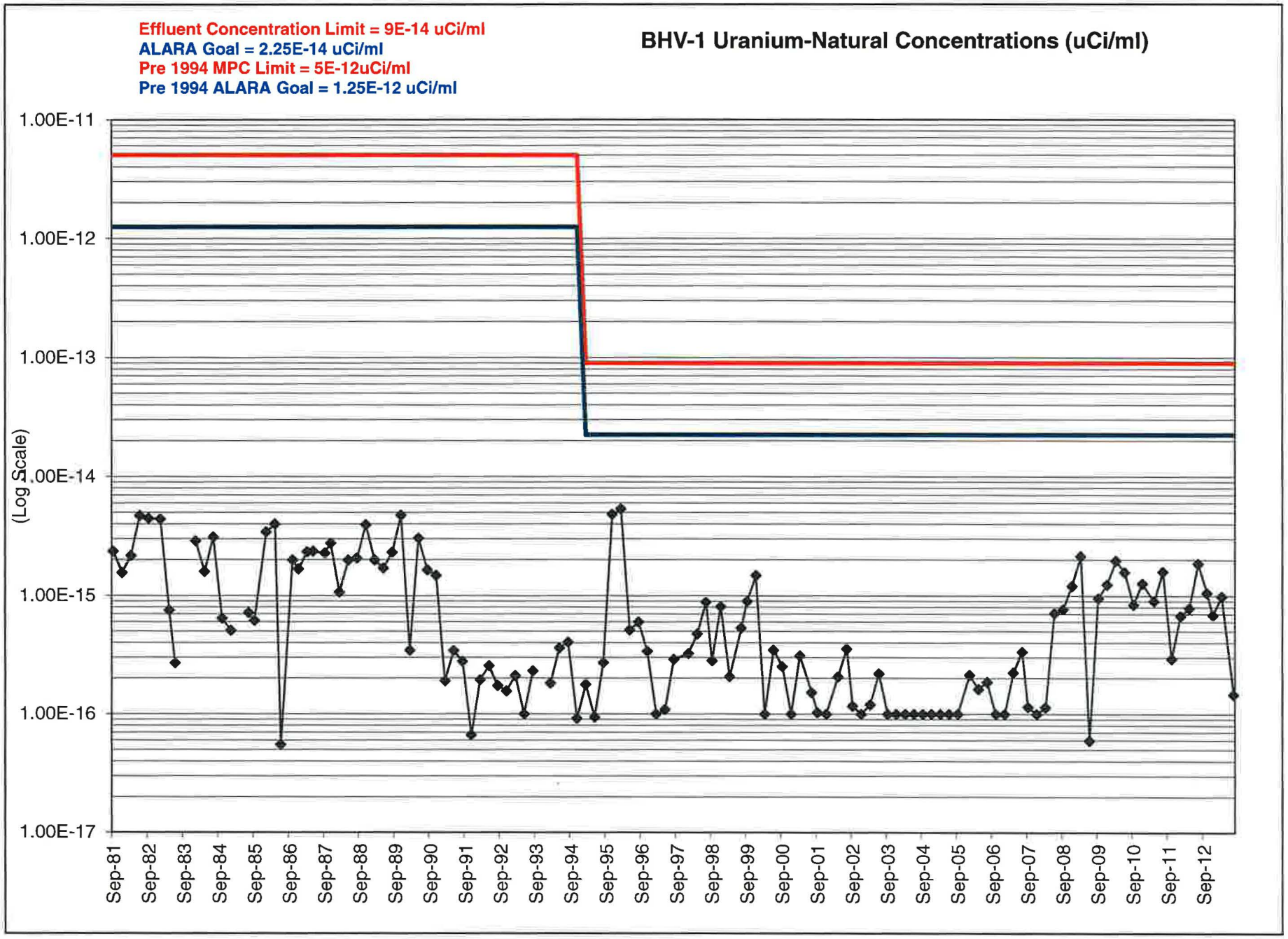
Sep-11
Sep-12
Uranium Natural
Thorium-230
Radium-226
Lead-210


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
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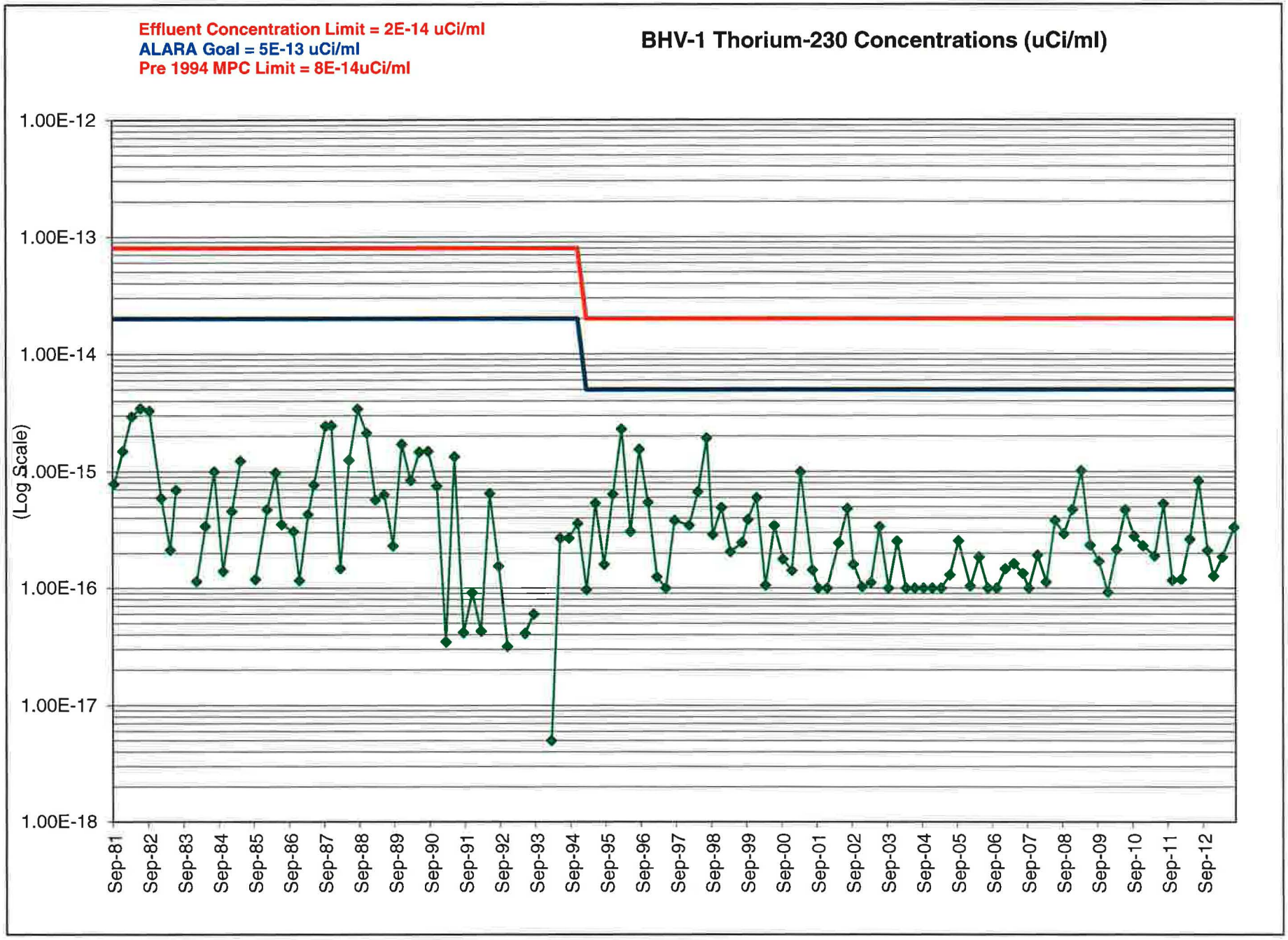
Sep-12


Effluent Concentration Limit = 2E-14 uCi/ml
ALARA Goal = 5E-13 uCi/ml
Pre 1994 MPC Limit = 8E-14uCi/ml
BHV-1 Thorium-230 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
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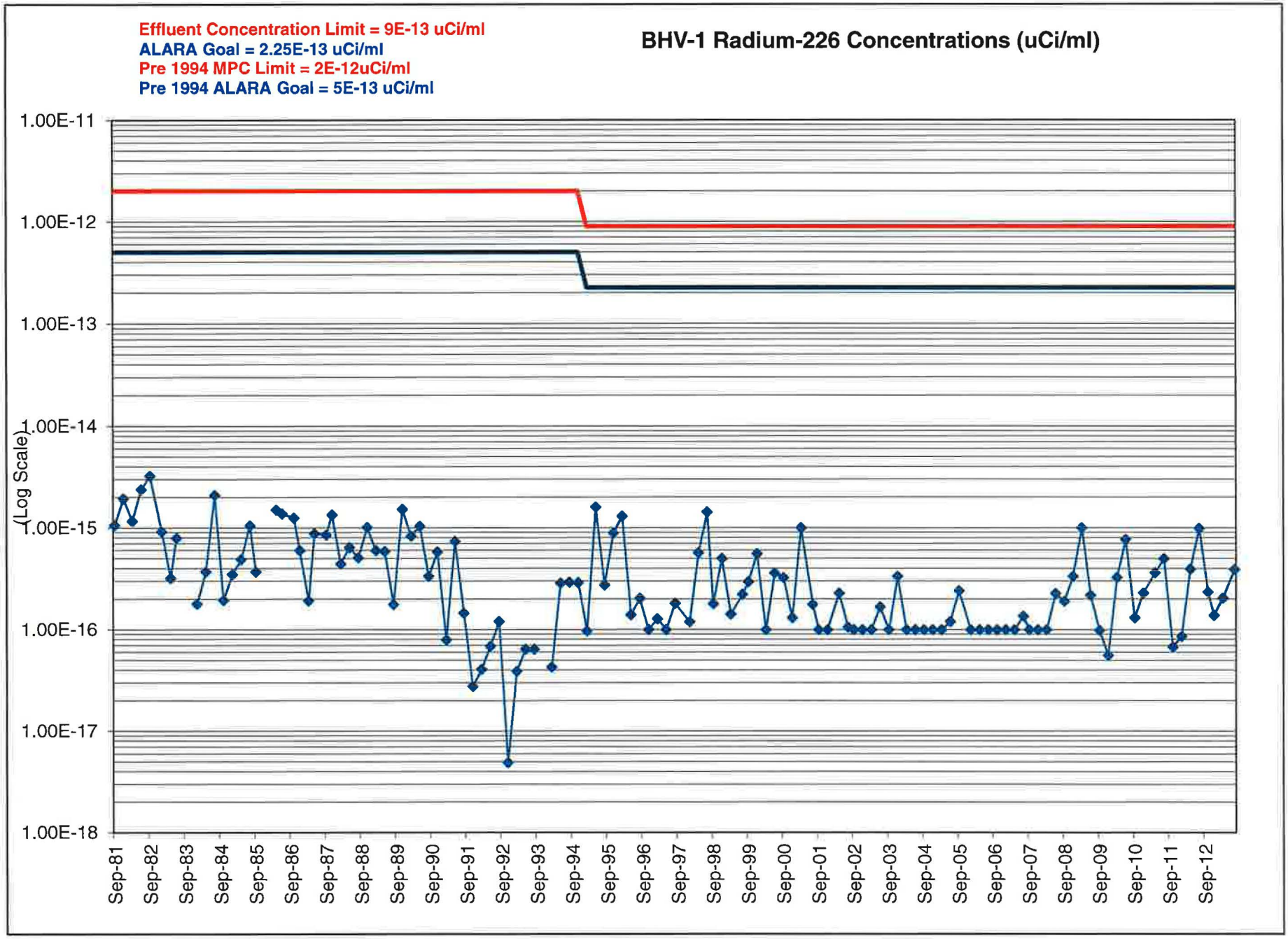
Sep-11
Sep-12


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-1 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
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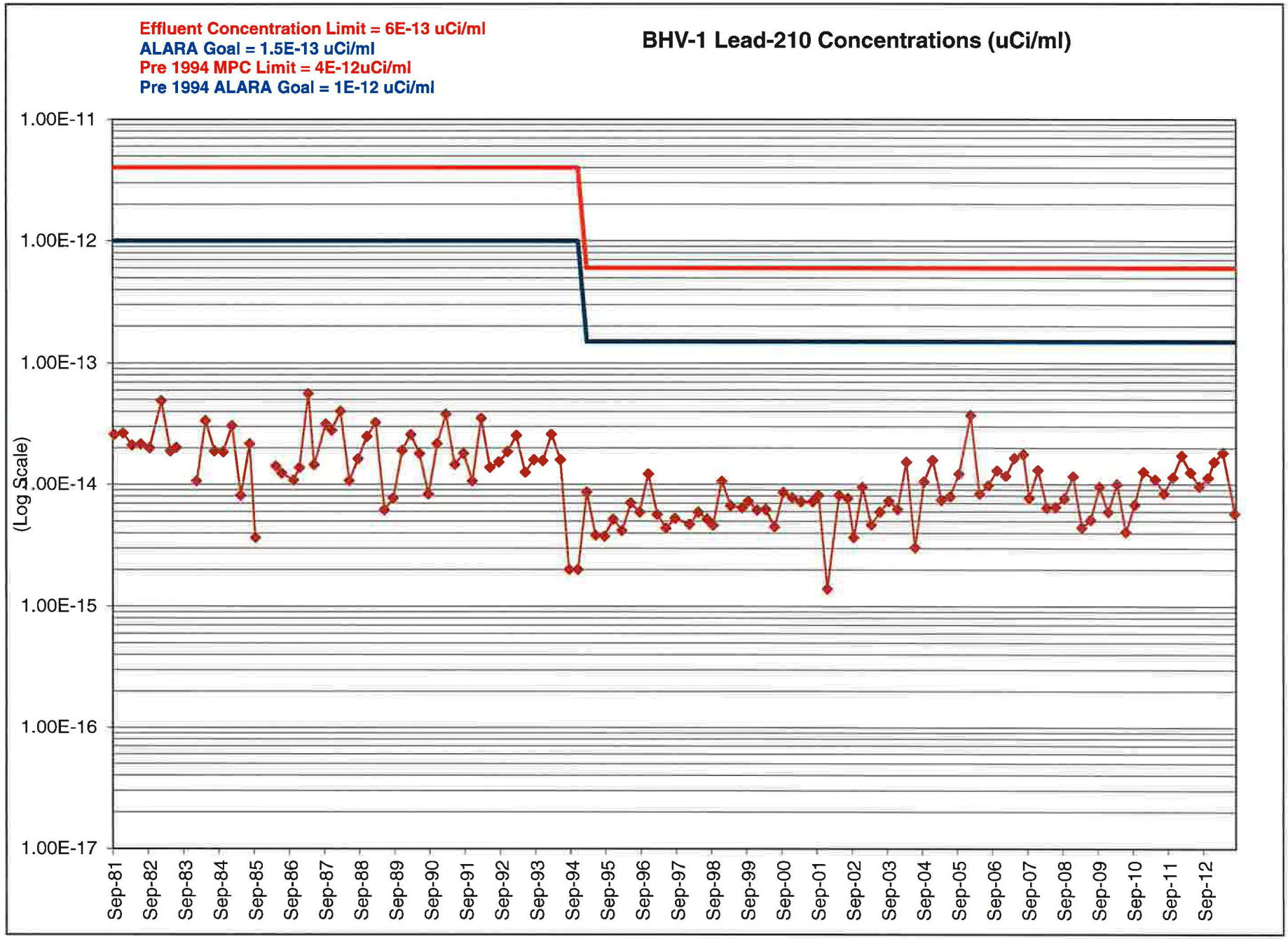
Effluent Concentration Limit = 6E-13 uCi/ml
ALARA Goal = 1.5E-13 uCi/ml
Pre 1994 MPC Limit = 4E-12uCi/ml
Pre 1994 ALARA Goal = 1E-12 uCi/ml
BHV-1 Lead-210 Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
Sep-81
Sep-82
Sep-83
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Sep-12

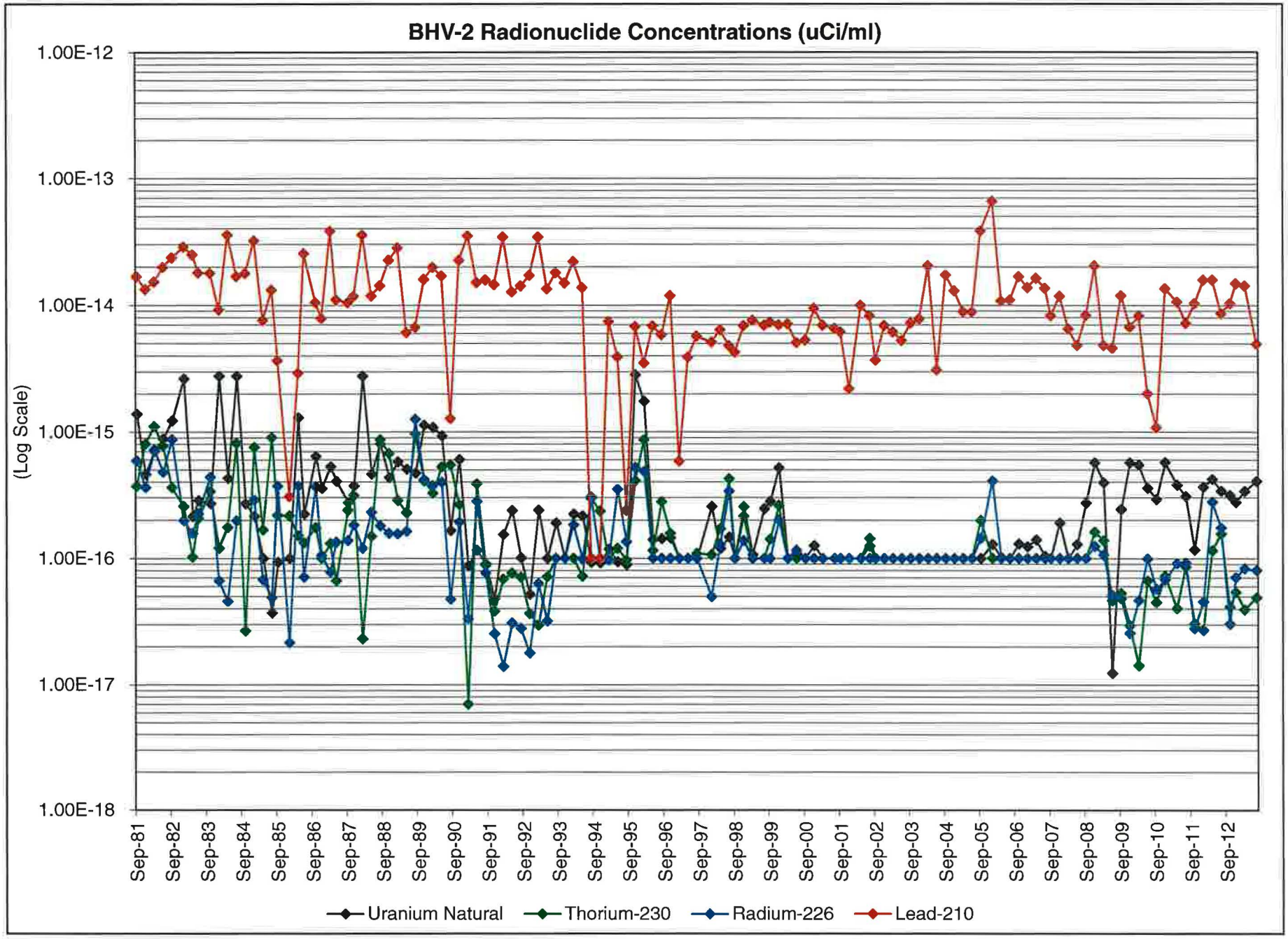
TAB 2

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
3/25/2013	3.38E-16	9.00E-14	2.25E-14	3.94E-17	2.00E-14	5.00E-15	8.32E-17	9.00E-13	2.25E-13	1.42E-14	6.00E-13	1.50E-13
7/2/2013	4.06E-16	9.00E-14	2.25E-14	4.89E-17	2.00E-14	5.00E-15	8.06E-17	9.00E-13	2.25E-13	4.93E-15	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
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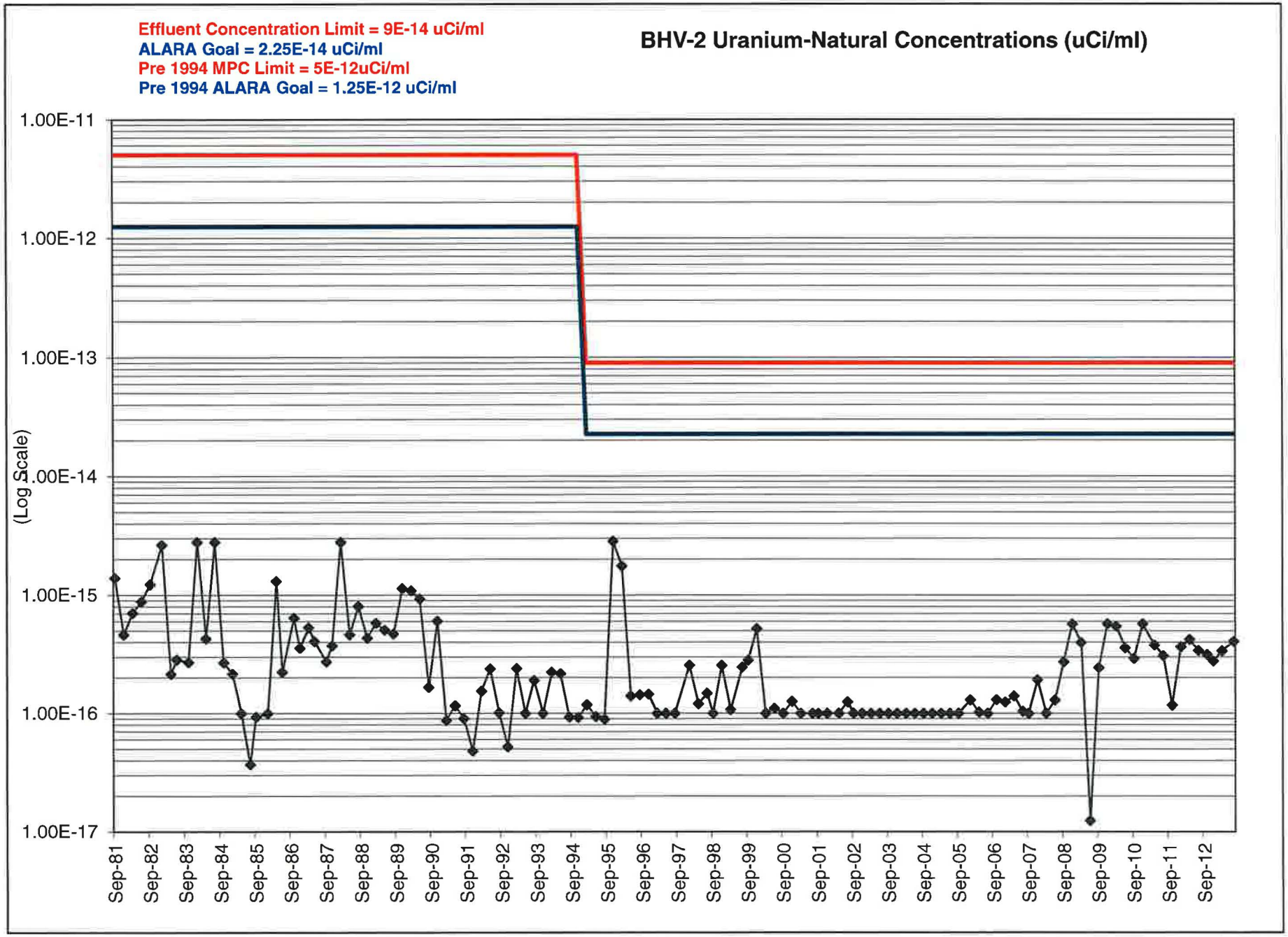
Sep-11
Sep-12
Uranium Natural
Thorium-230
Radium-226
Lead-210


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
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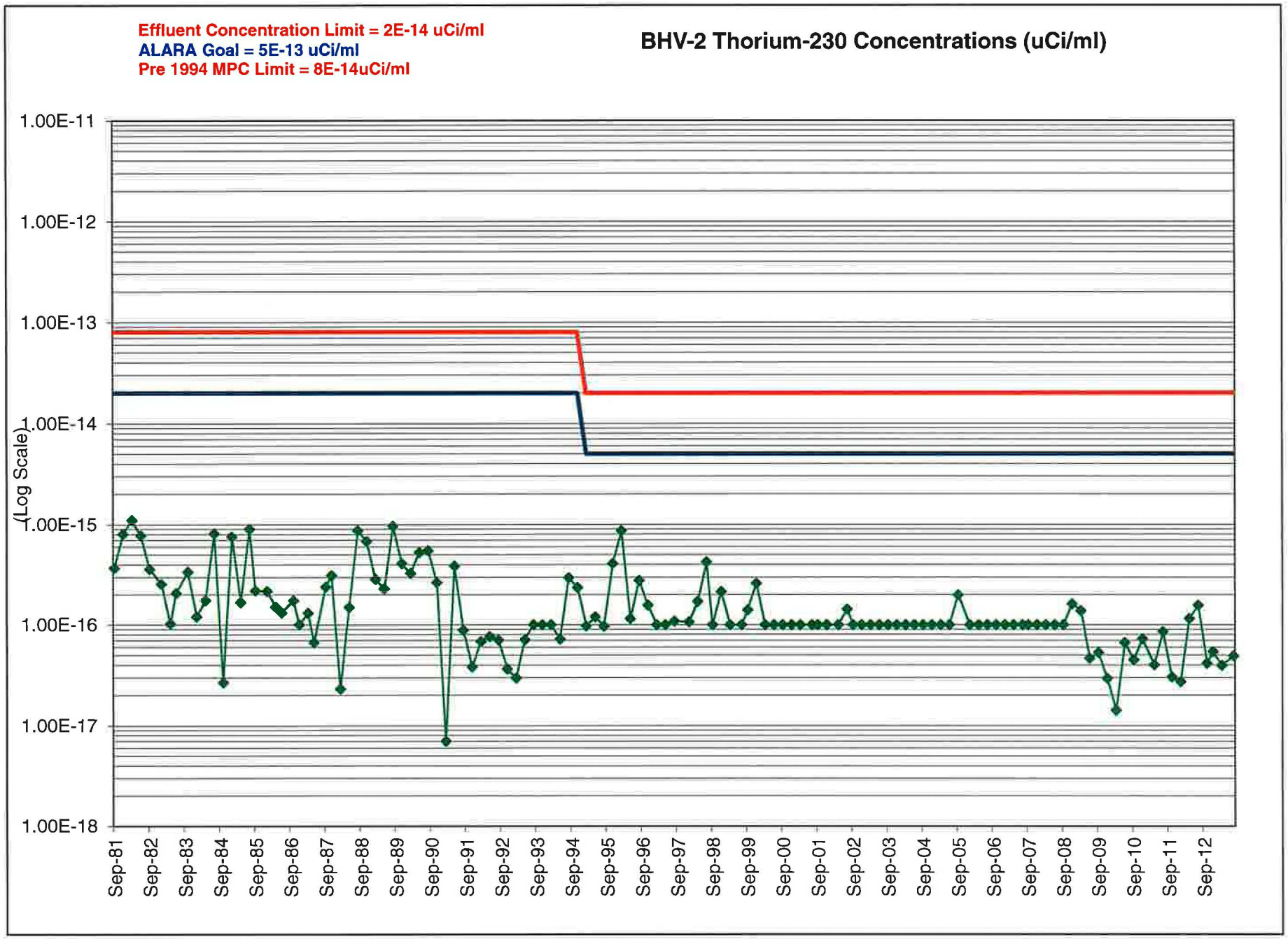
Sep-12


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
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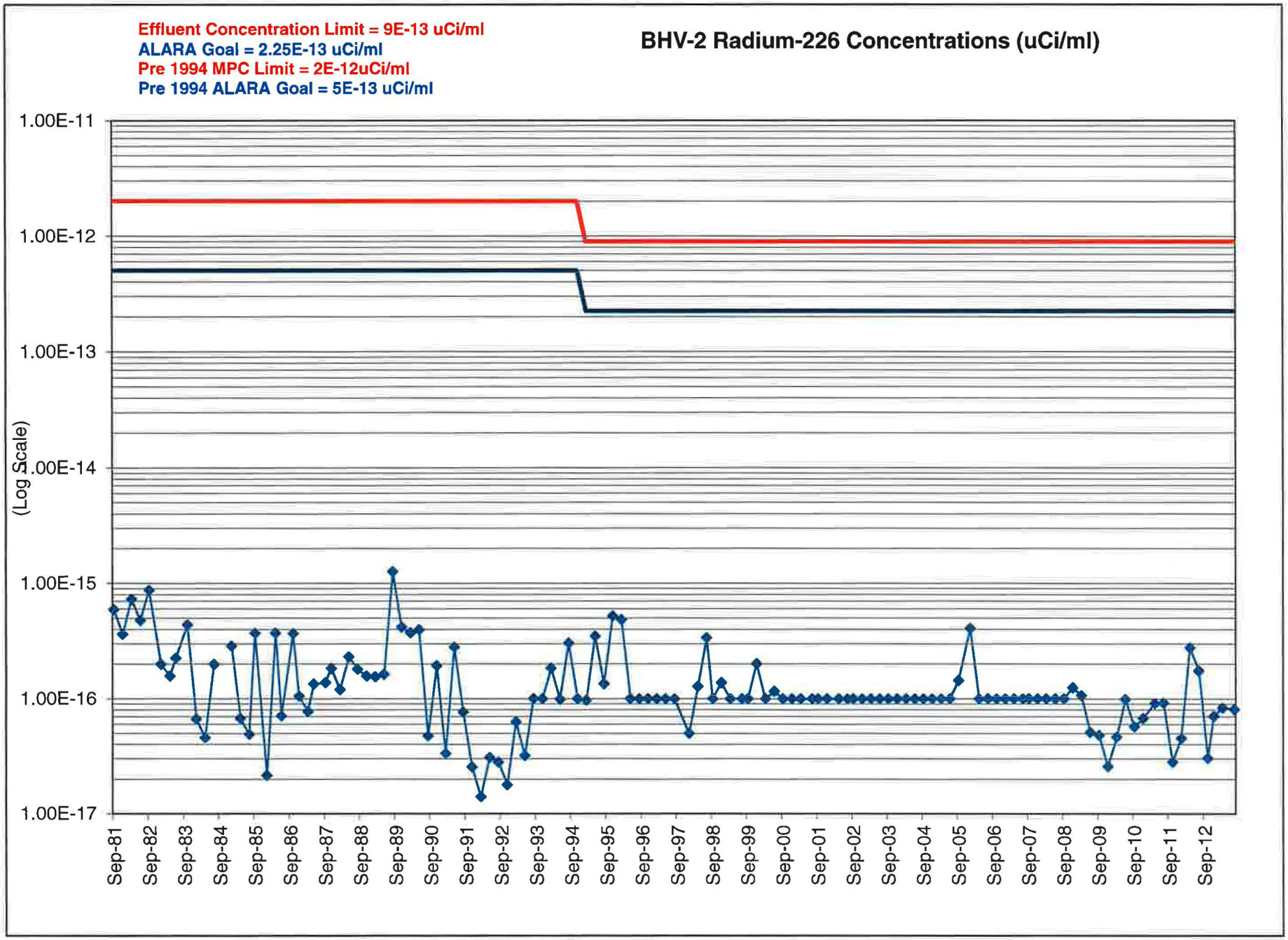
Sep-11
Sep-12


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
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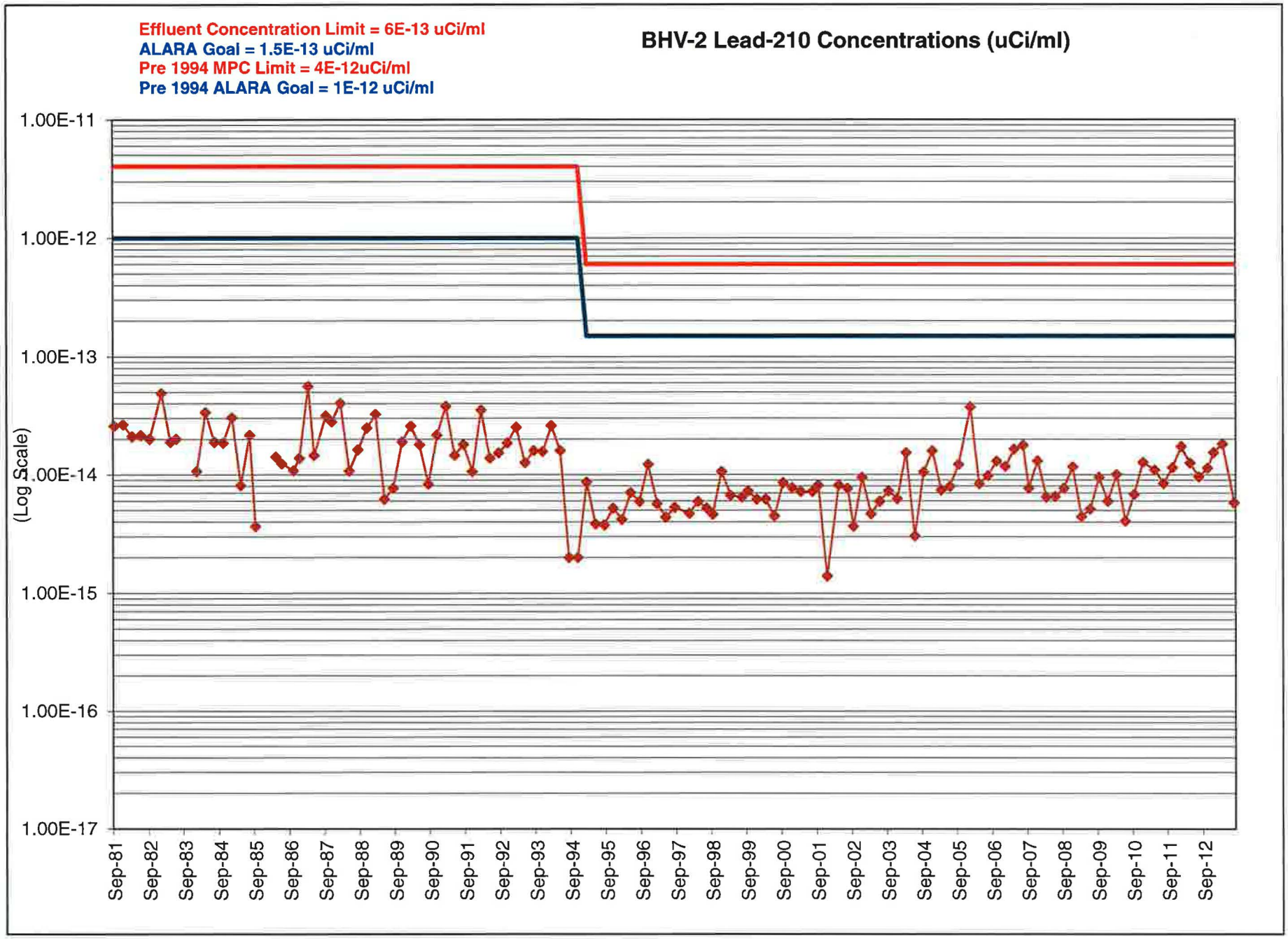
Effluent Concentration Limit = 6E-13 uCi/ml
ALARA Goal = 1.5E-13 uCi/ml
Pre 1994 MPC Limit = 4E-12uCi/ml
Pre 1994 ALARA Goal = 1E-12 uCi/ml
BHV-2 Lead-210 Concentrations (uCi/ml)
(Log Scale)
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
1.00E-16
1.00E-17
Sep-81
Sep-82
Sep-83
Sep-84
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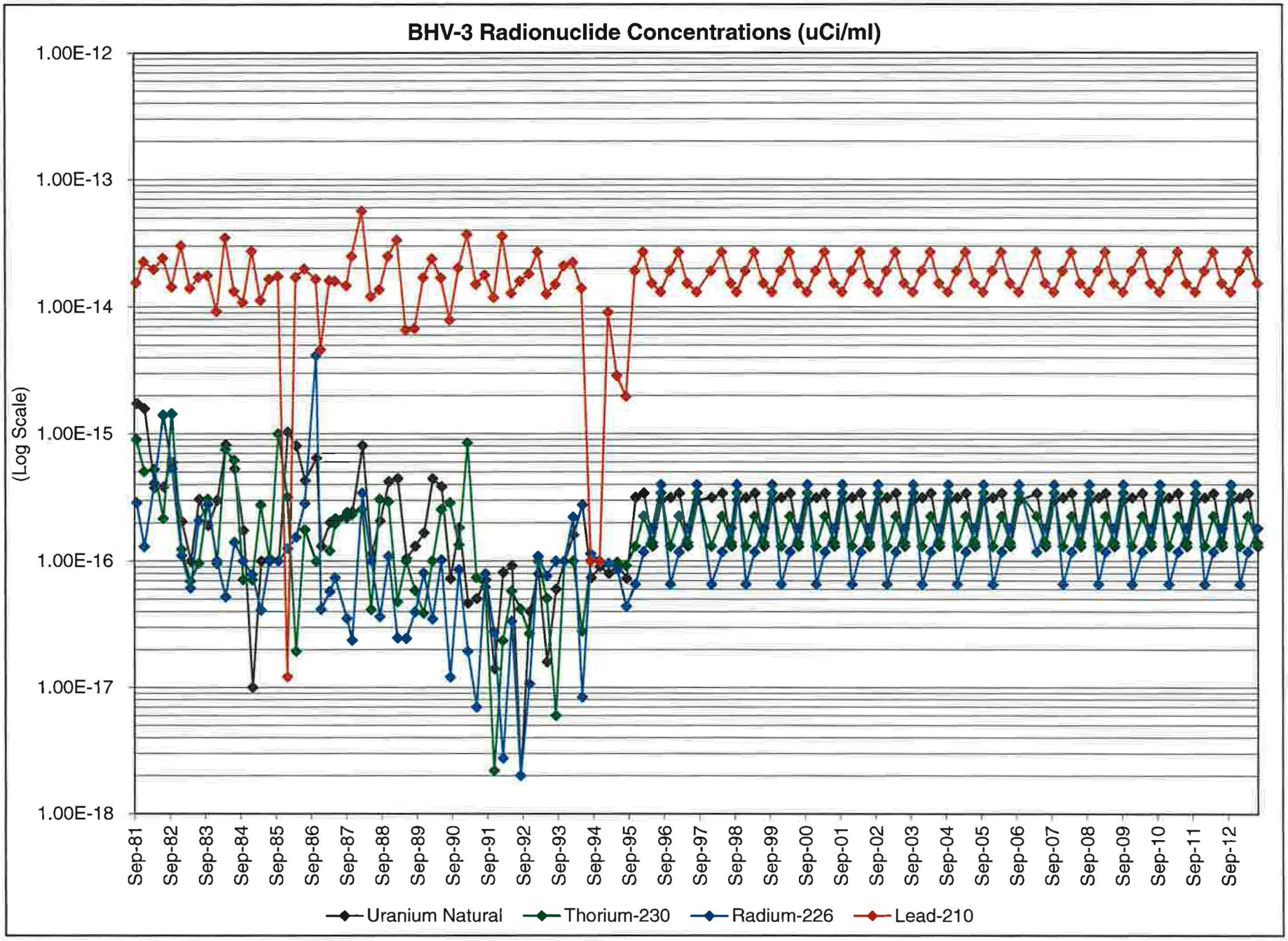
TAB 3

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
3/25/2013	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
7/2/2013	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


BHV-3 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
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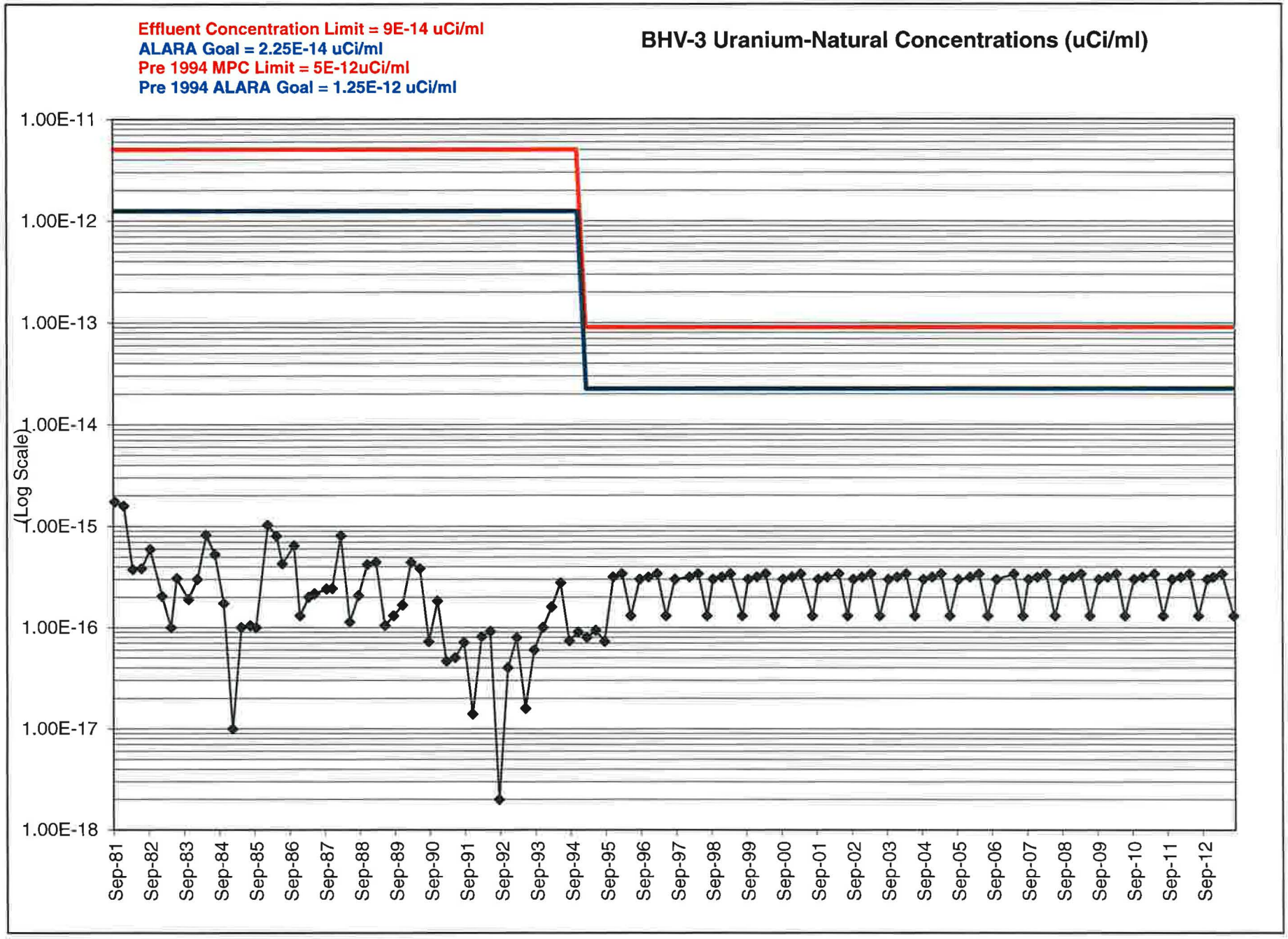
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12
Uranium Natural
Thorium-230
Radium-226
Lead-210


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-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
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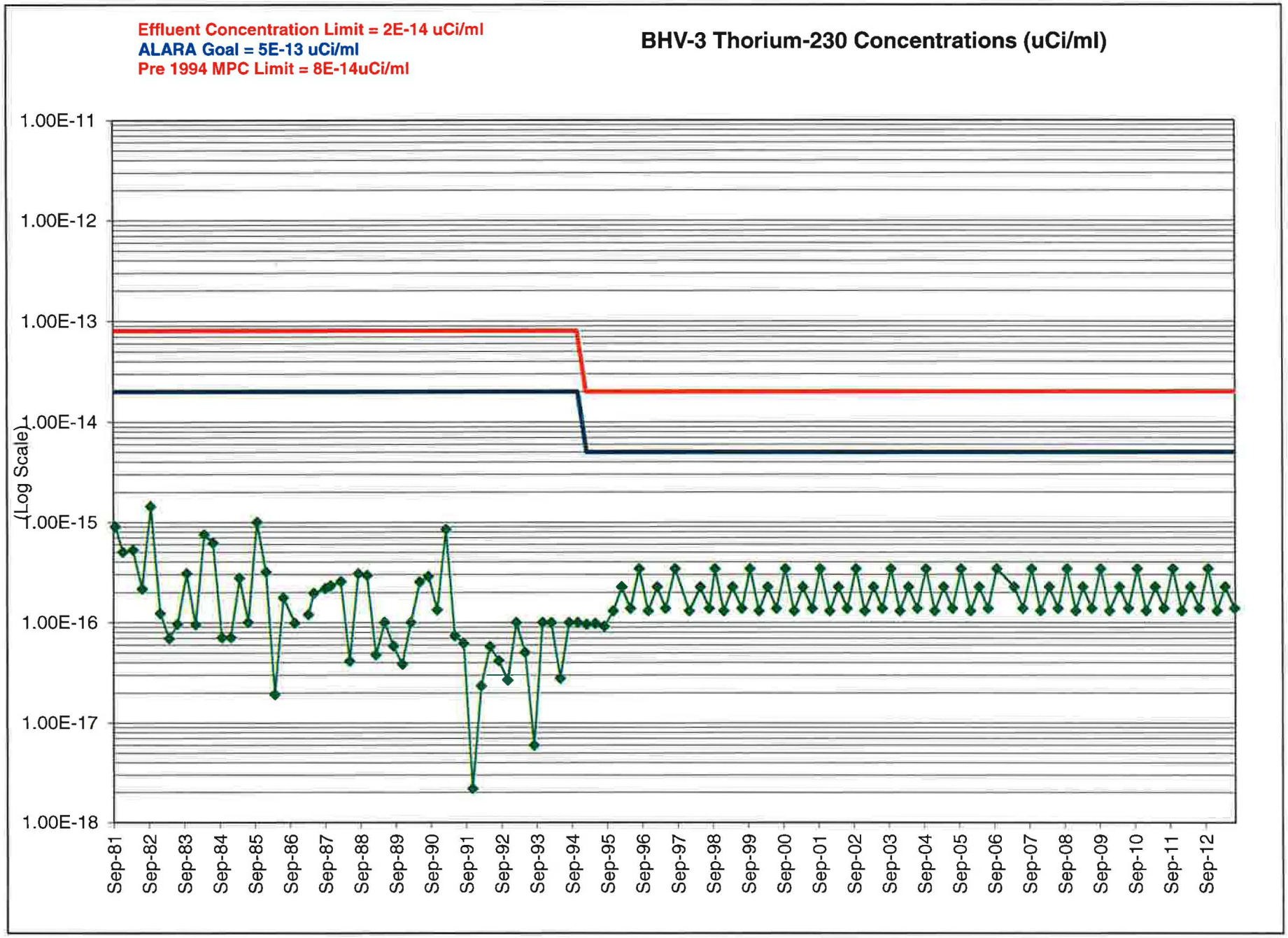
Sep-09
Sep-10
Sep-11
Sep-12


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
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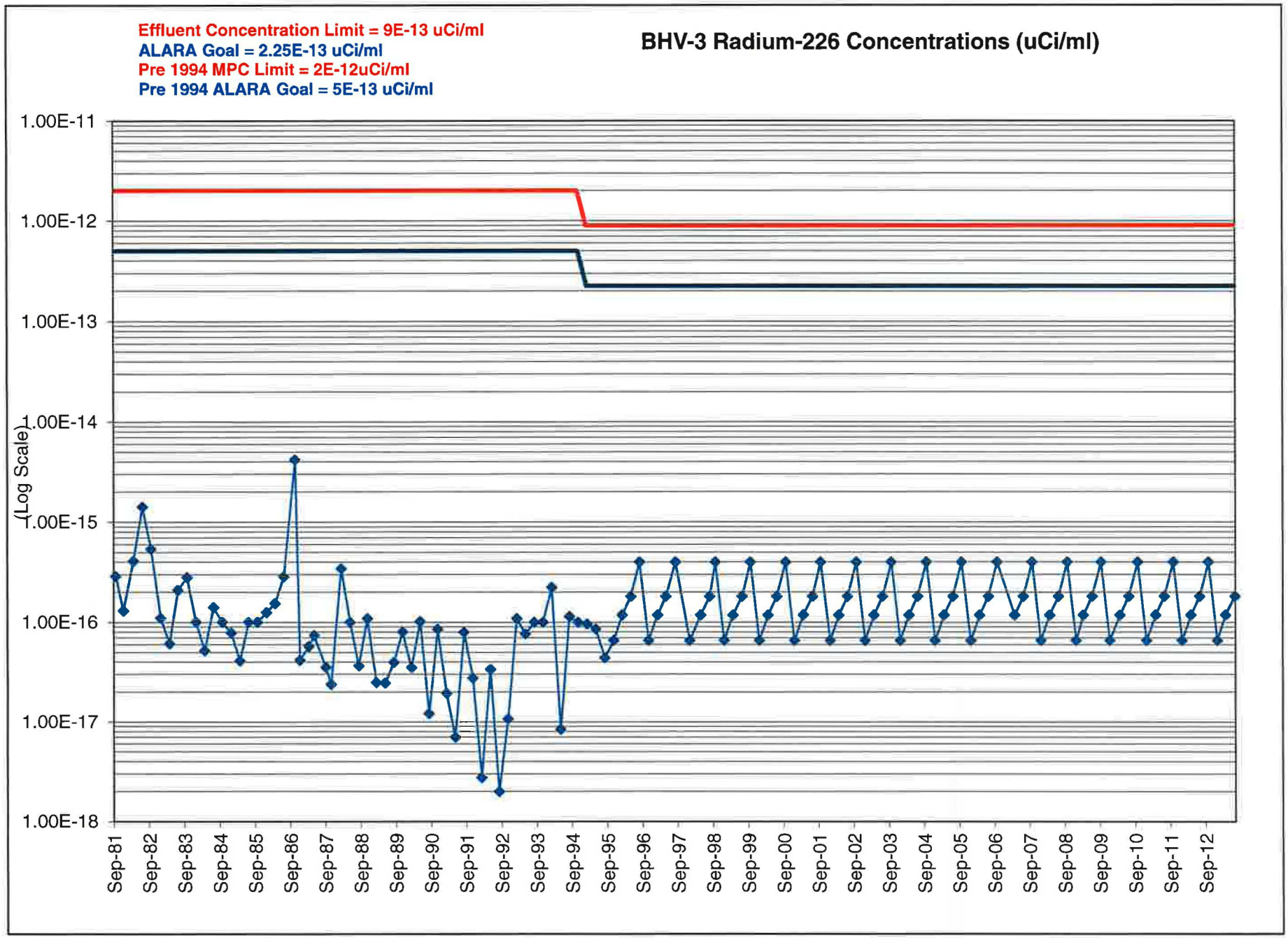
Sep-11
Sep-12


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
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Sep-96
Sep-97
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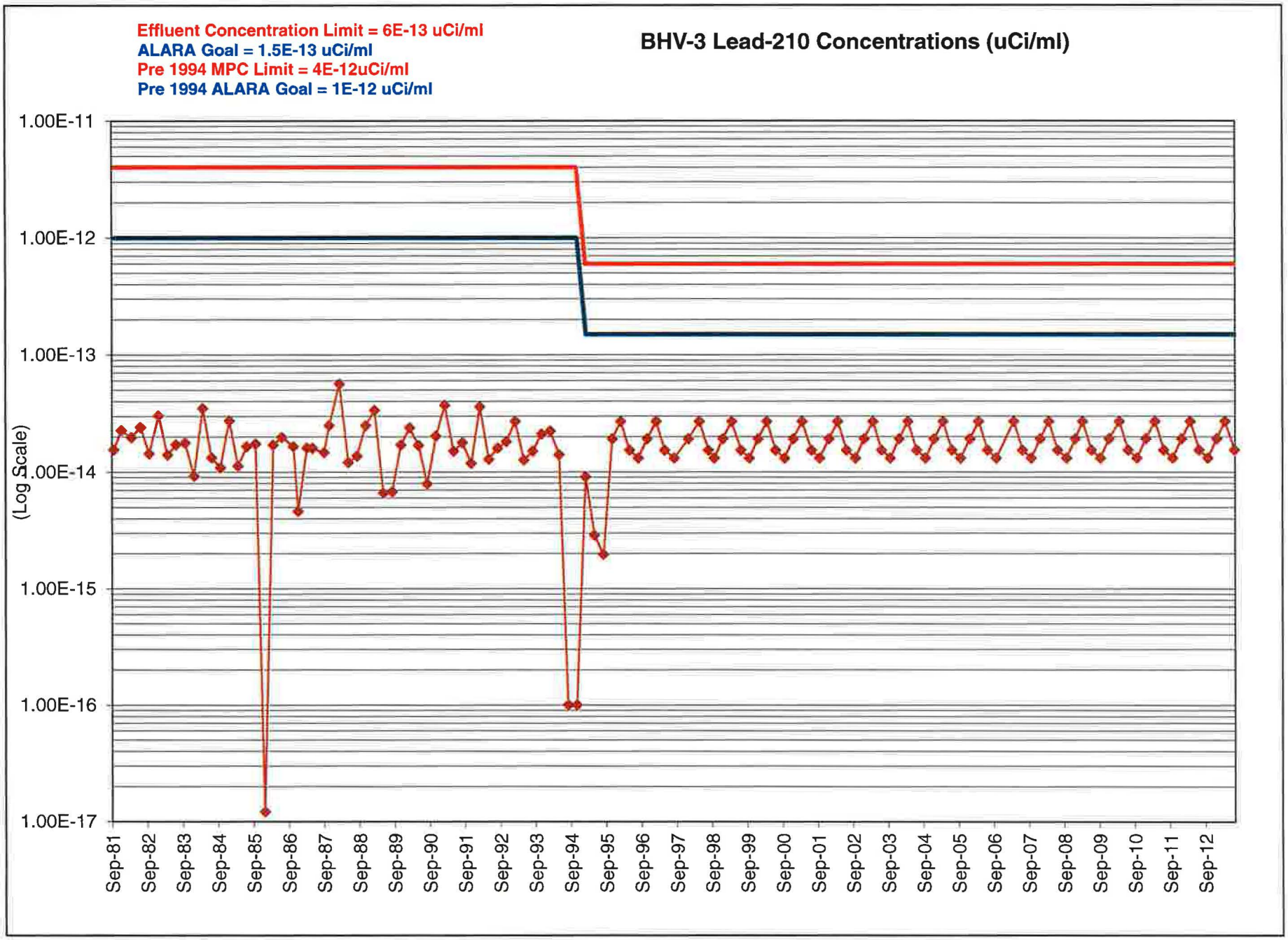
Sep-10
Sep-11
Sep-12


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-3 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
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Sep-12

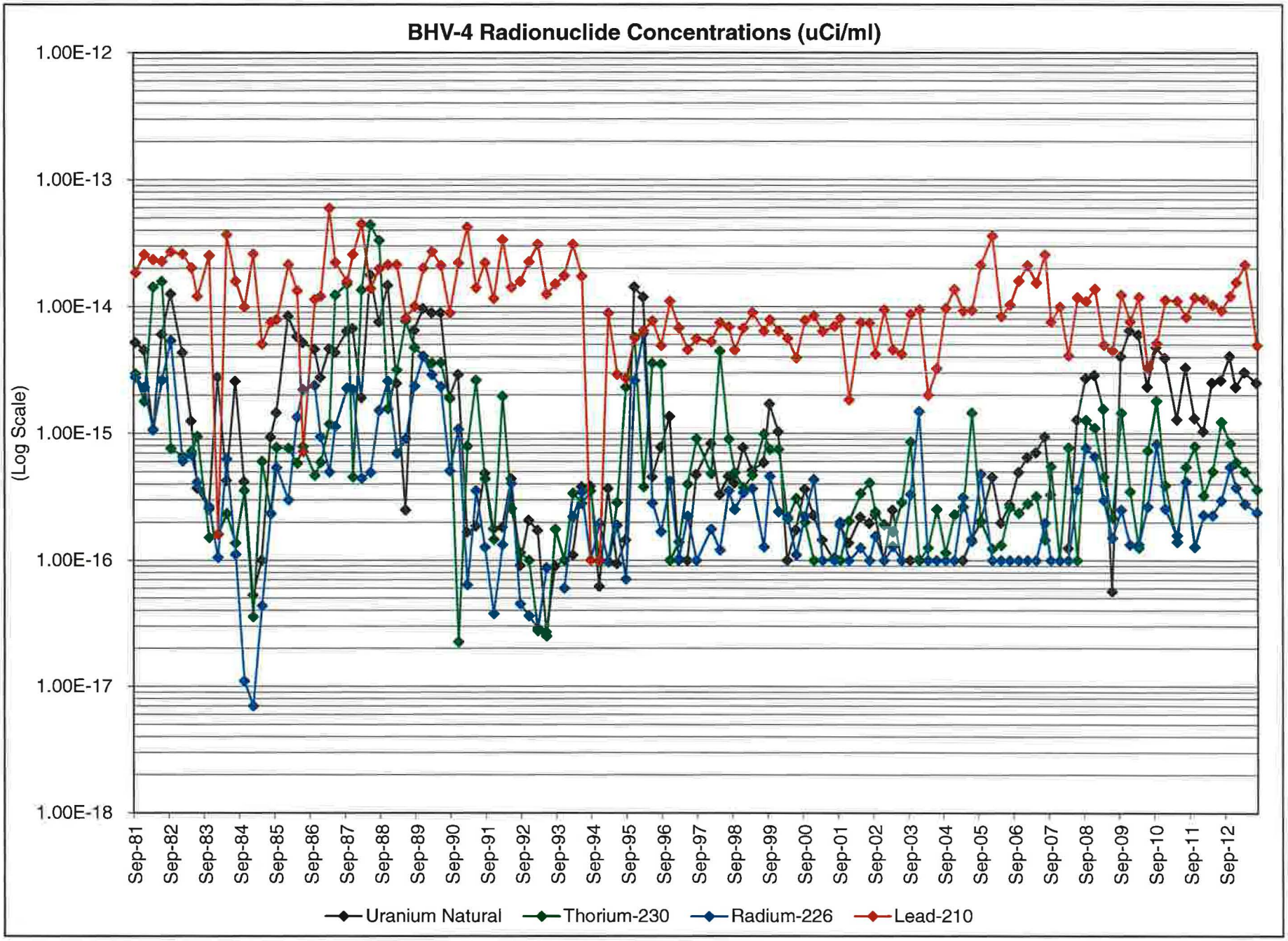
TAB 4

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
3/25/2013	3.04E-15	9.00E-14	2.25E-14	4.99E-16	2.00E-14	5.00E-15	2.79E-16	9.00E-13	2.25E-13	2.13E-14	6.00E-13	1.50E-13
7/2/2013	2.50E-15	9.00E-14	2.25E-14	3.62E-16	2.00E-14	5.00E-15	2.40E-16	9.00E-13	2.25E-13	4.93E-15	6.00E-13	1.50E-13


BHV-4 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
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Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
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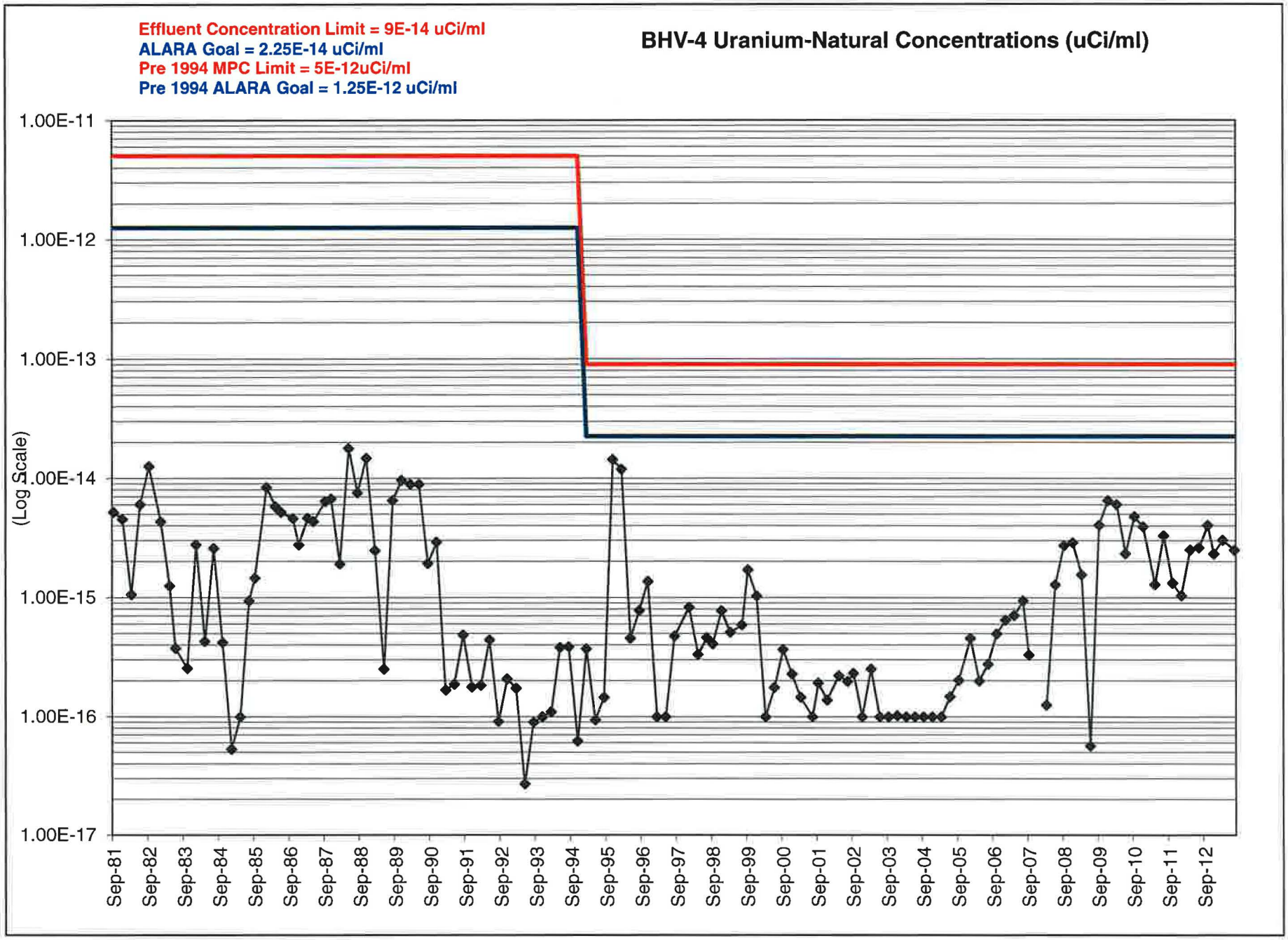
Sep-10
Sep-11
Sep-12
Uranium Natural
Thorium-230
Radium-226
Lead-210


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-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
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Sep-97
Sep-98
Sep-99
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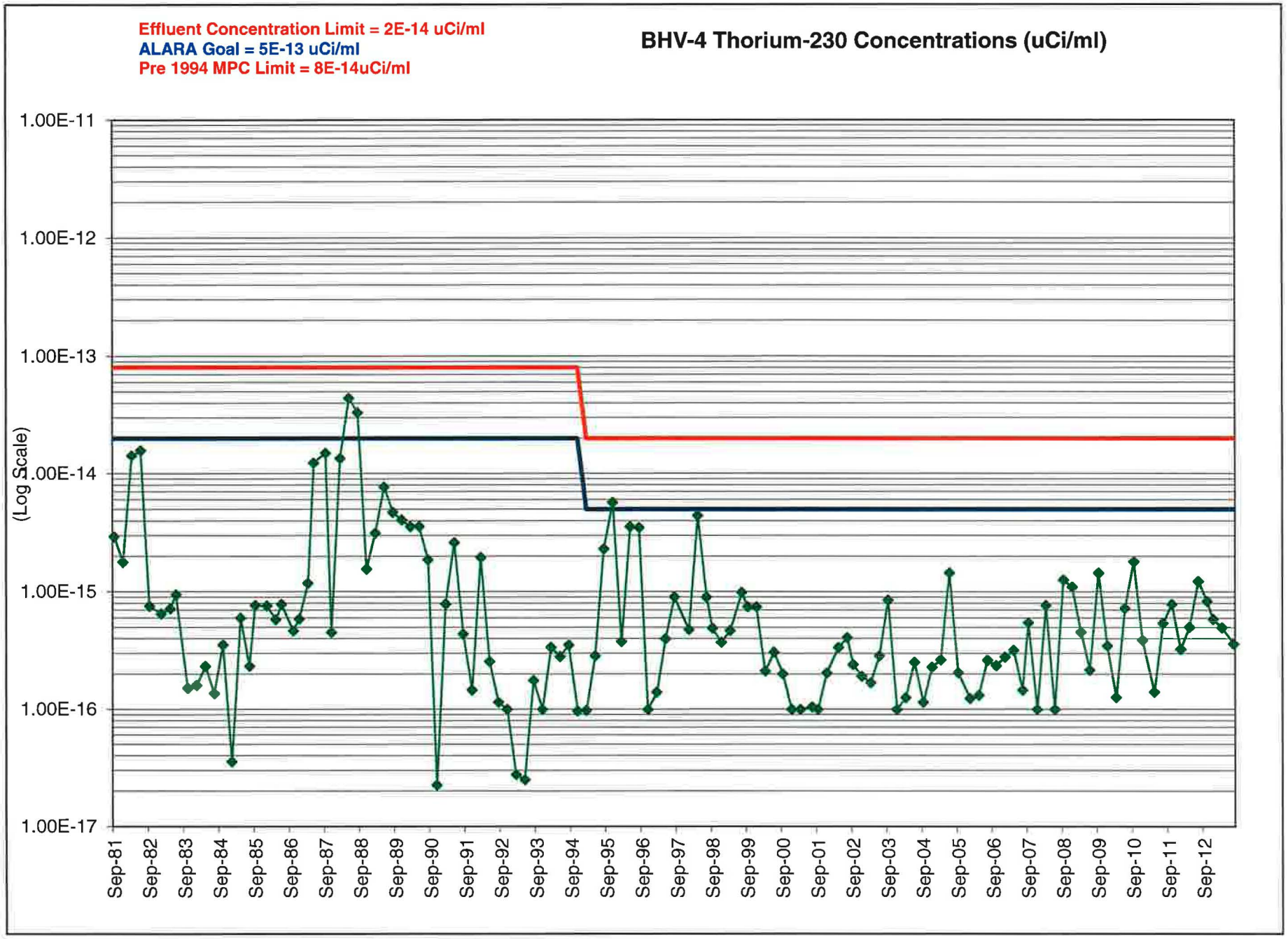
Sep-11
Sep-12


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
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Sep-90
Sep-91
Sep-92
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Sep-00
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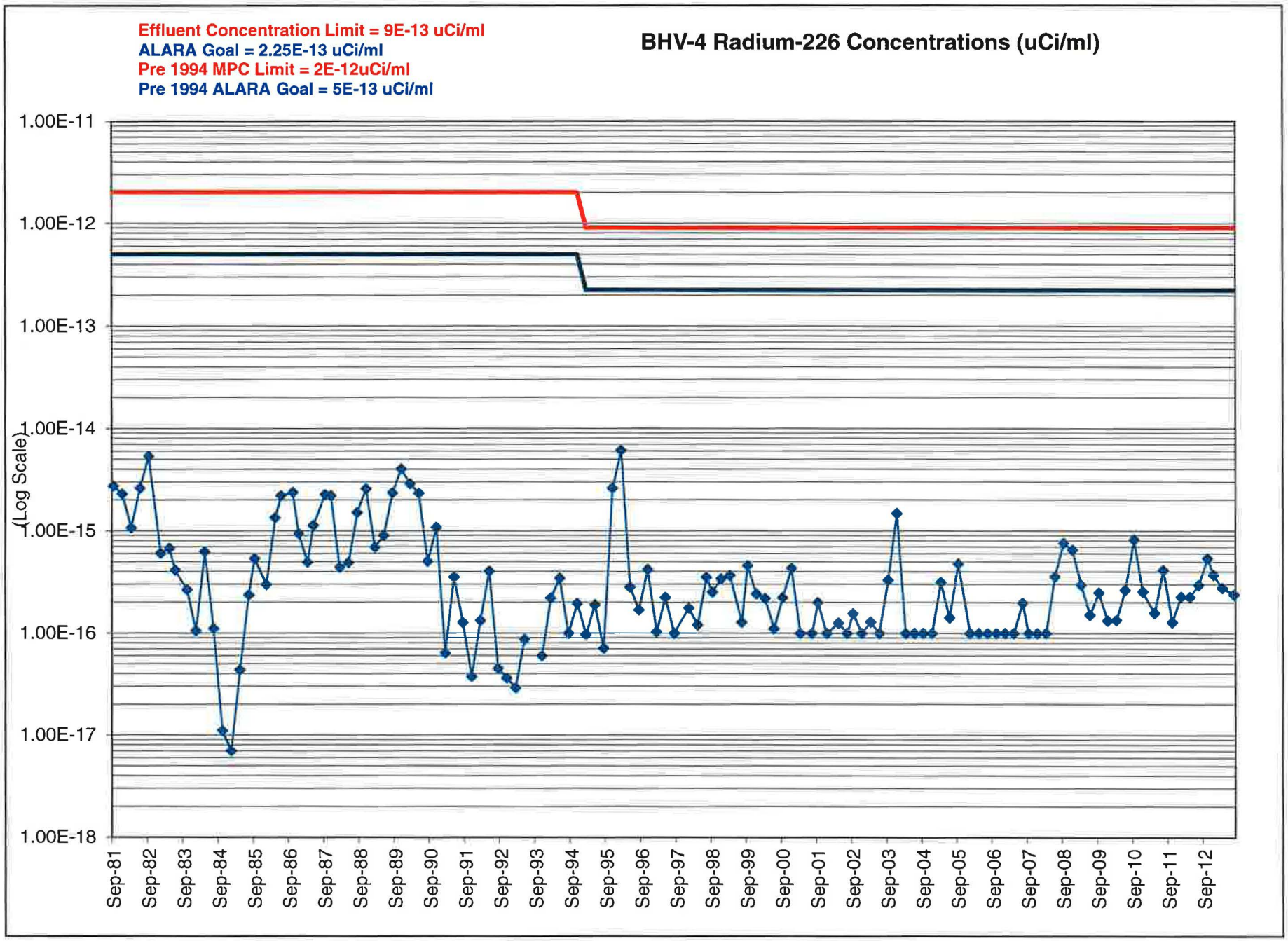
Sep-10
Sep-11
Sep-12


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
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Sep-87
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Sep-98
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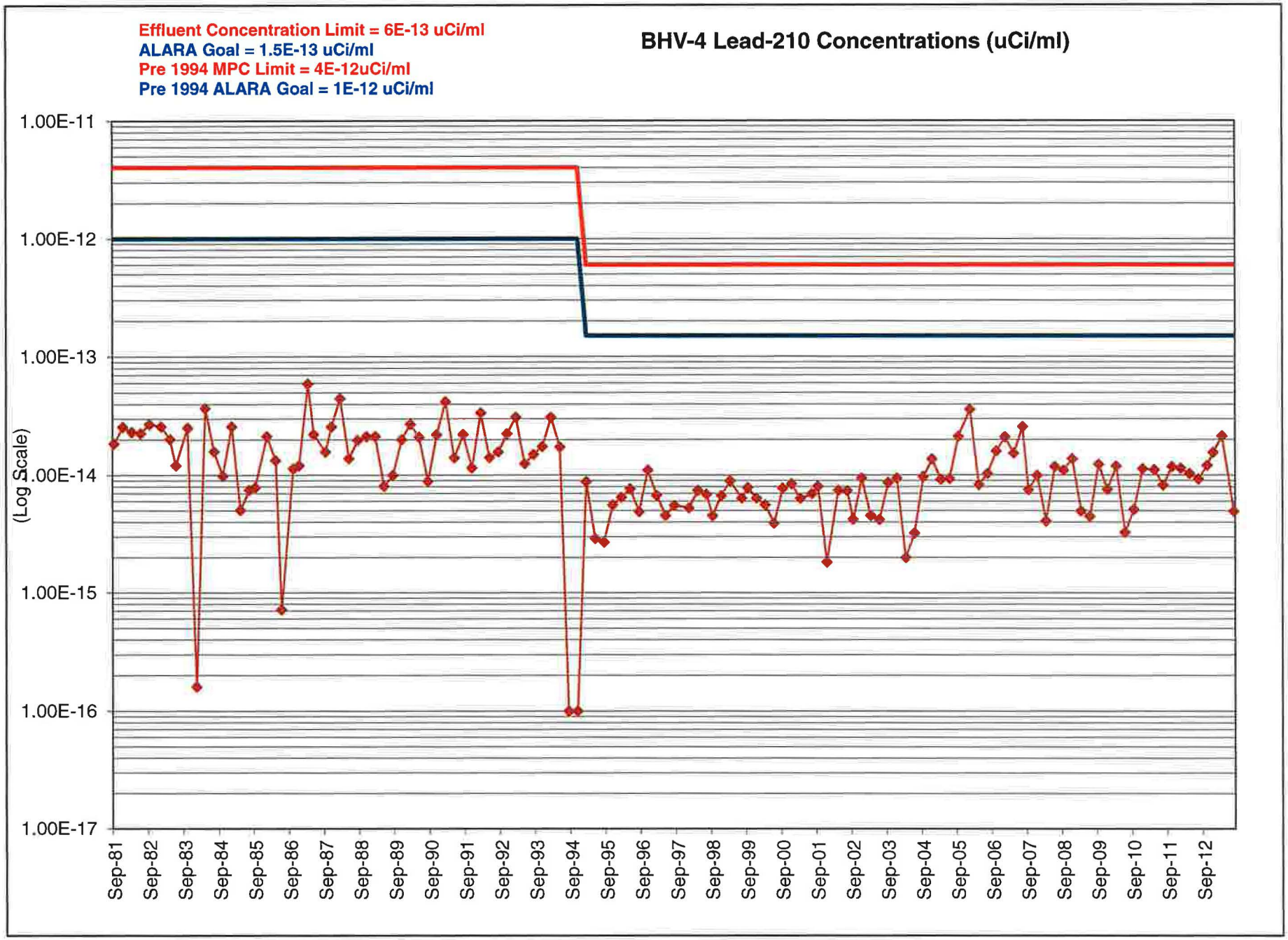
Sep-12


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)
(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
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Sep-97
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Sep-12

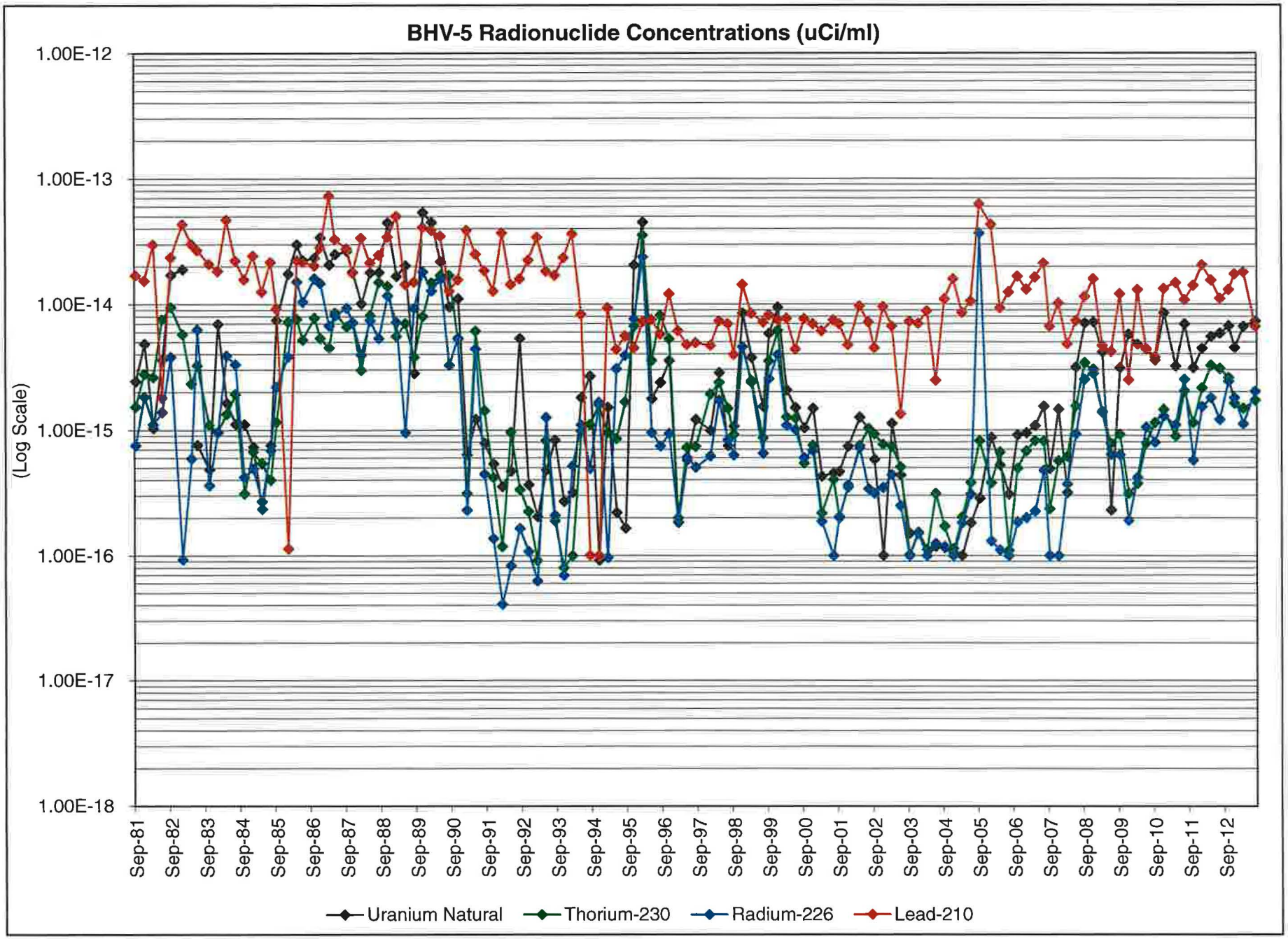
TAB 5

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
3/25/2013	6.66E-15	9.00E-14	2.25E-14	1.48E-15	2.00E-14	5.00E-15	1.12E-15	9.00E-13	2.25E-13	1.80E-14	6.00E-13	1.50E-13
7/2/2013	7.35E-15	9.00E-14	2.25E-14	1.72E-15	2.00E-14	5.00E-15	2.02E-15	9.00E-13	2.25E-13	6.67E-15	6.00E-13	1.50E-13


BHV-5 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
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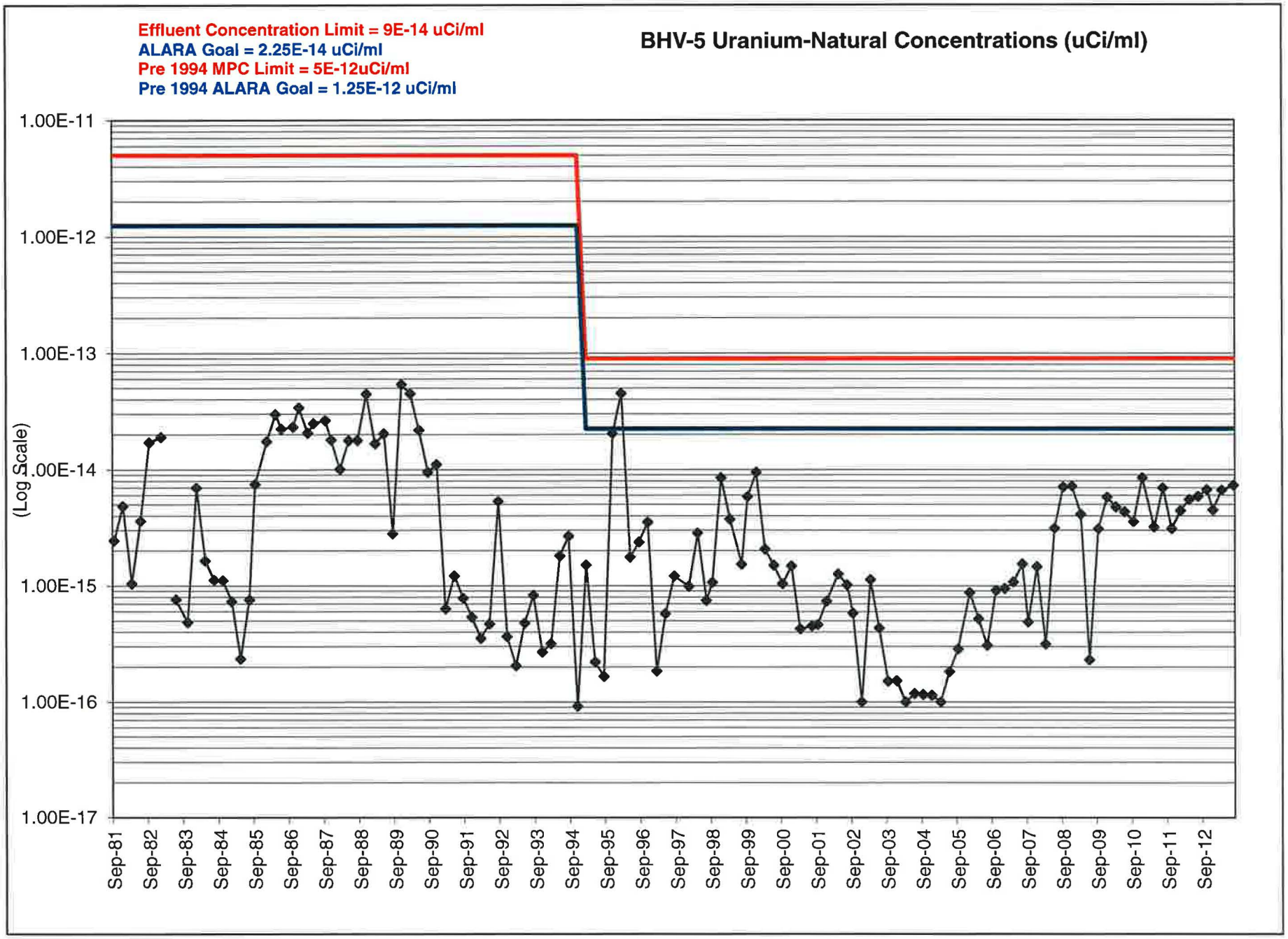
Sep-09
Sep-10
Sep-11
Sep-12
Uranium Natural
Thorium-230
Radium-226
Lead-210


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-5 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
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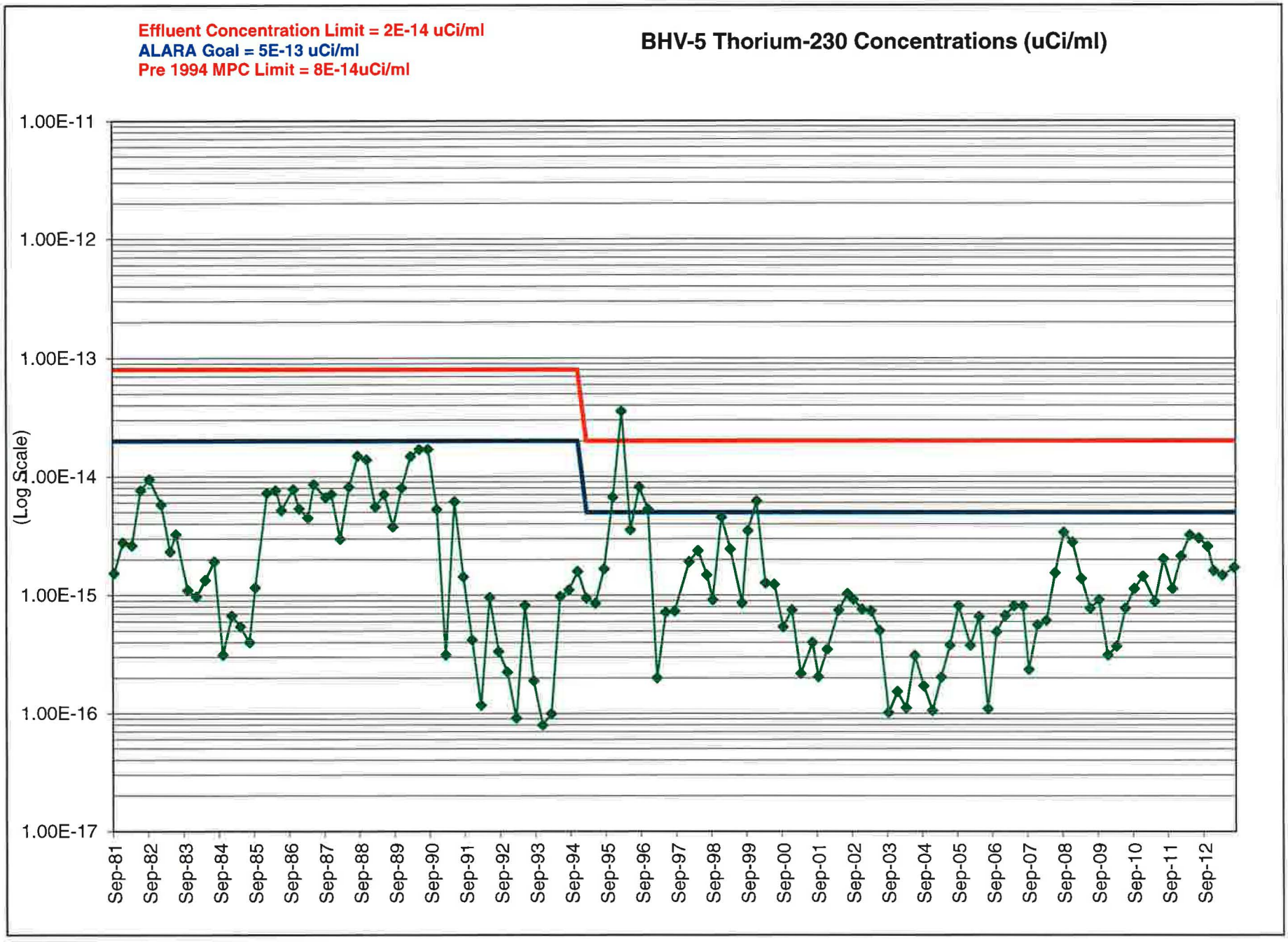
Sep-09
Sep-10
Sep-11
Sep-12


Effluent Concentration Limit = 2E-14 uCi/ml
ALARA Goal = 5E-13 uCi/ml
Pre 1994 MPC Limit = 8E-14uCi/ml
BHV-5 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
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Sep-87
Sep-88
Sep-89
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Sep-93
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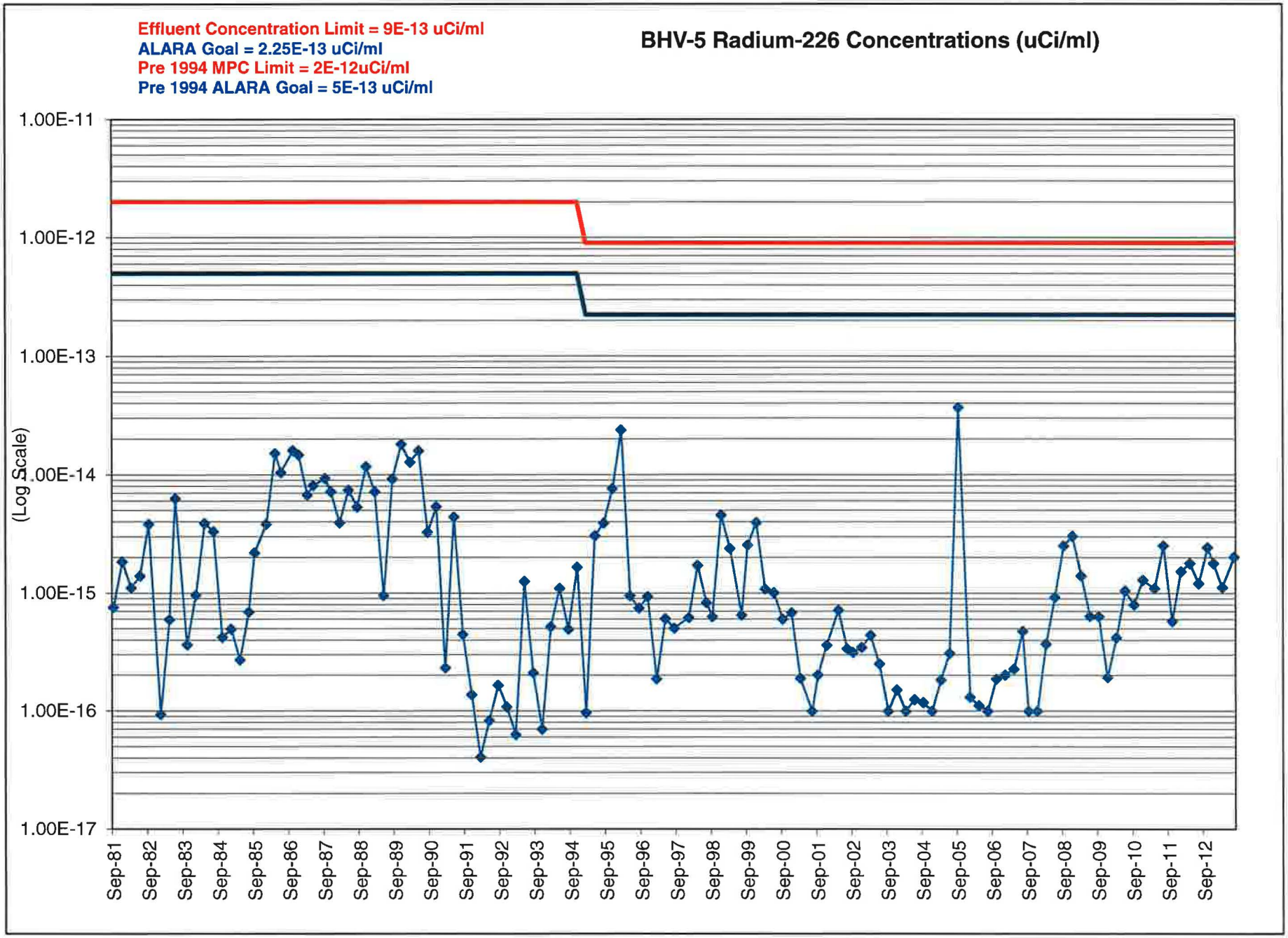
Sep-09
Sep-10
Sep-11
Sep-12


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-5 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
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Sep-95
Sep-96
Sep-97
Sep-98
Sep-99
Sep-00
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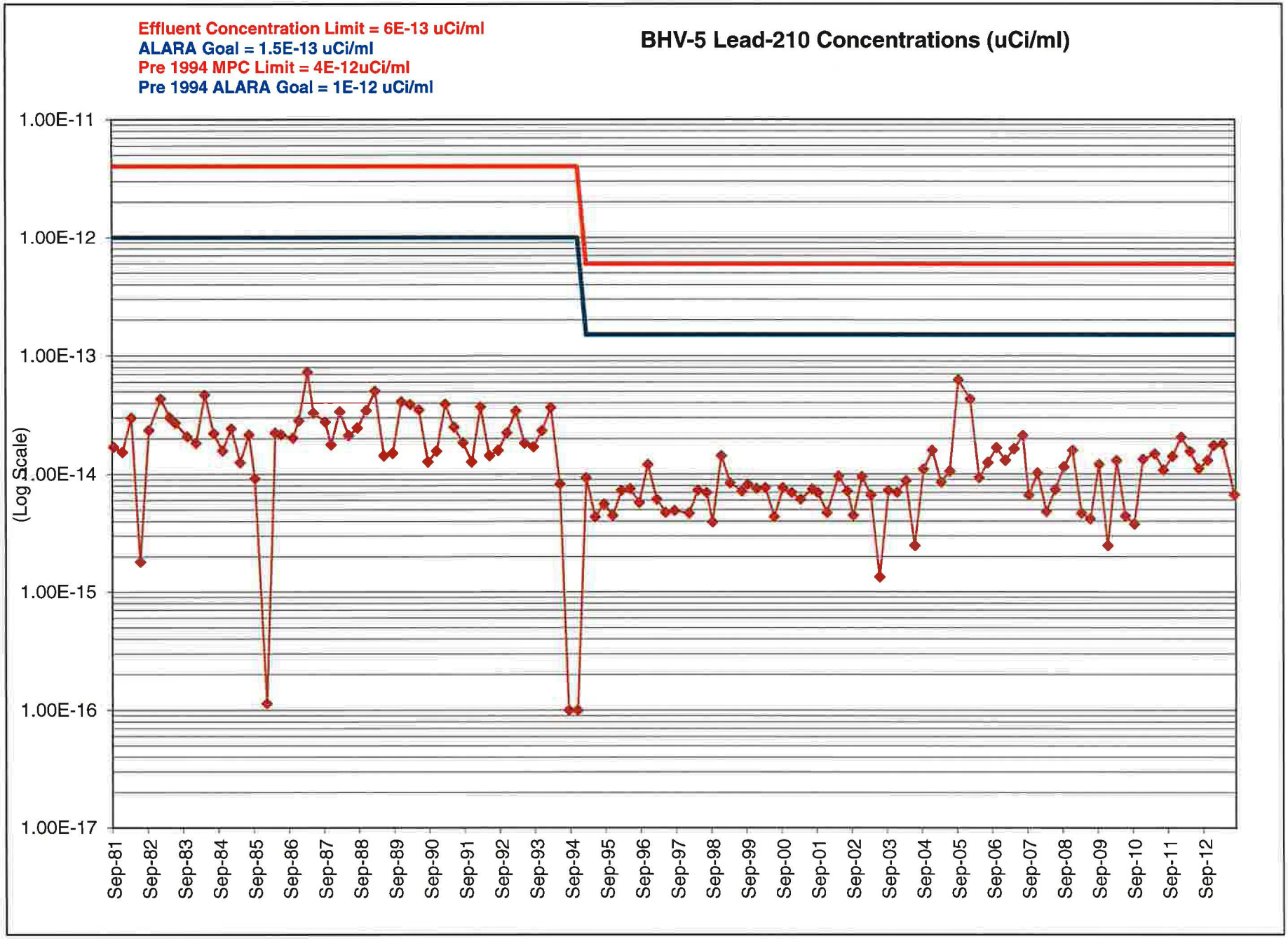
Sep-09
Sep-10
Sep-11
Sep-12


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-5 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
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Sep-97
Sep-98
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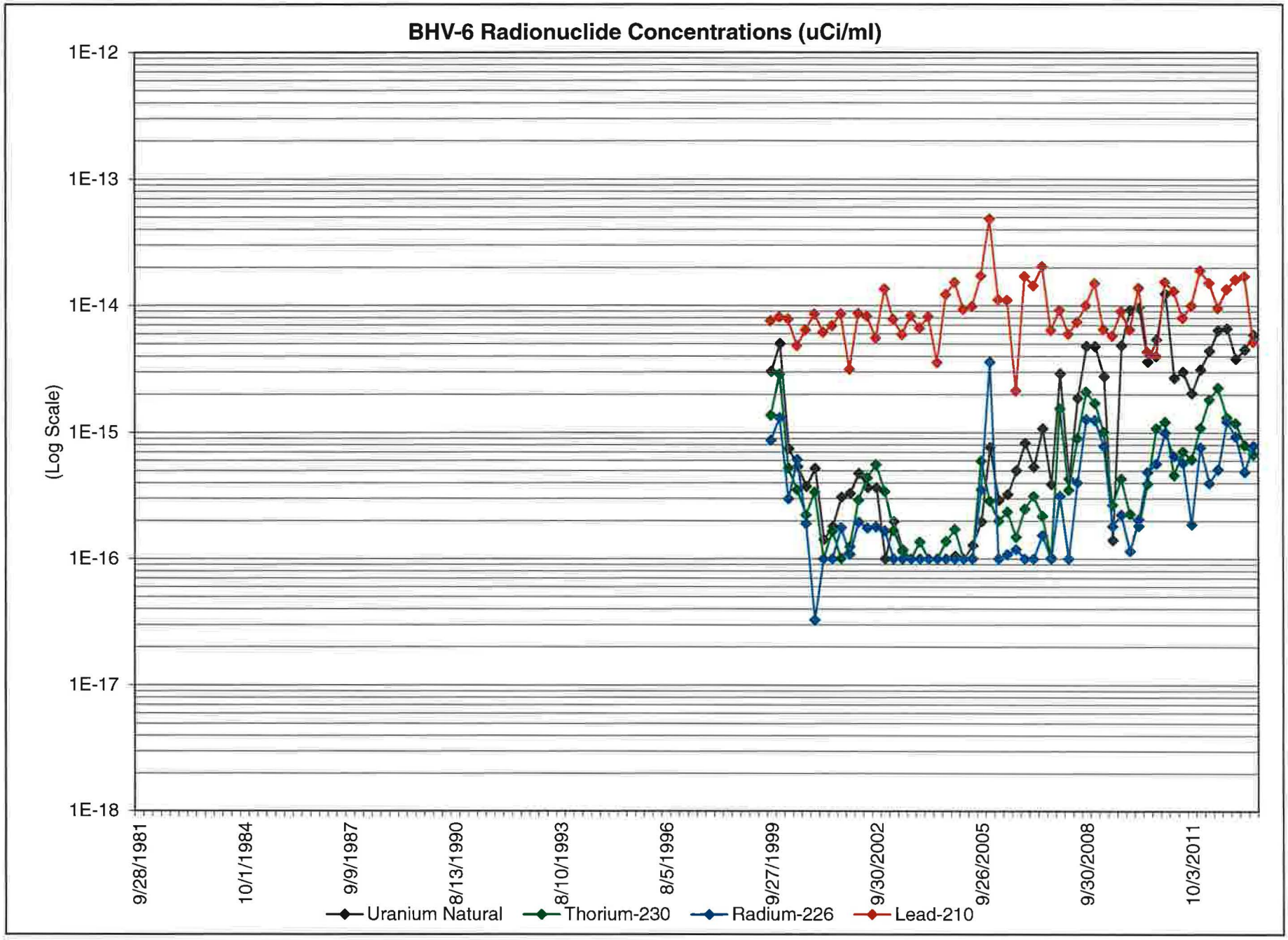
TAB 6

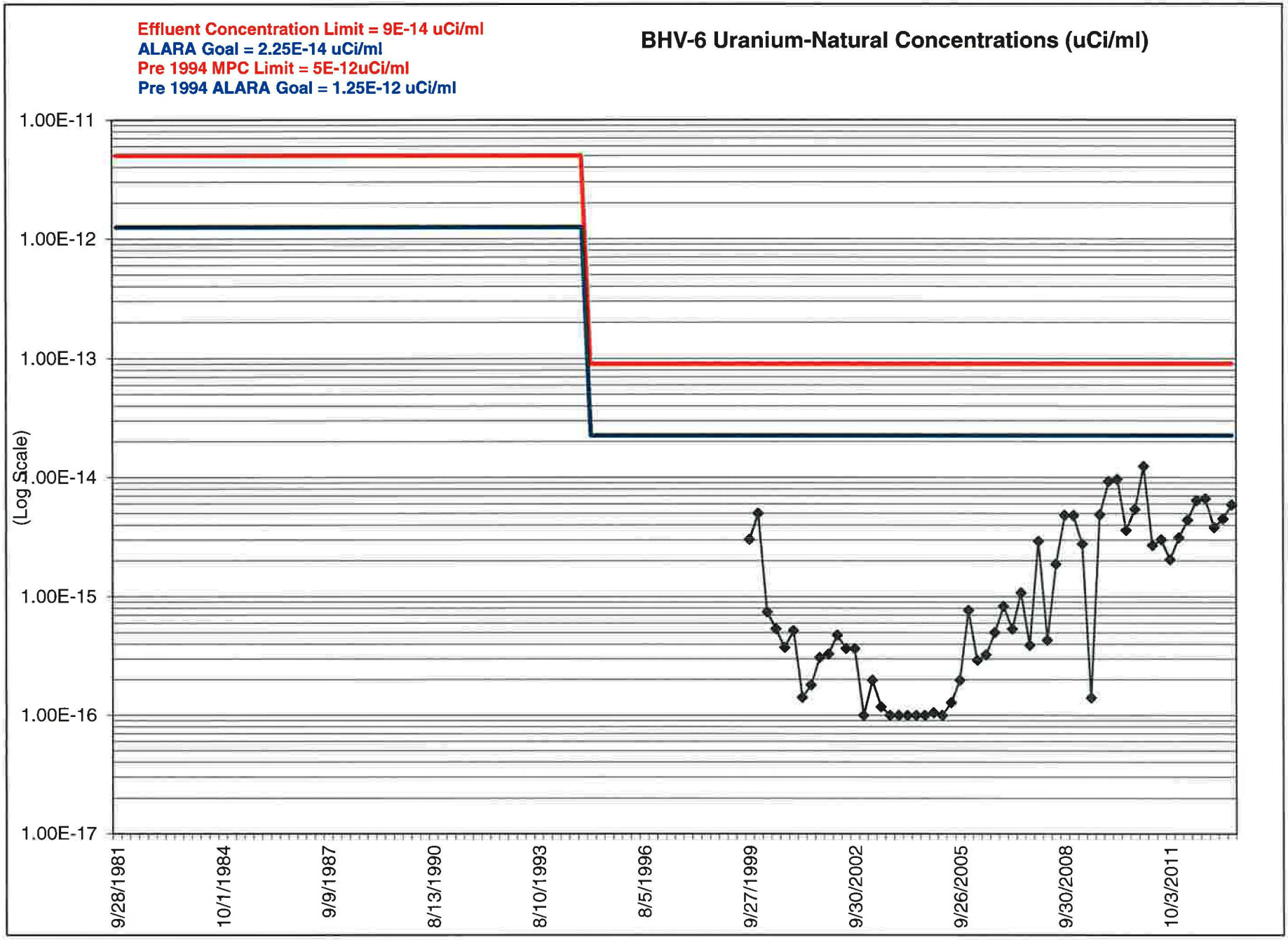
BHV-6 AIR SAMPLING GRAPHS AND DATA TABLE

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
3/25/2013	4.52E-15	9.00E-14	2.25E-14	7.93E-16	2.00E-14	5.00E-15	4.91E-16	9.00E-13	2.25E-13	1.70E-14	6.00E-13	1.50E-13
7/2/2013	5.91E-15	9.00E-14	2.25E-14	6.74E-16	2.00E-14	5.00E-15	7.85E-16	9.00E-13	2.25E-13	5.18E-15	6.00E-13	1.50E-13


BHV-6 Radionuclide Concentrations (uCi/ml)
(Log Scale)
1E-12
1E-13
1E-14
1E-15
1E-16
1E-17
1E-18
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
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-6 Uranium-Natural 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
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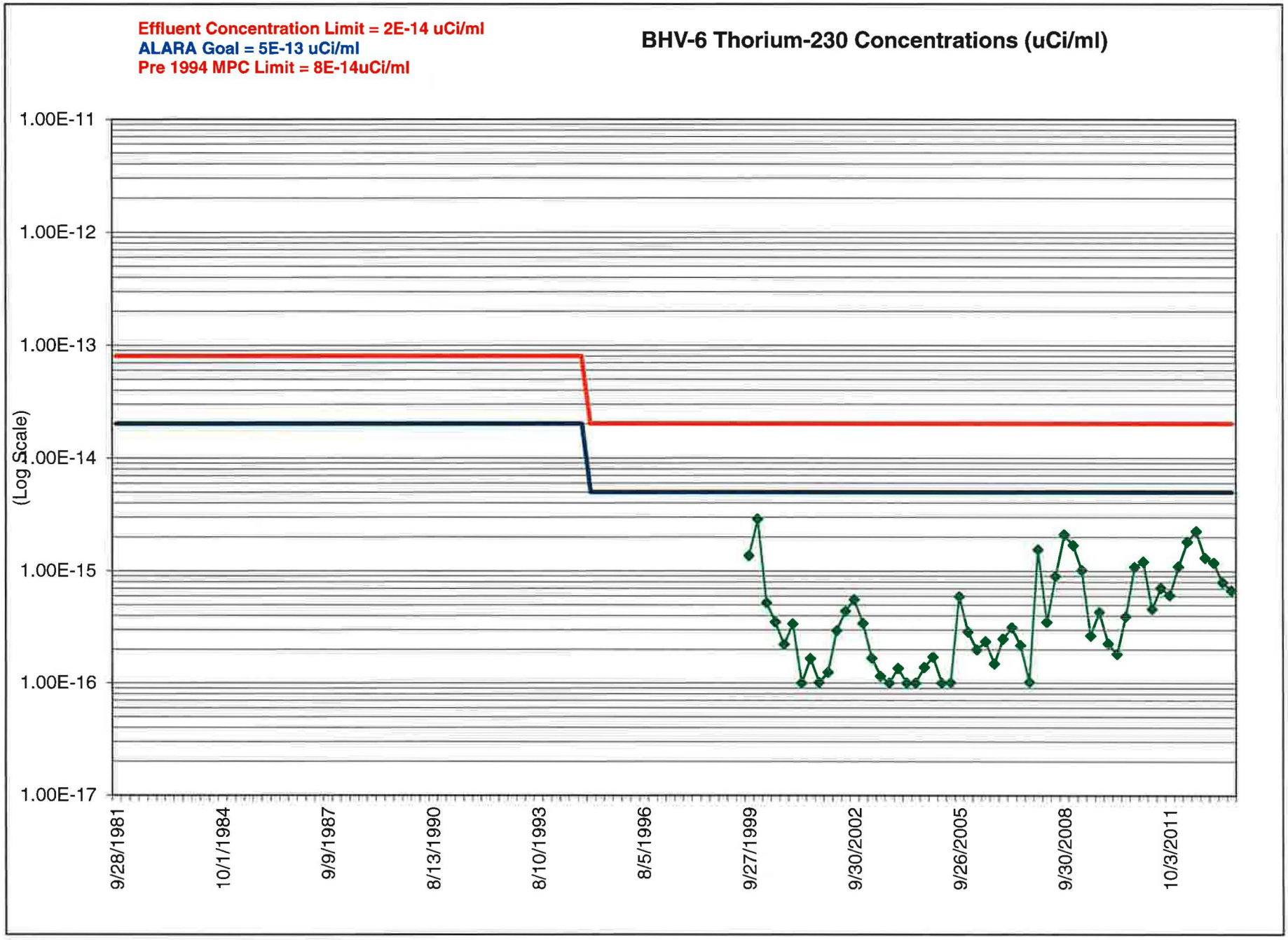
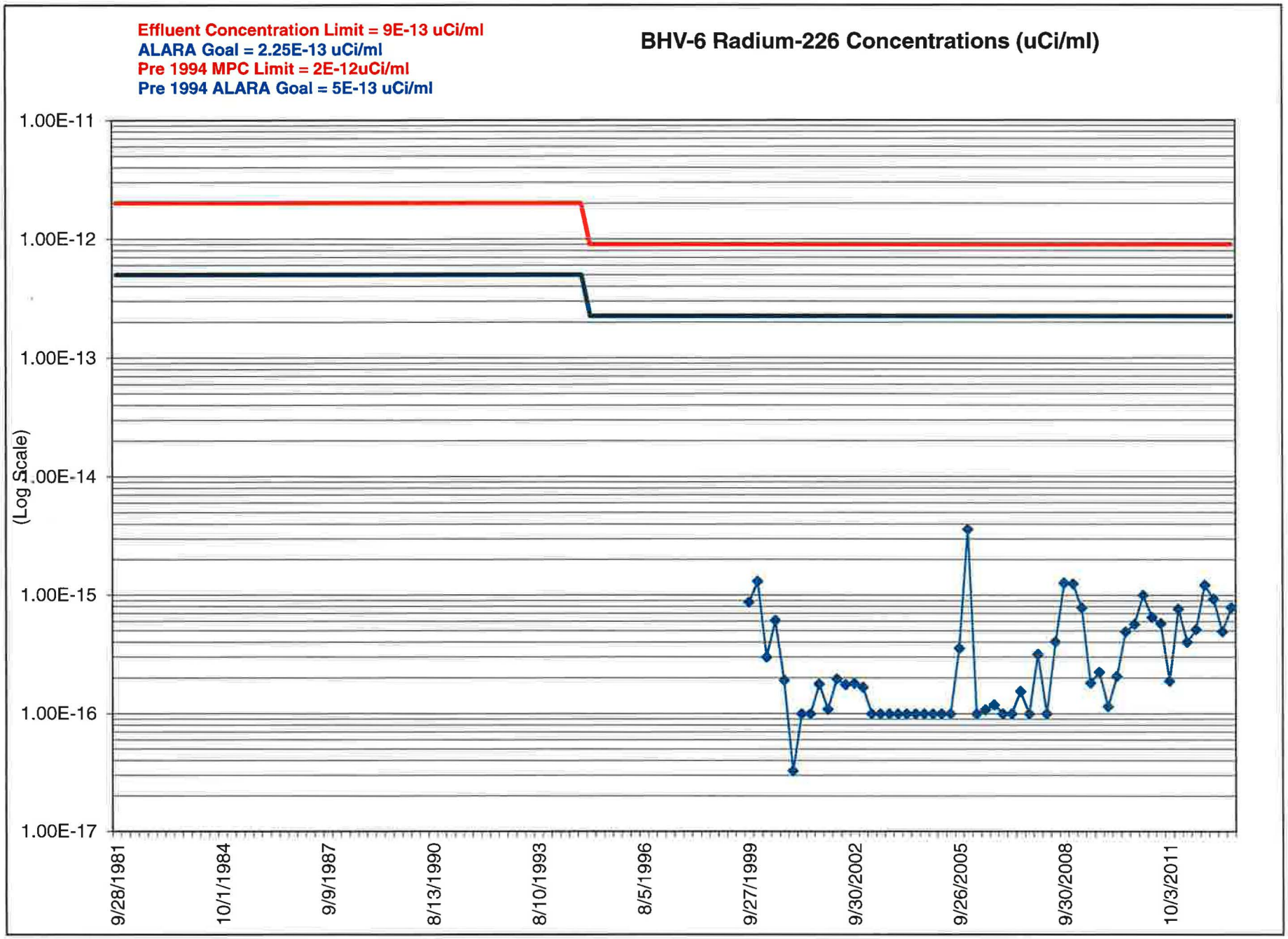
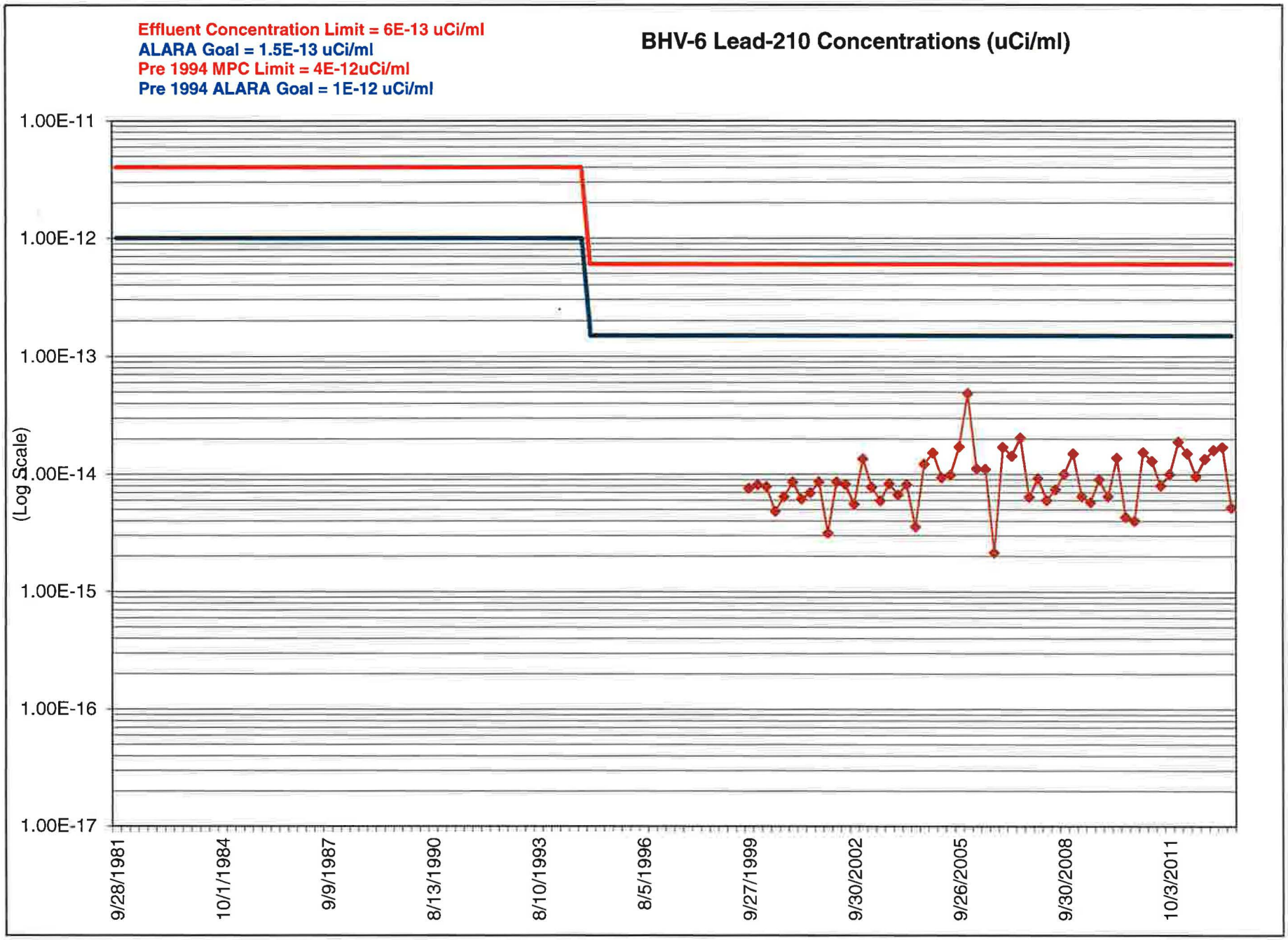
9/30/2002
9/26/2005
9/30/2008
10/3/2011


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)
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


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)
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


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

May 22, 2013

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

Workorder No.: C13040210

Project Name: 1st Quarter Air 2013

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

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13040210-001	BHV-1	03/25/13 00:00	04/04/13	Filter	Composite of two or more samples Metals, Total Digestion, Total Metals Lead 210 Radium 226 Thorium, Isotopic
C13040210-002	BHV-2	03/25/13 00:00	04/04/13	Filter	Same As Above
C13040210-003	BHV-4	03/25/13 00:00	04/04/13	Filter	Same As Above
C13040210-004	BHV-5	03/25/13 00:00	04/04/13	Filter	Same As Above
C13040210-005	BHV-6	03/25/13 00:00	04/04/13	Filter	Same As Above
C13040210-006	Blank	03/25/13 00:00	04/04/13	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: 2013.05.22 18:20:03 -06:00

CLIENT: Energy Fuels Resources (USA) Inc
Project: 1st Quarter Air 2013
Sample Delivery Group: C13040210

Report Date: 05/22/13

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: May 22, 2013
PROJECT: 1st Quarter Air 2013

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
C13040210-001	^{nat}U	9.91E-16	N/A	N/A	1E-16	9E-14	1.10E+00
First Quarter 2013	^{230}Th	1.86E-16	5E-17	2E-17	1E-16	3E-14	6.21E-01
Air Volume in mLs	^{226}Ra	2.04E-16	1E-17	4E-18	1E-16	9E-13	2.27E-02
1.36E+11	^{210}Pb	1.82E-14	2E-16	5E-17	2E-15	6E-13	3.03E+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: 1st Quarter Air 2013
Lab ID: C13040210-001
Client Sample ID BHV-1

Report Date: 05/22/13
Collection Date: 03/25/13
DateReceived: 04/04/13
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.199	mg/filter		0.0003		SW6020	04/11/13 22:30 / clm
Uranium, Activity	135	pCi/Filter		0.2		SW6020	04/11/13 22:30 / clm
RADIONUCLIDES							
Lead 210	2480	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Lead 210 precision (±)	24	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Lead 210 MDC	7.5	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Radium 226	27.8	pCi/Filter				E903.0	04/17/13 13:56 / trs
Radium 226 precision (±)	2.0	pCi/Filter				E903.0	04/17/13 13:56 / trs
Radium 226 MDC	0.6	pCi/Filter				E903.0	04/17/13 13:56 / trs
Thorium 230	25	pCi/Filter				E908.0	04/12/13 17:15 / dmf
Thorium 230 precision (±)	6.5	pCi/Filter				E908.0	04/12/13 17:15 / dmf
Thorium 230 MDC	3.0	pCi/Filter				E908.0	04/12/13 17:15 / 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: May 22, 2013
PROJECT: 1st Quarter Air 2013

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
C13040210-002	^{nat}U	3.38E-16	N/A	N/A	1E-16	9E-14	3.75E-01
First Quarter 2013	^{230}Th	3.94E-17	1E-17	9E-18	1E-16	3E-14	1.31E-01
Air Volume in mLs	^{226}Ra	8.32E-17	9E-18	4E-18	1E-16	9E-13	9.25E-03
1.36E+11	^{210}Pb	1.42E-14	2E-16	5E-17	2E-15	6E-13	2.37E+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: 1st Quarter Air 2013
Lab ID: C13040210-002
Client Sample ID BHV-2

Report Date: 05/22/13
Collection Date: 03/25/13
DateReceived: 04/04/13
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.0679	mg/filter		0.0003		SW6020	04/11/13 22:36 / clm
Uranium, Activity	46.0	pCi/Filter		0.2		SW6020	04/11/13 22:36 / clm
RADIONUCLIDES							
Lead 210	1940	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Lead 210 precision (±)	21	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Lead 210 MDC	7.5	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Radium 226	11.3	pCi/Filter				E903.0	04/17/13 13:56 / trs
Radium 226 precision (±)	1.3	pCi/Filter				E903.0	04/17/13 13:56 / trs
Radium 226 MDC	0.6	pCi/Filter				E903.0	04/17/13 13:56 / trs
Thorium 230	5.4	pCi/Filter				E908.0	04/12/13 17:15 / dmf
Thorium 230 precision (±)	1.7	pCi/Filter				E908.0	04/12/13 17:15 / dmf
Thorium 230 MDC	1.2	pCi/Filter				E908.0	04/12/13 17:15 / 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: May 22, 2013
PROJECT: 1st Quarter Air 2013

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
C13040210-003	^{nat}U	3.04E-15	N/A	N/A	1E-16	9E-14	3.38E+00
First Quarter 2013	^{230}Th	4.99E-16	9E-17	2E-17	1E-16	3E-14	1.66E+00
Air Volume in mLs	^{226}Ra	2.79E-16	2E-17	4E-18	1E-16	9E-13	3.10E-02
1.35E+11	^{210}Pb	2.13E-14	2E-16	5E-17	2E-15	6E-13	3.54E+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: 1st Quarter Air 2013
Lab ID: C13040210-003
Client Sample ID BHV-4

Report Date: 05/22/13
Collection Date: 03/25/13
DateReceived: 04/04/13
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.608	mg/filter		0.0003		SW6020	04/11/13 22:39 / clm
Uranium, Activity	411	pCi/Filter		0.2		SW6020	04/11/13 22:39 / clm
RADIONUCLIDES							
Lead 210	2880	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Lead 210 precision (±)	26	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Lead 210 MDC	7.3	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Radium 226	37.8	pCi/Filter				E903.0	04/17/13 13:56 / trs
Radium 226 precision (±)	2.2	pCi/Filter				E903.0	04/17/13 13:56 / trs
Radium 226 MDC	0.5	pCi/Filter				E903.0	04/17/13 13:56 / trs
Thorium 230	68	pCi/Filter				E908.0	04/12/13 17:15 / dmf
Thorium 230 precision (±)	13	pCi/Filter				E908.0	04/12/13 17:15 / dmf
Thorium 230 MDC	2.5	pCi/Filter				E908.0	04/12/13 17:15 / 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: May 22, 2013
PROJECT: 1st Quarter Air 2013

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
C13040210-004	^{nat}U	6.66E-15	N/A	N/A	1E-16	9E-14	7.40E+00
First Quarter 2013	^{230}Th	1.48E-15	3E-16	4E-17	1E-16	3E-14	4.95E+00
Air Volume in mLs	^{226}Ra	1.12E-15	3E-17	4E-18	1E-16	9E-13	1.24E-01
1.35E+11	^{210}Pb	1.80E-14	2E-16	5E-17	2E-15	6E-13	3.00E+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: 1st Quarter Air 2013
Lab ID: C13040210-004
Client Sample ID BHV-5

Report Date: 05/22/13
Collection Date: 03/25/13
DateReceived: 04/04/13
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	1.33	mg/filter		0.0003		SW6020	04/11/13 23:04 / clm
Uranium, Activity	901	pCi/Filter		0.2		SW6020	04/11/13 23:04 / clm
RADIONUCLIDES							
Lead 210	2430	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Lead 210 precision (±)	24	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Lead 210 MDC	7.4	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Radium 226	151	pCi/Filter				E903.0	04/17/13 13:56 / trs
Radium 226 precision (±)	4.2	pCi/Filter				E903.0	04/17/13 13:56 / trs
Radium 226 MDC	0.5	pCi/Filter				E903.0	04/17/13 13:56 / trs
Thorium 230	201	pCi/Filter				E908.0	04/12/13 17:15 / dmf
Thorium 230 precision (±)	35	pCi/Filter				E908.0	04/12/13 17:15 / dmf
Thorium 230 MDC	5.7	pCi/Filter				E908.0	04/12/13 17:15 / 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: May 22, 2013
PROJECT: 1st Quarter Air 2013

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
C13040210-005	^{nat}U	4.52E-15	N/A	N/A	1E-16	9E-14	5.02E+00
First Quarter 2013	^{230}Th	7.93E-16	2E-16	4E-17	1E-16	3E-14	2.64E+00
Air Volume in mLs	^{226}Ra	4.91E-16	2E-17	4E-18	1E-16	9E-13	5.46E-02
1.35E+11	^{210}Pb	1.70E-14	2E-16	6E-17	2E-15	6E-13	2.83E+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: 1st Quarter Air 2013
Lab ID: C13040210-005
Client Sample ID BHV-6

Report Date: 05/22/13
Collection Date: 03/25/13
DateReceived: 04/04/13
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.902	mg/filter		0.0003		SW6020	04/11/13 23:07 / clm
Uranium, Activity	611	pCi/Filter		0.2		SW6020	04/11/13 23:07 / clm
RADIONUCLIDES							
Lead 210	2290	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Lead 210 precision (±)	23	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Lead 210 MDC	7.4	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Radium 226	66.4	pCi/Filter				E903.0	04/17/13 13:56 / trs
Radium 226 precision (±)	2.9	pCi/Filter				E903.0	04/17/13 13:56 / trs
Radium 226 MDC	0.5	pCi/Filter				E903.0	04/17/13 13:56 / trs
Thorium 230	107	pCi/Filter				E908.0	04/12/13 17:15 / dmf
Thorium 230 precision (±)	21	pCi/Filter				E908.0	04/12/13 17:15 / dmf
Thorium 230 MDC	5.1	pCi/Filter				E908.0	04/12/13 17:15 / 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: May 22, 2013
PROJECT: 1st Quarter Air 2013

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
C13040210-006	^{nat}U	9.60E-18	N/A	N/A	1E-16	9E-14	1.07E-02
First Quarter 2013	^{230}Th	3.27E-18	3E-18	6E-18	1E-16	3E-14	1.09E-02
Air Volume in mLs	^{226}Ra	3.89E-18	3E-18	4E-18	1E-16	9E-13	4.32E-04
1.36E+11	^{210}Pb	-4.09E-17	3E-17	5E-17	2E-15	6E-13	-6.82E-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: 1st Quarter Air 2013
Lab ID: C13040210-006
Client Sample ID Blank

Report Date: 05/22/13
Collection Date: 03/25/13
DateReceived: 04/04/13
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.0019	mg/filter		0.0003		SW6020	04/11/13 23:10 / clm
Uranium, Activity	1.3	pCi/Filter		0.2		SW6020	04/11/13 23:10 / clm
RADIONUCLIDES							
Lead 210	-6	pCi/Filter	U			E909.0	04/18/13 01:39 / eli-cs
Lead 210 precision (±)	4.3	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Lead 210 MDC	7.4	pCi/Filter				E909.0	04/18/13 01:39 / eli-cs
Radium 226	0.5	pCi/Filter				E903.0	04/17/13 16:56 / trs
Radium 226 precision (±)	0.4	pCi/Filter				E903.0	04/17/13 16:56 / trs
Radium 226 MDC	0.5	pCi/Filter				E903.0	04/17/13 16:56 / trs
Thorium 230	0.44	pCi/Filter	U			E908.0	04/12/13 17:15 / dmf
Thorium 230 precision (±)	0.46	pCi/Filter				E908.0	04/12/13 17:15 / dmf
Thorium 230 MDC	0.82	pCi/Filter				E908.0	04/12/13 17:15 / 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: 1st Quarter Air 2013

Report Date: 05/22/13
Work Order: C13040210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 37074
Sample ID: MB-37074	2	Method Blank				Run: ICPMS2-C_130411A				04/11/13 22:17
Uranium		ND	mg/L	6E-05						
Uranium, Activity		ND	pCi/L	0.04						
Sample ID: LCS2-37074		Laboratory Control Sample				Run: ICPMS2-C_130411A				04/11/13 22:20
Uranium		0.102	mg/L	0.00030	102	85	115			
Sample ID: C13040210-003AMS		Sample Matrix Spike				Run: ICPMS2-C_130411A				04/11/13 22:55
Uranium		0.860	pCi/Filter	0.00030	106	70	130			
Sample ID: C13040210-003AMSD		Sample Matrix Spike Duplicate				Run: ICPMS2-C_130411A				04/11/13 22:58
Uranium		0.862	pCi/Filter	0.00030	107	70	130	0.2	20	

Qualifiers:

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

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Report Date: 05/22/13
Project: 1st Quarter Air 2013
Work Order: C13040210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: 37074
Sample ID: C13040162-001HMS		Sample Matrix Spike				Run: BERTHOLD 770-2_130411A				04/17/13 13:56
Radium 226		18	pCi/L		101	70	130			
Sample ID: C13040162-001HMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-2_130411A				04/17/13 13:56
Radium 226		19	pCi/L		106	70	130	4.5	22.3	
Sample ID: LCS-37074		Laboratory Control Sample				Run: BERTHOLD 770-2_130411A				04/17/13 16:56
Radium 226		20.1	pCi/Filter		94	80	120			
Sample ID: MB-37074	3	Method Blank				Run: BERTHOLD 770-2_130411A				04/17/13 16:56
Radium 226		0.09	pCi/Filter							U
Radium 226 precision (±)		0.2	pCi/Filter							
Radium 226 MDC		0.4	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: 05/22/13
Project: 1st Quarter Air 2013
Work Order: C13040210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0										Batch: 37074
Sample ID: C13040162-001HMS		Sample Matrix Spike				Run: ALPHANALYST_130411A				04/12/13 17:15
Thorium 230		19	pCi/L		116	70	130			
Sample ID: C13040162-001HMSD		Sample Matrix Spike Duplicate				Run: ALPHANALYST_130411A				04/12/13 17:15
Thorium 230		16	pCi/L		99	70	130	16	45.2	
Sample ID: LCS-37074		Laboratory Control Sample				Run: ALPHANALYST_130411A				04/12/13 17:15
Thorium 230		23.2	pCi/Filter		99	80	120			
Sample ID: MB-37074	3	Method Blank				Run: ALPHANALYST_130411A				04/12/13 17:15
Thorium 230		0.4	pCi/Filter							U
Thorium 230 precision (±)		0.4	pCi/Filter							
Thorium 230 MDC		0.8	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:** 05/22/13

Project: 1st Quarter Air 2013 **Work Order:** C13040210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0									Batch: T_18416-PB-210-0364	
Sample ID: LCS-18372		Laboratory Control Sample				Run: SUB-T50472			04/18/13 01:39	
Lead 210		123	pCi/Filter		92	70	130			
-This LCS is being reported with PB-18416 as it was prepared at the same time.										
Sample ID: MB-18416	3	Method Blank				Run: SUB-T50472			04/18/13 01:39	
Lead 210		-2	pCi/Filter							U
Lead 210 precision (±)		4	pCi/Filter							
Lead 210 MDC		7	pCi/Filter							
Sample ID: T13040058-001AMS		Sample Matrix Spike				Run: SUB-T50472			04/18/13 01:39	
Lead 210		2640	pCi/Filter			70	130			
- Sample activity for this radionuclide is much larger than the spike activity added. Therefore the matrix spike recovery could not be calculated. The RPD of the MS/MSD pair are acceptable; this batch is approved.										
Sample ID: T13040058-001AMSD		Sample Matrix Spike Duplicate				Run: SUB-T50472			04/18/13 01:39	
Lead 210		2480	pCi/Filter			70	130	6.2	13.7	
- Sample activity for this radionuclide is much larger than the spike activity added. Therefore the matrix spike recovery could not be calculated. The RPD of the MS/MSD pair are acceptable; this batch is approved.										

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: 05/22/13
Project: 1st Quarter Air 2013
Work Order: C13040210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020									Analytical Run: ICPMS2-C_130411A	
Sample ID: ICV		Initial Calibration Verification Standard							04/11/13 10:36	
Uranium		0.0500	mg/L	0.00030	100	90	110			
Sample ID: ICSA		Interference Check Sample A							04/11/13 10:39	
Uranium		1.33E-05	mg/L	0.00030						
Sample ID: ICSAB		Interference Check Sample AB							04/11/13 10:43	
Uranium		2.70E-06	mg/L	0.00030						
Method: SW6020									Batch: 37074	
Sample ID: C13040210-001ADIL		Serial Dilution				Run: ICPMS2-C_130411A			04/11/13 22:33	
Uranium		0.186	mg/filter	0.00030				7.0	20	
Sample ID: C13040210-003AMS		Sample Matrix Spike				Run: ICPMS2-C_130411A			04/11/13 22:55	
Uranium		0.860	mg/filter	0.00030	106	75	125			
Sample ID: C13040210-003AMSD		Sample Matrix Spike Duplicate				Run: ICPMS2-C_130411A			04/11/13 22:58	
Uranium		0.862	mg/filter	0.00030	107	75	125	0.2	20	
Sample ID: MB-37074		Method Blank				Run: ICPMS2-C_130411A			04/11/13 22:17	
Uranium		ND	mg/filter	6E-05						
Sample ID: LCS2-37074		Laboratory Control Sample				Run: ICPMS2-C_130411A			04/11/13 22:20	
Uranium		0.102	mg/filter	0.00030	102	85	115			

Qualifiers:

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

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.: 1st Quarter Air 2013	Sample Origin State: UT	EPA/State Compliance: Yes ☒ No ☐
Report Mail Address: 6425 S. Hwy 191 Blanding, UT 84511	Contact Name: Garrin Palmer Phone/Fax: 435 678 2221 Email: gpalmer@energyfuels.com		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

ANALYSIS REQUESTED

Standard Turnaround (TAT) → RUSH

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

Comments:

Shipped by: UPS - NOA
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)	U-NAT	Th-230	Ra-226	Pb-210						SEE ATTACHED
1	BHV-1	1/7/13	3/25/13	12-A	X	X	X	X						
2	BHV-2			↑	X	X	X	X						
3	BHV-[redacted]4			↕	X	X	X	X						
4	BHV-5			↓	X	X	X	X						
5	BHV-6	1/7/13	3/25/13	12-A	X	X	X	X						
6	Blank			↓	X	X	X	X						
7														
8														
9														
10														

LABORATORY USE ONLY: C13040210

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Garrin Palmer	4/3/13 / 1100	Garrin Palmer			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory:	4-4-13	915

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.

... additional information, downloadable fee schedule, forms, and links.

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ANALYTICAL SUMMARY REPORT

August 17, 2013

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

Workorder No.: C13070231

Project Name: 2nd Quarter Air 2013

Energy Laboratories, Inc. Casper WY received the following 6 samples for Energy Fuels Resources (USA) Inc on 7/8/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13070231-001	BHV-1	07/02/13 00:00	07/08/13	Filter	Composite of two or more samples Metals, Total Digestion, Total Metals Lead 210 Radium 226 Thorium, Isotopic
C13070231-002	BHV-2	07/02/13 00:00	07/08/13	Filter	Same As Above
C13070231-003	BHV-4	07/02/13 00:00	07/08/13	Filter	Same As Above
C13070231-004	BHV-5	07/02/13 00:00	07/08/13	Filter	Same As Above
C13070231-005	BHV-6	07/02/13 00:00	07/08/13	Filter	Same As Above
C13070231-006	Blank	07/02/13 00:00	07/08/13	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: 2013.08.17 17:43:27 -06:00

CLIENT: Energy Fuels Resources (USA) Inc
Project: 2nd Quarter Air 2013
Sample Delivery Group: C13070231

Report Date: 08/17/13

CASE NARRATIVE

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.
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: August 17, 2013
PROJECT: 2nd Quarter Air 2013

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
C13040210-001	^{nat}U	9.91E-16	N/A	N/A	1E-16	9E-14	1.10E+00
First Quarter 2013	^{230}Th	1.86E-16	5E-17	2E-17	1E-16	3E-14	6.21E-01
Air Volume in mLs	^{226}Ra	2.04E-16	1E-17	4E-18	1E-16	9E-13	2.27E-02
1.36E+11	^{210}Pb	1.82E-14	2E-16	5E-17	2E-15	6E-13	3.03E+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
C13070231-001	^{nat}U	1.46E-15	N/A	N/A	1E-16	9E-14	1.62E+00
Second Quarter 2013	^{230}Th	3.34E-16	5E-17	2E-17	1E-16	3E-14	1.11E+00
Air Volume in mLs	^{226}Ra	3.91E-16	2E-17	3E-18	1E-16	9E-13	4.35E-02
1.34E+11	^{210}Pb	5.78E-15	1E-16	6E-17	2E-15	6E-13	9.64E-01

+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: 2nd Quarter Air 2013
Lab ID: C13070231-001
Client Sample ID BHV-1

Report Date: 08/17/13
Collection Date: 07/02/13
DateReceived: 07/08/13
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.288	mg/filter		0.0003		SW6020	08/07/13 04:24 / cp
Uranium, Activity	195	pCi/Filter		0.2		SW6020	08/07/13 04:24 / cp
RADIONUCLIDES							
Lead 210	774	pCi/Filter				E909.0	08/09/13 23:22 / eli-cs
Lead 210 precision (±)	19	pCi/Filter				E909.0	08/09/13 23:22 / eli-cs
Lead 210 MDC	8.6	pCi/Filter				E909.0	08/09/13 23:22 / eli-cs
Radium 226	52.3	pCi/Filter				E903.0	07/23/13 13:14 / lmc
Radium 226 precision (±)	2.1	pCi/Filter				E903.0	07/23/13 13:14 / lmc
Radium 226 MDC	0.4	pCi/Filter				E903.0	07/23/13 13:14 / lmc
Thorium 230	45	pCi/Filter				E908.0	07/18/13 18:23 / dmf
Thorium 230 precision (±)	6.7	pCi/Filter				E908.0	07/18/13 18:23 / dmf
Thorium 230 MDC	2.2	pCi/Filter				E908.0	07/18/13 18:23 / 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: August 17, 2013
PROJECT: 2nd Quarter Air 2013

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
C13040210-002	^{nat}U	3.38E-16	N/A	N/A	1E-16	9E-14	3.75E-01
First Quarter 2013	^{230}Th	3.94E-17	1E-17	9E-18	1E-16	3E-14	1.31E-01
Air Volume in mLs	^{226}Ra	8.32E-17	9E-18	4E-18	1E-16	9E-13	9.25E-03
1.36E+11	^{210}Pb	1.42E-14	2E-16	5E-17	2E-15	6E-13	2.37E+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
C13070231-002	^{nat}U	4.06E-16	N/A	N/A	1E-16	9E-14	4.51E-01
Second Quarter 2013	^{230}Th	4.89E-17	1E-17	6E-18	1E-16	3E-14	1.63E-01
Air Volume in mLs	^{226}Ra	8.06E-17	7E-18	3E-18	1E-16	9E-13	8.95E-03
1.38E+11	^{210}Pb	4.93E-15	1E-16	6E-17	2E-15	6E-13	8.21E-01

+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: 2nd Quarter Air 2013
Lab ID: C13070231-002
Client Sample ID BHV-2

Report Date: 08/17/13
Collection Date: 07/02/13
DateReceived: 07/08/13
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.0827	mg/filter		0.0003		SW6020	08/07/13 04:51 / cp
Uranium, Activity	56.0	pCi/Filter		0.2		SW6020	08/07/13 04:51 / cp
RADIONUCLIDES							
Lead 210	679	pCi/Filter				E909.0	08/10/13 00:31 / eli-cs
Lead 210 precision (±)	18	pCi/Filter				E909.0	08/10/13 00:31 / eli-cs
Lead 210 MDC	8.6	pCi/Filter				E909.0	08/10/13 00:31 / eli-cs
Radium 226	11.1	pCi/Filter				E903.0	07/23/13 16:11 / lmc
Radium 226 precision (±)	1	pCi/Filter				E903.0	07/23/13 16:11 / lmc
Radium 226 MDC	0.4	pCi/Filter				E903.0	07/23/13 16:11 / lmc
Thorium 230	6.7	pCi/Filter				E908.0	07/18/13 18:23 / dmf
Thorium 230 precision (±)	1.5	pCi/Filter				E908.0	07/18/13 18:23 / dmf
Thorium 230 MDC	0.88	pCi/Filter				E908.0	07/18/13 18:23 / 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: August 17, 2013
PROJECT: 2nd Quarter Air 2013

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
C13040210-003	^{nat}U	3.04E-15	N/A	N/A	1E-16	9E-14	3.38E+00
First Quarter 2013	^{230}Th	4.99E-16	9E-17	2E-17	1E-16	3E-14	1.66E+00
Air Volume in mLs	^{226}Ra	2.79E-16	2E-17	4E-18	1E-16	9E-13	3.10E-02
1.35E+11	^{210}Pb	2.13E-14	2E-16	5E-17	2E-15	6E-13	3.54E+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
C13070231-003	^{nat}U	2.50E-15	N/A	N/A	1E-16	9E-14	2.78E+00
Second Quarter 2013	^{230}Th	3.62E-16	5E-17	1E-17	1E-16	3E-14	1.21E+00
Air Volume in mLs	^{226}Ra	2.40E-16	1E-17	3E-18	1E-16	9E-13	2.67E-02
1.37E+11	^{210}Pb	4.93E-15	1E-16	6E-17	2E-15	6E-13	8.22E-01

+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: 2nd Quarter Air 2013
Lab ID: C13070231-003
Client Sample ID BHV-4

Report Date: 08/17/13
Collection Date: 07/02/13
DateReceived: 07/08/13
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.507	mg/filter		0.0003		SW6020	08/07/13 04:55 / cp
Uranium, Activity	343	pCi/Filter		0.2		SW6020	08/07/13 04:55 / cp
RADIONUCLIDES							
Lead 210	677	pCi/Filter				E909.0	08/10/13 01:40 / eli-cs
Lead 210 precision (±)	18	pCi/Filter				E909.0	08/10/13 01:40 / eli-cs
Lead 210 MDC	8.5	pCi/Filter				E909.0	08/10/13 01:40 / eli-cs
Radium 226	32.9	pCi/Filter				E903.0	07/23/13 16:11 / lmc
Radium 226 precision (±)	1.6	pCi/Filter				E903.0	07/23/13 16:11 / lmc
Radium 226 MDC	0.4	pCi/Filter				E903.0	07/23/13 16:11 / lmc
Thorium 230	50	pCi/Filter				E908.0	07/18/13 18:23 / dmf
Thorium 230 precision (±)	6.9	pCi/Filter				E908.0	07/18/13 18:23 / dmf
Thorium 230 MDC	1.7	pCi/Filter				E908.0	07/18/13 18:23 / 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: August 17, 2013
PROJECT: 2nd Quarter Air 2013

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
C13040210-004	^{nat}U	6.66E-15	N/A	N/A	1E-16	9E-14	7.40E+00
First Quarter 2013	^{230}Th	1.48E-15	3E-16	4E-17	1E-16	3E-14	4.95E+00
Air Volume in mLs	^{226}Ra	1.12E-15	3E-17	4E-18	1E-16	9E-13	1.24E-01
1.35E+11	^{210}Pb	1.80E-14	2E-16	5E-17	2E-15	6E-13	3.00E+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
C13070231-004	^{nat}U	7.35E-15	N/A	N/A	1E-16	9E-14	8.16E+00
Second Quarter 2013	^{230}Th	1.72E-15	2E-16	2E-17	1E-16	3E-14	5.74E+00
Air Volume in mLs	^{226}Ra	2.02E-15	4E-17	3E-18	1E-16	9E-13	2.25E-01
1.37E+11	^{210}Pb	6.67E-15	1E-16	6E-17	2E-15	6E-13	1.11E+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: 2nd Quarter Air 2013
Lab ID: C13070231-004
Client Sample ID BHV-5

Report Date: 08/17/13
Collection Date: 07/02/13
DateReceived: 07/08/13
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	1.49	mg/filter		0.0003		SW6020	08/07/13 04:59 / cp
Uranium, Activity	1010	pCi/Filter		0.2		SW6020	08/07/13 04:59 / cp
RADIONUCLIDES							
Lead 210	917	pCi/Filter				E909.0	08/10/13 02:50 / eli-cs
Lead 210 precision (±)	20	pCi/Filter				E909.0	08/10/13 02:50 / eli-cs
Lead 210 MDC	8.6	pCi/Filter				E909.0	08/10/13 02:50 / eli-cs
Radium 226	278	pCi/Filter				E903.0	07/23/13 16:11 / lmc
Radium 226 precision (±)	4.8	pCi/Filter				E903.0	07/23/13 16:11 / lmc
Radium 226 MDC	0.4	pCi/Filter				E903.0	07/23/13 16:11 / lmc
Thorium 230	237	pCi/Filter				E908.0	07/18/13 18:23 / dmf
Thorium 230 precision (±)	25	pCi/Filter				E908.0	07/18/13 18:23 / dmf
Thorium 230 MDC	3.0	pCi/Filter				E908.0	07/18/13 18:23 / 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: August 17, 2013
PROJECT: 2nd Quarter Air 2013

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
C13040210-005	^{nat}U	4.52E-15	N/A	N/A	1E-16	9E-14	5.02E+00
First Quarter 2013	^{230}Th	7.93E-16	2E-16	4E-17	1E-16	3E-14	2.64E+00
Air Volume in mLs	^{226}Ra	4.91E-16	2E-17	4E-18	1E-16	9E-13	5.46E-02
1.35E+11	^{210}Pb	1.70E-14	2E-16	6E-17	2E-15	6E-13	2.83E+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
C13070231-005	^{nat}U	5.91E-15	N/A	N/A	1E-16	9E-14	6.57E+00
Second Quarter 2013	^{230}Th	6.74E-16	9E-17	2E-17	1E-16	3E-14	2.25E+00
Air Volume in mLs	^{226}Ra	7.85E-16	2E-17	3E-18	1E-16	9E-13	8.73E-02
1.37E+11	^{210}Pb	5.18E-15	1E-16	6E-17	2E-15	6E-13	8.64E-01

+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: 2nd Quarter Air 2013
Lab ID: C13070231-005
Client Sample ID BHV-6

Report Date: 08/17/13
Collection Date: 07/02/13
DateReceived: 07/08/13
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	1.20	mg/filter		0.0003		SW6020	08/07/13 05:04 / cp
Uranium, Activity	812	pCi/Filter		0.2		SW6020	08/07/13 05:04 / cp
RADIONUCLIDES							
Lead 210	712	pCi/Filter				E909.0	08/10/13 03:59 / eli-cs
Lead 210 precision (±)	18	pCi/Filter				E909.0	08/10/13 03:59 / eli-cs
Lead 210 MDC	8.5	pCi/Filter				E909.0	08/10/13 03:59 / eli-cs
Radium 226	108	pCi/Filter				E903.0	07/23/13 16:11 / lmc
Radium 226 precision (±)	3.0	pCi/Filter				E903.0	07/23/13 16:11 / lmc
Radium 226 MDC	0.4	pCi/Filter				E903.0	07/23/13 16:11 / lmc
Thorium 230	93	pCi/Filter				E908.0	07/18/13 18:23 / dmf
Thorium 230 precision (±)	12	pCi/Filter				E908.0	07/18/13 18:23 / dmf
Thorium 230 MDC	3.1	pCi/Filter				E908.0	07/18/13 18:23 / 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: August 17, 2013
PROJECT: 2nd Quarter Air 2013

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
C13040210-006	^{nat}U	9.60E-18	N/A	N/A	1E-16	9E-14	1.07E-02
First Quarter 2013	^{230}Th	3.27E-18	3E-18	6E-18	1E-16	3E-14	1.09E-02
Air Volume in mLs	^{226}Ra	3.89E-18	3E-18	4E-18	1E-16	9E-13	4.32E-04
1.36E+11	^{210}Pb	-4.09E-17	3E-17	5E-17	2E-15	6E-13	-6.82E-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
C13070231-006	^{nat}U	7.23E-18	N/A	N/A	1E-16	9E-14	8.03E-03
Second Quarter 2013	^{230}Th	7.06E-18	2E-18	2E-18	1E-16	3E-14	2.35E-02
Air Volume in mLs	^{226}Ra	4.52E-18	2E-18	3E-18	1E-16	9E-13	5.02E-04
1.36E+11	^{210}Pb	-7.38E-18	4E-17	6E-17	2E-15	6E-13	-1.23E-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: 2nd Quarter Air 2013
Lab ID: C13070231-006
Client Sample ID Blank

Report Date: 08/17/13
Collection Date: 07/02/13
DateReceived: 07/08/13
Matrix: Filter

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
TRACE METALS							
Uranium	0.0015	mg/filter		0.0003		SW6020	08/07/13 05:08 / cp
Uranium, Activity	1.0	pCi/Filter		0.2		SW6020	08/07/13 05:08 / cp
RADIONUCLIDES							
Lead 210	-1	pCi/Filter	U			E909.0	08/10/13 05:08 / eli-cs
Lead 210 precision (±)	5.1	pCi/Filter				E909.0	08/10/13 05:08 / eli-cs
Lead 210 MDC	8.6	pCi/Filter				E909.0	08/10/13 05:08 / eli-cs
Radium 226	0.6	pCi/Filter				E903.0	07/23/13 16:11 / lmc
Radium 226 precision (±)	0.3	pCi/Filter				E903.0	07/23/13 16:11 / lmc
Radium 226 MDC	0.4	pCi/Filter				E903.0	07/23/13 16:11 / lmc
Thorium 230	0.96	pCi/Filter				E908.0	07/18/13 18:23 / dmf
Thorium 230 precision (±)	0.31	pCi/Filter				E908.0	07/18/13 18:23 / dmf
Thorium 230 MDC	0.21	pCi/Filter				E908.0	07/18/13 18:23 / 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
Report Date: 08/17/13
Project: 2nd Quarter Air 2013
Work Order: C13070231

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: R176249
Sample ID: LCS-38107		Laboratory Control Sample				Run: BERTHOLD 770-1_130717A				07/23/13 13:14
Radium 226		23.4	pCi/Filter		108	80	120			
Sample ID: MB-38107	3	Method Blank				Run: BERTHOLD 770-1_130717A				07/23/13 13:14
Radium 226		0.2	pCi/Filter							U
Radium 226 precision (±)		0.2	pCi/Filter							
Radium 226 MDC		0.3	pCi/Filter							
Sample ID: C13070231-001AMS		Sample Matrix Spike				Run: BERTHOLD 770-1_130717A				07/23/13 16:11
Radium 226		126	pCi/Filter		103	70	130			
Sample ID: C13070231-001AMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-1_130717A				07/23/13 16:11
Radium 226		131	pCi/Filter		110	70	130	3.8	17.5	

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: 08/17/13
Project: 2nd Quarter Air 2013
Work Order: C13070231

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0										Batch: R176720
Sample ID: C13070098-004AMS		Sample Matrix Spike				Run: ALPHANALYST_130715C				07/18/13 18:22
Thorium 230		115	pCi/Filter		108	70	130			
Sample ID: C13070098-004AMSD		Sample Matrix Spike Duplicate				Run: ALPHANALYST_130715C				07/18/13 18:22
Thorium 230		123	pCi/Filter		115	70	130	6.3	30.3	
Sample ID: LCS-38191		Laboratory Control Sample				Run: ALPHANALYST_130715C				07/18/13 18:23
Thorium 230		18.3	pCi/Filter		108	80	120			
Sample ID: MB-38191	3	Method Blank				Run: ALPHANALYST_130715C				07/18/13 18:23
Thorium 230		0.2	pCi/Filter							
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.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Report Date: 08/17/13
Project: 2nd Quarter Air 2013
Work Order: C13070231

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0										Batch: T_19226
Sample ID: LCS-19226		Laboratory Control Sample				Run: SUB-T52308				08/09/13 17:35
Lead 210		87.0	pCi/Filter		64	80	120			S
- LCS response is outside of the acceptance range for this analysis. Since the MB, MS, and MSD are acceptable the batch is approved.										
Sample ID: MB-19226	3	Method Blank				Run: SUB-T52308				08/09/13 18:44
Lead 210		2	pCi/Filter							U
Lead 210 precision (±)		5	pCi/Filter							
Lead 210 MDC		9	pCi/Filter							
Sample ID: C13070233-001AMS		Sample Matrix Spike				Run: SUB-T52308				08/09/13 21:03
Lead 210		2.92E-05	pCi/Filter		117	70	130			
Sample ID: C13070233-001AMSD		Sample Matrix Spike Duplicate				Run: SUB-T52308				08/09/13 22:12
Lead 210		2.75E-05	pCi/Filter		100	70	130	6.1	17.2	

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:** 08/17/13

Project: 2nd Quarter Air 2013 **Work Order:** C13070231

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020									Analytical Run: ICPMS4-C_130806A	
Sample ID: ICV		Initial Calibration Verification Standard							08/06/13 14:22	
Uranium		0.0506	mg/L	0.00030	101	90	110			
Sample ID: ICSA		Interference Check Sample A							08/06/13 14:27	
Uranium		2.68E-05	mg/L	0.00030						
Sample ID: ICSAB		Interference Check Sample AB							08/06/13 14:31	
Uranium		9.90E-06	mg/L	0.00030						
Method: SW6020									Batch: 38219	
Sample ID: MB-38219		Method Blank				Run: ICPMS4-C_130806A			08/07/13 04:11	
Uranium		7E-05	mg/filter	4E-05						
Sample ID: LCS2-38219		Laboratory Control Sample				Run: ICPMS4-C_130806A			08/07/13 04:15	
Uranium		0.0746	mg/filter	0.00030	149	85	115			S
- Response is above standard QA limit. This could indicate a high bias for the sample results. Insufficient sample remains to perform a re-digestion. Re-analysis of samples confirms data, and instrument QC meets criteria, so this batch is approved.										
Sample ID: C13070231-001ASD	2	Serial Dilution				Run: ICPMS4-C_130806A			08/07/13 04:47	
Uranium		0.249	mg/filter	0.00030				15	20	
Uranium, Activity		168	pCi/Filter	0.20		0	0			
Sample ID: C13070233-001AMS		Sample Matrix Spike				Run: ICPMS4-C_130806A			08/07/13 05:17	
Uranium		0.271	mg/filter	0.00030	112	75	125			
Sample ID: C13070233-001AMSD		Sample Matrix Spike Duplicate				Run: ICPMS4-C_130806A			08/07/13 05:21	
Uranium		0.271	mg/filter	0.00030	112	75	125	0.1	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - 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 C13070231

Login completed by: Corinne Wagner
Date Received: 7/8/2013
Reviewed by: BL2000\kmiller
Received by: CAV
Reviewed Date: 7/9/2013
Carrier name: Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all 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 in all shipping container(s)/cooler(s)?	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

Sheet 1 of 1

CHAIN OF CUSTODY

Samples Shipped to: Energy Laboratories
2393 Salt Creek Hwy
Casper WY 82601

Contact: Garrin Palmer
Ph: 435 678 2108
gpalmer@energyfuels.com

Chain of Custody/Sampling Analysis Request

Project	Samplers Name	Samplers Signature
2nd Quarter Air	Garrin Palmer	Garrin Palmer

Sample ID	Date Collected	Time Collected	Laboratory Analysis Requested
BHV-1	4/1/13-7/2/13	na	U-NAT, Th-230, Ra-226, Pb-210
BHV-2	4/1/13-7/2/13	na	U-NAT, Th-230, Ra-226, Pb-210
BHV-4	4/1/13-7/2/13	na	U-NAT, Th-230, Ra-226, Pb-210
BHV-5	4/1/13-7/2/13	na	U-NAT, Th-230, Ra-226, Pb-210
BHV-6	4/1/13-7/2/13	na	U-NAT, Th-230, Ra-226, Pb-210
Blank	4/1/13-7/2/13	na	U-NAT, Th-230, Ra-226, Pb-210

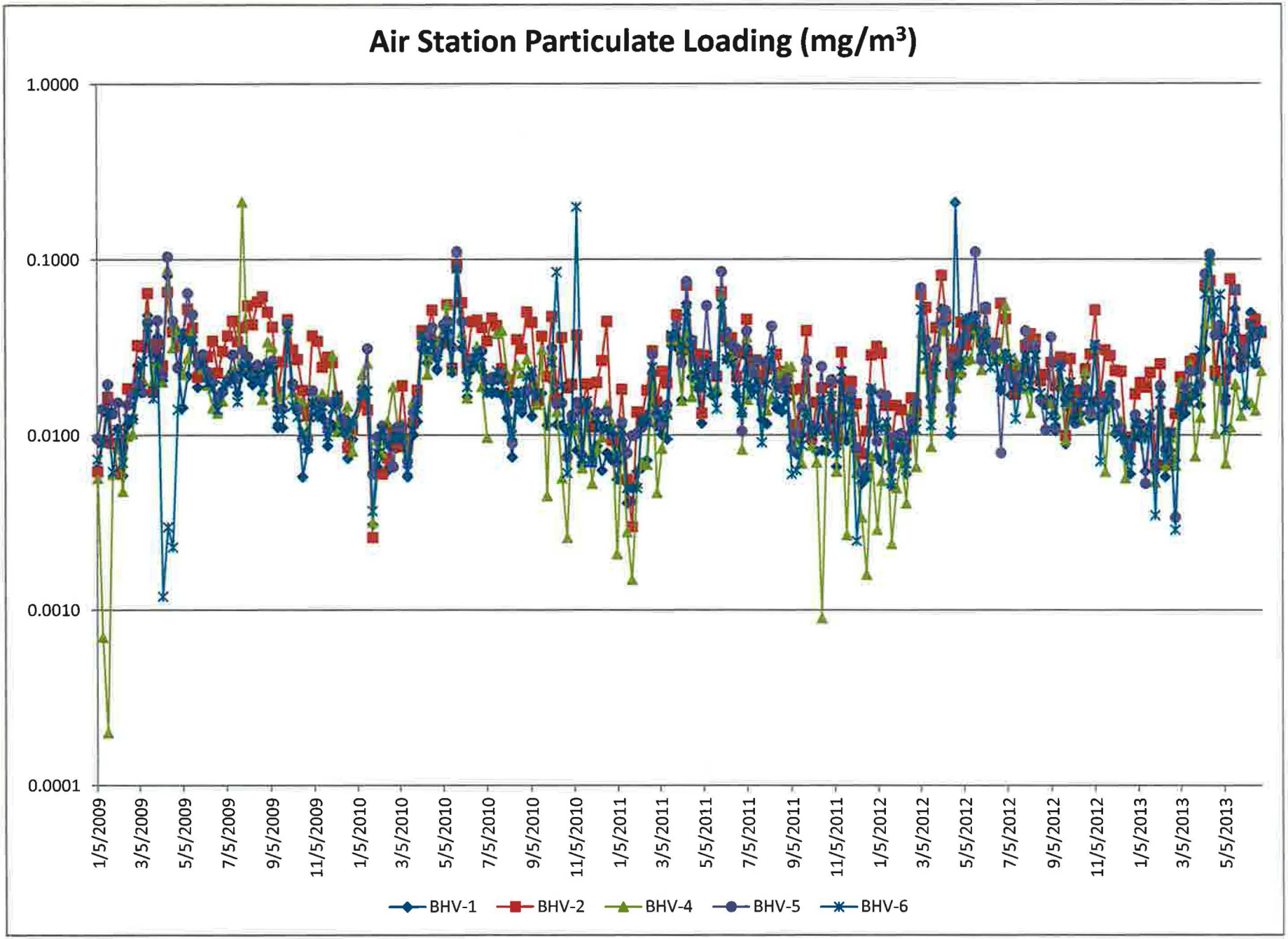
Comments:

Relinquished By:(Signature)	Date/Time	Received By:(Signature)	Date/Time
Garrin Palmer	7/3/2013 1100		
Relinquished By:(Signature)	**Date/Time**	**Received By:(Signature)**	**Date/Time**
			7-8-13 9:15

C1307023I

ATTACHMENT D

AIR PARTICULATE LOADING GRAPHS AND SUPPORTING DATA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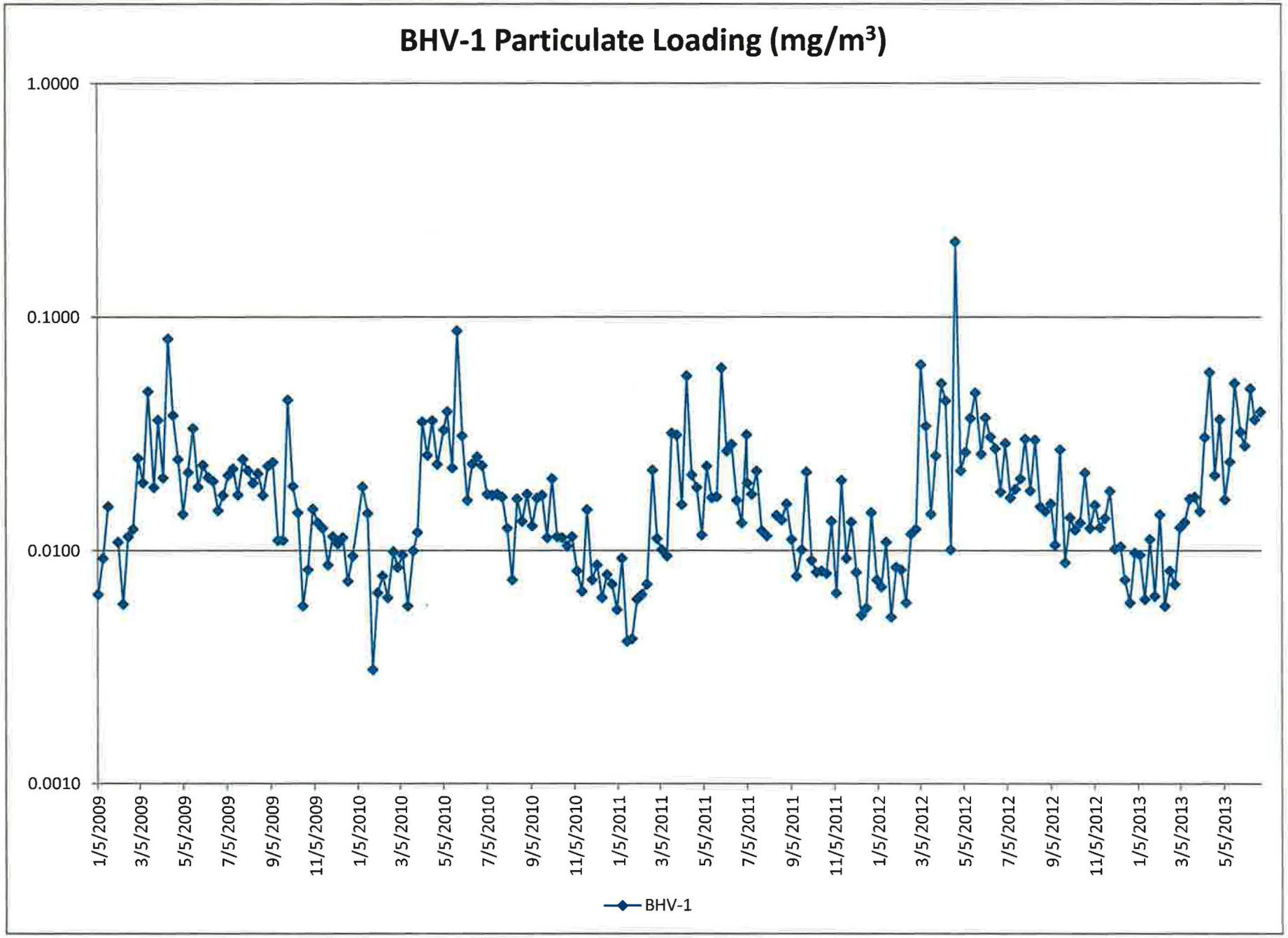
BHV-2
BHV-4
BHV-5
BHV-6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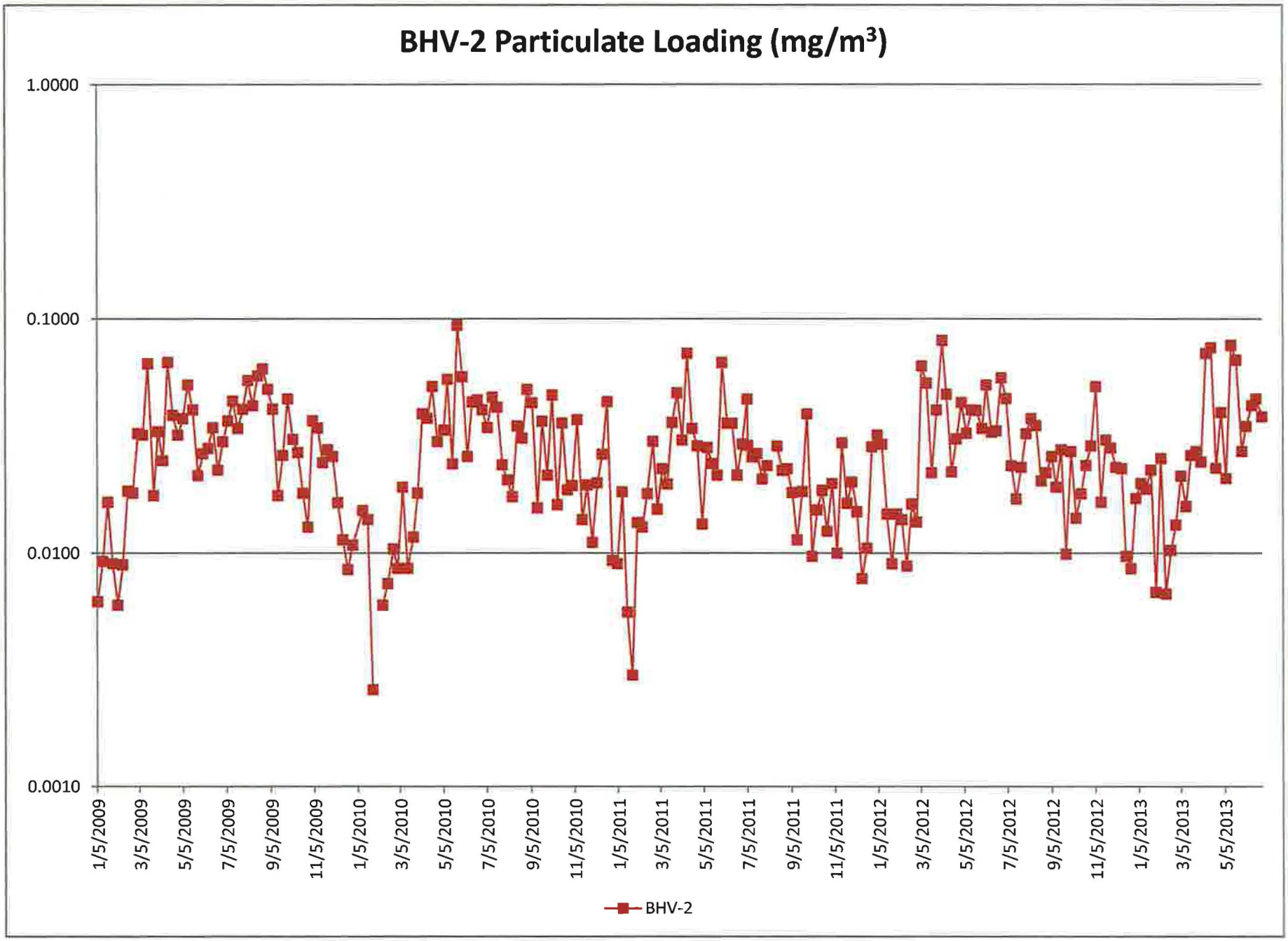
BHV-1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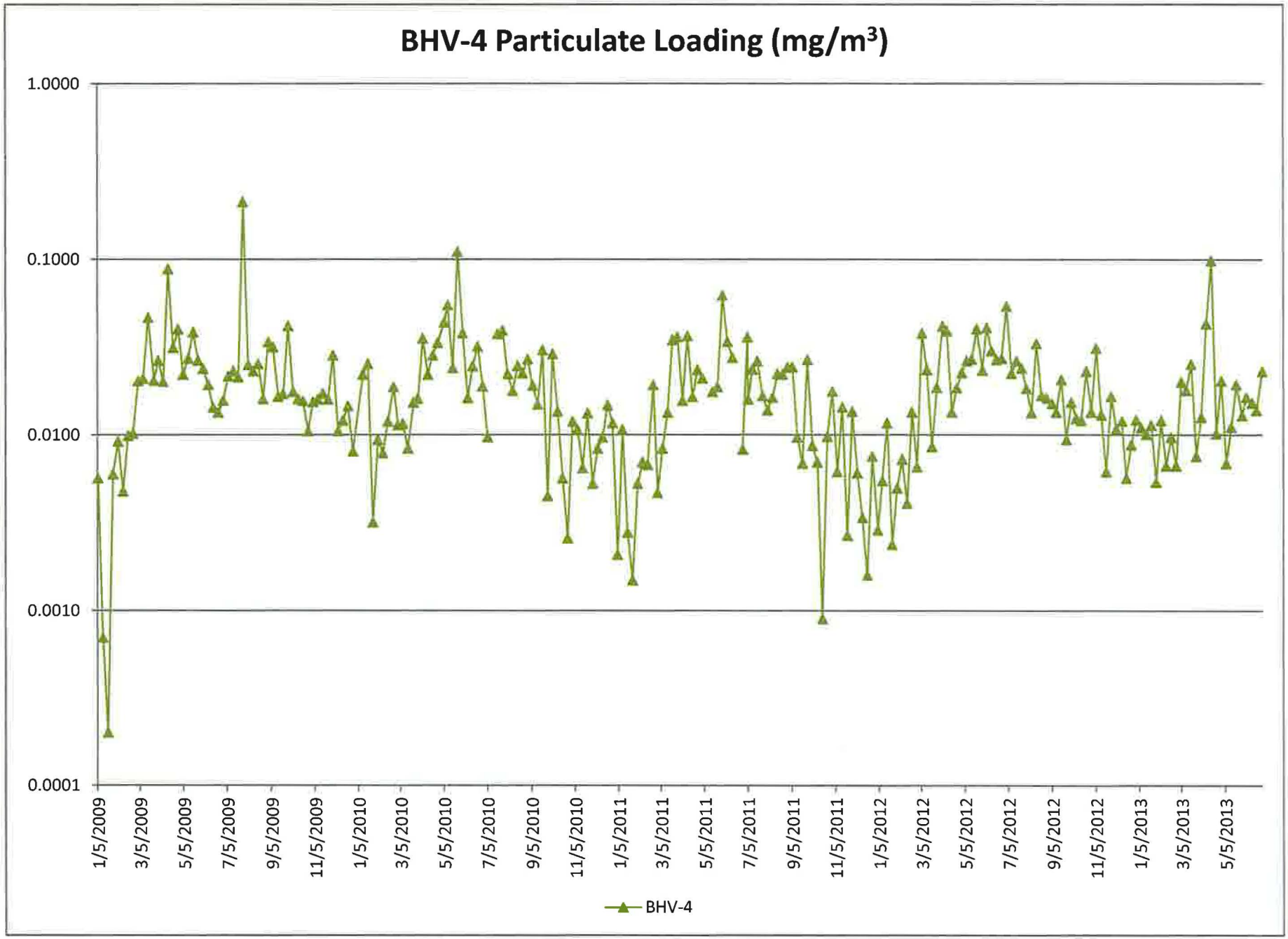
BHV-2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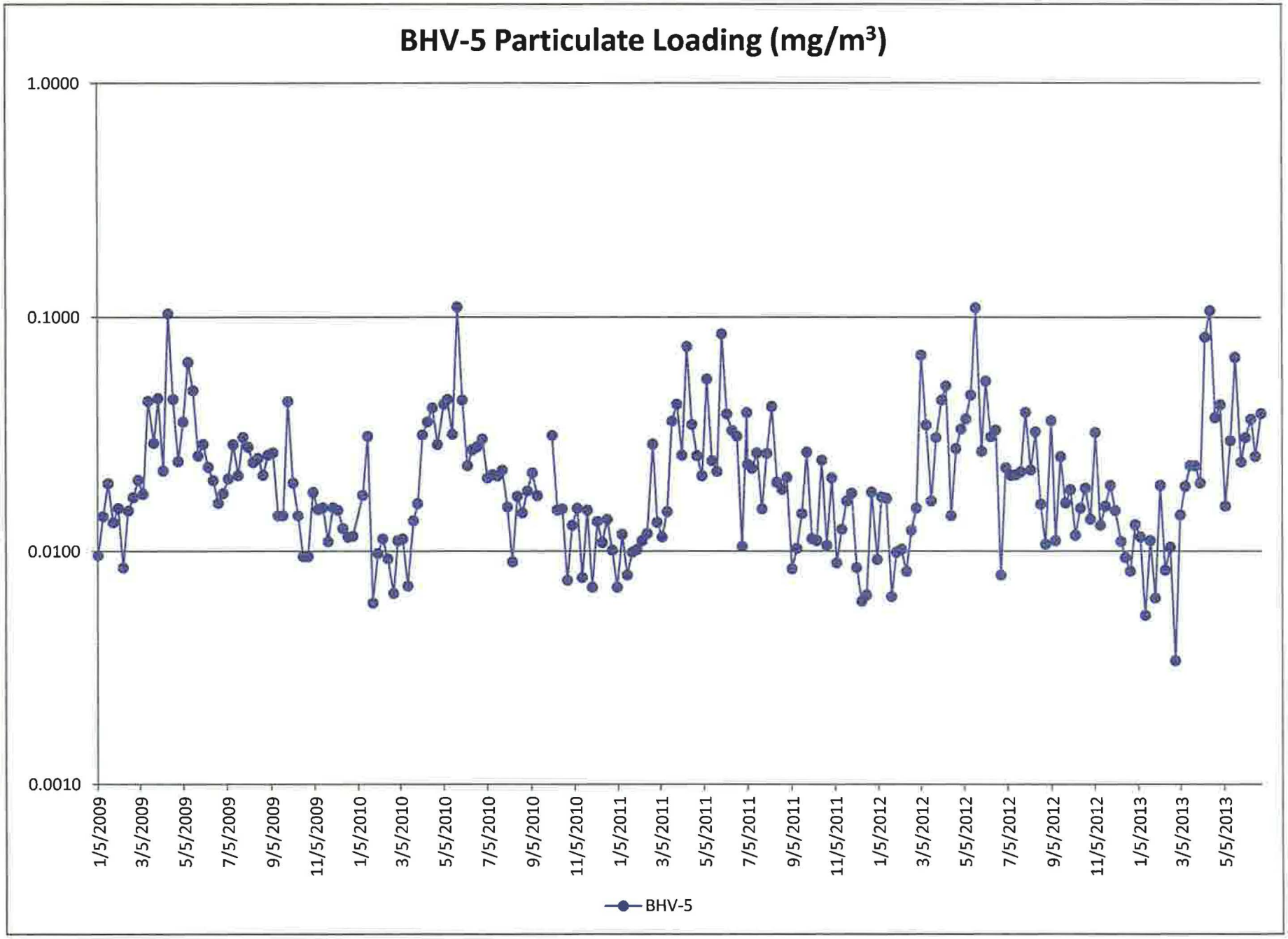
BHV-4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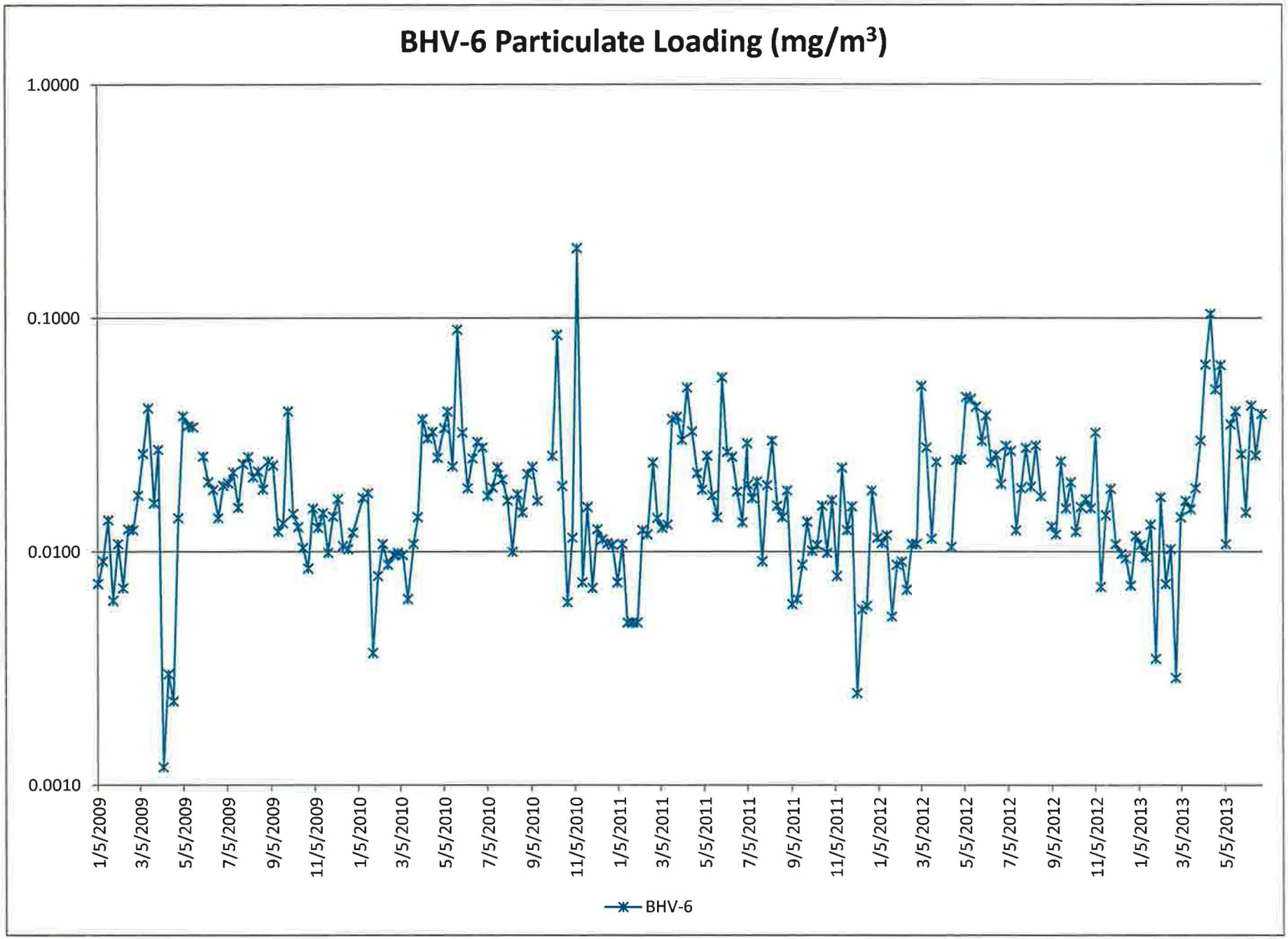
BHV-5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7/5/2012
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11/5/2012
1/5/2013
3/5/2013
5/5/2013
BHV-6

Period: December 31, 2013 through April 1, 2013 (1st Quarter 2013)

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	8399047	31-Dec-12	7-Jan-13	4.4332	4.3325	0.1007	43944.7	43779.4	9916.2	10,249,036	0.0098	98.4%	36.5
2	8399045	07-Jan-13	14-Jan-13	4.4547	4.3534	0.1013	44112.1	43944.7	10042.8	10,522,076	0.0096	99.6%	37.0
3	8399036	14-Jan-13	21-Jan-13	4.4117	4.3455	0.0662	44281.5	44112.1	10167.6	10,652,832	0.0062	100.9%	37.0
4	8399053	21-Jan-13	28-Jan-13	4.4427	4.3249	0.1178	44448.2	44281.1	10021.2	10,499,445	0.0112	99.4%	37.0
5	8399027	28-Jan-13	4-Feb-13	4.3933	4.3253	0.0680	44616.8	44448.2	10116.6	10,599,398	0.0064	100.4%	37.0
6	8399017	04-Feb-13	11-Feb-13	4.4708	4.3221	0.1487	44782.4	44616.8	9939.6	10,413,951	0.0143	98.6%	37.0
7	8399015	11-Feb-13	18-Feb-13	4.3515	4.2903	0.0612	44951.5	44782.4	10144.8	10,600,217	0.0058	100.6%	36.9
8	8399006	18-Feb-13	25-Feb-13	4.3938	4.3064	0.0874	45120.9	44951.5	10164.6	10,620,906	0.0082	100.8%	36.9
9	8399003	25-Feb-13	4-Mar-13	4.4220	4.3462	0.0758	45288.6	45120.9	10058.4	10,509,938	0.0072	99.8%	36.9
10	8399198	04-Mar-13	11-Mar-13	4.4135	4.2830	0.1305	45455.5	45288.6	10018.8	10,383,450	0.0126	99.4%	36.6
11	8399191	11-Mar-13	18-Mar-13	4.3326	4.1949	0.1377	45622.4	45455.5	10011.0	10,318,670	0.0133	99.3%	36.4
12	8399185	18-Mar-13	25-Mar-13	4.4003	4.2271	0.1732	45789.9	45622.4	10048.2	10,357,014	0.0167	99.7%	36.4
13	8399176	25-Mar-13	1-Apr-13	4.3579	4.1791	0.1788	45959.9	45789.9	10204.2	10,517,808	0.0170	101.2%	36.4
	Totals	91	2184.0	4.406	4.294669	0.1113			130854	136,244,741	0.0106	99.9%	36.8

BHV-2 on stream % 99.8% **BHV-2** Total Volume: 4.81E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	8399048	31-Dec-12	07-Jan-13	4.5241	4.3490	0.1751	54146.7	53981.6	9907.8	10,240,354	0.0171	98.3%	36.5
2	8399044	07-Jan-13	14-Jan-13	4.5572	4.3493	0.2079	54313.8	54146.7	10024.2	10,502,588	0.0198	99.4%	37.0
3	8399037	14-Jan-13	21-Jan-13	4.5472	4.3483	0.1989	54483.3	54313.8	10167.0	10,652,203	0.0187	100.9%	37.0
4	8399032	21-Jan-13	28-Jan-13	4.5671	4.3303	0.2368	54650.2	54483.3	10016.4	10,494,416	0.0226	99.4%	37.0
5	8399026	28-Jan-13	04-Feb-13	4.3899	4.3177	0.0722	54818.9	54650.2	10120.2	10,603,170	0.0068	100.4%	37.0
6	8399018	04-Feb-13	11-Feb-13	4.5810	4.3179	0.2631	54984.6	54818.9	9940.8	10,415,208	0.0253	98.6%	37.0
7	8399014	11-Feb-13	18-Feb-13	4.3877	4.3176	0.0701	55152.0	54984.6	10047.6	10,498,653	0.0067	99.7%	36.9
8	8399007	18-Feb-13	25-Feb-13	4.4350	4.3250	0.1100	55323.1	55152.0	10262.4	10,723,096	0.0103	101.8%	36.9
9	8399002	25-Feb-13	04-Mar-13	4.4191	4.2805	0.1386	55490.4	55323.1	10038.6	10,489,249	0.0132	99.6%	36.9
10	8399197	04-Mar-13	11-Mar-13	4.2759	4.4979	-0.2220	55657.8	55490.4	10043.4	10,408,946	-0.0213	99.6%	36.6
11	8399191	11-Mar-13	18-Mar-13	4.3982	4.2348	0.1634	55824.6	55657.8	10009.2	10,316,815	0.0158	99.3%	36.4
12	8399181	18-Mar-13	25-Mar-13	4.5151	4.2452	0.2699	55992.0	55824.6	10048.2	10,357,014	0.0261	99.7%	36.4
13	8399177	25-Mar-13	01-Apr-13	4.4960	4.2105	0.2855	56162.3	55992.0	10217.4	10,531,414	0.0271	101.4%	36.4
	Totals	91	2184.0	4.46873	4.31723	0.1515			130843.2	136,233,127	0.0145	99.8%	36.8

BHV-4 on stream % 99.2% **BHV-4** 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	8399049	31-Dec-12	07-Jan-13	4.4796	4.3540	0.1256	29450.0	29284.5	9930.6	10,263,920	0.0122	98.5%	36.5
2	8399043	07-Jan-13	14-Jan-13	4.4460	4.3346	0.1114	29611.6	29450.0	9694.8	10,157,468	0.0110	96.2%	37.0
3	8399038	14-Jan-13	21-Jan-13	4.4400	4.3308	0.1092	29783.2	29611.6	10296.0	10,787,359	0.0101	102.1%	37.0
4	8399031	21-Jan-13	28-Jan-13	4.4430	4.3253	0.1177	29946.9	29783.2	9820.8	10,289,481	0.0114	97.4%	37.0
5	8399019	28-Jan-13	04-Feb-13	4.3106	4.2538	0.0568	30115.2	29946.9	10100.4	10,582,425	0.0054	100.2%	37.0
6	8399019	04-Feb-13	11-Feb-13	4.4275	4.3020	0.1255	30280.9	30115.2	9940.2	10,414,580	0.0121	98.6%	37.0
7	8399013	11-Feb-13	18-Feb-13	4.3794	4.3090	0.0704	30448.8	30280.9	10074.6	10,526,865	0.0067	99.9%	36.9
8	8399008	18-Feb-13	25-Feb-13	4.3980	4.2946	0.1034	30619.7	30448.8	10252.2	10,712,438	0.0097	101.7%	36.9
9	8399001	25-Feb-13	04-Mar-13	4.4162	4.3476	0.0686	30783.1	30619.7	9802.2	10,242,237	0.0067	97.2%	36.9
10	8399196	04-Mar-13	11-Mar-13	4.4274	4.2194	0.2080	30949.3	30783.1	9972.6	10,335,569	0.0201	98.9%	36.6
11	8399189	11-Mar-13	18-Mar-13	4.4060	4.2217	0.1843	31114.8	30949.3	9934.2	10,239,510	0.0180	98.6%	36.4
12	8399182	18-Mar-13	25-Mar-13	4.5054	4.2426	0.2628	31282.3	31114.8	10049.4	10,358,251	0.0254	99.7%	36.4
13	8399178	25-Mar-13	01-Apr-13	4.3008	4.2209	0.0799	31452.0	31282.3	10178.4	10,491,215	0.0076	101.0%	36.4
	Totals	91	2184.0	4.41384	4.28695	0.1249			130046.4	135,401,318	0.0120	99.2%	36.8

BHV-5 on stream % 99.1% **BHV-5** 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	8399050	31-Dec-12	07-Jan-13	4.4244	4.2908	0.1336	53255.4	53090.0	9922.8	10,255,858	0.0130	98.4%	36.5
2	8399042	07-Jan-13	14-Jan-13	4.4676	4.3504	0.1172	53417.0	53255.4	9699.0	10,161,869	0.0115	96.2%	37.0
3	8399039	14-Jan-13	21-Jan-13	4.4075	4.3501	0.0574	53588.6	53417.0	10293.0	10,784,216	0.0053	102.1%	37.0
4	8399030	21-Jan-13	28-Jan-13	4.4018	4.2877	0.1141	53752.3	53588.6	9822.0	10,290,739	0.0111	97.4%	37.0
5	8399024	28-Jan-13	04-Feb-13	4.3875	4.3204	0.0671	53920.8	53752.3	10113.6	10,596,255	0.0063	100.3%	37.0
6	8399020	04-Feb-13	11-Feb-13	4.5321	4.3339	0.1982	54086.3	53920.8	9928.8	10,402,635	0.0191	98.5%	37.0
7	8399012	11-Feb-13	18-Feb-13	4.3284	4.2411	0.0873	54254.2	54086.3	10077.0	10,529,373	0.0083	100.0%	36.9
8	8399009	18-Feb-13	25-Feb-13	4.3792	4.2682	0.1110	54425.0	54254.2	10247.4	10,707,423	0.0104	101.7%	36.9
9	8399200	25-Feb-13	04-Mar-13	4.2846	4.2495	0.0351	54588.2	54425.0	9789.0	10,228,444	0.0034	97.1%	36.9
10	8399195	04-Mar-13	11-Mar-13	4.4278	4.2825	0.1453	54751.5	54588.2	9796.8	10,153,370	0.0143	97.2%	36.6
11	8399188	11-Mar-13	18-Mar-13	4.3813	4.1879	0.1934	54917.0	54751.5	9932.4	10,237,655	0.0189	98.5%	36.4
12	8399183	18-Mar-13	25-Mar-13	4.5012	4.2614	0.2398	55084.5	54917.0	10048.8	10,357,632	0.0232	99.7%	36.4
13	8399179	25-Mar-13	01-Apr-13	4.4419	4.1991	0.2428	55254.4	55084.5	10193.4	10,506,676	0.0231	101.1%	36.4
	Totals	91	2184.0	4.41272	4.27869	0.1340			129864	135,212,145	0.0129	99.1%	36.8

Period: December 31, 2013 through April 1, 2013 (1st Quarter 2013)

BHV-6 on stream % 99.1%

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	8399051	31-Dec-12	07-Jan-13	4.4531	4.3334	0.1197	1656.3	1491.0	9915.6	10,248,416	0.0117	98.4%	36.5
2	8399041	07-Jan-13	14-Jan-13	4.4487	4.3402	0.1085	1817.9	1656.3	9693.0	10,155,582	0.0107	96.2%	37.0
3	8399040	14-Jan-13	21-Jan-13	4.4402	4.3378	0.1024	1989.5	1817.9	10297.2	10,788,617	0.0095	102.2%	37.0
4	8399029	21-Jan-13	28-Jan-13	4.4359	4.3007	0.1352	2153.2	1989.5	9820.8	10,289,481	0.0131	97.4%	37.0
5	8399023	28-Jan-13	04-Feb-13	4.3647	4.3273	0.0374	2321.4	2153.2	10095.0	10,576,767	0.0035	100.1%	37.0
6	8399021	04-Feb-13	11-Feb-13	4.5150	4.3362	0.1788	2487.2	2321.4	9948.0	10,422,752	0.0172	98.7%	37.0
7	8399011	11-Feb-13	18-Feb-13	4.3833	4.3068	0.0765	2655.4	2487.2	10089.6	10,542,539	0.0073	100.1%	36.9
8	8399010	18-Feb-13	25-Feb-13	4.4273	4.3171	0.1102	2826.0	2655.4	10239.0	10,698,646	0.0103	101.6%	36.9
9	8399199	25-Feb-13	04-Mar-13	4.2654	4.2353	0.0301	2989.2	2826.0	9793.2	10,232,833	0.0029	97.2%	36.9
10	8399194	04-Mar-13	11-Mar-13	4.4292	4.2869	0.1423	3151.6	2989.2	9740.4	10,094,917	0.0141	96.6%	36.6
11	8399187	11-Mar-13	18-Mar-13	4.3975	4.2277	0.1698	3317.2	3151.6	9937.2	10,242,602	0.0166	98.6%	36.4
12	8399184	18-Mar-13	25-Mar-13	4.4128	4.2544	0.1584	3484.7	3317.2	10049.4	10,358,251	0.0153	99.7%	36.4
13	8399180	25-Mar-13	01-Apr-13	4.4214	4.2242	0.1972	3654.7	3484.7	10198.2	10,511,624	0.0188	101.2%	36.4
	Totals	91	2184.0	4.41496	4.29446	0.1205			129816.6	135,163,027	0.0116	99.1%	36.8

ALL BHV on stream % 99.4%

Week #	Blanks	Start Date	Stop Date	Net
1	8399046	31-Dec-12	07-Jan-13	4.3316
2	8399035	07-Jan-13	14-Jan-13	4.3472
3	8399034	14-Jan-13	21-Jan-13	4.3571
4	8399028	21-Jan-13	28-Jan-13	4.3304
5	8399022	28-Jan-13	04-Feb-13	4.3123
6	8399016	04-Feb-13	11-Feb-13	4.2918
7	8399005	11-Feb-13	18-Feb-13	4.3123
8	8399004	18-Feb-13	25-Feb-13	4.3426
9	8399193	25-Feb-13	04-Mar-13	4.2310
10	8399192	04-Mar-13	11-Mar-13	4.2037
11	8399186	11-Mar-13	18-Mar-13	4.2346
12	8399175	18-Mar-13	25-Mar-13	4.2117
13	8399174	25-Mar-13	01-Apr-13	4.2269
	Totals	91	2184.0	4.2872

BHV-1 on stream % 98.1% **BHV-1** Total Volume: 4.73E+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	8399173	1-Apr-13	8-Apr-13	4.3557	4.2040	0.1517	46125.5	45959.9	9936.6	10,270,121	0.0148	98.6%	36.5
2	8399163	08-Apr-13	15-Apr-13	4.5201	4.1938	0.3263	46294.8	46125.5	10156.2	10,640,888	0.0307	100.8%	37.0
3	8399160	15-Apr-13	22-Apr-13	4.8340	4.2194	0.6146	46463.0	46294.8	10093.2	10,574,881	0.0581	100.1%	37.0
4	8399151	22-Apr-13	29-Apr-13	4.4685	4.2458	0.2227	46630.6	46463.0	10056.0	10,535,906	0.0211	99.8%	37.0
5	8399148	29-Apr-13	6-May-13	4.6621	4.2763	0.3858	46798.4	46630.6	10065.6	10,545,964	0.0366	99.9%	37.0
6	8399143	06-May-13	13-May-13	4.3775	4.2031	0.1744	46965.5	46798.4	10024.2	10,502,588	0.0166	99.4%	37.0
7	8399132	13-May-13	20-May-13	4.5700	4.3142	0.2558	47134.4	46965.5	10138.8	10,593,948	0.0241	100.6%	36.9
8	8399131	20-May-13	28-May-13	4.9232	4.3003	0.6229	47324.7	47134.4	11414.4	11,926,811	0.0522	99.1%	36.9
9	8399120	28-May-13	3-Jun-13	4.5432	4.2573	0.2859	47466.0	47324.7	8480.4	8,861,099	0.0323	98.2%	36.9
10	8399118	03-Jun-13	11-Jun-13	4.6498	4.3306	0.3192	47648.2	47466.0	10930.2	11,328,022	0.0282	94.9%	36.6
11	8399113	11-Jun-13	17-Jun-13	4.7268	4.3079	0.4189	47785.0	47648.2	8208.6	8,460,877	0.0495	95.0%	36.4
12	8399102	17-Jun-13	24-Jun-13	4.5904	4.3044	0.2860	47911.6	47785.0	7597.2	7,830,687	0.0365	75.4%	36.4
13	8400897	25-Jun-13	2-Jul-13	4.8052	4.3418	0.4634	48101.8	47911.6	11409.6	11,760,254	0.0394	113.2%	36.4
	Totals	92	2208.0	4.617423	4.269146	0.3483			128511	133,832,046	0.0339	98.1%	36.8

BHV-2 on stream % 101.0% **BHV-2** Total Volume: 4.87E+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	8399172	01-Apr-13	08-Apr-13	4.4576	4.2059	0.2517	56327.7	56162.3	9921.0	10,253,998	0.0245	98.4%	36.5
2	8399164	08-Apr-13	15-Apr-13	4.9915	4.2340	0.7575	56497.0	56327.7	10156.2	10,640,888	0.0712	100.8%	37.0
3	8399159	15-Apr-13	22-Apr-13	5.0026	4.2067	0.7959	56665.2	56497.0	10095.0	10,576,767	0.0752	100.1%	37.0
4	8399152	22-Apr-13	29-Apr-13	4.4944	4.2521	0.2423	56832.5	56665.2	10035.0	10,513,904	0.0230	99.6%	37.0
5	8399147	29-Apr-13	06-May-13	4.6742	4.2535	0.4207	57000.6	56832.5	10086.6	10,567,966	0.0398	100.1%	37.0
6	8399142	06-May-13	13-May-13	4.5160	4.2985	0.2175	57167.2	57000.6	9996.6	10,473,671	0.0208	99.2%	37.0
7	8399133	13-May-13	20-May-13	5.1152	4.2957	0.8195	57336.7	57167.2	10170.0	10,626,548	0.0771	100.9%	36.9
8	8399130	20-May-13	28-May-13	5.0585	4.2618	0.7967	57526.9	57336.7	11413.2	11,925,557	0.0668	99.1%	36.9
9	8399121	28-May-13	03-Jun-13	4.5511	4.3027	0.2484	57672.5	57526.9	8738.4	9,130,681	0.0272	101.1%	36.9
10	8399117	03-Jun-13	11-Jun-13	4.7082	4.2974	0.4108	57862.9	57672.5	11424.0	11,839,795	0.0347	99.2%	36.6
11	8399112	11-Jun-13	17-Jun-13	4.7178	4.3377	0.3801	58006.8	57862.9	8632.8	8,898,114	0.0427	99.9%	36.4
12	8399103	17-Jun-13	24-Jun-13	4.7945	4.3123	0.4822	58178.0	58006.8	10270.8	10,586,455	0.0455	101.9%	36.4
13	8400898	25-Jun-13	02-Jul-13	4.7364	4.2880	0.4484	58367.8	58178.0	11388.0	11,737,990	0.0382	113.0%	36.4
	Totals	92	2208.0	4.755231	4.27279	0.4824			132327.6	137,772,334	0.0451	101.0%	36.8

BHV-4 on stream % 100.5% **BHV-4** Total Volume: 4.84E+06

Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	8399171	01-Apr-13	08-Apr-13	4.3658	4.2362	0.1296	31617.9	31452.0	9955.2	10,289,345	0.0126	98.8%	36.5
2	8399165	08-Apr-13	15-Apr-13	4.7036	4.2419	0.4617	31788.2	31617.9	10218.0	10,705,637	0.0431	101.4%	37.0
3	8399158	15-Apr-13	22-Apr-13	5.2701	4.2332	1.0369	31955.4	31788.2	10032.6	10,511,389	0.0986	99.5%	37.0
4	8399153	22-Apr-13	29-Apr-13	4.4340	4.3260	0.1080	32123.8	31955.4	10101.6	10,583,682	0.0102	100.2%	37.0
5	8399146	29-Apr-13	06-May-13	4.4350	4.2189	0.2161	32292.3	32123.8	10115.4	10,598,141	0.0204	100.4%	37.0
6	8399141	06-May-13	13-May-13	4.3896	4.3193	0.0703	32453.8	32292.3	9688.2	10,150,553	0.0069	96.1%	37.0
7	8399134	13-May-13	20-May-13	4.4202	4.3033	0.1169	32622.2	32453.8	10102.8	10,556,331	0.0111	100.2%	36.9
8	8399129	20-May-13	28-May-13	4.5211	4.2892	0.2319	32812.4	32622.2	11413.2	11,925,557	0.0194	99.1%	36.9
9	8399122	28-May-13	03-Jun-13	4.4137	4.2973	0.1164	32956.4	32812.4	8639.4	9,027,237	0.0129	100.0%	36.9
10	8399116	03-Jun-13	11-Jun-13	4.5180	4.3177	0.2003	33153.1	32956.4	11799.0	12,228,443	0.0164	102.4%	36.6
11	8399111	11-Jun-13	17-Jun-13	4.4579	4.3268	0.1311	33292.2	33153.1	8351.4	8,608,066	0.0152	96.7%	36.4
12	8399104	17-Jun-13	24-Jun-13	4.4421	4.2963	0.1458	33463.0	33292.2	10247.4	10,562,336	0.0138	101.7%	36.4
13	8400899	25-Jun-13	02-Jul-13	4.5767	4.3142	0.2625	33646.8	33463.0	11026.8	11,365,689	0.0231	109.4%	36.4
	Totals	92	2208.0	4.534446	4.28618	0.2483			131691	137,112,407	0.0234	100.4%	36.8

BHV-5 on stream % 100.7% **BHV-5** Total Volume: 4.85E+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	8399170	01-Apr-13	08-Apr-13	4.4034	4.2024	0.2010	55420.2	55254.4	9948.0	10,281,904	0.0195	98.7%	36.5
2	8399166	08-Apr-13	15-Apr-13	5.0346	4.1549	0.8797	55590.5	55420.2	10219.2	10,706,894	0.0822	101.4%	37.0
3	8399157	15-Apr-13	22-Apr-13	5.3802	4.2561	1.1241	55757.7	55590.5	10032.6	10,511,389	0.1069	99.5%	37.0
4	8399154	22-Apr-13	29-Apr-13	4.6587	4.2652	0.3935	55926.0	55757.7	10097.4	10,579,282	0.0372	100.2%	37.0
5	8399145	29-Apr-13	06-May-13	4.7182	4.2724	0.4458	56094.0	55926.0	10078.8	10,559,794	0.0422	100.0%	37.0
6	8399140	06-May-13	13-May-13	4.4511	4.2880	0.1631	56260.7	56094.0	10005.6	10,483,101	0.0156	99.3%	37.0
7	8399135	13-May-13	20-May-13	4.6365	4.3247	0.3118	56429.0	56260.7	10096.8	10,550,062	0.0296	100.2%	36.9
8	8399128	20-May-13	28-May-13	5.0990	4.2966	0.8024	56619.3	56429.0	11418.6	11,931,200	0.0673	99.1%	36.9
9	8399123	28-May-13	03-Jun-13	4.4931	4.2760	0.2171	56763.4	56619.3	8644.8	9,032,879	0.0240	100.1%	36.9
10	8399115	03-Jun-13	11-Jun-13	4.7053	4.3336	0.3717	56959.6	56763.4	11772.0	12,200,461	0.0305	102.2%	36.6
11	8399110	11-Jun-13	17-Jun-13	4.5891	4.2735	0.3156	57099.2	56959.6	8375.4	8,632,803	0.0366	96.9%	36.4
12	8399105	17-Jun-13	24-Jun-13	4.5609	4.2924	0.2685	57270.0	57099.2	10248.0	10,562,954	0.0254	101.7%	36.4
13	8400900	25-Jun-13	02-Jul-13	4.7655	4.3255	0.4400	57453.8	57270.0	11031.0	11,370,018	0.0387	109.4%	36.4
	Totals	92	2208.0	4.730431	4.27395	0.4565			131968.2	137,402,741	0.0427	100.7%	36.8

Period: April 1, 2013 through , July 2, 2013 (2nd Quarter 2013)

BHV-6 on stream % 100.7%

BHV-6 Total Volume: 4.85E+06

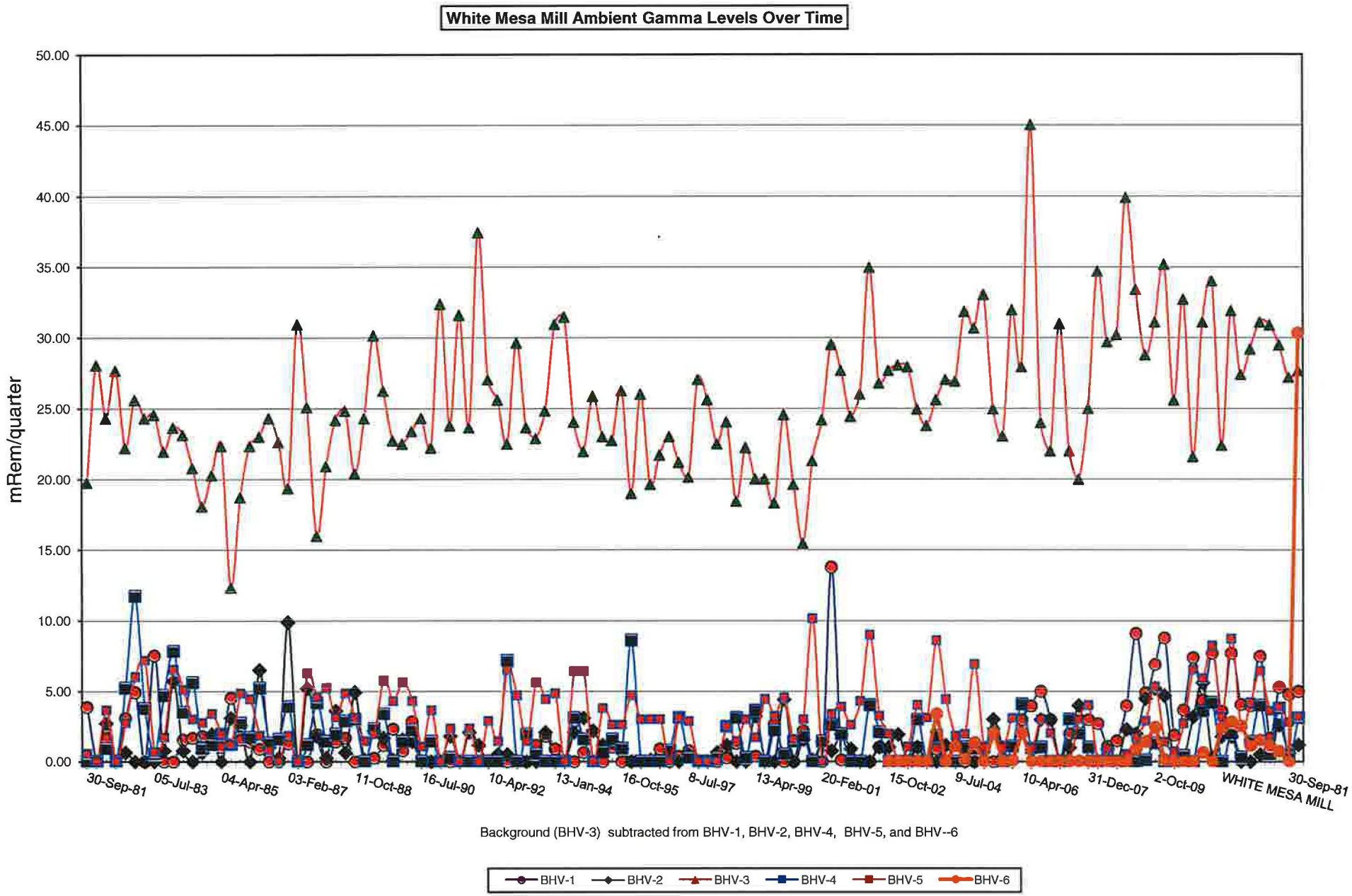
Week #	Filter Number	Start Date	Stop Date	Gross	Tare	Net	Stop Time	Start Time	Total Time	Total Liters	Loading, mg/m3	Per Cent On Stream	SCFM
1	8399169	01-Apr-13	08-Apr-13	4.4957	4.1864	0.3093	3820.5	3654.7	9950.4	10,284,384	0.0301	98.7%	36.5
2	8399167	08-Apr-13	15-Apr-13	4.9099	4.2307	0.6792	3990.8	3820.5	10219.2	10,706,894	0.0634	101.4%	37.0
3	8399155	15-Apr-13	22-Apr-13	5.3214	4.2280	1.0934	4158.0	3990.8	10033.8	10,512,646	0.1040	99.5%	37.0
4	8399156	22-Apr-13	29-Apr-13	4.7086	4.1830	0.5256	4326.1	4158.0	10083.6	10,564,823	0.0498	100.0%	37.0
5	8399144	29-Apr-13	06-May-13	4.9200	4.2512	0.6688	4494.6	4326.1	10109.4	10,591,854	0.0631	100.3%	37.0
6	8399139	06-May-13	13-May-13	4.3896	4.2769	0.1127	4661.1	4494.6	9988.8	10,465,499	0.0108	99.1%	37.0
7	8399136	13-May-13	20-May-13	4.6910	4.3180	0.3730	4829.5	4661.1	10108.2	10,561,974	0.0353	100.3%	36.9
8	8399127	20-May-13	28-May-13	4.7378	4.2584	0.4794	5019.7	4829.5	11407.8	11,919,915	0.0402	99.0%	36.9
9	8399124	28-May-13	03-Jun-13	4.5071	4.2696	0.2375	5163.7	5019.7	8641.2	9,029,118	0.0263	100.0%	36.9
10	8399114	03-Jun-13	11-Jun-13	4.4970	4.3162	0.1808	5360.3	5163.7	11799.0	12,228,443	0.0148	102.4%	36.6
11	8399109	11-Jun-13	17-Jun-13	4.6937	4.3278	0.3659	5499.5	5360.3	8351.4	8,608,066	0.0425	96.7%	36.4
12	8399106	17-Jun-13	24-Jun-13	4.5872	4.3129	0.2743	5670.3	5499.5	10246.8	10,561,717	0.0260	101.7%	36.4
13	8399101	25-Jun-13	02-Jul-13	4.6983	4.2543	0.4440	5854.1	5670.3	11029.2	11,368,163	0.0391	109.4%	36.4
	Totals	92	2208.0	4.704408	4.26257	0.4418			131968.8	137,403,497	0.0419	100.7%	36.8

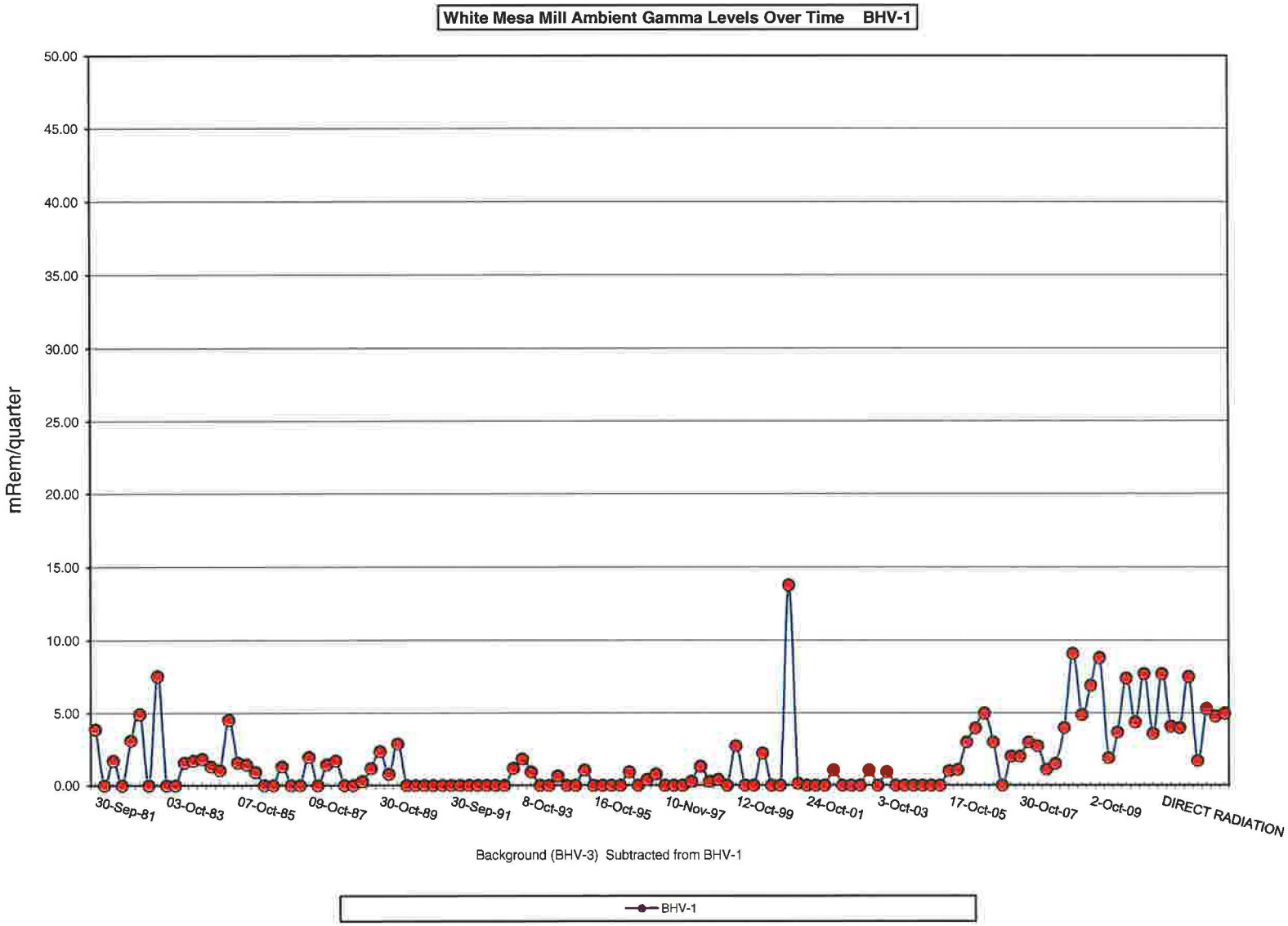
ALL BHV on stream % 100.2%

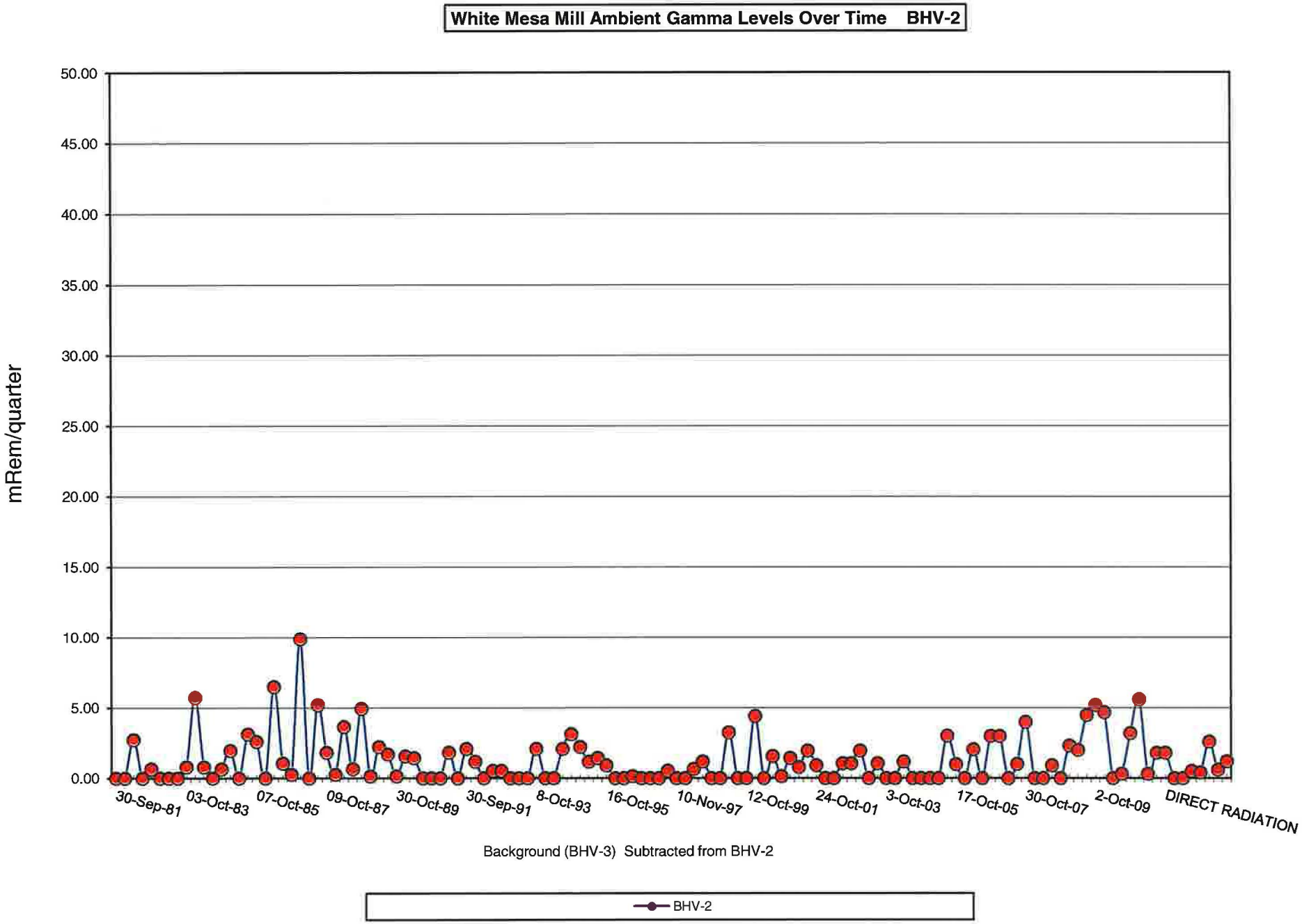
Week #	Blanks	Start Date	Stop Date	Net
1	8399162	01-Apr-13	08-Apr-13	4.1959
2	8399161	08-Apr-13	15-Apr-13	4.2404
3	8399150	15-Apr-13	22-Apr-13	4.2315
4	8399149	22-Apr-13	29-Apr-13	4.2295
5	8399138	29-Apr-13	06-May-13	4.3162
6	8399137	06-May-13	13-May-13	4.3027
7	8399126	13-May-13	20-May-13	4.2898
8	8399125	20-May-13	28-May-13	4.2861
9	8399119	28-May-13	03-Jun-13	4.3206
10	8399108	03-Jun-13	11-Jun-13	4.3305
11	8399107	11-Jun-13	17-Jun-13	4.3047
12	8400896	17-Jun-13	24-Jun-13	4.3454
13	8400890	25-Jun-13	02-Jul-13	4.3313
	Totals	92	2208.0	4.2865

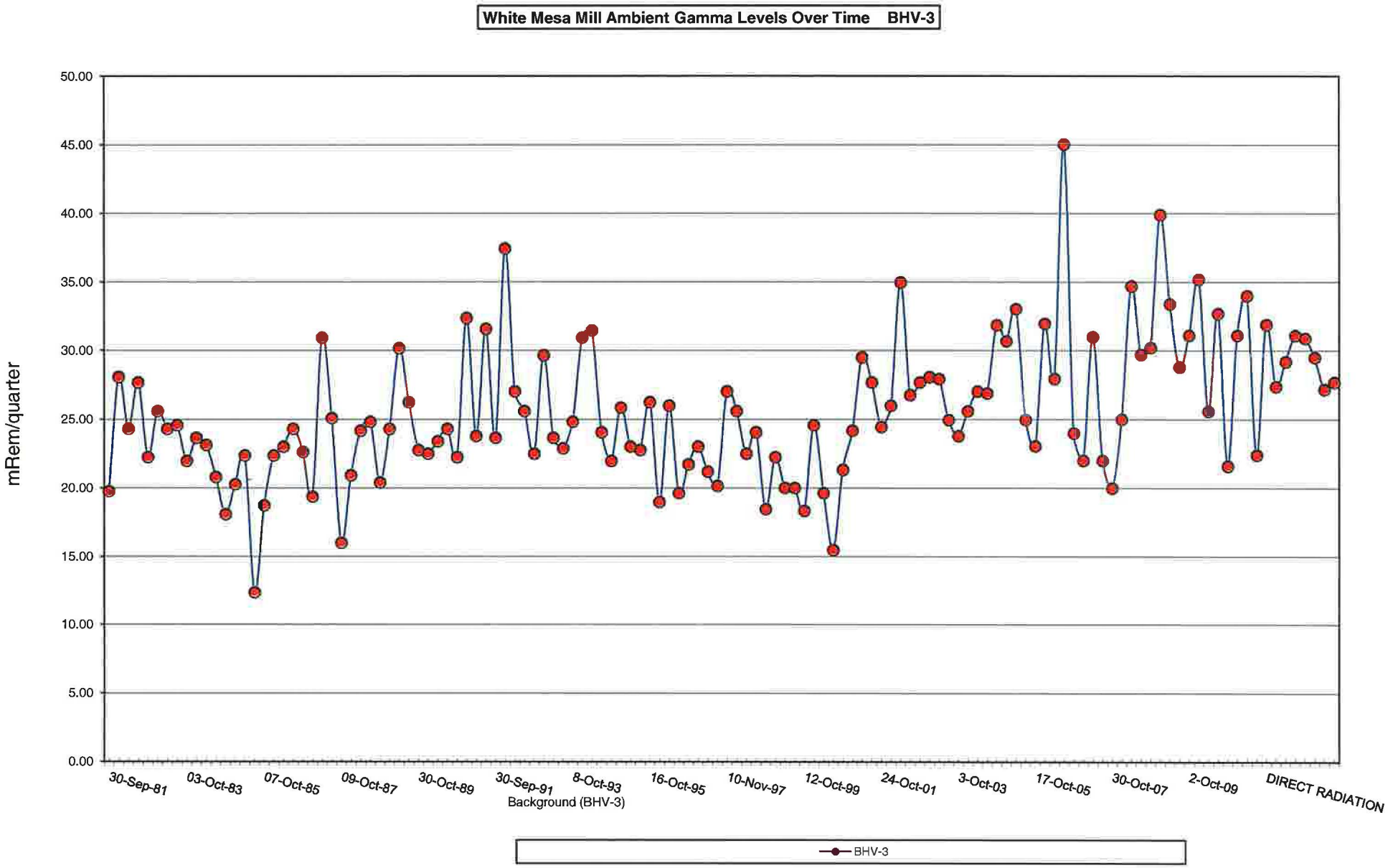
ATTACHMENT E

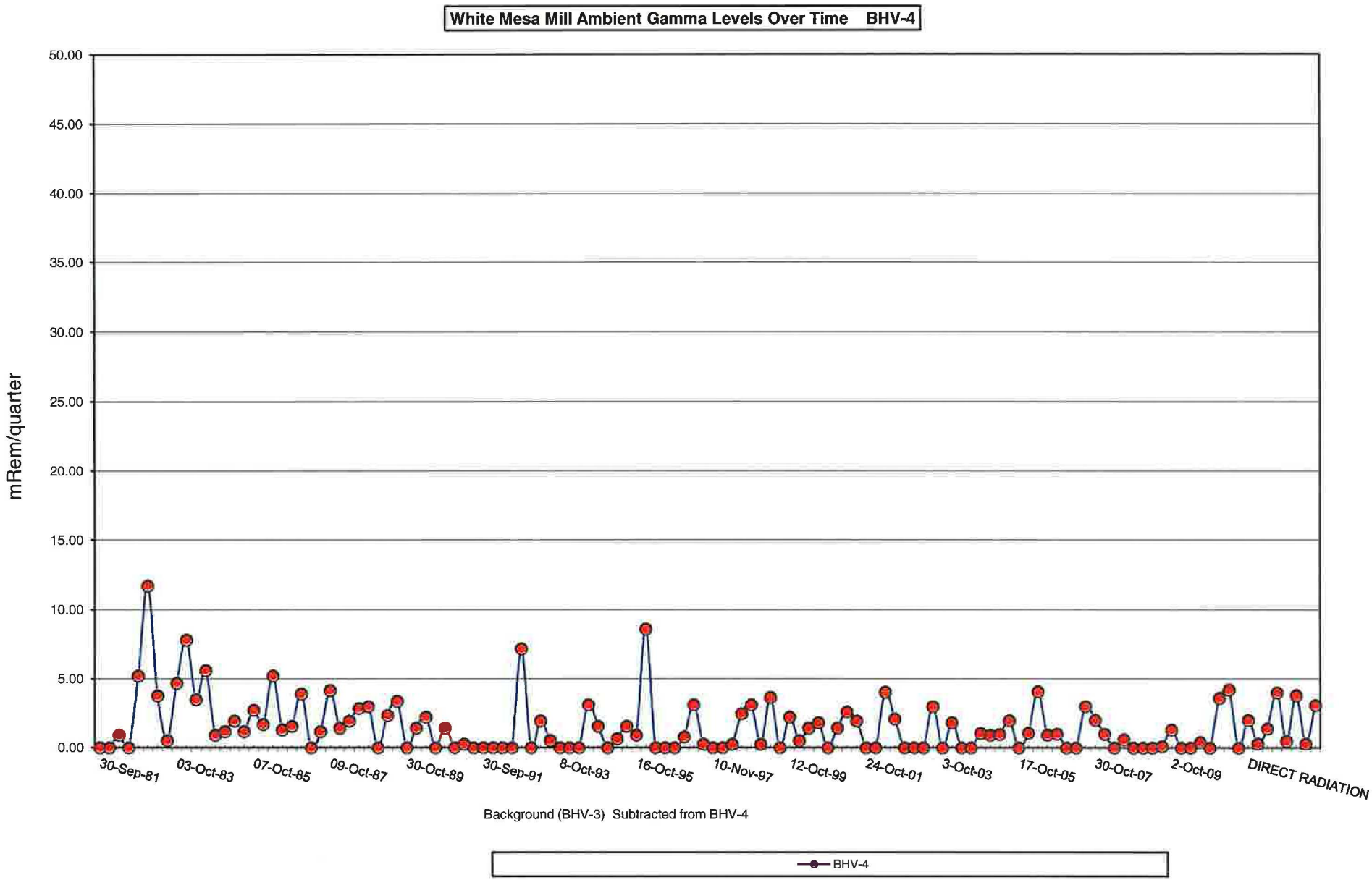
ENVIRONMENTAL GAMMA GRAPHS AND SUPPORTING DATA

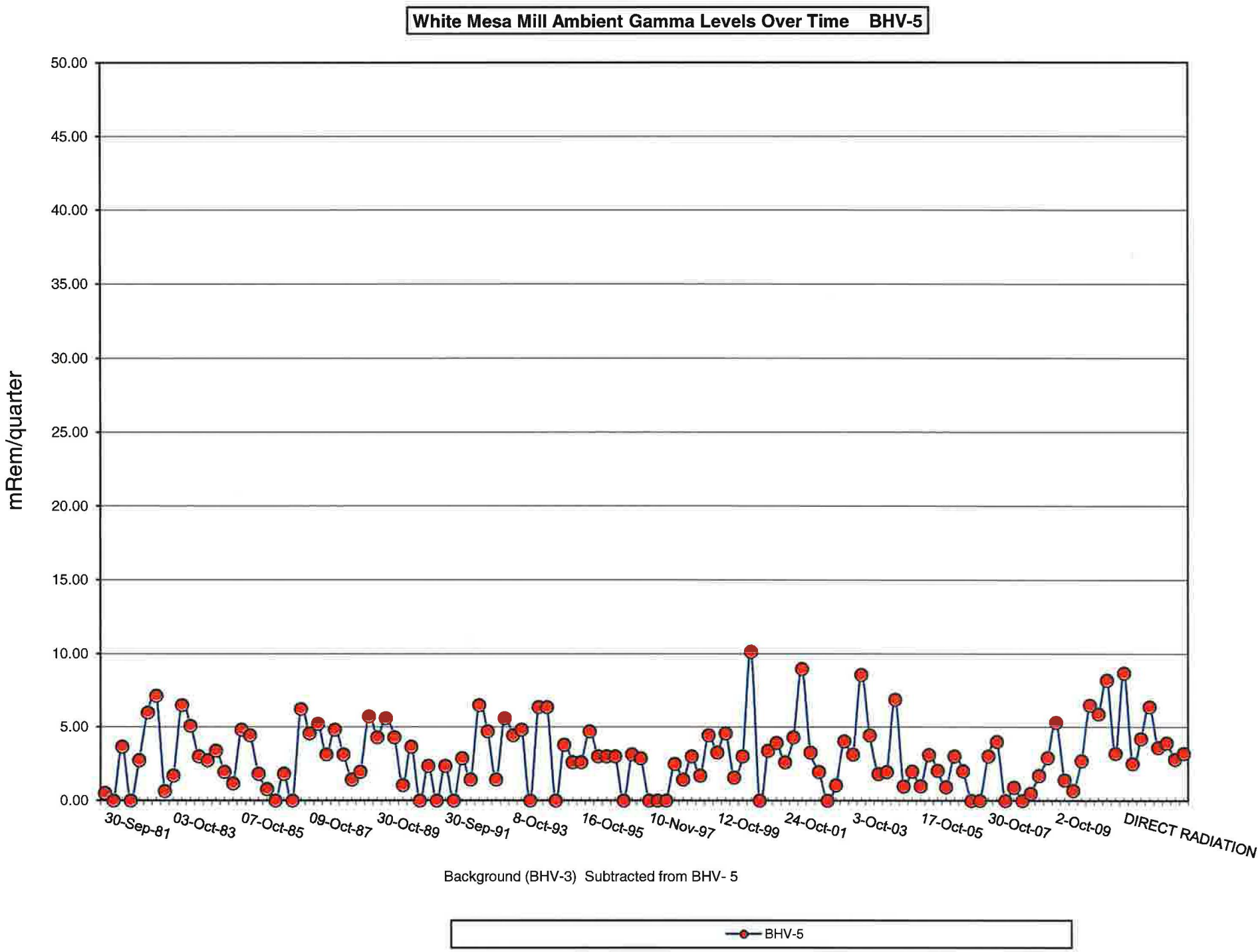

White Mesa Mill Ambient Gamma Levels Over Time
mRem/quarter
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
30-Sep-81
05-Jul-83
04-Apr-85
03-Feb-87
11-Oct-88
16-Jul-90
10-Apr-92
13-Jan-94
16-Oct-95
8-Jul-97
13-Apr-99
20-Feb-01
15-Oct-02
9-Jul-04
10-Apr-06
31-Dec-07
2-Oct-09
WHITE MESA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

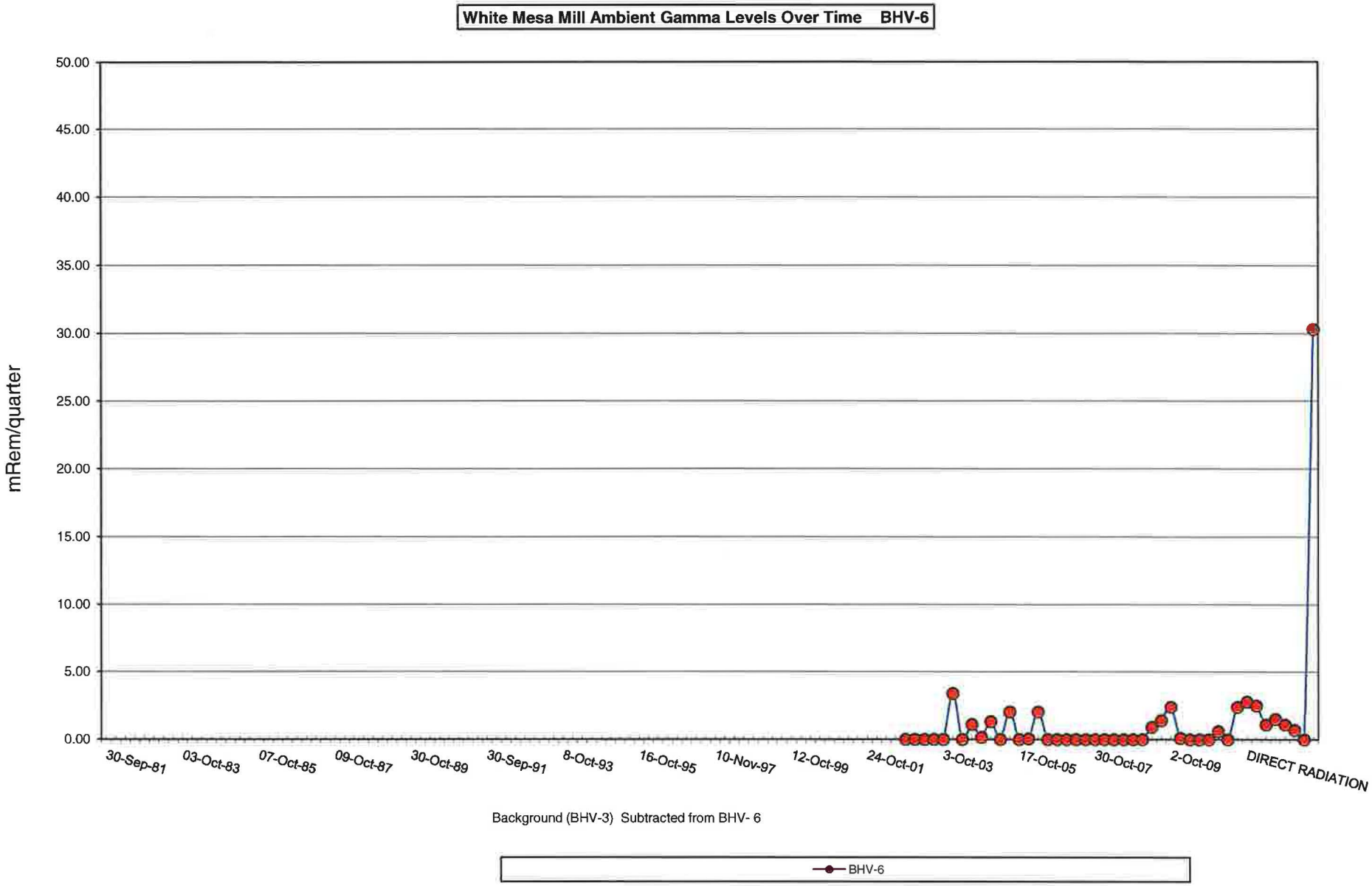

White Mesa Mill Ambient Gamma Levels Over Time BHV-1
mRem/quarter
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
30-Sep-81
03-Oct-83
07-Oct-85
09-Oct-87
30-Oct-89
30-Sep-91
8-Oct-93
16-Oct-95
10-Nov-97
12-Oct-99
24-Oct-01
3-Oct-03
17-Oct-05
30-Oct-07
2-Oct-09
DIRECT RADIATION
Background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


White Mesa Mill Ambient Gamma Levels Over Time BHV-2
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-2
BHV-2


White Mesa Mill Ambient Gamma Levels Over Time BHV-3
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)
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 First Quarter 2013 Environmental Spherical Gamma Monitor Results

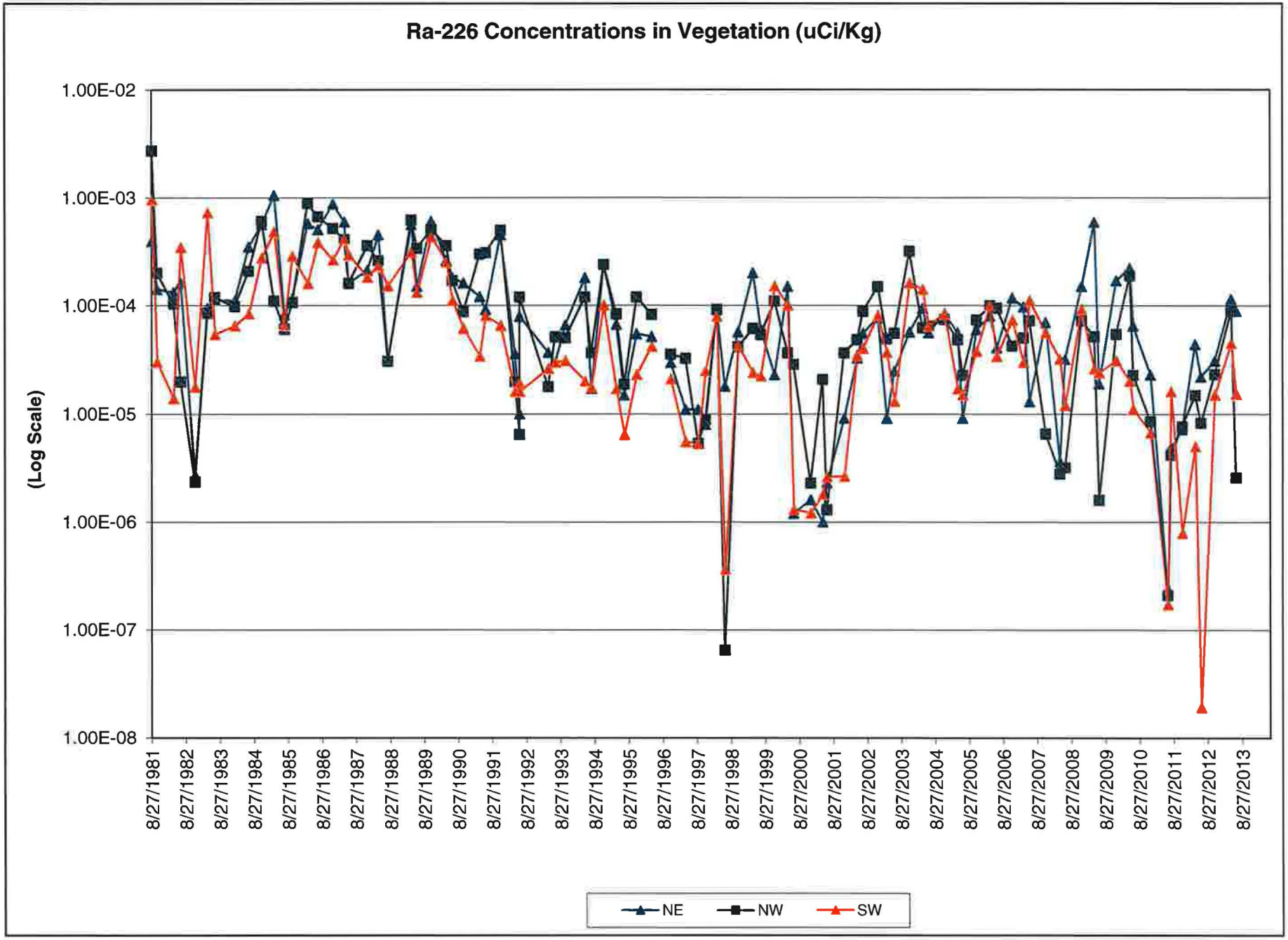
Badge Number	Location	Date Issued	Date Returned	Total Days Badge at WMM	Mean Ambient Dose Equivalent	mRem / hour	mRem / Day	mRem / Week
Control	Administration Vault	12/31/2012	3/28/2013	87	31.9	0.02	0.367	2.57
1	V2O5 Control Room	12/31/2012	3/28/2013	87	45.9	0.02	0.528	3.69
2	BHV-6	12/31/2012	3/28/2013	87	25.7	0.01	0.295	2.07
3	Ore Stor. - Barrel Area	12/31/2012	3/28/2013	87	171	0.08	1.966	13.76
4	Vanadium Precip.Area	12/31/2012	3/28/2013	87	83.4	0.04	0.959	6.71
5	Yellocake Drying Area	12/31/2012	3/28/2013	87	226.9	0.11	2.608	18.26
6	Leach	12/31/2012	3/28/2013	87		0.00	0.000	0.00
7	SAG Mill Control Room	12/31/2012	3/28/2013	87	260.8	0.12	2.998	20.98
8	Yellowcake Precip.	12/31/2012	3/28/2013	87	181.6	0.09	2.087	14.61
9	Central Control Room	12/31/2012	3/28/2013	87	80.4	0.04	0.924	6.47
10	Trommel Screen (ore pad)	12/31/2012	3/28/2013	87	131.1	0.06	1.507	10.55
11	North East Corner Ore Pad	12/31/2012	3/28/2013	87	217.7	0.10	2.502	17.52
12	Met. Lab	12/31/2012	3/28/2013	87	57.3	0.03	0.659	4.61
13	Filter Press Room	12/31/2012	3/28/2013	87	159.3	0.08	1.831	12.82
14	BHV-1	12/31/2012	3/28/2013	87	32	0.02	0.368	2.57
15	BHV-2	12/31/2012	3/28/2013	87	27.8	0.01	0.320	2.24
16	BHV-3	12/31/2012	3/28/2013	87	27.2	0.01	0.313	2.19
17	BHV-4	12/31/2012	3/28/2013	87	27.5	0.01	0.316	2.21
18	BHV-5	12/31/2012	3/28/2013	87	30	0.01	0.345	2.41
19	SAG Mill	12/31/2012	3/28/2013	87	331.5	0.16	3.810	26.67
20	Tails	12/31/2012	3/28/2013	87	48.9	0.02	0.562	3.93
21	CCD	12/31/2012	3/28/2013	87	68.4	0.03	0.786	5.50
22	North SX	12/31/2012	3/28/2013	87	66.6	0.03	0.766	5.36
23	Administration Building	12/31/2012	3/28/2013	87	35.9	0.02	0.413	2.89
24	Admin Parking Lot	12/31/2012	3/28/2013	87	75.4	0.04	0.867	6.07
25	Yellowcake Packaging	12/31/2012	3/28/2013	87	1512.2	0.72	17.382	121.67
26	Yellowcake Storage	12/31/2012	3/28/2013	87	500.6	0.24	5.754	40.28
27	Bucking Room	12/31/2012	3/28/2013	87	118.4	0.06	1.361	9.53
28	Mill Lunch Room	12/31/2012	3/28/2013	87	50.1	0.02	0.576	4.03
29	South SX	12/31/2012	3/28/2013	87	92.3	0.04	1.061	7.43
30	Mtce. Super.'s Office	12/31/2012	3/28/2013	87	41.3	0.02	0.475	3.32
31	Ore Feed Grizzly	12/31/2012	3/28/2013	87	384.8	0.18	4.423	30.96
32	Scalehouse	12/31/2012	3/28/2013	87	213.7	0.10	2.456	17.19
33	Sample Plant (OBS)	12/31/2012	3/28/2013	87	216.4	0.10	2.487	17.41
34	Front Gate	12/31/2012	3/28/2013	87	179.5	0.09	2.063	14.44
45	AF - Barrel Dump Station	12/31/2012	3/28/2013	87	268.6	0.13	3.087	21.61
46	AF Circuit - South	12/31/2012	3/28/2013	87	31.3	0.01	0.360	2.52
47	AF Circuit - North	12/31/2012	3/28/2013	87	87.5	0.04	1.006	7.04
50	Pinenut Travel Way	12/31/2012	3/28/2013	87	29.9	0.01	0.344	2.41
51	North Control # 1	12/31/2012	3/28/2013	87	33.9	0.02	0.390	2.73
52	North Control # 2	12/31/2012	3/28/2013	87	28.9	0.01	0.332	2.33
53	CaF2 Barrel Dump Station - Operator Station	12/31/2012	3/28/2013	87	317.5	0.15	3.649	25.55
64	KF Barrel Dump Station	12/31/2012	3/28/2013	87	264.3	0.13	3.038	21.27

White Mesa Mill Second Quarter 2013 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	3/28/2013	6/26/2013	90	32	0.01	0.356	2.49
1	V2O5 Control Room	3/28/2013	6/26/2013	90	46.1	0.02	0.512	3.59
2	BHV-6	3/28/2013	6/26/2013	90	58	0.03	0.644	4.51
3	Ore Stor. - Barrel Area	3/28/2013	6/26/2013	90	196.4	0.09	2.182	15.28
4	Vanadium Precip. Area	3/28/2013	6/26/2013	90	99.4	0.05	1.104	7.73
5	Yellowcake Drying Area	3/28/2013	6/26/2013	90	258.9	0.12	2.877	20.14
6	Leach	3/28/2013	6/26/2013	90		0.00	0.000	0.00
7	SAG Mill Control Room	3/28/2013	6/26/2013	90	350.8	0.16	3.898	27.28
8	Yellowcake Precip.	3/28/2013	6/26/2013	90	273.5	0.13	3.039	21.27
9	Central Control Room	3/28/2013	6/26/2013	90	92.3	0.04	1.026	7.18
10	Trommel Screen (ore pad)	3/28/2013	6/26/2013	90	150.8	0.07	1.676	11.73
11	North East Corner Ore Pad	3/28/2013	6/26/2013	90		0.00	0.000	0.00
12	Met. Lab	3/28/2013	6/26/2013	90	60	0.03	0.667	4.67
13	Filter Press Room	3/28/2013	6/26/2013	90	165.1	0.08	1.834	12.84
14	BHV-1	3/28/2013	6/26/2013	90	32.7	0.02	0.363	2.54
15	BHV-2	3/28/2013	6/26/2013	90	28.9	0.01	0.321	2.25
16	BHV-3	3/28/2013	6/26/2013	90	27.7	0.01	0.308	2.15
17	BHV-4	3/28/2013	6/26/2013	90	30.8	0.01	0.342	2.40
18	BHV-5	3/28/2013	6/26/2013	90	30.9	0.01	0.343	2.40
19	SAG Mill	3/28/2013	6/26/2013	90	336	0.16	3.733	26.13
20	Tails	3/28/2013	6/26/2013	90	29.1	0.01	0.323	2.26
21	CCD	3/28/2013	6/26/2013	90	85.4	0.04	0.949	6.64
22	North SX	3/28/2013	6/26/2013	90	63.2	0.03	0.702	4.92
23	Administration Building	3/28/2013	6/26/2013	90	35	0.02	0.389	2.72
24	Admin Parking Lot	3/28/2013	6/26/2013	90	85.1	0.04	0.946	6.62
25	Yellowcake Packaging	3/28/2013	6/26/2013	90	1600.1	0.74	17.779	124.45
26	Yellowcake Storage	3/28/2013	6/26/2013	90	694.6	0.32	7.718	54.02
27	Bucking Room	3/28/2013	6/26/2013	90	129.5	0.06	1.439	10.07
28	Mill Lunch Room	3/28/2013	6/26/2013	90	50.3	0.02	0.559	3.91
29	South SX	3/28/2013	6/26/2013	90	114.1	0.05	1.268	8.87
30	Maint. Super.'s Office	3/28/2013	6/26/2013	90	46	0.02	0.511	3.58
31	Ore Feed Grizzly	3/28/2013	6/26/2013	90	277.7	0.13	3.086	21.60
32	Scalehouse	3/28/2013	6/26/2013	90	212.8	0.10	2.364	16.55
33	Sample Plant (OBS)	3/28/2013	6/26/2013	90	210.8	0.10	2.342	16.40
34	Front Gate	3/28/2013	6/26/2013	90	210.4	0.10	2.338	16.36
45	AF - Barrel Dump Station	3/28/2013	6/26/2013	90	536.3	0.25	5.959	41.71
46	AF Circuit - South	3/28/2013	6/26/2013	90	72.3	0.03	0.803	5.62
47	AF Circuit - North	3/28/2013	6/26/2013	90	148.6	0.07	1.651	11.56
51	North Control # 1	3/28/2013	6/26/2013	90	36.3	0.02	0.403	2.82
52	North Control # 2	3/28/2013	6/26/2013	90	30.8	0.01	0.342	2.40
53	CaF2 Barrel Dump Station - Operator Station	3/28/2013	6/26/2013	90	338.4	0.16	3.760	26.32
64	KF Barrel Dump Station	3/28/2013	7/11/2013	105	239.3	0.09	2.279	15.95

ATTACHMENT F

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


Ra-226 Concentrations in Vegetation (uCi/Kg)
(Log Scale)
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
8/27/1981
8/27/1982
8/27/1983
8/27/1984
8/27/1985
8/27/1986
8/27/1987
8/27/1988
8/27/1989
8/27/1990
8/27/1991
8/27/1992
8/27/1993
8/27/1994
8/27/1995
8/27/1996
8/27/1997
8/27/1998
8/27/1999
8/27/2000
8/27/2001
8/27/2002
8/27/2003
8/27/2004
8/27/2005
8/27/2006
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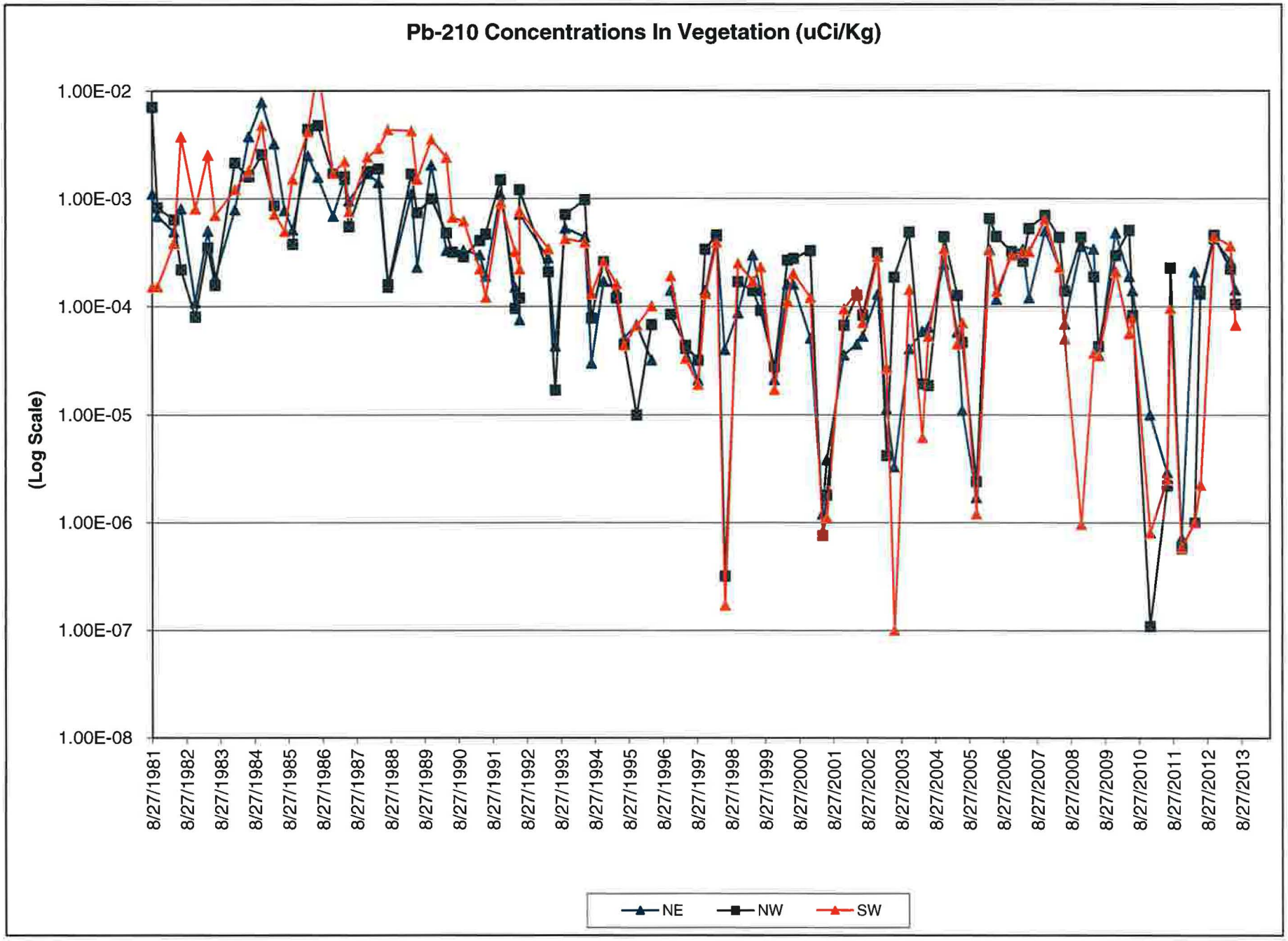
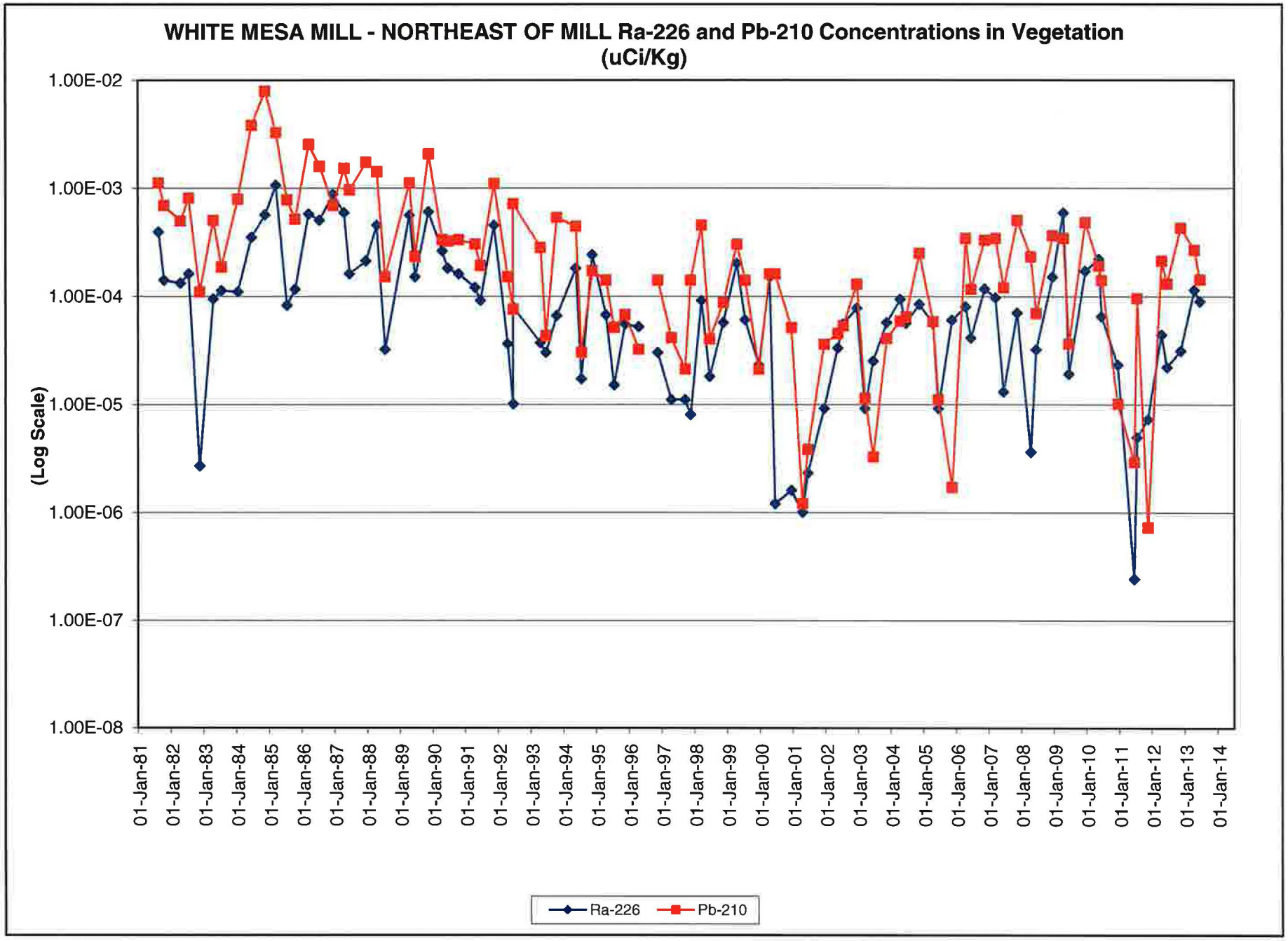
8/27/2011
8/27/2012
8/27/2013
NE
NW
SW


Pb-210 Concentrations In Vegetation (uCi/Kg)
(Log Scale)
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
8/27/1981
8/27/1982
8/27/1983
8/27/1984
8/27/1985
8/27/1986
8/27/1987
8/27/1988
8/27/1989
8/27/1990
8/27/1991
8/27/1992
8/27/1993
8/27/1994
8/27/1995
8/27/1996
8/27/1997
8/27/1998
8/27/1999
8/27/2000
8/27/2001
8/27/2002
8/27/2003
8/27/2004
8/27/2005
8/27/2006
8/27/2007
8/27/2008
8/27/2009
8/27/2010
8/27/2011
8/27/2012
8/27/2013
NE
NW
SW


WHITE MESA MILL - NORTHEAST OF MILL Ra-226 and Pb-210 Concentrations in Vegetation
(uCi/Kg)
(Log Scale)
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
01-Jan-81
01-Jan-82
01-Jan-83
01-Jan-84
01-Jan-85
01-Jan-86
01-Jan-87
01-Jan-88
01-Jan-89
01-Jan-90
01-Jan-91
01-Jan-92
01-Jan-93
01-Jan-94
01-Jan-95
01-Jan-96
01-Jan-97
01-Jan-98
01-Jan-99
01-Jan-00
01-Jan-01
01-Jan-02
01-Jan-03
01-Jan-04
01-Jan-05
01-Jan-06
01-Jan-07
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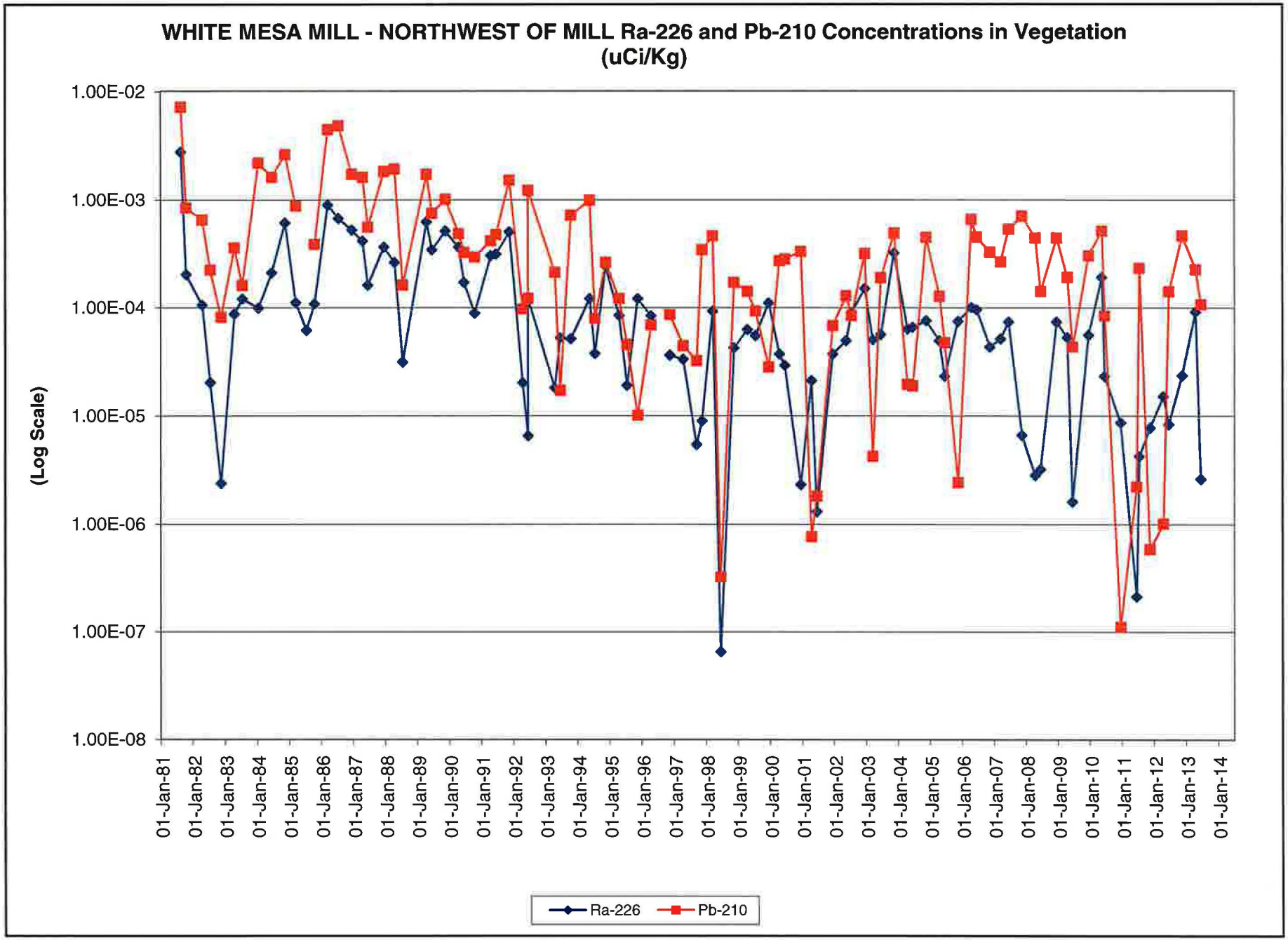
01-Jan-14
Ra-226
Pb-210


WHITE MESA MILL - NORTHWEST OF MILL Ra-226 and Pb-210 Concentrations in Vegetation
(uCi/Kg)
(Log Scale)
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
01-Jan-81
01-Jan-82
01-Jan-83
01-Jan-84
01-Jan-85
01-Jan-86
01-Jan-87
01-Jan-88
01-Jan-89
01-Jan-90
01-Jan-91
01-Jan-92
01-Jan-93
01-Jan-94
01-Jan-95
01-Jan-96
01-Jan-97
01-Jan-98
01-Jan-99
01-Jan-00
01-Jan-01
01-Jan-02
01-Jan-03
01-Jan-04
01-Jan-05
01-Jan-06
01-Jan-07
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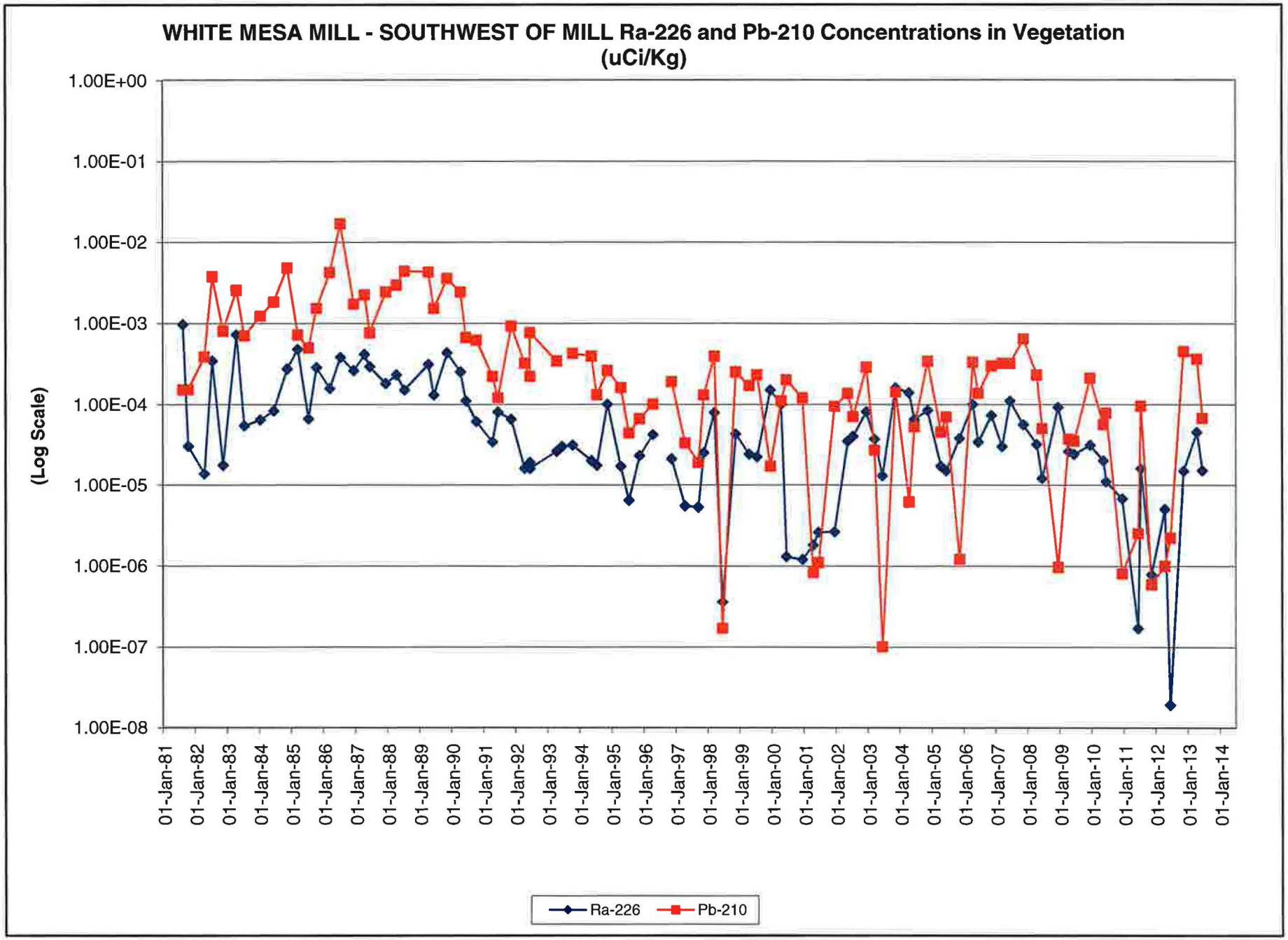
01-Jan-12
01-Jan-13
01-Jan-14
Ra-226
Pb-210


WHITE MESA MILL - SOUTHWEST OF MILL Ra-226 and Pb-210 Concentrations in Vegetation
(uCi/Kg)
(Log Scale)
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
01-Jan-81
01-Jan-82
01-Jan-83
01-Jan-84
01-Jan-85
01-Jan-86
01-Jan-87
01-Jan-88
01-Jan-89
01-Jan-90
01-Jan-91
01-Jan-92
01-Jan-93
01-Jan-94
01-Jan-95
01-Jan-96
01-Jan-97
01-Jan-98
01-Jan-99
01-Jan-00
01-Jan-01
01-Jan-02
01-Jan-03
01-Jan-04
01-Jan-05
01-Jan-06
01-Jan-07
01-Jan-08
01-Jan-09
01-Jan-10
01-Jan-11
01-Jan-12
01-Jan-13
01-Jan-14
Ra-226
Pb-210

WHITE MESA MILL
FORAGE RADIONUCLIDE DATA
NORTHEAST 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	3.90E-04	1.00E-05	5.00E-08	1.10E-03	1.00E-04	1.00E-06
4th '81	20-Oct-81	1.40E-04	1.00E-05	5.00E-08	6.80E-04	8.00E-05	1.00E-06
2nd '82	15-Apr-82	1.31E-04	1.30E-05	1.00E-06	4.90E-04	7.00E-05	8.00E-05
3rd '82	01-Jul-82	1.60E-04	1.00E-05	5.00E-08	8.00E-04	1.70E-04	1.00E-07
4th '82	30-Nov-82	2.67E-06	1.07E-06	1.00E-06	1.08E-04	9.00E-06	1.00E-05
2nd '83	13-Apr-83	9.36E-05	6.20E-06	8.00E-09	4.97E-04	9.30E-05	1.00E-04
3rd '83	01-Jul-83	1.12E-04	1.20E-05	6.00E-06	1.84E-04	1.20E-05	1.00E-06
4th '83	30-Jan-84	1.09E-04	8.00E-06	4.00E-06	7.80E-04	6.20E-05	6.00E-05
2nd '84	28-Jun-84	3.47E-04	1.20E-05	2.00E-09	3.75E-03	1.60E-04	4.00E-08
4th '84	14-Nov-84	5.61E-04	1.99E-04	2.00E-07	7.82E-03	3.30E-04	7.00E-08
2nd '85	27-Mar-85	1.05E-03	3.00E-05	2.00E-06	3.22E-03	1.40E-04	2.00E-05
3rd '85	15-Jul-85	8.20E-05	7.00E-06	3.00E-06	7.70E-04	1.30E-04	2.00E-04
4th '85	09-Oct-85	1.15E-04	1.00E-05	3.00E-06	5.10E-04	3.00E-05	2.00E-05
2nd '86	24-Mar-86	5.72E-04	2.10E-05	4.00E-06	2.49E-03	1.00E-04	1.00E-05
3rd '86	10-Jul-86	5.01E-04	1.30E-05	3.00E-06	1.57E-03	1.70E-03	2.00E-04
4th '86	18-Dec-86	8.70E-04	5.00E-05	3.00E-06	6.80E-04	3.00E-05	3.00E-06
2nd '87	20-Apr-87	5.90E-04	7.00E-05	5.00E-08	1.50E-03	1.00E-04	1.00E-06
3rd '87	05-Jun-87	1.60E-04	3.00E-05	5.00E-08	9.50E-04	4.00E-05	1.00E-06
4th '87	22-Dec-87	2.10E-04	4.00E-05	5.00E-08	1.70E-03	1.00E-04	1.00E-06
2nd '88	19-Apr-88	4.50E-04	7.00E-05	5.00E-08	1.40E-03	1.00E-04	1.00E-06
3rd '88	28-Jul-88	3.20E-05	2.20E-05	5.00E-08	1.50E-04	4.40E-04	1.00E-06
2nd '89	07-Apr-89	5.60E-04	4.00E-05	***	1.10E-03	1.00E-01	***
3rd '89	06-Jun-89	1.50E-04	2.00E-05	***	2.30E-04	2.00E-05	***
4th '89	07-Nov-89	6.00E-04	5.00E-05	7.00E-06	2.04E-03	7.00E-05	1.40E-05
1st '90	17-Apr-90	2.60E-04	3.00E-05	4.00E-06	3.30E-04	2.00E-05	2.20E-05
2nd '90	20-Jun-90	1.80E-04	2.00E-05	5.00E-08	3.20E-04	2.00E-05	1.00E-06
3rd '90	17-Oct-90	1.60E-04	2.00E-05	5.00E-08	3.30E-04	2.00E-05	1.00E-06
1st '91	10-Apr-91	1.20E-04	2.00E-05	5.00E-06	3.00E-04	2.00E-05	1.00E-06
2nd '91	11-Jun-91	9.10E-05	1.60E-05	2.00E-07	1.90E-04	2.00E-05	2.00E-07
3rd '91	20-Nov-91	4.50E-04	4.00E-05	5.00E-08	1.09E-03	5.00E-05	1.00E-06
1st '92	22-Apr-92	3.60E-05	1.00E-05	2.00E-06	1.50E-04	2.00E-05	1.00E-05
2nd '92	10-Jun-92	1.00E-05	7.00E-06	2.00E-07	7.50E-05	2.00E-05	1.00E-06
3rd '92	10-Jun-92	7.90E-05	3.50E-05	3.00E-06	7.10E-04	7.00E-05	2.00E-05
1st '93	13-Apr-93	3.70E-05	2.20E-05	3.00E-06	2.80E-04	3.00E-05	2.00E-05
2nd '93	26-Jun-93	3.00E-05	1.50E-05	3.00E-06	4.30E-05	3.50E-05	2.00E-05
3rd '93	12-Oct-93	6.60E-05	2.70E-05	3.00E-06	5.30E-04	6.00E-05	2.00E-05
1st '94	11-May-94	1.80E-04	4.00E-05	3.00E-05	4.40E-04	6.00E-05	2.00E-04
2nd '94	19-Jul-94	1.71E-05	1.20E-06	9.00E-08	3.00E-05	6.10E-06	4.45E-06
3rd '94	28-Nov-94	2.40E-04	1.50E-05	1.70E-07	1.70E-04	1.10E-05	8.30E-07
1st '95	11-Apr-95	6.70E-05	5.40E-06	1.60E-07	1.40E-04	1.30E-05	7.90E-07
2nd '95	06-Jul-95	1.50E-05	1.50E-06	1.50E-07	5.10E-05	4.50E-06	7.60E-07
3rd '95	15-Nov-95	5.50E-05	5.00E-06	1.80E-07	6.70E-05	1.00E-05	8.80E-07
1st '96	23-Apr-96	5.20E-05	2.50E-06	1.50E-07	3.20E-05	4.50E-06	1.80E-07
2nd '96 *	31-Jul-96						
3rd '96	14-Nov-96	3.00E-05	2.50E-06	1.80E-07	1.40E-04	7.10E-06	9.30E-07
1st '97	21-Apr-97	1.10E-05	4.70E-07	1.21E-07	4.10E-05	3.60E-06	6.10E-07
3rd '97	05-Sep-97	1.10E-05	4.30E-07	1.33E-07	2.10E-05	7.30E-07	6.66E-07
4th '97	20-Nov-97	8.00E-06	1.20E-06	5.60E-07	1.40E-04	4.60E-06	1.10E-07
1st '98	23-Mar-98	<9.10E-05	9.10E-05	9.10E-05	<4.50E-04	4.50E-04	4.50E-04
2nd '98	16-Jun-98	1.80E-05	1.20E-06	6.30E-08	4.00E-05	1.80E-06	3.20E-07
4th '98	05-Nov-98	5.70E-05	1.00E-06	8.20E-08	8.70E-05	5.00E-06	4.10E-07
2nd '99	15-Apr-99	2.00E-04	3.00E-06	1.20E-07	3.00E-04	1.00E-05	6.00E-05
3rd '99	07-Jul-99	6.03E-05	1.40E-06	8.30E-08	1.40E-04	4.70E-06	4.20E-07
4th '99	02-Dec-99	2.30E-05	1.00E-06	2.30E-07	2.10E-05	1.00E-06	1.10E-06
2nd '00	21-Apr-00	1.50E-04	3.00E-06	1.20E-07	1.60E-04	8.00E-06	5.90E-07
2nd '00	22-Jun-00	1.20E-06	1.00E-07	2.80E-07	1.60E-04	1.00E-05	1.40E-06

4th '00	21-Dec-00	1.60E-06	1.10E-06	3.70E-07	5.10E-05	5.00E-06	1.90E-06
1st '01	30-Apr-01	1.00E-06	1.00E-07	2.40E-07	<1.2E-06	1.00E-07	2.40E-07
2nd '01	14-Jun-01	2.30E-06	2.00E-07	9.90E-08	3.80E-06	2.00E-07	5.00E-07
4th '01	17-Dec-01	9.10E-06	2.40E-06	1.20E-07	3.57E-05	2.97E-06	6.00E-07
1st '02	07-May-02	3.30E-05	1.80E-06	7.60E-07	4.50E-05	2.61E-06	1.00E-05
2nd '02	07-Jul-02	5.55E-05	2.81E-06	7.60E-07	5.31E-05	3.90E-06	1.00E-05
4th '02	15-Dec-02	7.75E-05	3.60E-06	7.60E-07	1.29E-04	6.15E-06	1.00E-05
1st '03	21-Mar-03	9.10E-06	1.30E-06	3.60E-07	1.13E-05	1.61E-06	3.36E-06
2nd '03	10-Jun-03	2.50E-05	1.30E-06	3.60E-07	3.26E-06	2.00E-06	7.38E-08
4th '03	20-Nov-03	5.70E-05	3.50E-06	1.50E-07	4.05E-05	5.82E-06	8.30E-07
1st '04	08-Apr-04	9.38E-05	3.70E-06	1.10E-07	5.88E-05	3.00E-06	5.50E-07
2nd '04	12-Jun-04	5.63E-05	3.40E-06	1.80E-07	6.42E-05	5.90E-06	9.00E-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	3.60E-06	3.00E-06	5.20E-07	2.30E-04	1.40E-05	1.00E-06
2nd '08	18-Jun-08	3.20E-05	3.20E-06	1.80E-06	6.90E-05	3.50E-05	5.50E-05
4th '08	12-Dec-08						
1st '09	28-Apr-09	5.90E-04	1.35E-05	1.50E-06	3.40E-04	1.30E-05	1.50E-06
2nd '09	17-Jun-09	1.90E-05	1.45E-06	4.90E-07	3.60E-05	1.10E-05	1.80E-05
4th '09	18-Dec-09	1.70E-04	5.90E-06		4.80E-04	1.20E-05	
1st '10	13-May-10	2.20E-04	7.20E-06	1.10E-06	1.90E-04	1.90E-05	2.90E-05
2nd '10	18-Jun-10	6.50E-05	3.40E-06	7.60E-07	1.40E-04	1.90E-05	2.90E-05
4th '10	20-Dec-10	2.30E-05	1.70E-06	5.20E-07	1.00E-05	1.50E-06	2.30E-06
2nd '11	23-Jun-11	2.40E-07	1.40E-07	1.80E-07	<2.9E-06	1.70E-06	2.90E-06
2nd '12	11-Apr-12	4.40E-05	1.90E-06	3.60E-07	2.10E-04	2.00E-06	1.00E-06
3rd '12	11-Jun-12	2.20E-05	8.40E-07	1.10E-07	1.30E-04	7.60E-06	5.90E-06
4th '12	06-Nov-12	3.10E-05	4.82E-07	4.63E-08	4.26E-04	3.72E-06	6.52E-07
2nd '13	30-Apr-13	1.14E-04	1.74E-06	5.34E-07	2.65E-04	4.41E-06	5.37E-06
3rd '13	20-Jun-13	8.91E-05	2.16E-06	1.42E-06	1.42E-04	3.68E-06	6.17E-06

*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	5.00E-05	5.00E-08	7.10E-03	3.00E-04	1.00E-06
4th '81	20-Oct-81	2.00E-04	1.00E-05	5.00E-08	8.30E-04	5.00E-05	1.00E-06
2nd '82	15-Apr-82	1.04E-04	9.00E-06	7.00E-06	6.40E-04	5.00E-05	4.00E-05
3rd '82	01-Jul-82	2.00E-05	1.00E-05	5.00E-08	2.20E-04	9.00E-05	1.00E-07
4th '82	30-Nov-82	2.36E-06	9.50E-07	1.00E-06	8.00E-05	1.00E-05	1.00E-05
2nd '83	13-Apr-83	8.58E-05	1.36E-05	2.00E-08	3.53E-04	1.90E-05	1.00E-05
3rd '83	01-Jul-83	1.19E-04	1.10E-05	5.00E-06	1.58E-04	1.30E-05	1.00E-05
4th '83	30-Jan-84	9.78E-05	7.00E-06	2.00E-06	2.16E-03	3.40E-04	3.00E-04
2nd '84	28-Jun-84	2.08E-04	1.00E-05	3.00E-09	1.60E-03	7.00E-05	3.00E-08
4th '84	14-Nov-84	6.05E-04	1.64E-04	2.00E-07	2.58E-03	1.10E-04	3.00E-08
2nd '85	27-Mar-85	1.10E-04	8.00E-06	3.00E-06	8.63E-04	4.20E-05	3.00E-05
3rd '85	15-Jul-85	6.10E-05	6.00E-06	2.00E-06	5.40E-04	5.00E-05	5.00E-05
4th '85	09-Oct-85	1.07E-04	6.00E-06	2.00E-06	3.80E-04	3.00E-05	2.00E-05
2nd '86	24-Mar-86	8.86E-04	1.80E-05	2.00E-06	4.40E-03	1.90E-04	3.00E-05
3rd '86	10-Jul-86	6.66E-04	1.80E-05	3.00E-06	4.78E-03	2.10E-04	6.00E-05
4th '86	18-Dec-86	5.20E-04	1.00E-04	3.00E-06	1.70E-03	1.00E-04	6.00E-05
2nd '87	20-Apr-87	4.10E-04	1.00E-04	5.00E-08	1.60E-03	1.00E-04	1.00E-06
3rd '87	05-Jun-87	1.60E-04	3.00E-05	5.00E-08	5.50E-04	4.00E-05	1.00E-06
4th '87	22-Dec-87	3.60E-04	5.00E-05	5.00E-08	1.80E-03	1.00E-04	1.00E-06
2nd '88	19-Apr-88	2.60E-04	5.00E-05	5.00E-08	1.90E-03	1.00E-04	1.00E-06
3rd '88	28-Jul-88	3.10E-05	1.90E-05	5.00E-08	1.60E-04	4.00E-05	1.00E-06
2nd '89	07-Apr-89	6.20E-04	5.00E-05	***	1.70E-03	1.00E-04	***
3rd '89	06-Jun-89	3.40E-04	3.00E-05	***	7.40E-04	3.00E-05	***
4th '89	07-Nov-89	5.10E-04	6.00E-05	7.00E-06	1.00E-03	7.00E-05	1.40E-05
1st '90	17-Apr-90	3.60E-04	3.00E-05	4.00E-06	4.80E-04	2.00E-05	2.20E-05
2nd '90	20-Jun-90	1.70E-04	2.00E-05	5.00E-08	3.20E-04	2.00E-05	1.00E-06
3rd '90	17-Oct-90	8.80E-05	1.60E-05	5.00E-08	2.90E-04	2.00E-05	1.00E-06
1st '91	10-Apr-91	3.00E-04	3.00E-05	5.00E-06	4.10E-04	2.00E-05	1.00E-06
2nd '91	11-Jun-91	3.10E-04	3.00E-05	2.00E-07	4.70E-04	2.00E-05	2.00E-07
3rd '91	20-Nov-91	5.00E-04	4.00E-05	5.00E-08	1.50E-03	1.00E-04	1.00E-06
1st '92	22-Apr-92	2.00E-05	8.00E-06	2.00E-06	9.60E-05	1.40E-05	1.00E-05
2nd '92	10-Jun-92	6.50E-06	6.00E-06	2.00E-06	1.20E-04	2.00E-05	1.00E-06
3rd '92	10-Jun-92	1.20E-04	4.00E-05	3.00E-06	1.21E-03	8.00E-05	2.00E-05
1st '93	13-Apr-93	1.80E-05	1.70E-05	3.00E-06	2.10E-04	3.00E-05	2.00E-05
2nd '93	26-Jun-93	5.20E-05	1.90E-05	3.00E-06	1.70E-05	3.60E-05	2.00E-05
3rd '93	12-Oct-93	5.10E-05	2.30E-05	3.00E-06	7.10E-04	6.00E-05	2.00E-05
1st '94	11-May-94	1.20E-04	1.00E-05	3.00E-05	9.80E-04	1.60E-04	2.00E-04
2nd '94	19-Jul-94	3.73E-05	1.60E-06	8.40E-08	7.80E-05	7.10E-06	4.20E-07
3rd '94	28-Nov-94	2.40E-04	1.50E-05	1.70E-07	2.60E-04	1.30E-05	8.30E-07
1st '95	11-Apr-95	8.40E-05	6.10E-06	1.50E-07	1.20E-04	1.10E-05	7.50E-05
2nd '95	06-Jul-95	1.90E-05	1.50E-06	1.40E-07	4.50E-05	4.30E-06	7.20E-07
3rd '95	15-Nov-95	1.20E-04	6.80E-06	1.40E-07	1.00E-05	5.80E-06	7.10E-07
1st '96	23-Apr-96	8.30E-05	3.30E-06	1.90E-07	6.80E-05	6.30E-06	1.80E-07
2nd '96 *	31-Jul-96						
3rd '96	14-Nov-96	3.60E-05	2.50E-06	1.60E-07	8.50E-05	5.60E-06	8.40E-07
1st '97	21-Apr-97	3.30E-05	2.30E-06	1.70E-07	4.40E-05	4.80E-06	8.40E-07
3rd '97	05-Sep-97	5.40E-06	3.50E-07	1.56E-07	3.20E-05	9.00E-07	7.83E-07
4th '97	20-Nov-97	8.90E-06	7.20E-07	5.40E-07	3.40E-04	6.70E-06	1.10E-07
1st '98	23-Mar-98	<9.20E-05	9.20E-05	9.20E-05	<4.60E-04	4.60E-04	4.60E-04
2nd '98	16-Jun-98	< 6.50E-08	6.50E-08	6.50E-08	<3.20E-07	3.20E-07	3.20E-07
4th '98	05-Nov-98	4.20E-05	1.00E-06	1.10E-07	1.70E-04	1.00E-05	5.50E-07
2nd '99	15-Apr-99	6.20E-05	1.00E-06	1.00E-07	1.40E-04	7.00E-06	1.00E-07
3rd '99	07-Jul-99	5.45E-05	1.40E-06	8.30E-08	9.20E-05	4.00E-06	4.20E-07
4th '99	02-Dec-99	1.10E-04	3.00E-06	2.20E-07	2.80E-05	1.00E-06	1.10E-06
2nd '00	21-Apr-00	3.70E-05	1.00E-06	2.40E-07	2.70E-04	1.00E-05	1.20E-06

2nd '00	22-Jun-00	2.90E-05	1.00E-06	3.30E-07	2.80E-04	2.00E-05	1.70E-06
4th '00	21-Dec-00	2.30E-06	1.40E-06	3.70E-07	3.30E-04	5.00E-05	1.90E-06
1st '01	30-Apr-01	2.10E-05	1.00E-06	1.50E-07	<7.6E-07	N/A	7.60E-07
2nd '01	14-Jun-01	1.30E-06	4.00E-08	1.20E-07	1.80E-06	3.00E-08	5.90E-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	6.20E-06	7.60E-07	3.16E-04	1.07E-05	1.00E-05
1st '03	21-Mar-03	5.00E-05	3.40E-06	2.71E-06	<4.2e-6		4.20E-06
2nd '03	10-Jun-03	5.60E-05	2.00E-06	4.10E-07	1.88E-04	5.14E-06	8.20E-08
4th '03	20-Nov-03	3.20E-04	8.20E-06	1.70E-07	4.89E-04	1.25E-05	8.30E-07
1st '04	08-Apr-04	6.29E-05	4.10E-06	2.00E-07	1.94E-05	4.00E-06	1.00E-06
2nd '04	12-Jun-04	6.51E-05	3.40E-06	1.30E-07	1.87E-05	3.90E-06	6.50E-07
4th '04	30-Nov-04	7.50E-05	4.60E-06	2.00E-08	4.45E-04	1.40E-05	3.00E-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	6.60E-06	5.00E-08	7.00E-04	2.20E-05	1.10E-06
1st '08	22-Apr-08	2.80E-06	2.80E-06	7.20E-07	4.40E-04	2.00E-05	1.00E-06
2nd '08	18-Jun-08	3.20E-06	3.30E-06	1.80E-06	1.40E-04	3.30E-05	5.50E-05
4th '08	12-Dec-08	7.30E-05	3.20E-06	7.40E-07	4.40E-04	2.50E-05	3.20E-05
1st '09	28-Apr-09	5.25E-05	3.60E-06	1.10E-06	1.90E-04	1.50E-05	2.20E-05
2nd '09	17-Jun-09	2.30E-05	1.60E-05	5.20E-07	4.30E-05	1.00E-05	1.70E-05
4th '09	18-Dec-09	5.50E-05	3.50E-06		3.00E-04	1.10E-05	
1st '10	13-May-10	1.90E-04	6.10E-06	9.40E-07	5.10E-04	2.40E-05	3.10E-05
2nd '10	18-Jun-10	2.30E-05	2.00E-06	7.70E-07	8.30E-05	1.80E-05	2.90E-05
4TH '10	20-Dec-10	8.60E-06	9.10E-07	3.90E-07	1.10E-07	6.80E-07	1.10E-06
2nd '11	23-Jun-11	2.10E-07	1.20E-07	1.40E-07	<2.2E-06	1.30E-06	2.20E-06
2nd '12	11-Apr-12	1.50E-05	9.50E-07	2.60E-07	<7.0E-07	6.00E-07	1.00E-06
3rd '12	11-Jun-12	8.30E-06	5.40E-07	1.20E-07	1.40E-04	8.30E-06	6.50E-06
4th '12	06-Nov-12	2.34E-05	4.10E-07	7.71E-08	4.59E-04	3.83E-06	6.18E-07
2nd'13	30-Apr-13	9.04E-05	1.68E-06	8.58E-07	2.24E-04	4.46E-06	4.68E-06
3rd '13	20-Jun-13	2.58E-06	9.59E-07	8.06E-07	1.06E-04	2.30E-06	3.28E-06

*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	2.00E-05	5.00E-08	1.50E-04	1.00E-05	1.00E-06
4th '81	20-Oct-81	3.00E-05	3.00E-06	5.00E-08	1.50E-04	2.00E-05	1.00E-06
2nd '82	15-Apr-82	1.37E-05	3.00E-06	3.00E-06	3.80E-04	4.00E-05	4.00E-05
3rd '82	01-Jul-82	3.40E-04	2.00E-05	5.00E-08	3.68E-03	2.70E-04	1.00E-07
4th '82	30-Nov-82	1.75E-05	3.00E-06	2.00E-06	7.92E-04	4.00E-06	2.00E-05
2nd '83	13-Apr-83	7.13E-04	7.30E-05	9.00E-08	2.51E-03	3.00E-04	3.00E-04
3rd '83	01-Jul-83	5.39E-05	4.50E-06	2.00E-06	6.88E-04	4.30E-05	4.00E-05
4th '83	30-Jan-84	6.40E-05	7.00E-06	4.00E-06	1.20E-03	1.00E-04	4.00E-05
2nd '84	28-Jun-84	8.27E-05	6.30E-06	3.00E-09	1.80E-03	1.00E-04	9.00E-08
4th '84	14-Nov-84	2.72E-04	1.48E-04	2.00E-07	4.70E-03	7.20E-04	3.00E-07
2nd '85	27-Mar-85	4.73E-04	1.60E-07	3.00E-06	7.07E-04	3.60E-05	3.00E-05
3rd '85	15-Jul-85	6.60E-05	7.00E-06	4.00E-06	4.90E-04	3.00E-05	3.00E-05
4th '85	09-Oct-85	2.83E-04	2.00E-05	7.00E-06	1.50E-03	1.00E-04	7.00E-05
2nd '86	24-Mar-86	1.57E-04	1.00E-05	4.00E-06	4.14E-03	1.80E-04	3.00E-05
3rd '86	10-Jul-86	3.78E-04	1.00E-05	2.00E-06	1.65E-02	7.00E-04	1.00E-04
4th '86	18-Dec-86	2.60E-04	2.00E-05	2.00E-06	1.70E-03	1.00E-04	1.00E-04
2nd '87	20-Apr-87	4.10E-04	7.00E-05	5.00E-08	2.20E-03	1.00E-04	1.00E-06
3rd '87	05-Jun-87	2.90E-04	4.00E-05	5.00E-08	7.50E-04	5.00E-05	1.00E-06
4th '87	22-Dec-87	1.80E-04	3.00E-05	5.00E-08	2.40E-03	1.00E-04	1.00E-06
2nd '88	19-Apr-88	2.30E-04	5.00E-05	5.00E-08	2.90E-03	1.00E-04	1.00E-06
3rd '88	28-Jul-88	1.50E-04	3.00E-05	5.00E-08	4.30E-03	2.00E-04	1.00E-06
2nd '89	07-Apr-89	3.10E-04	4.00E-05	***	4.20E-03	1.00E-04	***
3rd '89	06-Jun-89	1.30E-04	2.00E-05	***	1.50E-03	1.00E-04	***
4th '89	07-Nov-89	4.30E-04	5.00E-05	1.40E-05	3.50E-03	1.40E-04	2.70E-05
1st '90	17-Apr-90	2.50E-04	3.00E-05	5.00E-06	2.39E-03	5.00E-05	2.50E-05
2nd '90	20-Jun-90	1.10E-04	2.00E-05	5.00E-08	6.60E-04	3.00E-05	1.00E-06
3rd '90	17-Oct-90	6.10E-05	1.40E-05	5.00E-08	6.10E-04	3.00E-05	1.00E-06
1st '91	10-Apr-91	3.40E-05	1.10E-05	5.00E-06	2.20E-04	1.00E-05	1.00E-06
2nd '91	11-Jun-91	8.00E-05	6.00E-06	2.00E-07	1.20E-04	1.00E-05	2.00E-07
3rd '91	20-Nov-91	6.50E-05	1.40E-05	5.00E-08	9.10E-04	5.00E-05	1.00E-06
1st '92	22-Apr-92	1.60E-05	7.00E-06	2.00E-06	3.20E-04	2.00E-05	1.00E-05
2nd '92	10-Jun-92	1.90E-05	1.00E-05	2.00E-07	2.20E-04	2.00E-05	1.00E-06
3rd '92	10-Jun-92	1.60E-05	1.80E-05	3.00E-06	7.60E-04	6.00E-05	2.00E-05
1st '93	13-Apr-93	2.60E-05	2.00E-05	3.00E-06	3.40E-04	3.00E-05	2.00E-05
2nd '93	26-Jun-93	3.00E-05	1.40E-05	3.00E-06	0.00E+00	3.00E-05	2.00E-05
3rd '93	12-Oct-93	3.10E-05	1.60E-05	3.00E-06	4.20E-04	6.00E-05	2.00E-05
1st '94	11-May-94	2.00E-05	5.00E-06	3.00E-05	3.90E-04	8.00E-05	2.00E-04
2nd '94	19-Jul-94	1.75E-05	1.70E-06	7.60E-08	1.30E-04	7.80E-06	3.80E-07
3rd '94	28-Nov-94	1.00E-04	9.00E-06	1.50E-07	2.60E-04	1.20E-05	7.40E-07
1st '95	11-Apr-95	1.70E-05	1.50E-06	1.60E-07	1.60E-04	1.50E-05	8.10E-07
2nd '95	06-Jul-95	6.40E-06	6.00E-07	1.40E-07	4.40E-05	4.20E-06	7.00E-07
3rd '95	15-Nov-95	2.30E-05	2.20E-06	1.70E-07	6.60E-05	9.60E-06	8.30E-07
1st '96	23-Apr-96	4.20E-05	2.20E-06	1.70E-07	1.00E-04	6.70E-06	1.80E-07
2nd '96 *	31-Jul-96						
3rd '96	14-Nov-96	2.10E-05	2.00E-06	1.60E-07	1.90E-04	7.30E-06	8.20E-07
1st '97	21-Apr-97	5.50E-06	4.20E-07	1.40E-07	3.30E-05	3.90E-06	7.00E-07
3rd '97	05-Sep-97	5.30E-06	3.20E-07	1.26E-07	1.90E-05	6.90E-07	6.34E-07
4th '97	20-Nov-97	2.50E-05	9.50E-07	5.90E-07	1.30E-04	4.70E-06	1.20E-07
1st '98	23-Mar-98	<7.90E-05	7.90E-05	7.90E-05	<3.90E-04	3.90E-04	3.90E-04
2nd '98	16-Jun-98	3.60E-07	1.40E-07	3.30E-08	<1.7E-07	1.70E-07	1.70E-07
4th '98	05-Nov-98	4.30E-05	1.00E-06	7.60E-08	2.50E-04	1.00E-05	3.80E-07
2nd '99	15-Apr-99	2.40E-05	1.00E-06	1.20E-07	1.70E-04	8.00E-06	6.20E-07
3rd '99	07-Jul-99	2.23E-05	8.60E-07	1.20E-07	2.30E-04	7.00E-06	5.90E-07
4th '99	02-Dec-99	1.50E-04	3.00E-06	2.00E-07	1.70E-05	1.00E-06	1.00E-06
2nd '00	21-Apr-00	1.00E-04	2.00E-06	1.20E-07	1.10E-04	7.00E-06	6.10E-07

2nd '00	22-Jun-00	1.30E-06	1.00E-07	2.40E-07	2.00E-04	1.00E-05	1.20E-06
4th '00	21-Dec-00	1.20E-06	9.00E-07	2.40E-07	1.20E-04	3.00E-05	1.20E-06
1st '01	30-Apr-01	1.80E-06	1.00E-07	1.70E-07	<8.3E-07	N/A	8.30E-07
2nd '01	14-Jun-01	2.60E-06	2.00E-07	9.90E-08	1.10E-06	2.00E-08	5.00E-07
4th '01	17-Dec-01	2.63E-06	4.60E-05	1.20E-07	9.40E-05	3.72E-06	6.00E-07
1st '02	07-May-02	3.50E-05	2.20E-06	7.60E-07	1.36E-04	5.61E-06	1.00E-05
2nd '02	07-Jul-02	4.02E-05	2.34E-06	7.60E-07	7.04E-05	4.11E-06	1.00E-05
4th '02	15-Dec-02	8.10E-05	3.90E-06	7.60E-07	2.87E-04	8.54E-06	1.00E-05
1st '03	21-Mar-03	3.70E-05	2.60E-06	2.41E-06	2.69E-05	2.01E-06	3.73E-06
2nd '03	10-Jun-03	1.30E-05	1.00E-06	5.20E-07	<1.00E-07		1.00E-07
4th '03	20-Nov-03	1.60E-04	1.30E-05	1.20E-07	1.42E-04	6.42E-06	5.90E-07
1st '04	08-Apr-04	1.40E-04	7.70E-06	1.10E-07	6.10E-06	2.70E-06	5.50E-07
2nd '04	12-Jun-04	6.51E-05	3.20E-06	1.50E-07	5.27E-05	4.90E-06	7.60E-07
4th '04	30-Nov-04	8.40E-05	5.70E-06	3.00E-08	3.39E-04	1.60E-05	3.00E-07
1st '05	21-Apr-05	1.70E-05	1.60E-06	1.30E-07	4.50E-05	3.50E-06	6.50E-07
2nd '05	13-Jun-05	1.50E-05	1.60E-06	1.40E-07	7.00E-05	5.10E-06	6.90E-07
4th '05	10-Nov-05	3.80E-05	2.10E-06	8.60E-10	1.20E-06	4.80E-08	4.30E-10
1st '06	03-Apr-06	1.00E-04	6.00E-06	5.00E-08	3.30E-04	1.10E-05	1.00E-06
2nd '06	16-Jun-06	3.40E-05	2.50E-06	5.00E-08	1.37E-04	6.00E-06	1.00E-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	3.10E-05	2.30E-06		2.10E-04	8.40E-06	
1st '10	13-May-10	2.00E-05	2.10E-06	9.40E-07	5.60E-05	1.50E-05	2.40E-05
2nd '10	18-Jun-10	1.10E-05	1.30E-06	6.60E-07	7.80E-05	1.60E-05	2.50E-05
4th '10	20-Dec-10	6.70E-06	9.10E-07	4.80E-07	8.00E-07	7.90E-07	1.30E-06
2nd '11	23-Jun-11	<1.7E-07	6.90E-08	1.70E-07	<2.5E-06	1.50E-06	2.50E-06
2nd '12	11-Apr-12	5.00E-06	6.00E-07	3.00E-07	<7.0E-07	7.00E-07	1.00E-06
3rd '12	11-Jun-12	1.90E-08	6.20E-08	1.10E-07	<2.5E-07	1.30E-06	2.20E-06
4th '12	06-Nov-12	1.49E-05	3.41E-07	4.25E-08	4.45E-04	4.01E-06	8.57E-07
2nd '13	30-Apr-13	4.50E-05	1.19E-06	5.39E-07	3.62E-04	6.30E-06	9.90E-06
3rd '13	20-Jun-13	1.51E-05	1.06E-06	1.96E-06	6.71E-05	2.93E-06	6.24E-06

*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

May 28, 2013

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

Re: Vegetation Analysis
Work Order: 325082

Dear Ms. Weinel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on May 03, 2013. 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: 325082

Case Narrative

Receipt Narrative
for
Energy Fuels Resources (USA), Inc.
SDG: 325082

May 28, 2013

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 May 03, 2013 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. The lab requested additional volume for the North West location..

Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
325082001	North East
325082002	North West
325082003	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.

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

325082

Sheet 1 of 1

CHAIN OF CUSTODY

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

Contact: Garrin Palmer
Ph: 435 678 2221
gpalmer@energyfuels.com

Chain of Custody/Sampling Analysis Request

Project	Samplers Name	Samplers Signature
Early Spring Vegetation 2013	Garrin Palmer	Garrin Palmer

Sample ID	Date Collected	Time Collected	
North East	4/30/2013	1200	RA 226, PB-210
North West	4/30/2013	1245	RA 226, PB-211
South West	4/30/2013	1400	RA 226, PB-212

Comments:

Relinquished By:(Signature)	Date/Time	Received By:(Signature)	Date/Time
Garrin Palmer	4/30/13 1000	P. Nlent	5-3-13 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: 325082
Received By: P. Wlent	Date Received: 5-3-13

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) 17c
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 1Z 187 Y4Y 02 9142 7508

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials JP Date 5-7-13 Page 1 of 1

GEL Laboratories LLC - Login Review Report

GEL Work Order/SDG: 325082 Early Spring Vegetation 2013
Client SDG: 325082
Project Manager: Heather Shaffer
Project Name: DNMI00101 Vegetation Analysis
Purchase Order: DW16138
Package Level: LEVEL3
EDD Format: EIM_DNMI

Work Order Due Date: 02-JUN-13
Package Due Date: 30-MAY-13
EDD Due Date: 01-JUN-13
Due Date: 02-JUN-13
HXS1

Collector: C
Prelogin #: 20130503139
Project Workdef ID: 1310529
SDG Status: Closed
Logged by:

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
325082001	North East		30-APR-13 12:00	03-MAY-13 09:20	-2	1	VEGETATION		30		1		
325082002	North West		30-APR-13 12:45	03-MAY-13 09:20	-2	1	VEGETATION		30		1		
325082003	South West		30-APR-13 14:00	03-MAY-13 09:20	-2	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				Client Matrix	SOLID	
	REVW	GFPC, Pb210, Solid				Cooler Seal Undisturbed	y	
						Temperature (C)	17	
-002 North West	REVW	GFPC, Total Alpha Radium, solid				Client Matrix	SOLID	
	REVW	GFPC, Pb210, Solid				Cooler Seal Undisturbed	y	
						Temperature (C)	17	
-003 South West	REVW	GFPC, Total Alpha Radium, solid				Client Matrix	SOLID	
	REVW	GFPC, Pb210, Solid				Cooler Seal Undisturbed	y	
						Temperature (C)	17	

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 28 May 2013

State	Certification
Alaska	UST-110
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	LA130005
Maryland	270
Massachusetts	M-SC012
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	T104704235-13-8
Utah NELAP	SC000122013-8
Vermont	VT87156
Virginia NELAP	460202
Washington	C780-12
Wisconsin	999887790

Radiochemistry Case Narrative
Energy Fuels Resources (DNMI)
SDG 325082

Method/Analysis Information

Product:	**GFPC, Total Alpha Radium, solid**
Analytical Method:	EPA 900.1 Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1299872
Prep Batch Number:	1299423

Sample ID	Client ID
325082001	North East
325082002	North West
325082003	South West
1202871051	Method Blank (MB)
1202871052	325082003(South West) Sample Duplicate (DUP)
1202871053	325082003(South West) Matrix Spike (MS)
1202871054	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# 15.

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: 325082003 (South West).

QC Information
All of the QC samples meet the required acceptance limits with the following exceptions: The blank, 1202871051 (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, 1202871052 (South West) and 325082003 (South West), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with value of 2.7927. The blank, 1202871051 (MB), result is greater than the required detection limit but less than the MDC.

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 low 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, 1202871053 (South West), aliquot was reduced to conserve sample volume.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Pb210, Solid**
Analytical Method:	DOE RP280 Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1299873
Prep Batch Number:	1299423

Sample ID	Client ID
325082001	North East
325082002	North West
325082003	South West

1202871055	Method Blank (MB)
1202871056	325082003(South West) Sample Duplicate (DUP)
1202871057	325082003(South West) Matrix Spike (MS)
1202871058	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: 325082003 (South West).

QC Information
All of the QC samples meet the required acceptance limits with the following exceptions: The blank 1202871055 (MB) activity is greater than the MDC but is less than five percent of the lowest activity in the batch.

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
Additional comments were not required for this sample set.

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: 325082 GEL Work Order: 325082

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: **Name: Kate Gellatly**

Date: 06 JUN 2013 **Title: Analyst I**

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: June 6, 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:	325082001	Client ID:	DNMI001
Matrix:	SOLID		
Collect Date:	30-APR-13 12:00		
Receive Date:	03-MAY-13		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Pb210, Solid "As Received"												
Lead-210		0.000265	+/-4.41E-06	5.37E-06	1.00E-06	uCi/kg		KDF1	06/05/13	0805	1299873	1
GFPC, Total Alpha Radium, solid "As Received"												
Total Radium		0.000114	+/-1.74E-06	5.34E-07	5.00E-08	uCi/kg		KDF1	06/03/13	1021	1299872	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	05/03/13	1510	1299423

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"			103	(25%-125%)
Barium Carrier	GFPC, Total Alpha Radium, solid "As Received"			80.9	(25%-125%)

Notes:
Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: June 6, 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:	325082002	Client ID:	DNMI001
Matrix:	SOLID		
Collect Date:	30-APR-13 12:45		
Receive Date:	03-MAY-13		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Pb210, Solid "As Received"												
Lead-210		0.000224	+/-4.46E-06	4.68E-06	1.00E-06	uCi/kg		KDF1	06/04/13	1803	1299873	1
GFPC, Total Alpha Radium, solid "As Received"												
Total Radium		9.04E-05	+/-1.68E-06	8.58E-07	5.00E-08	uCi/kg		KDF1	06/03/13	1021	1299872	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	05/03/13	1510	1299423

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"			112	(25%-125%)
Barium Carrier	GFPC, Total Alpha Radium, solid "As Received"			90.0	(25%-125%)

Notes:
Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: June 6, 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	Project:	DNMI00101
Sample ID:	325082003	Client ID:	DNMI001
Matrix:	SOLID		
Collect Date:	30-APR-13 14:00		
Receive Date:	03-MAY-13		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Pb210, Solid "As Received"												
Lead-210		0.000362	+/-6.30E-06	9.90E-06	1.00E-06	uCi/kg		KDF1	06/04/13	1803	1299873	1
GFPC, Total Alpha Radium, solid "As Received"												
Total Radium		4.50E-05	+/-1.19E-06	5.39E-07	5.00E-08	uCi/kg		KDF1	06/03/13	1021	1299872	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	05/03/13	1510	1299423

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"			108	(25%-125%)
Barium Carrier	GFPC, Total Alpha Radium, solid "As Received"			92.6	(25%-125%)

Notes:
Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

GEL LABORATORIES LLC

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

QC Summary

Report Date: June 6, 2013
Page 1 of 2

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

Contact: **Ms. Kathy Weinel**

Workorder: **325082**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1299872										
QC1202871052 325082003 DUP										
Total Radium		4.50E-05		3.46E-05	uCi/kg	26.1*		(0%-20%)	KDF1	06/03/13 09:42
	Uncertainty	+/-1.19E-06		+/-9.66E-07						
QC1202871054 LCS										
Total Radium	0.00163			0.00168	uCi/kg		103	(75%-125%)		06/03/13 09:33
	Uncertainty			+/-1.78E-05						
QC1202871051 MB										
Total Radium			U	2.23E-07	uCi/kg					06/02/13 18:08
	Uncertainty			+/-1.98E-07						
QC1202871053 325082003 MS										
Total Radium	0.00226	4.50E-05		0.00184	uCi/kg		79.5	(75%-125%)		06/02/13 17:21
	Uncertainty	+/-1.19E-06		+/-2.25E-05						
Batch 1299873										
QC1202871056 325082003 DUP										
Lead-210		0.000362		0.000324	uCi/kg	11.3		(0%-20%)	KDF1	06/04/13 18:03
	Uncertainty	+/-6.30E-06		+/-5.67E-06						
QC1202871058 LCS										
Lead-210	0.0662			0.0584	uCi/kg		88.2	(75%-125%)		06/04/13 08:40
	Uncertainty			+/-0.000176						
QC1202871055 MB										
Lead-210				6.16E-06	uCi/kg					06/04/13 18:03
	Uncertainty			+/-1.69E-06						
QC1202871057 325082003 MS										
Lead-210	0.0909	0.000362		0.0794	uCi/kg		86.9	(75%-125%)		06/04/13 08:40
	Uncertainty	+/-6.30E-06		+/-0.000239						

Notes:

Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

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: **325082**

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

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 than 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.

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

July 18, 2013

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

Re: Vegetation Analysis
Work Order: 328139

Dear Ms. Weinel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 24, 2013. 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: 328139

Case Narrative

Receipt Narrative
for
Energy Fuels Resources (USA), Inc.
SDG: 328139

July 18, 2013

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 June 24, 2013 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
328139001	North West
328139002	North East
328139003	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.

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

328139

Sheet 1 of 1

CHAIN OF CUSTODY

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

Contact: Garrin Palmer
Ph: 435 678 2221
gpalmer@energyfuels.com

Chain of Custody/Sampling Analysis Request

Project	Samplers Name	Samplers Signature
Late Spring Vegetation Sampling 2013	Garrin Palmer	Garrin Palmer

Sample ID	Date Collected	Time Collected	Laboratory Analysis Requested
North West	6/20/2013	930	Ra 226, PB-210
North East	6/20/2013	900	Ra 226, PB-210
South West	6/20/2013	830	Ra 226, PB-210

Comments:

Relinquished By:(Signature)	Date/Time	Received By:(Signature)	Date/Time
Garrin Palmer	6/20/2013 1200	[illegible]	062413 1015
Relinquished By:(Signature)	Date/Time	Received By:(Signature)	Date/Time

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: DNMI	**SDG/AR/COC/Work Order:** 328139 / 328142
Received By: H. Taylor	**Date Received:** 6-25-13

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?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 20
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 61524649 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			
14	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 12 187 444 02 9971 9018 / 9697 7405 / 9729 6792 / 20

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials JP Date 6-25-13 Page 1 of 1

GEL Laboratories LLC - Login Review Report

GEL Work Order/SDG: 328139 Late spring vegetation 2013
Client SDG: 328139
Project Manager: Heather Shaffer
Project Name: DNMI00101 Vegetation Analysis
Purchase Order: DW16138
Package Level: LEVEL3
EDD Format: EIM_DNMI

Work Order Due Date: 24-JUL-13
Package Due Date: 21-JUL-13
EDD Due Date: 23-JUL-13
Due Date: 24-JUL-13
HXS1

Collector: C
Prelogin #: 20130604845
Project Workdef ID: 1310529
SDG Status: Closed
Logged by:

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
328139001	North West		20-JUN-13 09:30	24-JUN-13 10:15	-2	1	VEGETATION		30		1		
328139002	North East		20-JUN-13 09:00	24-JUN-13 10:15	-2	1	VEGETATION		30		1		
328139003	South West		20-JUN-13 08:30	24-JUN-13 10:15	-2	1	VEGETATION		30		1		

Client Sample ID	Status	Tests/Methods	Product Reference	Fax Date	PM Comments	Aux Data		Receive Codes
-001 North West	REVW	GFPC, Total Alpha Radium, solid				Cooler Seal Undisturbed	y	
	REVW	GFPC, Pb210, Solid				Temperature (C)	20	
-002 North East	REVW	GFPC, Total Alpha Radium, solid				Cooler Seal Undisturbed	y	
	REVW	GFPC, Pb210, Solid				Temperature (C)	20	
-003 South West	REVW	GFPC, Total Alpha Radium, solid				Cooler Seal Undisturbed	y	
	REVW	GFPC, Pb210, Solid				Temperature (C)	20	

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
Are these vegetation sample?	Y	FOR VEGETATION: After logging in, change from DRY to WET in sample inquiry.
Login Reminder?	Y	FOR VEGETATION: After logging in, change from DRY to WET in sample inquiry.

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

Laboratory Certifications

List of current GEL Certifications as of 18 July 2013

State	Certification
Alaska	UST-110
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	LA130005
Maryland	270
Massachusetts	M-SC012
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	T104704235-13-8
Utah NELAP	SC000122013-8
Vermont	VT87156
Virginia NELAP	460202
Washington	C780-12
Wisconsin	999887790

Radiochemistry Case Narrative
Energy Fuels Resources (DNMI)
SDG 328139

Method/Analysis Information

Product:	**GFPC, Total Alpha Radium, solid**
Analytical Method:	EPA 900.1 Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1310694
Prep Batch Number:	1310207

Sample ID	Client ID
328139001	North West
328139002	North East
328139003	South West
1202899156	Method Blank (MB)
1202899157	328139002(North East) Sample Duplicate (DUP)
1202899158	328139002(North East) Matrix Spike (MS)
1202899159	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# 15.

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: 328139002 (North East).

QC Information
All of the QC samples meet the required acceptance limits with the following exceptions: The blank, 1202899156 (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 blank 1202899156 (MB) result is greater than the required detection limit but less than the MDC.

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
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Pb210, Solid**
Analytical Method:	DOE RP280 Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1310699
Prep Batch Number:	1310207

Sample ID	Client ID
328139001	North West
328139002	North East
328139003	South West
1202899166	Method Blank (MB)
1202899167	328139002(North East) Sample Duplicate (DUP)

1202899168	328139002(North East) Matrix Spike (MS)
1202899169	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: 328139002 (North East).

QC Information
All of the QC samples meet the required acceptance limits with the following exceptions: The blank, 1202899166 (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.

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 a suspected blank false positive. 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
Additional comments were not required for this sample set.

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: 328139 GEL Work Order: 328139

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 AUG 2013 **Title: Analyst II**

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: August 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:	328139001	Client ID:	DNMI001
Matrix:	Vegetation		
Collect Date:	20-JUN-13 09:30		
Receive Date:	24-JUN-13		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Pb210, Solid "As Received"												
Lead-210		0.000106	+/-2.30E-06	3.28E-06	1.00E-06	uCi/kg		BXF1	08/01/13	1651	1310699	1
GFPC, Total Alpha Radium, solid "As Received"												
Total Radium		2.58E-05	+/-9.59E-07	8.06E-07	5.00E-08	uCi/kg		BXF1	07/26/13	1639	1310694	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	06/24/13	1359	1310207

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"			111	(25%-125%)
Barium Carrier	GFPC, Total Alpha Radium, solid "As Received"			78.6	(25%-125%)

Notes:
Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: August 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:	328139002	Client ID:	DNMI001
Matrix:	Vegetation		
Collect Date:	20-JUN-13 09:00		
Receive Date:	24-JUN-13		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Pb210, Solid "As Received"												
Lead-210		0.000142	+/-3.68E-06	6.17E-06	1.00E-06	uCi/kg		BXF1	08/01/13	1651	1310699	1
GFPC, Total Alpha Radium, solid "As Received"												
Total Radium		8.91E-05	+/-2.16E-06	1.42E-06	5.00E-08	uCi/kg		BXF1	07/26/13	1639	1310694	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	06/24/13	1359	1310207

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"			102	(25%-125%)
Barium Carrier	GFPC, Total Alpha Radium, solid "As Received"			86.0	(25%-125%)

Notes:
Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: August 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	Project:	DNMI00101
Sample ID:	328139003	Client ID:	DNMI001
Matrix:	Vegetation		
Collect Date:	20-JUN-13 08:30		
Receive Date:	24-JUN-13		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Pb210, Solid "As Received"												
Lead-210		6.71E-05	+/-2.93E-06	6.24E-06	1.00E-06	uCi/kg		BXF1	08/01/13	1651	1310699	1
GFPC, Total Alpha Radium, solid "As Received"												
Total Radium		1.51E-05	+/-1.06E-06	1.96E-06	5.00E-08	uCi/kg		BXF1	07/26/13	1639	1310694	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	06/24/13	1359	1310207

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"			92.5	(25%-125%)
Barium Carrier	GFPC, Total Alpha Radium, solid "As Received"			73.1	(25%-125%)

Notes:
Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

GEL LABORATORIES LLC

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

QC Summary

Report Date: August 2, 2013

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

Contact: **Ms. Kathy Weinel**

Workorder: **328139**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1310694										
QC1202899157 328139002 DUP										
Total Radium		8.91E-05		9.03E-05	uCi/kg	1.29		(0%-20%)	BXF1	07/26/13 16:40
	Uncertainty	+/-2.16E-06		+/-2.16E-06						
QC1202899159 LCS										
Total Radium	0.0013			0.0016	uCi/kg		123	(75%-125%)		07/26/13 16:40
	Uncertainty			+/-2.24E-05						
QC1202899156 MB										
Total Radium			U	4.89E-07	uCi/kg					07/26/13 16:40
	Uncertainty			+/-3.18E-07						
QC1202899158 328139002 MS										
Total Radium	0.00212	8.91E-05		0.00223	uCi/kg		101	(75%-125%)		07/26/13 16:40
	Uncertainty	+/-2.16E-06		+/-3.17E-05						
Batch 1310699										
QC1202899167 328139002 DUP										
Lead-210		0.000142		0.00012	uCi/kg	17.3		(0%-20%)	BXF1	08/01/13 16:51
	Uncertainty	+/-3.68E-06		+/-4.05E-06						
QC1202899169 LCS										
Lead-210	0.0526			0.0518	uCi/kg		98.5	(75%-125%)		08/01/13 16:51
	Uncertainty			+/-0.00014						
QC1202899166 MB										
Lead-210			U	-7.08E-07	uCi/kg					08/01/13 16:51
	Uncertainty			+/-1.05E-06						
QC1202899168 328139002 MS										
Lead-210	0.0854	0.000142		0.0832	uCi/kg		97.2	(75%-125%)		08/01/13 16:51
	Uncertainty	+/-3.68E-06		+/-0.000223						

Notes:

Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

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: **328139**

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

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 than 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

FIRST QUARTER
RADIONUCLIDE EMISSIONS TEST
CONDUCTED FOR
ENERGY FUELS RESOURCES, BLANDING, UTAH

SOUTH YELLOW CAKE SCRUBBER
YELLOW CAKE DRYER BAGHOUSE

April 3-4, 2013

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:

May 1, 2013

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: 5-1-13

Mike McNamara

Reviewer: _____

Date: 5/2/13

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INTRODUCTION

Test Purpose

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

These tests were for U-Nat 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 (SYC) 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.

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

Test Dates

The first test run on the SYC Scrubber was completed April 3, 2013. The second runs was completed April 4, 2013.

One test run was completed on the Yellow Cake Dryer Baghouse April 4, 2013.

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	Doug Olsen Jeff Graton	Mike McNamara

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	
	pCi/dscf	pCi/hr	pCi/dscf	pCi/hr
1	83.2	9.384E+06	1112.3	2.26E+08
2	80.8	9.225E+06		
AVE	**82.0**	**9.30E+06**	**1112.3**	**2.26E+08**

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 by Energy 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.

Discussion of Errors or Irregularities

The South Yellow Cake Scrubber (SYC) samples were mistakenly identified on the Chain of Custody as "NYC". Because of this mistake, the laboratory results are also marked as NYC. All

sampling during this test project occurred on the SYC and the Dryer Baghouse, and there was not any sampling on the NYC.

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
1	101	101
2	99	

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.

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	
	SYC Scrubber	Dryer Baghouse
1	0.85	0.70
2	3.19	2.34
3	9.56	4.74
4	11.90	11.26
5		13.66
6		15.30

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

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, South Yellow Cake Scrubber
Table V Complete Results, Yellow Cake Dryer Baghouse

Nomenclature
Sample Equations

TABLE IV
COMPLETE RESULTS
Energy Fuels CORPORATION, BLANDING, UTAH
SOUTH YELLOWCAKE SCRUBBER EXHAUST

Symbol	Description	Dimensions	Run #1	Run #2	
Date			4/3/13	4/4/13	
Filter #			X098	X099	
Begin	Time Test Began		7:47	7:34	
End	Time Test Ended		15:51	15:37	
Pb_m	Meter Barometric Pressure	In. Hg. Abs	24.50	24.55	
ΔH	Orifice Pressure Drop	In. H_2O	1.153	1.133	
Y	Meter Calibration Y Factor	dimensionless	1.001	1.001	
Vm	Volume Gas Sampled--Meter Conditions	cf	353.940	348.645	
T_m	Avg Meter Temperature	°F	88.2	86.4	
$\sqrt{\Delta P}$	Sq Root Velocity Head	Root In. H_2O	0.7627	0.7748	
Wt_{wc}	Weight Water Collected	Grams	371.5	387.9	
T_t	Duration of Test	Minutes	480	480	
C_p	Pitot Tube Coefficient	Dimensionless	0.84	0.84	
D_n	Nozzle Diameter	Inches	0.2240	0.2240	
CO_2	Volume % Carbon Dioxide	Percent	1.80	2.00	
O_2	Volume % Oxygen	Percent	17.20	17.20	
N_2 & CO	Volume % Nitrogen and Carbon Monoxide	Percent	81.00	80.80	
Vm_{std}	Volume Gas Sampled (Standard)	dscf	280.391	277.653	
Vw	Volume Water Vapor	scf	17.516	18.289	
$Bw_{s\ (measured)}$	Fraction H_2O in Stack Gas (Measured)	Fraction	0.059	0.062	
$Bw_{s\ (saturated)}$	Fraction H_2O in Stack Gas (Saturated)	Fraction	0.110	0.119	
Bw_s	Fraction H_2O in Stack Gas *	Fraction	0.059	0.062	
X_d	Fraction of Dry Gas	Fraction	0.941	0.938	
M_d	Molecular Wt. Dry Gas	lb/lbmol	28.98	29.01	
M_s	Molecular Wt. Stack Gas	lb/lbmol	28.33	28.33	
%I	Percent Isokinetic	Percent	100.8	98.7	**AVG**
T_s	Avg Stack Temperature	°F	111.2	113.8	**112.5**
A_s	Stack Cross Sectional Area	Sq. Ft.	0.887	0.887	
P_G	Stack Static Pressure	In. H_2O	-0.750	-0.750	
Pb_p	Sample Port Barometric Pressure	In. Hg. Abs	24.43	24.48	
P_s	Stack Pressure	In. Hg. Abs	24.375	24.425	
Q_s	Stack Gas Volumetric Flow Rate (Std)	dscfm	1.88E+03	1.90E+03	**1.89E+03**
Q_a	Stack Gas Volumetric Flow Rate (Actual)	cfm	2.65E+03	2.70E+03	**2.67E+03**
V_s	Velocity of Stack Gas	fpm	2.99E+03	3.04E+03	**3.01E+03**
Curies	Radionuclides per sample	pCi	23321.0	22448.0	
Crad	Concentration of Radionuclides	pCi/dscf	83.173	80.849	**82.011**
ERrad	Emission Rate of Radionuclides	pCi/hr	9.377E+06	9.219E+06	**9.298E+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).

TABLE V
COMPLETE RESULTS, PM
DENISON MINES CORPORATION
YELLOW CAKE DRYER BAGHOUSE

Symbol	Description	Dimensions	Run #1
Date	Date		4/4/13
Filter #			X100
Begin	Time Test Began		9:50
End	Time Test Ended		11:54
Pb_m	Meter Barometric Pressure	In. Hg. Abs	24.55
ΔH	Orifice Pressure Drop	In. H_2O	1.594
Y	Meter Calibration Y Factor	dimensionless	1.004
Vm	Volume Gas Sampled--Meter Conditions	cf	96.458
T_m	Avg Meter Temperature	°F	76.8
$\sqrt{\Delta P}$	Sq Root Velocity Head	Root In. H_2O	0.8216
Wt_{wc}	Weight Water Collected	Grams	10.4
T_t	Duration of Test	Minutes	120
C_p	Pitot Tube Coefficient	Dimensionless	0.84
D_n	Nozzle Diameter	Inches	0.2215
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	78.533
Vw	Volume Water Vapor	scf	0.490
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	100.8
T_s	Avg Stack Temperature	°F	96.3
A_s	Stack Cross Sectional Area	Sq. Ft.	1.396
P_G	Stack Static Pressure	In. H_2O	-0.41
Pb_p	Sample Port Barometric Pressure	In. Hg. Abs	24.48
P_s	Stack Pressure	In. Hg. Abs	24.450
Q_s	Stack Gas Volumetric Flow Rate (Std)	dscfm	3.39E+03
Q_a	Stack Gas Volumetric Flow Rate (Actual)	cfm	4.39E+03
V_s	Velocity of Stack Gas	fpm	3.15E+03
Curies	Radionuclides per sample	pCi	87350.0
Crad	Concentration of Radionuclides	pCi/dscf	1112.2698
ERrad	Emission Rate of Radionuclides	pCi/hr	2.261E+08

General Nomenclature

%I = percent isokinetic, percent

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

ASΔP = 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_{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 $AS\Delta P$)
$\sqrt{\Delta P_1}$ = 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 (^oF)
T_s = stack temperature (^oF)
T_{std} = absolute temperature at standard conditions (528^oR)
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^oF and 29.92 inches Hg.
V_s = velocity of stack gas (fpm)
V_w = volume water vapor (scf) at 68^oF 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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(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

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

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

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

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

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

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

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

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

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

$$\theta_n = \theta_1 \bullet \sqrt{\Delta P_n} / \sqrt{\Delta P_1}$$

$$Q_a = V_s \bullet A_s$$

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

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

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

$$Q_W = Q_s / X_d$$

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

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

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

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

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

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

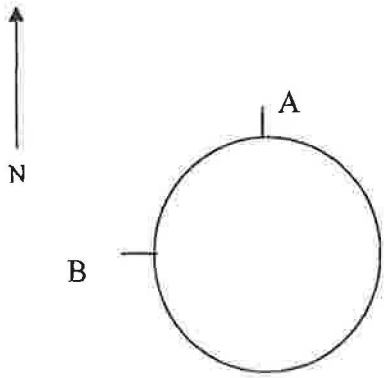
APPENDIX B

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

South Yellow Cake Dryer Scrubber

Preliminary S Y Cake Scrb



Stack Dia. 12.75" Reference: 0"

Ports are 7' Upstream from next disturbance

Ports are 30' Downstream from last disturbance

Facility Energy Fuels

Stack Identification South Yellow Cake Dryer Scrubber

Date 4-7-19

Barometric Pressure

Pb_m _____ in Hg Pb_p _____ in Hg

Static Pressure (P_G) _____ in H_2O

Estimated Moisture (Bw_s) 4-6 %

Sample Height from Ground 70 feet

Comments:

Traverse Point	Percent Diameter	Distance From: ID	Distance From: Reference	Ports A	Ports B	Ports C	Ports D	Ports E	Ports F
1	6.7	0.85	0.85	105 .55	101 .50				
2	25.0	3.19	3.19	106 .57	103 .59				
3	75.0	9.56	9.56	107 .63	105 .68				
4	93.3	11.90	11.90	106 .68	105 .65				

Averages:

T_s _____ ∠ Flow _____

ΔP _____ √ΔP _____

KEY => T_s ∠ Flow ΔP

_____ Field Data Sheet

Filter X098 TETCO Sample Box D

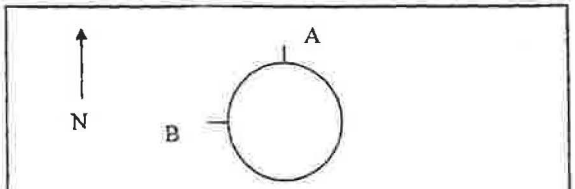
Page 1 of 1 Run # 1

Plant: Energy Fuels

Date: 4/3/13

Location: South Yellow Cake Dryer Scrubber

Operator: [illegible]



Stack Diameter 12.75" Port Reference 0"

Ports are 7' Upstream from next disturbance

Ports are 30' Downstream from last disturbance

Assumed Moisture 4-6 %

Probe 276 Cp 0.84

Nozzle Calibration .224 .224 .224 .224

Avg D_n .224 inches

Gas Bag H-03

Console 5

Y-Factor 1.001

$\Delta H_@$ 1.48 in H_2O

Barometric Pressures

Pb_m 24.50 in Hg

Pb_p 24.43 in Hg

P_g (.75) in H_2O

Traverse Point	Time Clock	Time Min (θ)	DGM (ft^3)	ΔP (in H_2O)	ΔH (in H_2O) Desired	ΔH (in H_2O) Actual	Vacuum (in Hg)	Temperatures (°F) Stack (T_s)	Probe	Probe out	Oven	Effluent	DGM Temp (T_m) Out	In
1	7:47	0	152.500	.49	.93	.93	3	105	253	238	239	42	51	57
1		20	165.421	.51	.96	.96	3	106	266	255	254	42	57	64
1		40	178.734	.57	1.11	1.11	3	106	236	260	255	48	64	72
2		60	193.216	.60	1.17	1.17	3	106	251	260	258	53	71	79
2		80	208.112	.60	1.17	1.17	3	108	269	260	238	58	78	87
2		100	223.039	.62	1.20	1.20	3	108	249	248	250	61	84	93
3		120	238.088	.60	1.19	1.19	3	108	258	243	240	55	85	94
3		140	253.040	.58	1.15	1.15	3	110	261	248	234	54	87	96
3		160	267.801	.55	1.09	1.09	3	110	251	250	246	55	89	97
4		180	282.169	.53	1.06	1.06	3	110	270	254	240	55	91	99
4		200	296.420	.50	1.00	1.00	3	111	257	254	240	58	90	97
4		220	310.470	.47	.94	.94	3	109	251	252	240	59	93	100
1	11:51	240	324.467	.74	1.48	1.48	4	113	256	247	234	59	92	97
1		260	341.000	.67	1.34	1.34	4	112	230	244	240	51	93	102
1		280	357.012	.56	1.12	1.12	4	113	257	239	248	53	93	102
2		300	371.066	.68	1.36	1.36	4	113	266	238	240	54	91	99
2		320	386.124	.70	1.40	1.40	4	115	260	245	231	55	90	98
2		340	402.710	.59	1.18	1.18	4	113	249	245	235	56	87	96
3		360	417.757	.65	1.29	1.29	5	115	236	238	230	59	87	96
3		380	431.811	.50	.99	.99	5	115	262	239	231	57	88	98
3		400	446.028	.66	1.31	1.31	5	115	250	238	230	57	89	97
4		420	463.470	.55	1.08	1.08	5	116	265	244	235	58	90	99
4		440	478.115	.57	1.12	1.12	5	115	266	250	240	61	91	99
4		460	492.493	.52	1.02	1.02	5	116	258	256	241	63	91	99
	12:15	480	506.440											
	12:51													
Total			353.940	18.3041	27.66	27.66		2668					4234	
Average				.7627		1.153		111.2					88.2	

Water Collected 371.5 g

Time Sampled 480 min

Review [illegible]

K = @T_m

K = @T_m

Leak Check:

	Pre	Post
ft^3/min	0.006	0.003
vac in Hg	21	12
Pitot Rate	0.0	0.0
In H_2O	9.5	9.5

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)

5.1.4
4/4/13

Field Data Sheet

Filter X097 TETCO Sample Box E

Page 1 of 1 Run # 2

Plant: Energy Fuels

Date: 4/4/13

Location: South Yellow Cake Dryer Scrubber

Operator:

N

A

B

Stack Diameter 12.75" Port Reference 0"

Ports are 7' Upstream from next disturbance

Ports are 30' Downstream from last disturbance

Assumed Moisture 4-6 %

Probe 276 Cp 0.84

Nozzle Calibration .224 .224 .224 .224

Avg D_n .224 inches

Gas Bag G-03

Console 5

Y-Factor 1.001

$\Delta H_@$ 1.48 in H_2O

Barometric Pressures

Pb_m 24.55 in Hg

Pb_o 24.48 in Hg

P_G (0.75) in H_2O

Traverse Point	Time Clock	Time Min (θ)	DGM (ft³)	ΔP (in H_2O)	ΔH (in H_2O) Desired	ΔH (in H_2O) Actual	Vacuum (in Hg)	Temperatures (°F) Stack (T_s)	Probe	Probe out	Oven	Effluent	DGM Temp (T_m) Out	In
1	7:34	0	508.300	.55	1.000	1.00	3	110	260	240	237	50	57	57
1		20	521.622	.60	1.09	1.09	3	111	261	248	229	49	62	68
1		40	535.562	.62	1.13	1.13	3	111	235	252	229	53	67	76
2		60	549.815	.65	1.19	1.19	3	111	260	258	230	56	72	83
2		80	564.709	.65	1.19	1.19	3	112	263	266	238	59	77	88
2		100	579.598	.61	1.11	1.11	3	113	264	266	240	62	80	92
3		120	594.472	.55	1.04	1.04	3	114	269	268	244	64	85	96
3		140	608.502	.63	1.19	1.19	3	112	270	268	240	55	84	94
3		160	623.139	.49	.93	.93	3	112	271	267	241	54	87	97
4		180	636.540	.54	1.02	1.02	3	112	260	264	240	55	89	98
4		200	650.813	.60	1.14	1.14	3	113	258	265	235	56	91	100
4		220	665.623	.57	1.08	1.08	4	112	246	263	235	57	88	99
1	11:37	240	680.433	.61	1.16	1.16	4	115	251	258	238	58	89	94
1		260	694.654	.61	1.16	1.16	4	115	240	255	232	60	86	96
1		280	709.004	.68	1.29	1.29	5	116	237	252	234	57	85	96
2		300	724.738	.66	1.26	1.26	5	116	248	258	238	59	85	97
2		320	740.158	.63	1.20	1.20	5	115	248	256	237	59	85	95
2		340	755.179	.65	1.24	1.24	5	116	230	248	231	55	85	94
3		360	770.452	.52	.99	.99	5	116	232	246	232	54	84	94
3		380	784.235	.52	.99	.99	5	117	230	254	233	56	85	93
3		400	798.159	.67	1.28	1.28	5	117	266	265	243	57	85	93
4		420	813.652	.50	.96	.96	5	116	267	265	243	57	86	96
4		440	827.223	.67	1.28	1.28	5	116	246	252	241	57	86	94
4		460	840.859	.66	1.26	1.26	5	116	261	259	244	59	86	94
		480	856.945											
Total			348.645	18.5947	27.18			2732					4147	
Average				.7748	1.133			113.8					86.4	

Leak Check:

	Pre	Post
ft³/min	0.008	0.009
vac in Hg	27	12
Pitot Rate	0.0	0.0
In H_2O	9.5	9.5

Water Collected 387.9 g

Time Sampled 480 min

Review

K = @T_m

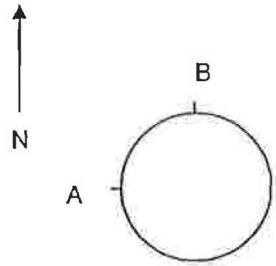
K = @T_m

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

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 4/4/13

Barometric Pressure

Pb_m 24.55 in Hg Pb_p 24.48 in Hg

Static Pressure (P_G) -.41 in H_2O

Estimated Moisture (Bw_s) 1 %

Sample Height from Ground _____ feet

Comments:

Traverse Point	Percent Diameter	Distance From: ID	Distance From: Reference	Ports A	B	C	D	E	F
1	4.4	0.70	0.70	87 ~~41~~					
2	14.6	2.34	2.34						
3	29.6	4.74	4.74						
4	70.4	11.26	11.26	91 ~~42~~					
5	85.4	13.66	13.66						
6	95.6	15.30	15.30	92 ~~42~~					

Averages:

T_S _____ ∠ Flow _____

ΔP _____ √ΔP _____

KEY => T_S ∠ Flow ΔP

5/114 Field Data Sheet

TETCO

Filter X100 Sample Box E

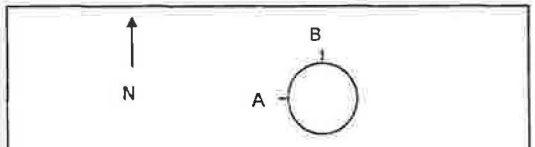
Page 1 of 1 Run # 1

Plant: Energy Fuels Resources, Blanding, UT

Date: 4/4/13

Location: North Yellowcake Dryer Baghouse

Operator: ~~DX100~~ M. McEndalcar



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 (Ts)	Probe	Probe Out	Filter	Effluent	DGM Temp (Tm) Out	In
1	9:10	0	441.252	.34	.78	.78	2	95	237	263	263	52	64	61
2		10	447.090	.15	134	.134	2	96	266	263	263	46	68	63
3		20	451.365	.67	1.53	1.53	4	96	230	261	261	44	75	63
4		30	459.470	.82	1.88	1.88	4	96	270	251	251	45	80	65
5		40	468.120	.83	1.89	1.89	4	96	261	257	257	47	83	68
6		50	476.800	.80	1.82	1.82	4	96	233	259	259	49	87	71
1	10:54	60	485.436	.75	1.71	1.71	4	96	253	258	258	50	85	74
2		70	494.060	.81	1.84	1.84	4	96	266	260	260	54	88	75
3		80	502.730	.80	1.82	1.82	4	96	230	253	253	55	90	77
4		90	511.495	.88	2.00	2.00	4	97	245	259	259	57	90	78
5		100	520.595	.78	1.77	1.77	4	98	250	264	264	58	91	78
6		110	529.130	.77	1.75	1.75	4	98	253	259	259	59	91	78
	11:54	120	537.710											
Total			96.458	9.8541	19.13			1156					1843	
Average				.8216	1.594			96.3					76.8	

Assumed Moisture 1 %

Probe 186 Cp 0.84

Nozzle Calibration

.221 .221 .222 .222

Avg D_n .2215 inches

Gas Bag Ambient Air

Console #9

Y-Factor 1.004

$\Delta H_@$ 1.679 in H_2O

Barometric Pressures

Pb_{in} 24.55 in Hg

Pb_p 24.48 in Hg

P_G -.41 in H_2O

Leak Check.	Pre	Post
ft³/min	0.002	0.002
vac in Hg	22.0	12.0
Pitot Rate	0.0	0.0
In H_2O	8.0	7.0

Water Collected 10.4 g

Time Sampled 120 min

Review [illegible]

K = @T_m

K = @T_m

Comments:

Time	Baghouse ΔP
10:05	6.2
10:25	7.1
10:45	8.2

Time	Baghouse ΔP
12:05	8.7
12:25	9.0
12:45	9.2

7 barrels processed

APPENDIX C

South Yellow Cake Scrubber
- Sample Recovery
- Gas Analysis Data (ORSAT)

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

Chain of Custody

Lab Analysis

South Yellow Cake Dryer Scrubber

METHOD 5

Facility: Denison Mine

Date:

Stack Identification: NYC Scrubber

IMPINGERS

Run: 1

Sample Box: D

X098

	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)	572.6	686.5	689.7	732.3	575.9	902.8
Initial (g)	497.9	558.0	620.8	703.1	561.1	847.4
Net (g)	74.7	128.5	68.9	29.2	14.8	55.4

Total (g) 371.5

IMPINGERS

Run: 2

Sample Box: D

X099

	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)	625.2	697.3	685.5	721.6	572.2	940.3
Initial (g)	501.7	561.9	635.5	709.3	565.8	880.0
Net (g)	123.5	135.4	50.0	12.3	6.4	60.3

Total (g) 387.9

JG

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 Location SYC

Analytical Method

Date 3/4
Test No. 1
Gas Bag No. H-03
Ambient Temp 60
Operator R

Gas	RUN 1 Actual Reading	RUN 1 Net	RUN 2 Actual Reading	RUN 2 Net	RUN 3 Actual Reading	RUN 3 Net	Average Net Volume
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).	19.0	17.2	19.0	17.2	19.0	17.2	17.2
N_2 (Net is 100 Minus Actual O_2 Reading).							

Date 3/5
Test No. 2
Gas Bag No. 6-03
Ambient Temp 60
Operator R

Gas	RUN 1 Actual Reading	RUN 1 Net	RUN 2 Actual Reading	RUN 2 Net	RUN 3 Actual Reading	RUN 3 Net	Average Net Volume
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).	19.2	17.2	19.2	17.2	19.2	17.2	17.2
N_2 (Net is 100 Minus Actual O_2 Reading).							

Date
Test No.
Gas Bag No.
Ambient Temp
Operator

Gas	RUN 1 Actual Reading	RUN 1 Net	RUN 2 Actual Reading	RUN 2 Net	RUN 3 Actual Reading	RUN 3 Net	Average Net Volume
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

NYC Baghouse M5

Facility: Energy Fuels

Date: 4/4/13

Stack Identification: NYC Baghouse

IMPINGERS

Run: 1

Sample Box: FE

X0100

Impinger Number	1	2	3	4	5	6
Initial Volume of liquid (H_2O) in impingers, (ml)	100	100	—	Silica Gel		
Final (g)	664.9	640.2	531.5	845.7		
Initial (g)	692.3	683.3	526.2	875.1		
Net (g)	-22.9	6.9	5.3	20.6		

Total (g) 10.4

IMPINGERS

Run: _____

Sample Box: _____

Impinger Number	1	2	3	4	5	6
Initial Volume of liquid (H_2O) in impingers, (ml)	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)	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)	100	100	—	Silica Gel		
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: 4/5/2013	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): Energy Fuels 2013 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 (Attach list if more space is needed): U-Nat	TH-230	Ra-226	Lead-210	Special Instructions/ Conditions of Receipt
X100 R1 Baghouse filter and beaker	4/4/2013	9:00	X										X				
X098 R1 NYC filters and beaker	4/3/2013	7:30	X										X				
X099 R2 NYC filters and beaker	4/4/2013	7:30	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: [signature]	Date: 4/8/13	Time: 10	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 15 ***Pages***

Report No.: 55334

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.
46619		X098 R1 NYC filters and beaker	J3D100435-2	M0KM21AA	9M0KM210	3104033
		X099 R2 NYC filters and beaker	J3D100435-3	M0KM31AA	9M0KM310	3104033
		X100 R1 Baghouse filter and be	J3D100435-1	M0KM11AA	9M0KM110	3104033

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

April 30, 2013

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

Attention: Dean Kitchen

Date Received at Lab	:	April 10, 2012
Project Name	:	Energy Fuels 2013 1st Quarter
Sample Type	:	Three (3) Stack Filter Samples
SDG Number	:	46619

CASE NARRATIVE

I. Introduction

On April 10, 2013, 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 J3D100435.

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
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
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:

Sandra Legge
Erika Jordan
for 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

Date: 30-Apr-13

TestAmerica

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

Report No. : 55334 **SDG No:** 46619

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RER2
3104033 FFSR									
X098 R1 NYC filters and beaker									
	M0KM21AA	U-234	1.17E-02 +- 1.9E-03		UCI/SA	92%	5.82E-05	9.00E-15	
		U-235	4.21E-04 +- 1.2E-04		UCI/SA	92%	3.22E-05	9.00E-15	
		U-238	1.12E-02 +- 1.8E-03		UCI/SA	92%	5.87E-05	9.00E-15	
X099 R2 NYC filters and beaker									
	M0KM31AA	U-234	1.09E-02 +- 1.8E-03		UCI/SA	99%	4.45E-05	9.00E-15	
		U-235	4.48E-04 +- 1.2E-04		UCI/SA	99%	3.72E-05	9.00E-15	
		U-238	1.11E-02 +- 1.8E-03		UCI/SA	99%	5.16E-05	9.00E-15	
X100 R1 Baghouse filter and be									
	M0KM11AA	U-234	4.22E-02 +- 6.6E-03		UCI/SA	92%	4.42E-05	9.00E-15	
		U-235	2.05E-03 +- 3.9E-04		UCI/SA	92%	2.33E-05	9.00E-15	
		U-238	4.31E-02 +- 6.8E-03		UCI/SA	92%	3.28E-05	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 V5.2.23
A2002

QC Results Summary

Date: 30-Apr-13

TestAmerica

Ordered by Method, Batch No, QC Type,.

Report No. : 55334

SDG No.: 46619

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
FFSR								
3104033 BLANK QC,								
M0LDR1AA	U-234	2.37E-08 +- 2.8E-08	U	UCI/SA	93%			4.66E-08
	U-235	-4.89E-10 +- 1.2E-08	U	UCI/SA	93%			2.46E-08
	U-238	5.01E-08 +- 3.9E-08		UCI/SA	93%			4.19E-08
3104033 LCS,								
M0LDR1AC	U-234	9.06E-07 +- 3.3E-07		UCI/SA	93%	93%	-0.1	2.90E-08
	U-238	9.23E-07 +- 3.3E-07		UCI/SA	93%	91%	-0.1	3.11E-08

No. of Results: 5

TestAmerica

rptSTLRchQcSummary V5.2.23 A2002

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: 30-Apr-13

Lab Name:	TestAmerica	**SDG:**	46619	**Collection Date:**	4/3/2013 7:30:00 AM
Lot-Sample No.:	J3D100435-2	**Report No. :**	55334	**Received Date:**	4/10/2013 10:30:00 AM
Client Sample ID:	X098 R1 NYC filters and beaker	**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: 3104033	FFSR			**Work Order:**	M0KM21AA		**Report DB ID:**	9M0KM210				
U-234	***1.17E-02***		5.0E-04	1.9E-03	5.82E-05	UCI/SA	92%	*(201.5)*	4/25/13 10:22 p	1.0	0.00119	ALP3
						2.17E-05	9.00E-15	*(12.4)*		Sample	Sample	
U-235	***4.21E-04***		9.6E-05	1.2E-04	3.22E-05	UCI/SA	92%	*(13.1)*	4/25/13 10:22 p	1.0	0.00119	ALP3
						8.75E-06	9.00E-15	*(7.3)*		Sample	Sample	
U-238	***1.12E-02***		4.9E-04	1.8E-03	5.87E-05	UCI/SA	92%	*(190.)*	4/25/13 10:22 p	1.0	0.00119	ALP3
						2.20E-05	9.00E-15	*(12.4)*		Sample	Sample	

Ratio U-234/238 = 1.1

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

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.
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: 30-Apr-13

Lab Name:	TestAmerica	SDG:	46619	Collection Date:	4/4/2013 7:30:00 AM
Lot-Sample No.:	J3D100435-3	Report No. :	55334	Received Date:	4/10/2013 10:30:00 AM
Client Sample ID:	X099 R2 NYC filters and beaker	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: 3104033	FFSR			Work Order:	M0KM31AA		Report DB ID:	9M0KM310				
U-234	***1.09E-02***		4.8E-04	1.8E-03	4.45E-05	UCI/SA	99%	*(245.2)*	4/25/13 10:22 p	1.0	0.00118	ALP4
						1.51E-05	9.00E-15	*(12.5)*		Sample	Sample	
U-235	***4.48E-04***		9.8E-05	1.2E-04	3.72E-05	UCI/SA	99%	*(12.)*	4/25/13 10:22 p	1.0	0.00118	ALP4
						1.15E-05	9.00E-15	*(7.5)*		Sample	Sample	
U-238	***1.11E-02***		4.8E-04	1.8E-03	5.16E-05	UCI/SA	99%	*(214.8)*	4/25/13 10:22 p	1.0	0.00118	ALP4
						1.87E-05	9.00E-15	*(12.5)*		Sample	Sample	

Ratio U-234/238 = 1.0

No. of Results: 3 Comments:

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.
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: 30-Apr-13

Lab Name:	TestAmerica	**SDG:**	46619	**Collection Date:**	4/4/2013 9:00:00 AM
Lot-Sample No.:	J3D100435-1	**Report No. :**	55334	**Received Date:**	4/10/2013 10:30:00 AM
Client Sample ID:	X100 R1 Baghouse filter and be	**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: 3104033	FFSR			**Work Order:** M0KM11AA			**Report DB ID:** 9M0KM110					
U-234	***4.22E-02***		9.9E-04	6.6E-03	4.42E-05	UCI/SA	92%	*(955.)*	4/25/13 10:21 p	1.0	0.00109	ALP2
						1.43E-05	9.00E-15	*(12.8)*		Sample	Sample	
U-235	***2.05E-03***		2.2E-04	3.9E-04	2.33E-05	UCI/SA	92%	*(87.9)*	4/25/13 10:21 p	1.0	0.00109	ALP2
						3.81E-06	9.00E-15	*(10.6)*		Sample	Sample	
U-238	***4.31E-02***		1.0E-03	6.8E-03	3.28E-05	UCI/SA	92%	*(1316.2)*	4/25/13 10:21 p	1.0	0.00109	ALP2
						8.53E-06	9.00E-15	*(12.8)*		Sample	Sample	

Ratio U-234/238 = 1.0

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

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.
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: 30-Apr-13

Lab Name: TestAmerica

SDG: 46619

Matrix: FILTER

Report No. : 55334

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: 3104033	FFSR			Work Order:	M0LDR1AA	Report DB ID:	M0LDR1AB					
U-234	2.37E-08	U	2.8E-08	2.8E-08	4.66E-08	UCI/SA	93%	0.51	4/25/13 10:22 p	0.15	0.15	ALP5
					1.50E-08	9.00E-15		(1.7)		Sample	Sample	
U-235	-4.89E-10	U	1.2E-08	1.2E-08	2.46E-08	UCI/SA	93%	-0.02	4/25/13 10:22 p	0.15	0.15	ALP5
					4.02E-09	9.00E-15		-0.08		Sample	Sample	
U-238	5.01E-08		3.7E-08	3.9E-08	4.19E-08	UCI/SA	93%	(1.2)	4/25/13 10:22 p	0.15	0.15	ALP5
					1.27E-08	9.00E-15		(2.5)		Sample	Sample	
								Ratio U-234/238 = 0.5				

No. of Results: 3 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: 30-Apr-13

Lab Name: TestAmerica

Matrix: FILTER

SDG: 46619

Report No. : 55334

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: 3104033	FFSR			**Work Order:** M0LDR1AC			**Report DB ID:** M0LDR1CS						
U-234	9.06E-07		1.5E-07	3.3E-07	2.90E-08	UCI/SA	93%	9.73E-07	5.08E-09	93%	4/25/13 10:22 p	0.12	ALP6
							Rec Limits:	70	130	-0.1		Sample	
U-238	9.23E-07		1.5E-07	3.3E-07	3.11E-08	UCI/SA	93%	1.02E-06	5.32E-09	91%	4/25/13 10:22 p	0.12	ALP6
							Rec Limits:	70	130	-0.1		Sample	

No. of Results: 2 **Comments:**

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

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☐

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TAL-4124 (1007)

Client: Tetco	Project Manager: Dean Kitchen	Date: 4/5/2013	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): Energy Fuels 2013 1st Quarter	Carrier/Waybill Number		
Contract/Purchase Order/Quote No.			

Analysis (Attach list if more space is needed): U-Nat, TH-230, Ra-226, Lead-210

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	U-Nat	TH-230	Ra-226	Lead-210	Special Instructions/ Conditions of Receipt
X100 R1 Baghouse filter and beaker	4/4/2013	9:00	X										x				mokm1
X098 R1 NYC filters and beaker	4/3/2013	7:30	X										x				mokm2
X099 R2 NYC filters and beaker	4/4/2013	7:30	X										x				mokm3

J3D100435
SDG-466619
Due 5-8-13

J3D100435

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 4/8/13	Time 10	1. Received By Julie Bock	Date 4-10-13	Time 1030
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

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Sample Check-in List

Date/Time Received: 4-10-13 | 1030 Container GM Screen Result: (Airlock) .6 Initials [BJ]
Sample GM Screen Result (Sample Receiving) .12 Initials [BJ]

Client: DEN SDG #: 46619 NA [ ] SAF #: NA [BJ]

Lot Number: J3D100435

Chain of Custody #

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

Samples received inside shipping container/cooler/box Yes [BJ] 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 [BJ]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [BJ]
3. Cooler temperature: _____°C NA [BJ]
4. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [BJ]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [BJ] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 3
7. Containers received: 3x filter; 3 x beaker

8. Sample holding times exceeded? NA [ ] Yes [ ] No [BJ]
9. Samples have:
   _____tape
   _____custody seals
   [BJ] hazard labels
   [BJ] appropriate sample labels
10. Matrix:
    [BJ] A (FLT, Wipe, Solid, Soil)
    [BJ] S (Air, Niosh 7400)
    _____I (Water)
    _____T (Biological, Ni-63)
11. Samples:
    [BJ] are in good condition
    _____are broken
    _____are leaking
    _____have air bubbles (Only for samples requiring no head space)
    _____Other
12. Sample pH appropriate for analysis requested Yes [ ] No [ ] NA [BJ]
    (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 : N/A
13. Were any anomalies identified in sample receipt? Yes [ ] No [BJ]
14. Description of anomalies (include sample numbers): NA [BJ]

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

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

16. Additional Information: N/A

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

Sample Custodian: [signature] Date: 4-10-13

Client Informed on ________ by ________ Person contacted ________

[X] No action necessary; process as is

Project Manager [signature] Date 4-12-13

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

[signature] 4-10-13

LS-023, Rev. 15, 07/11

See over for additional information.

APPENDIX D

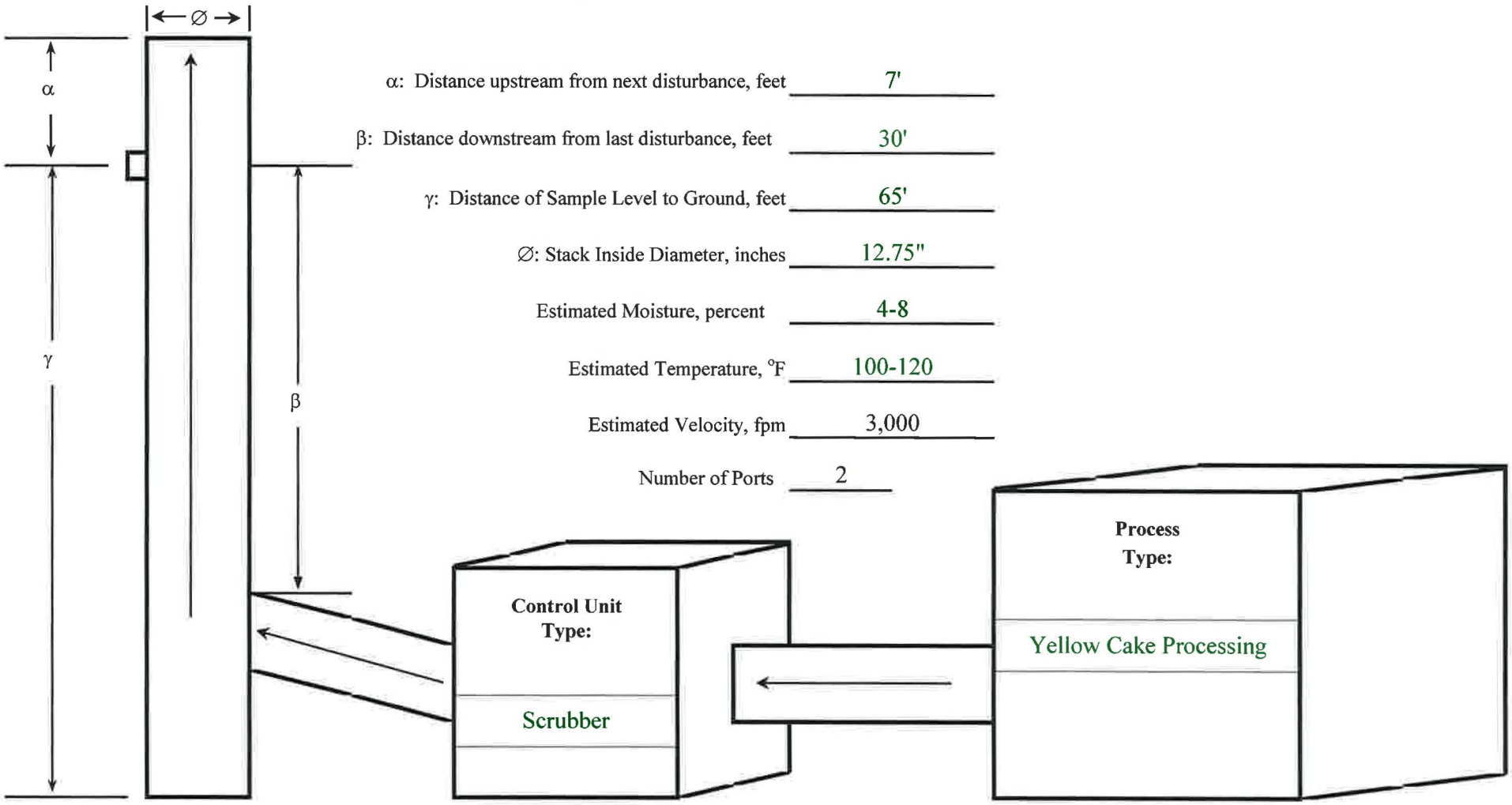
South Yellow Cake Scrubber
- Figure 1. Facility Schematic Representation

Yellow Cake Dryer Baghouse
- Figure 2. Facility Schematic Representation

Production and Control Equipment Data
- South Yellow Cake (Scrubber Flow Rates)
- Yellow Cake Dryer Baghouse (Delta P readings on Field Data Sheets)

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'

∅: Stack Inside Diameter, inches 12.75"

Estimated Moisture, percent 4-8

Estimated Temperature, °F 100-120

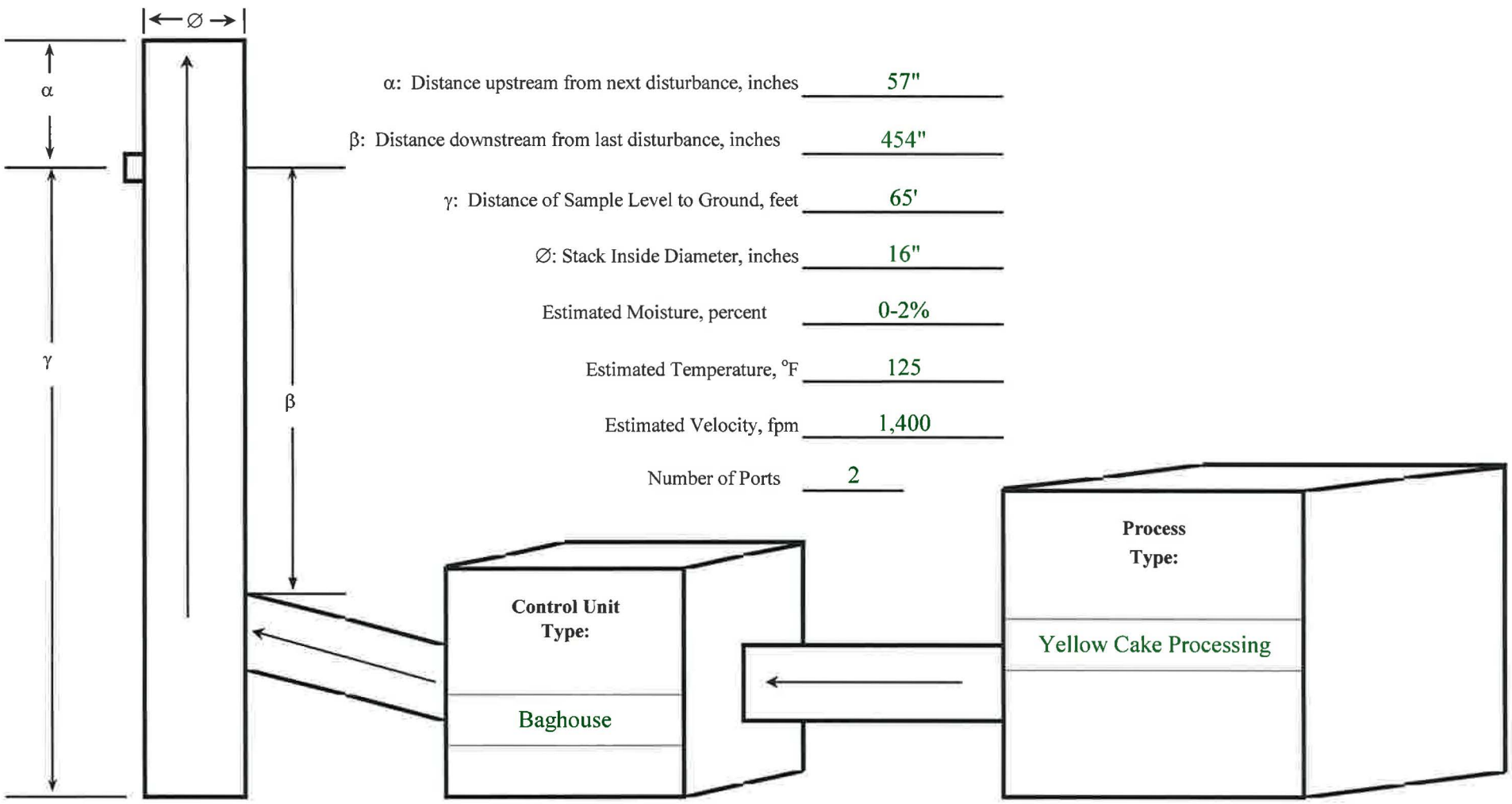
Estimated Velocity, fpm 3,000

Number of Ports 2

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'

∅: Stack Inside Diameter, inches 16"

Estimated Moisture, percent 0-2%

Estimated Temperature, °F 125

Estimated Velocity, fpm 1,400

Number of Ports 2

Figure 2. Facility Schematic Representation

Energy Fuels Resources, Blanding, UT Process Data

Source: South Yellow Cake		Date: 4/3/13	
	Scrubber Flow GPM		
Time	#1	#2	ΔP
7:30	30.9		10.7
8:00	30.9		10.7
8:30	31.0		10.7
9:00	31.9		10.7
9:30	31.9		10.7
10:00	32.0		10.7
10:30	32.0		10.7
11:00	[illegible]		[illegible]
11:30	32.1		10.7
12:00	32.0		10.7
12:30	32.3		10.7
13:00	32.2		10.7
13:30	32.5		10.7
14:00	33.0		10.7
14:30	33.3		~~10.7~~ ~~33.5~~
15:00	33.3		10.7
15:30	33.2		10.7
16:00	33.1		10.7

Energy Fuels Resources, Blanding, UT Process Data

Source: South Yellow Cake		Date: 4/4/13	
	Scrubber Flow GPM		
Time	#1	#2	ΔP
7:30	32.8		10.7
8:00	32.8		~~32~~ 10.7
8:30	32.0		10.7
9:00	31.4		~~31.4~~ 10.7
9:30	31.4		10.7
10:00	32.3		10.7
10:30	32.1		10.7
11:00	32.7		10.7
11:30	32.4		10.7
12:00	32.4		10.7
12:30	32.3		10.7
13:00	32.5		10.7
13:30	32.6		10.7
14:00	32.0		10.7
14:30	32.3		10.7
15:00	32.4		10.7
15:30	22.3		10.7

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
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

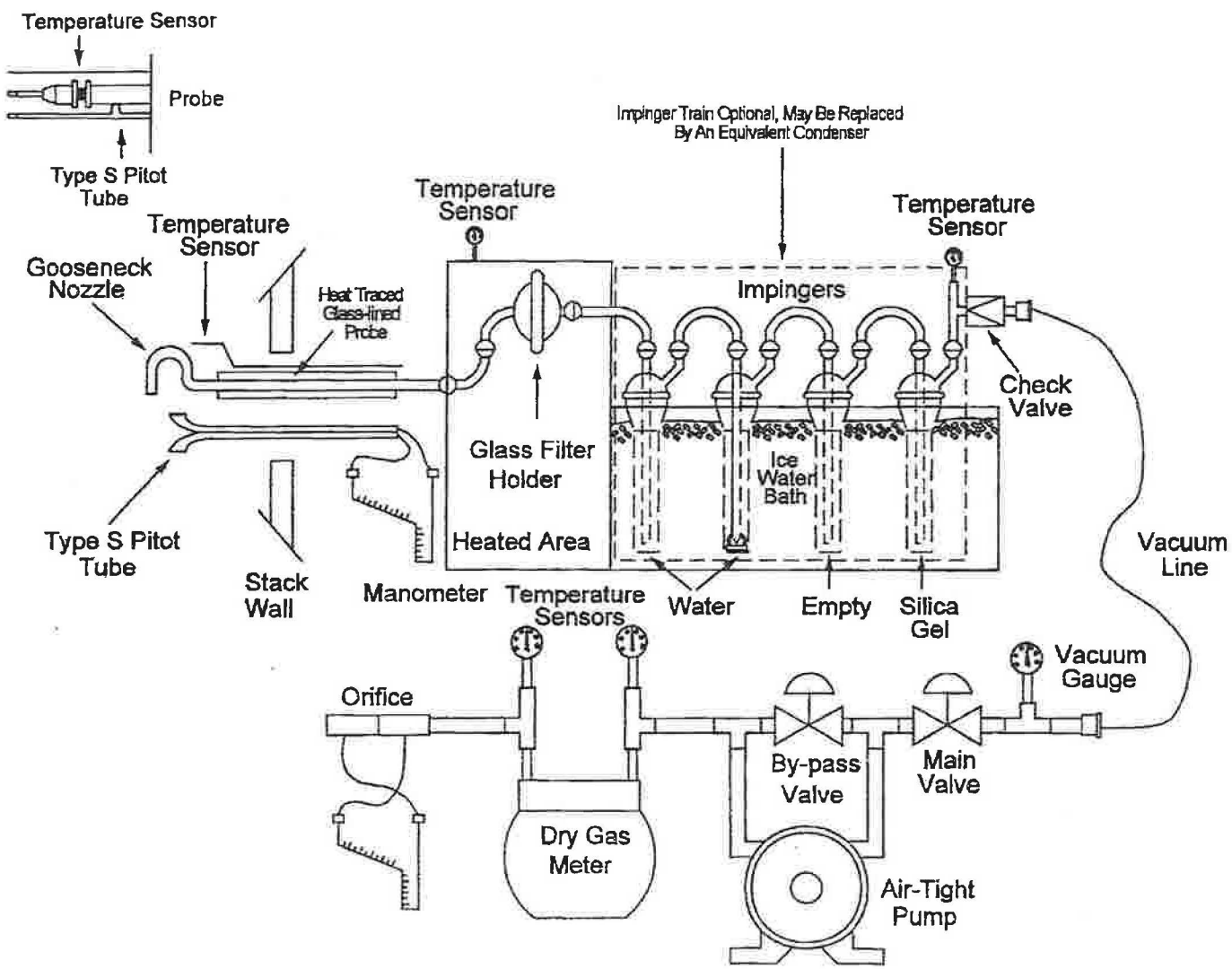


Figure 3 Schematic of Method 5/114 Sampling Train

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.

2013 Pre-Calibration

DATE: 12/7/2012
METER PART #: Console 6
METER SERIAL #: 66092
CRITICAL ORIFICE SET SERIAL #: 1453S
BAROMETRIC PRESSURE (in Hg): INITIAL 25.45 | FINAL 25.45 | AVG (P_{bar}) 25.45
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 (%)	$\Delta H_@$
30	1	0.8137	12	128.204	133.588	5.384	70	76	83	76	84	79.75	5.00	2.60	4.5144	4.4990	0.997		1.515
	2	0.8137	12	133.588	139.020	5.432	70	83	85	84	93	86.25	5.00	2.60	4.5004	4.4990	1.000		1.497
	3	0.8137	12	139.020	144.448	5.428	70	85	86	93	94	89.50	5.00	2.60	4.4705	4.4990	1.006		1.488
																AVG =	1.001	0.01	
19	1	0.5317	13	95.7570	100.951	5.194	70	69	70	69	71	69.75	7.50	1.11	4.4184	4.4097	0.998		1.536
	2	0.5317	13	100.951	106.479	5.528	70	70	70	71	72	70.75	8.00	1.11	4.6936	4.7036	1.002		1.534
	3	0.5317	13	106.479	111.698	5.219	70	70	73	72	75	72.50	7.50	1.11	4.4167	4.4097	0.998		1.529
																AVG =	1.000	-0.12	
12	1	0.3307	20	111.900	117.108	5.208	70	74	75	75	76	75.00	12.00	0.40	4.3778	4.3883	1.002		1.414
	2	0.3307	20	117.108	122.339	5.231	70	75	76	76	77	76.00	12.00	0.40	4.3889	4.3883	1.000		1.412
	3	0.3307	20	122.339	127.559	5.220	70	75	77	77	78	76.75	12.00	0.40	4.3736	4.3883	1.003		1.410
																AVG =	1.002	0.11	

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 $\Delta H_@$ = 1.481

(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
32	33	32
72	73	73
203	202	202

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.

ENVIRONMENTAL SUPPLY COMPANY

2013 Pre-Calibration Console 9

DATE: 12/17/2012 | METER SERIAL #: 1297-3246 | BAROMETRIC PRESSURE (In Hg): INITIAL 25.20, FINAL 25.20, AVG (P_{bar}) 25.20

METER PART #: Console 9 | CRITICAL ORIFICE SET SERIAL #: 1453S | EQUIPMENT ID #: Console 9

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	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	405.579	411.964	6.385	70	76	78	73	74	75.25	6.00	3.00	5.3523	5.3457	0.999		1.782
	2	0.8137	12	411.964	417.814	5.850	70	78	80	74	74	76.5	5.50	3.00	4.8924	4.9002	1.002		1.778
	3	0.8137	12	417.814	423.674	5.860	70	80	81	74	74	77.25	5.50	3.00	4.8939	4.9002	1.001		1.775
																AVG =	1.001	-0.36	
19	1	0.5317	12	388.103	393.271	5.168	70	72	72	42	72	64.50	7.50	1.20	4.3980	4.3663	0.993		1.695
	2	0.5317	12	393.271	398.532	5.261	70	72	75	72	72	72.75	7.50	1.20	4.4077	4.3663	0.991		1.659
	3	0.5317	12	398.532	403.684	5.152	70	75	77	72	72	74.00	7.50	1.20	4.3063	4.3663	1.014		1.665
																AVG =	0.999	-0.50	
12	1	0.3307	12	424.550	429.881	5.331	75	77	77	74	74	75.50	12.50	0.44	4.4336	4.5050	1.016		1.585
	2	0.3307	12	429.881	435.011	5.130	75	77	78	74	74	75.75	12.00	0.44	4.2644	4.3248	1.014		1.584
	3	0.3307	13	435.011	440.174	5.163	75	78	78	74	74	76.00	12.00	0.44	4.2899	4.3248	1.008		1.583
																AVG =	1.013	0.86	

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 $\Delta H_@$ = **1.679**

(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
32	33	33
72	73	73
201	202	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.

Quality - Service - Reliability

Energy Fuels

DATE:	4/8/2013	METER SERIAL #:	68092	BAROMETRIC PRESSURE (In Hg):	INITIAL 24.85	FINAL 24.85	AVG (P_{bar}) 24.85	IF Y VARIATION EXCEEDS 2.00%,
METER PART #:	Console 5	CRITICAL ORIFICE SET SERIAL #:	1453S	EQUIPMENT ID #:	Console #5			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 (%)	$\Delta H_@$
	1					.0						0.00							
	2					.0						0.00							
	3					.0						0.00							
																AVG =			
19	1	0.5317	12	861.050	866.129	5.079	63	56	60	60	62	59.50	7.50	1.10	4.3022	4.3344	1.007		1.569
	2	0.5317	12	866.129	871.60	5.471	63	60	62	62	66	62.50	8.00	1.10	4.6076	4.6234	1.003		1.560
	3	0.5317	12	871.60	877.442	5.842	63	62	66	64	65	64.25	8.50	1.10	4.9036	4.9124	1.002		1.555
																AVG =	1.004	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 = 1.004

AVERAGE $\Delta H_@$ = 1.561

(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
32	33	32
72	73	73
203	202	202

post 2013

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.

ENVIRONMENTAL SUPPLY COMPANY

Energy Fuels

DATE: 4/8/2013

METER PART #: Console 9

METER SERIAL #: 1297-3245

CRITICAL ORIFICE SET SERIAL #: 1453S

BAROMETRIC PRESSURE (in Hg): INITIAL 24.85 | FINAL 24.85 | AVG (P_{bar}) 24.85

EQUIPMENT ID #: Console 9

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	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 (%)	$\Delta H_@$
						.0						0							
						.0						0							
						.0						0							
																AVG =			
25	1	0.6808	12	545.903	551.219	5.316	62	65	66	60	65	64.00	6.00	2.00	4.4761	4.4442	0.993		1.727
	2	0.6808	12	551.219	556.965	5.746	62	66	68	65	66	66.25	6.50	2.00	4.8174	4.8145	0.999		1.719
	3	0.6808	12	556.965	562.719	5.754	62	68	72	66	67	68.25	6.50	2.00	4.8059	4.8145	1.002		1.713
																AVG =	0.998	0.00	
						.0						0.00							
						.0						0.00							
						.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 = 0.998

AVERAGE $\Delta H_@$ = 1.719

(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

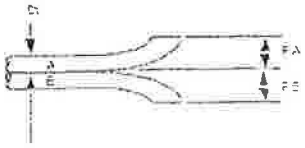
Reference °F	In °F	Out °F
32	33	33
72	73	73
201	202	203

Type S Pitot Tube Inspection Data

Date 12-12-12

Pitot Tube Identification 9-18

Technician K. McNamara



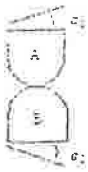
D_t = .375 in

Is $P_A = P_B$? YES

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

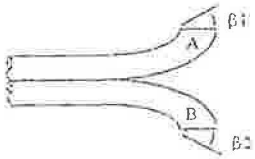
P_A = .496 in

P_B = .496 in



$\alpha_1 < 10°$ α_1 = 1 °

$\alpha_2 < 10°$ α_2 = 1 °

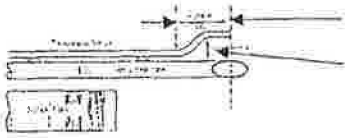


$\beta_1 < 5°$ β_1 = 2 °

$\beta_2 < 5°$ β_2 = 2 °

$Z \le 0.125$ in Z = .001 in

$W \le 0.03125$ in W = .001 in



W > 3 inches W = 6 1/2 in

Z > 3/4 inch Z = 1 in

Y ≥ 3 inches Y = 3 1/2 in

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

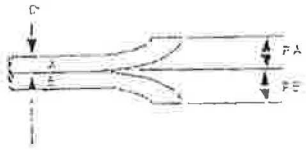
Temperature Sensor Calibration				
Reference				
	Temperature Source (Medium)	Temperature Reference (°F)	Temperature Sensor (°F)	Temperature Difference (°F)
Probe	AIR	71	70	1
	Continuity	—	—	YES
	Heat Check 243	—	YES	260
Stack	AIR	71	70	1
	ICE WATER	33	34	1
	BOIL WATER	202	202	0
	SILICONE OIL			

Type S Pitot Tube Inspection Data

Date 12-17-12

Pitot Tube Identification 27-9

Technician K. McNamara



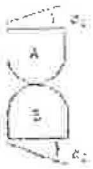
D= .375 in

Is $P_A = P_B$? Yes

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

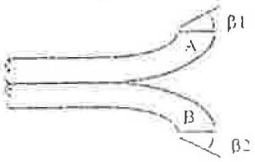
P_A = .440 in

P_B = .440 in



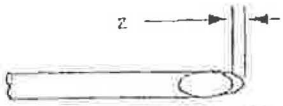
$\alpha_1 < 10°$ α_1 = 2 °

$\alpha_2 < 10°$ α_2 = 0 °



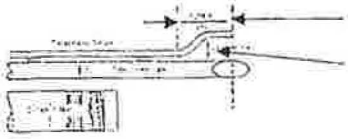
$\beta_1 < 5°$ β_1 = 1 °

$\beta_2 < 5°$ β_2 = 1 °



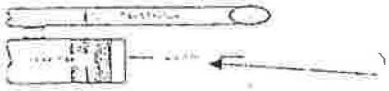
$Z \le 0.125$ in Z = .017 in

$W \le 0.03125$ in W = .015 in



W > 3 inches W = 7 in

Z > 3/4 inch Z = 1 in



Y ≥ 3 inches Y = 3 1/2 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	73	73	0
	Continuity	—	—	Yes
	Heat Check 243	—	Yes	260
Stack	AIR	73	73	0
	ICE WATER	33	33	0
	BOIL WATER	203	203	0
	SILICONE OIL			

TETCO

Sample Box Temperature Sensor Calibration

Date: 12/19/12 Calibrator: Mike McNamara Reference: Omega CL3512A

Unit ID	Thermocouple Location	Temperature Source (Medium)	Temperature Reference (°F)	Temperature Sensor (°F)	Temp. Diff. or Result (°F), P/F
A	Oven	Water	33	34	1
		Water	204	204	0
	Probe Out	Water	33	34	1
		Water	204	204	0
	Impinger Out	Water	33	34	1
		Water	204	204	0
B	Oven	Water	33	35	2
		Water	204	204	0
	Probe Out	Water	33	35	2
		Water	204	204	0
	Impinger Out	Water	33	34	1
		Water	204	204	0
C	Oven	Water	33	34	1
		Water	204	204	0
	Probe Out	Water	33	34	1
		Water	204	204	0
	Impinger Out	Water	33	34	1
		Water	204	204	0
D	Oven	Water	33	33	0
		Water	204	204	0
	Probe Out	Water	33	33	0
		Water	204	204	0
	Impinger Out	Water	33	34	1
		Water	204	203	-1
E	Oven	Water	33	34	1
		Water	204	204	0
	Probe Out	Water	33	34	1
		Water	204	204	0
	Impinger Out	Water	33	34	1
		Water	204	202	-2
F	Oven	Water	33	34	1
		Water	204	204	0
	Probe Out	Water	33	34	1
		Water	20	204	0
	Impinger Out	Water	33	35	2
		Water	204	202	-2
	Impinger Out G	Water	33	34	1
		Water	204	202	-2
	Impinger Out H	Water	33	35	2
		Water	204	202	-2
	Impinger Out I	Water	33	34	1
		Water	204	204	0
	Impinger Out J	Water	33	34	1
		Water	204	203	-1
	Impinger Out K	Water	33	34	1
		Water	204	204	0

APPENDIX F

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

SECOND QUARTER
RADIONUCLIDE EMISSIONS TEST
CONDUCTED AT
ENERGY FUELS RESOURCES
SOUTH YELLOW CAKE SCRUBBER
YELLOW CAKE DRYER BAGHOUSE
GRIZZLY BAGHOUSE

BLANDING, UTAH

April 3-4, 2012
June 5-6, 2013

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:

July 29, 2013

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: 7-29-13

Mike McNamara

Reviewer: _____

Date: 7/29/13

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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 completed April 3, 2013. The second test run was completed April 4, 2013.

One test run was completed on the Yellow Cake Dryer Baghouse April 4, 2013.

One run was completed on the Grizzly Baghouse June 5-6, 2013.

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	Doug Olsen Jeff Graton	Mike McNamara

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	83.2	9.378E+06	1112.3	2.261E+08	0.482	4.028E+04
2	80.9	9.221E+06				
AVE	**82.0**	**9.299E+06**	**1112.3**	**2.261E+08**	**0.482**	**4.028E+04**

* Dryer Baghouse results are only for U-Nat

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

The sample analyses for the SYC and Dryer Baghouse were initially completed for U-Nat and not the other radionuclides. After conferring with Energy Fuels Resources representatives and approximately three weeks after the initial sample analyses, Test American was contacted to see if the samples could be analyzed for Th-230, Pb-210 and Ra-226. Test American indicated that there was sufficient sample to run the additional analyses. A separate laboratory report from Test America was completed for the additional analyses.

Because of a communication error in requesting the additional analyses, the Dryer Baghouse samples were not analyzed for Th-230, Pb-210, and Ra-226. The Dryer Baghouse results are for U-Nat only. However, it should be noted that during the 4th quarter 2012 test project that the U-Nat results for the Dryer Baghouse were more than 3 orders of magnitude greater than the combined Th-230, Pb-210, and Ra-226 sample results.

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	101	101	94
2	99		

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

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
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APPENDIX A

Table IV Complete Results, South Yellow Cake Scrubber
Table V Complete Results, Yellow Cake Dryer Baghouse
Table VI Complete Results, Grizzly Baghouse

Nomenclature
Sample Equations

TABLE IV
COMPLETE RESULTS
Energy Fuels CORPORATION, BLANDING, UTAH
SOUTH YELLOWCAKE SCRUBBER EXHAUST

Symbol	Description	Dimensions	Run #1	Run #2	
Date			4/3/13	4/4/13	
Filter #			X098	X099	
Begin	Time Test Began		7:47	7:34	
End	Time Test Ended		15:51	15:37	
Pb_m	Meter Barometric Pressure	In. Hg. Abs	24.50	24.55	
ΔH	Orifice Pressure Drop	In. H_2O	1.153	1.133	
Y	Meter Calibration Y Factor	dimensionless	1.001	1.001	
Vm	Volume Gas Sampled--Meter Conditions	cf	353.940	348.645	
T_m	Avg Meter Temperature	°F	88.2	86.4	
$\sqrt{\Delta P}$	Sq Root Velocity Head	Root In. H_2O	0.7627	0.7748	
Wt_{wc}	Weight Water Collected	Grams	371.5	387.9	
T_t	Duration of Test	Minutes	480	480	
C_p	Pitot Tube Coefficient	Dimensionless	0.84	0.84	
D_n	Nozzle Diameter	Inches	0.2240	0.2240	
CO_2	Volume % Carbon Dioxide	Percent	1.80	2.00	
O_2	Volume % Oxygen	Percent	17.20	17.20	
N_2 & CO	Volume % Nitrogen and Carbon Monoxide	Percent	81.00	80.80	
Vm_{std}	Volume Gas Sampled (Standard)	dscf	280.391	277.653	
Vw	Volume Water Vapor	scf	17.516	18.289	
$Bw_{s\ (measured)}$	Fraction H_2O in Stack Gas (Measured)	Fraction	0.059	0.062	
$Bw_{s\ (saturated)}$	Fraction H_2O in Stack Gas (Saturated)	Fraction	0.110	0.119	
Bw_s	Fraction H_2O in Stack Gas *	Fraction	0.059	0.062	
X_d	Fraction of Dry Gas	Fraction	0.941	0.938	
M_d	Molecular Wt. Dry Gas	lb/lbmol	28.98	29.01	
M_s	Molecular Wt. Stack Gas	lb/lbmol	28.33	28.33	
%I	Percent Isokinetic	Percent	100.8	98.7	**AVG**
T_s	Avg Stack Temperature	°F	111.2	113.8	**112.5**
A_s	Stack Cross Sectional Area	Sq. Ft.	0.887	0.887	
P_G	Stack Static Pressure	In. H_2O	-0.750	-0.750	
Pb_p	Sample Port Barometric Pressure	In. Hg. Abs	24.43	24.48	
P_s	Stack Pressure	In. Hg. Abs	24.375	24.425	
Q_s	Stack Gas Volumetric Flow Rate (Std)	dscfm	1.88E+03	1.90E+03	**1.89E+03**
Q_a	Stack Gas Volumetric Flow Rate (Actual)	cfm	2.65E+03	2.70E+03	**2.67E+03**
V_s	Velocity of Stack Gas	fpm	2.99E+03	3.04E+03	**3.01E+03**
Curies	Radionuclides per sample	pCi	23324.6	22451.8	
Crad	Concentration of Radionuclides	pCi/dscf	83.186	80.863	**82.024**
ERrad	Emission Rate of Radionuclides	pCi/hr	9.378E+06	9.221E+06	**9.299E+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).

TABLE V
COMPLETE RESULTS, PM
DENISON MINES CORPORATION
YELLOW CAKE DRYER BAGHOUSE

Symbol	Description	Dimensions	Run #1
Date	Date		4/4/13
Filter #			X100
Begin	Time Test Began		9:50
End	Time Test Ended		11:54
Pb_m	Meter Barometric Pressure	In. Hg. Abs	24.55
ΔH	Orifice Pressure Drop	In. H_2O	1.594
Y	Meter Calibration Y Factor	dimensionless	1.004
Vm	Volume Gas Sampled--Meter Conditions	cf	96.458
T_m	Avg Meter Temperature	°F	76.8
$\sqrt{\Delta P}$	Sq Root Velocity Head	Root In. H_2O	0.8216
Wt_{wc}	Weight Water Collected	Grams	10.4
T_t	Duration of Test	Minutes	120
C_p	Pitot Tube Coefficient	Dimensionless	0.84
D_n	Nozzle Diameter	Inches	0.2215
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	78.533
Vw	Volume Water Vapor	scf	0.490
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	100.8
T_s	Avg Stack Temperature	°F	96.3
A_s	Stack Cross Sectional Area	Sq. Ft.	1.396
P_G	Stack Static Pressure	In. H_2O	-0.41
Pb_p	Sample Port Barometric Pressure	In. Hg. Abs	24.48
P_s	Stack Pressure	In. Hg. Abs	24.450
Q_s	Stack Gas Volumetric Flow Rate (Std)	dscfm	3.39E+03
Q_a	Stack Gas Volumetric Flow Rate (Actual)	cfm	4.39E+03
V_s	Velocity of Stack Gas	fpm	3.15E+03
Curies	Radionuclides per sample	pCi	87350.0
Crad	Concentration of Radionuclides	pCi/dscf	1112.2698
ERrad	Emission Rate of Radionuclides	pCi/hr	2.261E+08

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

Symbol	Description	Dimensions	Run #1	
Date	Date		6/5-6/13	
Filter #			X132	
Begin	Time Test Began		15:40	6/5/13
End	Time Test Ended		11:48	6/6/13
Pb_m	Meter Barometric Pressure	In. Hg. Abs	24.35	
ΔH	Orifice Pressure Drop	In. H_2O	0.940	
Y	Meter Calibration Y Factor	dimensionless	1.000	
Vm	Volume Gas Sampled--Meter Conditions	cf	323.044	
T_m	Avg Meter Temperature	°F	76.1	
$\sqrt{\Delta P}$	Sq Root Velocity Head	Root In. H_2O	0.2453	
Wt_{wc}	Weight Water Collected	Grams	27.1	
T_t	Duration of Test	Minutes	480	
C_p	Pitot Tube Coefficient	Dimensionless	0.84	
D_n	Nozzle Diameter	Inches	0.3808	
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	259.668	
Vw	Volume Water Vapor	scf	1.278	
Bw_s	Fraction H_2O in Stack Gas	Fraction	0.005	
X_d	Fraction of Dry Gas	Fraction	0.995	
M_d	Molecular Wt. Dry Gas	lb/lbmol	28.84	
M_s	Molecular Wt. Stack Gas	lb/lbmol	28.78	
%I	Percent Isokinetic	Percent	94.1	
T_s	Avg Stack Temperature	°F	90.6	
A_s	Stack Cross Sectional Area	Sq. Ft.	1.917	
P_G	Stack Static Pressure	In. H_2O	-0.035	
Pb_p	Sample Port Barometric Pressure	In. Hg. Abs	24.32	
P_s	Stack Pressure	In. Hg. Abs	24.317	
Q_s	Stack Gas Volumetric Flow Rate (Std)	dscfm	1.39E+03	
Q_a	Stack Gas Volumetric Flow Rate (Actual)	cfm	1.80E+03	
V_s	Velocity of Stack Gas	fpm	9.37E+02	
Curies	Radionuclides per sample	pCi	125.1	
Crad	Concentration of Radionuclides	pCi/dscf	0.4817	
ERrad	Emission Rate of Radionuclides	pCi/hr	4.028E+04	

General Nomenclature

%I = percent isokinetic, percent

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

$AS\Delta P$ = 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_{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 $AS\Delta P$)
$\sqrt{\Delta P_1}$ = 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 (^oF)
T_s = stack temperature (^oF)
T_{std} = absolute temperature at standard conditions (528^oR)
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^oF and 29.92 inches Hg.
V_s = velocity of stack gas (fpm)
V_w = volume water vapor (scf) at 68^oF 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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(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

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

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

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

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

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

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

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

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

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

$$\theta_n = \theta_1 \bullet \sqrt{\Delta P_n} / \sqrt{\Delta P_1}$$

$$Q_a = V_s \bullet A_s$$

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

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

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

$$Q_W = Q_s / X_d$$

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

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

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

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

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

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

APPENDIX B

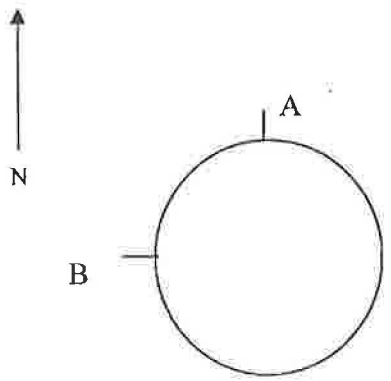
South Yellow Cake Scrubber
- Preliminary Velocity Traverse and Sampling Point Location Data
- Field Data Sheet

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

Preliminary S Y Cake Scrb



Stack Dia. 12.75" Reference: 0"

Ports are 7' Upstream from next disturbance

Ports are 30' Downstream from last disturbance

Facility Energy Fuels

Stack Identification South Yellow Cake Dryer Scrubber

Date 4-7-19

Barometric Pressure

Pb_m _____ in Hg Pb_p _____ in Hg

Static Pressure (P_G) _____ in H_2O

Estimated Moisture (Bw_s) 4-6 %

Sample Height from Ground 70 feet

Comments:

Traverse Point	Percent Diameter	Distance From: ID	Distance From: Reference	Ports A	Ports B	Ports C	Ports D	Ports E	Ports F
1	6.7	0.85	0.85	105 .55	101 .50				
2	25.0	3.19	3.19	106 .57	103 .59				
3	75.0	9.56	9.56	107 .63	108 .68				
4	93.3	11.90	11.90	106 .68	108 .65				

Averages:

T_S _____ ∠ Flow _____

ΔP _____ √ΔP _____

KEY => T_S ∠ Flow ΔP

_____ Field Data Sheet

Filter X098 TETCO Sample Box D

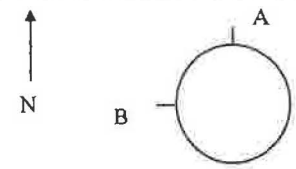
Page 1 of 1 Run # 1

Plant: Energy Fuels

Date: 4/3/13

Location: South Yellow Cake Dryer Scrubber

Operator: [illegible]



Stack Diameter 12.75" Port Reference 0"

Ports are 7' Upstream from next disturbance

Ports are 30' 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	Oven	Effluent	DGM Temp (T_m) Out	In
1	7:47	0	152.500	.49	.93	.93	3	105	253	238	239	42	51	52
1		20	165.421	.51	.96	.96	3	106	266	255	251	42	57	64
1		40	178.734	.57	1.11	1.11	3	106	236	260	255	48	64	72
2		60	193.216	.60	1.17	1.17	3	106	251	260	258	53	71	79
2		80	208.112	.60	1.17	1.17	3	108	269	260	238	58	78	87
2		100	223.039	.62	1.20	1.20	3	108	249	248	250	61	84	93
3		120	238.088	.60	1.19	1.19	3	108	258	243	240	55	85	94
3		140	253.040	.58	1.15	1.15	3	110	261	248	234	54	87	96
3		160	267.801	.55	1.09	1.09	3	110	251	250	246	55	89	97
4		180	282.169	.53	1.06	1.06	3	110	270	254	240	55	91	99
4		200	296.420	.50	1.00	1.00	3	111	257	254	240	58	90	97
4		220	310.470	.47	.94	.94	3	109	251	252	240	59	93	100
1	11:51	240	324.467	.74	1.48	1.48	4	113	256	247	234	59	92	97
1		260	341.000	.67	1.34	1.34	4	113	230	244	240	51	93	102
1		280	357.012	.56	1.12	1.12	4	113	257	239	248	53	93	102
2		300	371.066	.68	1.36	1.36	4	113	260	238	240	54	91	99
2		320	386.124	.70	1.40	1.40	4	115	260	245	231	55	90	98
2		340	402.710	.59	1.18	1.18	4	113	249	245	235	56	87	96
3		360	417.757	.65	1.29	1.29	5	115	236	238	230	59	87	96
3		380	431.811	.50	.99	.99	5	115	262	239	231	57	88	98
3		400	446.025	.66	1.31	1.31	5	115	250	238	230	57	89	97
4		420	463.470	.55	1.08	1.08	5	116	265	244	235	58	90	99
4		440	478.115	.57	1.12	1.12	5	115	266	250	240	61	91	99
4		460	492.493	.52	1.02	1.02	5	116	258	250	241	63	91	99
	~~10:45~~ 10:51	480	506.440											
Total			353.940	18.341	27.66 ~~27.85~~			2668					4234	
Average				.7627	1.153			111.2					88.2	

Assumed Moisture 4-6 %

Probe 276 Cp 0.84

Nozzle Calibration .224 .224 .224 .224

Avg D_n .224 inches

Gas Bag H-03

Console 5

Y-Factor 1.001

$\Delta H_@$ 1.48 in H_2O

Barometric Pressures

Pb_m 24.50 in Hg

Pb_p 24.43 in Hg

P_g (.75) in H_2O

Leak Check:	Pre	Post
ft³/min	0.006	0.003
vac in Hg	21	12
Pitot Rate In H_2O	0.0 9.5	0.0 9.5

Water Collected 371.5 g

Time Sampled 480 min

Review [illegible]

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)

7/4/13

Field Data Sheet

Filter X099 TETCO Sample Box E

Page 1 of 1 Run # 2

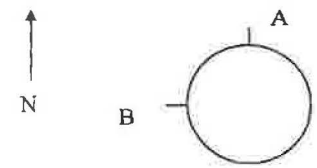
Plant: Energy Fuels

Date: 7/4/13

Location: South Yellow Cake Dryer Scrubber

Operator:

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	Oven	Effluent	DGM Temp (T_m) Out	In
1	7:34	0	508.300	.55	1.00	1.00	3	110	260	240	237	50	57	57
1		20	521.022	.60	1.09	1.09	3	111	261	248	229	49	62	68
1		40	535.562	.62	1.13	1.13	3	111	235	252	229	53	67	76
2		60	549.815	.65	1.19	1.19	3	111	260	258	230	56	72	83
2		80	564.709	.65	1.19	1.19	3	112	263	266	238	59	77	88
2		100	579.598	.41	1.11	1.11	3	111	264	266	240	62	80	92
3		120	594.472	.55	1.04	1.04	3	114	269	268	244	64	85	96
3		140	608.502	.63	1.19	1.19	3	112	270	268	240	55	84	94
3		160	623.139	.49	.93	.93	3	112	271	267	241	54	87	97
4		180	636.540	.54	1.02	1.02	3	112	260	264	240	55	89	98
4		200	650.813	.60	1.14	1.14	3	113	258	265	235	56	91	100
4		220	665.623	.57	1.08	1.08	4	112	246	263	235	57	88	99
1	11:37	240	680.433	.61	1.16	1.16	4	115	251	258	235	58	86	94
1		260	694.654	.61	1.16	1.16	4	115	240	255	232	60	86	96
1		280	709.004	.68	1.29	1.29	5	116	237	252	234	57	85	96
2		300	724.738	.66	1.26	1.26	5	116	248	258	238	59	85	97
2		320	740.158	.63	1.20	1.20	5	115	248	256	237	59	85	95
2		340	755.179	.65	1.24	1.24	5	116	230	248	231	55	85	94
3		360	770.457	.52	.99	.99	5	116	232	246	232	54	84	94
3		380	784.235	.52	.99	.99	5	117	230	254	233	56	85	93
3		400	798.159	.67	1.28	1.28	5	117	266	265	243	57	85	93
4		420	813.655	.50	.96	.96	5	116	267	265	243	57	86	96
4		440	827.223	.67	1.28	1.28	5	116	246	252	241	57	86	94
4		460	840.859	.66	1.26	1.26	5	116	261	259	244	59	86	94
		480	856.945											
Total			348.645	18.5947	27.18			2732					4147	
Average				.7748	1.133			113.8					86.4	



Stack Diameter 12.75" Port Reference 0"

Ports are 7' Upstream from next disturbance

Ports are 30' Downstream from last disturbance

Assumed Moisture 4-6 %

Probe 276 Cp 0.84

Nozzle Calibration .224 .224 .224 .224

Avg D_n .224 inches

Gas Bag G-03

Console 5

Y-Factor 1.00

$\Delta H_@$ 1.48 in H_2O

Barometric Pressures

Pb_m 24.55 in Hg

Pb_p 24.48 in Hg

P_G (0.75) in H_2O

Leak Check:	Pre	Post
ft³/min	0.008	0.009
vac in Hg	21	12
Pitot Rate	0.0	0.0
In H_2O	9.5	9.5

Water Collected 387.9 g

Time Sampled 480 min

Review

K = @T_m

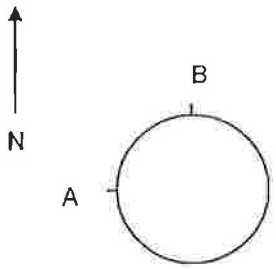
K = @T_m

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

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 4/4/13

Barometric Pressure

Pb_m 24.55 in Hg Pb_p 24.48 in Hg

Static Pressure (P_G) -.41 in H_2O

Estimated Moisture (Bw_s) 1 %

Sample Height from Ground _____ feet

Comments:

Traverse Point	Percent Diameter	Distance From: ID	Distance From: Reference	Ports A	B	C	D	E	F
1	4.4	0.70	0.70	87 ~~41~~					
2	14.6	2.34	2.34						
3	29.6	4.74	4.74						
4	70.4	11.26	11.26	91 ~~42~~					
5	85.4	13.66	13.66						
6	95.6	15.30	15.30	92 ~~42~~					

Averages:

T_S _____ ∠ Flow _____

ΔP _____ √ΔP _____

KEY => T_S ∠ Flow ΔP

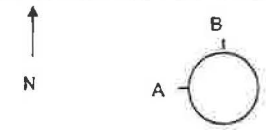
5/114 Field Data Sheet

TETCO
Filter X100 Sample Box E

Page 1 of 1 Run # 1

Plant: Energy Fuels Resources, Blanding, UT
Date: 4/4/13

Location: North Yellowcake Dryer Baghouse
Operator: ~~X100~~ M. M Salmacia



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 (Ts)	Probe	Probe Out	Filter	Effluent	DGM Temp (Tm) Out	In
1	9:50	0	441.252	.34	.78	.78	2	95	237	263	263	52	64	61
2		10	447.090	.15	.134	.134	2	96	266	263	263	46	68	63
3		20	451.365	.67	1.53	1.53	4	96	230	261	261	44	75	63
4		30	459.470	.82	1.88	1.88	4	96	270	251	251	45	80	65
5		40	468.120	.83	1.89	1.89	4	96	261	257	257	47	83	68
6		50	476.800	.80	1.82	1.82	4	96	233	259	259	49	87	71
1	10:54	60	485.436	.75	1.71	1.71	4	96	253	258	258	50	85	74
2		70	494.060	.81	1.84	1.84	4	96	266	260	260	54	88	75
3		80	502.730	.80	1.82	1.82	4	96	230	253	253	55	90	77
4		90	511.495	.88	2.00	2.00	4	97	245	259	259	57	90	78
5		100	520.595	.78	1.77	1.77	4	98	250	264	264	58	91	78
6		110	529.130	.77	1.75	1.75	4	98	253	259	259	59	91	78
	11:54	120	537.710											
Total			96.458	9.8541	19.13			1156					1843	
Average				.8216	1.594			96.3					76.8	

Assumed Moisture 1 %
Probe 186 Cp 0.84
Nozzle Calibration
.221 .221 .222 .222
Avg D_n .2215 inches
Gas Bag Ambient Air
Console #9
Y-Factor 1.004
$\Delta H_@$ 1.679 in H_2O

Barometric Pressures
Pb_m 24.55 in Hg
Pb_p 24.48 in Hg
P_G -.41 in H_2O

Leak Check:	Pre	Post
ft³/min	0.002	0.002
vac in Hg	22.0	12.0
Pitot Rate	0.0	0.0
in H_2O	8.0	7.0

Water Collected 10.4 g
Time Sampled 120 min
Review [illegible]

K = @T_m
K = @T_{ss}

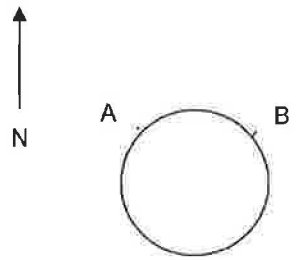
Comments:

Time	Baghouse ΔP	Time	Baghouse ΔP
10:05	6.2	12:05	8.7
10:25	7.1	12:25	9.0
10:45	8.2	12:45	9.2

7 barrels processed

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

Stack Identification Grizzly Baghouse

Date 6/5-6/13

Barometric Pressure

Pb_m 24.35 in Hg Pb_p 24.32 in Hg

Static Pressure (P_G) -.035 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

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						
3	11.8	2.21	5.21						
4	17.7	3.32	6.32						
5	25.0	4.69	7.69						
6	35.6	6.68	9.68						
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						
11	93.2	17.48	20.48						
12	97.9	18.25	21.25						

Averages:

T_S _____ ∠ Flow _____

ΔP _____ √ΔP _____

KEY => T_S ∠ Flow ΔP

_____ Field Data Sheet

Filter X132 TETCO Sample Box A

Page 1 of 1 Run # 1

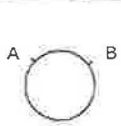
Plant: ~~Denison Mines~~ Energy Fuels

Date: 6/5-6/13

Location: Grizzly Baghouse

Operator: M. McNamara

	Traverse Point	Time Clock	Time Min (θ)	DGM (ft³)	ΔP (in H₂O)	ΔH (in H₂O) Desired	ΔH (in H₂O) Actual	Vacuum (in Hg)	Temp. Stack (T_s)	Temp. Probe	Temp. Probe Out	Temp. Filter	Temp. Effluent	DGM Temp (T_m) Out	DGM Temp (T_m) In
6-5-13 B	1	15:40	0	323.828	.045	.84	.84	2	96	250	265	265	64	74	73
	2		20	336.581	.045	.82	.82	2	92	260	265	265	62	74	77
	3		40	349.185	.055	1.01	1.01	2	96	257	269	269	63	74	78
	4		60	363.540	.057	1.05	1.05	2	97	270	256	256	64	76	80
	5		80	377.325	.059	1.09	1.09	2	98	275	268	269	58	76	81
	6		100	391.815	.060	1.09	1.09	2	97	252	257	257	60	77	82
	7		120	406.160	.062	1.13	1.13	2	97	265	261	261	61	77	82
	8		140	420.950	.058	1.06	1.06	2	96	225	251	251	63	76	82
	9		160	435.180	.059	1.07	1.07	2	96	218	252	252	63	76	81
	10		180	449.365	.056	1.02	1.02	2	94	249	250	250	63	76	81
	11		200	463.685	.053	.97	.97	2	94	265	265	265	61	75	80
	12	19:40	220	477.020	.055	1.00	1.00	2	92	270	256	256	66	75	79
6-6-13 A	1	7:38	240	491.652	.047	.84	.84	2	72	250	269	269	58	67	67
	2		260	504.320	.048	.89	.89	2	78	260	250	250	51	70	73
	3		280	517.390	.048	.89	.89	2	81	266	257	257	52	73	76
530.660	4		300	~~523.955~~	.050	.92	.92	2	82	265	259	259	53	74	78
	5		320	544.060	.053	.98	.98	2	85	265	264	264	55	75	79
	6		340	557.835	.055	1.00	1.00	2	87	267	264	264	57	76	80
	7		360	571.670	.044	.80	.80	2	88	261	255	255	47	77	81
	8		380	584.315	.046	.84	.84	2	90	261	249	249	48	73	75
	9		400	597.145	.046	.84	.84	2	91	271	258	258	49	75	79
	10		420	609.905	.043	.78	.78	2	91	265	257	257	52	76	79
	11		440	622.325	.044	.80	.80	2	92	265	253	253	53	73	75
	12		460	634.710	.045	.82	.82	2	93	230	244	244	53	69	72
		11:48	480	647.583											
Total				323.044	5.8843	22.55			2175					3654	
Average					.2452	.940			90.6					76.1	



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 386 Cp 0.84

Nozzle Calibration

.380 .381 .381 .381

Avg D_n .3808 inches

Gas Bag Ambient Air

Console 4

Y-Factor 1.000

$\Delta H_@$ 1.490 in H_2O

Barometric Pressures

Pb_m 24.35 in Hg

Pb_p 24.32 in Hg

P_G -.035 in H_2O

Leak Check	Pre	Post
ft³/min	0.002	0.002
vac in Hg	22.0	12.0

Pitot Rate		
In H_2O	~~.020~~ .20	~~.025~~ .25

Water Collected 27.1 g

Time Sampled 480 min

Review

K = @T_m

K = @T_m

Comments

Run Port B 4hr 6/5/13 St 323.828 Fin 490.941

DGM: 167.113

Shut down @ 11:01 Belt Not Running, Rock stuck in Belt.

Restart @ 11:11

Run Port A 4hr 6/6/13 St 491.652

Dgm: 155.931 Fin 647.583

Leak Check Port A

	Pre	Post
Vacuum	0.002	0.002
	21.0	12
Pitot	0.0	0.0
	~~.025~~ .25	~~.025~~ .25

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 Custodies

Lab Analysis

South Yellow Cake Dryer Scrubber

METHOD 5

Facility: Denison Mine

Date:

Stack Identification: NYC Scrubber

IMPINGERS

X098

Run: 1

Sample Box: D

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)	572.6	686.5	689.7	732.3	575.9	902.8
Initial (g)	497.9	558.0	620.8	703.1	561.1	847.4
Net (g)	74.7	128.5	68.9	29.2	14.8	55.4

Total (g) 371.5

IMPINGERS

X099

Run: 2

Sample Box: D

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)	625.2	697.3	685.5	721.6	572.2	940.3
Initial (g)	501.7	561.9	635.5	709.3	565.8	880.0
Net (g)	123.5	135.4	50.0	12.3	6.4	60.3

JG

Total (g) 387.9

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 Location SYC

Analytical Method

Date 3/4
Test No. 1
Gas Bag No. 17-03
Ambient Temp 60
Operator [illegible]

Gas	RUN 1 Actual Reading	RUN 1 Net	RUN 2 Actual Reading	RUN 2 Net	RUN 3 Actual Reading	RUN 3 Net	Average Net Volume
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).	19.0	17.2	19.0	17.2	19.0	17.2	17.2
N_2 (Net is 100 Minus Actual O_2 Reading).							

Date 3/5
Test No. 2
Gas Bag No. 6-03
Ambient Temp 60
Operator [illegible]

Gas	RUN 1 Actual Reading	RUN 1 Net	RUN 2 Actual Reading	RUN 2 Net	RUN 3 Actual Reading	RUN 3 Net	Average Net Volume
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).	19.2	17.2	19.2	17.2	19.2	17.2	17.2
N_2 (Net is 100 Minus Actual O_2 Reading).							

Date
Test No.
Gas Bag No.
Ambient Temp
Operator

Gas	RUN 1 Actual Reading	RUN 1 Net	RUN 2 Actual Reading	RUN 2 Net	RUN 3 Actual Reading	RUN 3 Net	Average Net Volume
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

NYC Baghouse M5

Facility: Energy Fuels

Date: 4/4/13

Stack Identification: NYC Baghouse

IMPINGERS

Run: 1

Sample Box: EE

X0100

	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)	664.9	690.2	531.5	895.7		
Initial (g)	692.3	683.3	526.2	875.1		
Net (g)	-22.9	6.9	5.3	20.6		

Total (g) 10.4

IMPINGERS

Run: _____

Sample Box: _____

	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: _____

	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: _____

	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) _____

Grizzly Baghouse

Grizzly

Facility: Energy Fuels

Date:

Stack Identification: Grizzly

IMPINGERS

Run: 1

Sample Box: A

Filter Number

X132

	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)	616.1	713.1	542.5	970.9		
Initial (g)	663.3	700.0	536.9	915.3		
Net (g)	-47.2	13.1	5.6	55.6		

Total (g) 27.1

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

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☐

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client: Tetco	Project Manager: Dean Kitchen	Date: 4/5/2013	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): Energy Fuels 2013 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 (Attach list if more space is needed): U-Nat	Th-230	Ra-226	Lead-210	Special Instructions/ Conditions of Receipt
X100 R1 Baghouse filter and beaker	4/4/2013	9:00	X												X				
X098 R1 NYC filters and beaker	4/3/2013	7:30	X												X				
X099 R2 NYC filters and beaker	4/4/2013	7:30	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: [signature]	Date: 4/8/13	Time: 10	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

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: 6/07/2013	Chain of Custody Number:
Address: 391 East 620 South	Telephone Number (Area Code)/Fax Number: 801-492-9106	Lab Number:	Page _____ of _____
City: American Fork; State: Ut; Zip Code: 84003	Site Contact: Scott Christensen, Garren Palmer	Lab Contact:	
Project Name and Location (State): Denison Mine 2013 2nd 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	U-Nat	TH-230	Ra-226	Lead-210	Special Instructions/ Conditions of Receipt
R1 Grizzly filter (X132) and beaker	6/5,6/13	15:00	X										X	X			MO4KG
J3F120435																	
SDG-46884																	
Due 7-9-13																	
J3F120435																	

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):

	Date	Time		Date	Time
1. Relinquished By: [signature]	6-07-13	12:00	1. Received By: Julie Fock TACL	6-11-13	1245
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

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

Laboratory Report
Test Dates:
April 3-4, 2013

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 15 ***Pages***

Report No.: 55334

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.
46619		X098 R1 NYC filters and beaker	J3D100435-2	M0KM21AA	9M0KM210	3104033
		X099 R2 NYC filters and beaker	J3D100435-3	M0KM31AA	9M0KM310	3104033
		X100 R1 Baghouse filter and be	J3D100435-1	M0KM11AA	9M0KM110	3104033

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

April 30, 2013

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

Attention: Dean Kitchen

Date Received at Lab	:	April 10, 2012
Project Name	:	Energy Fuels 2013 1st Quarter
Sample Type	:	Three (3) Stack Filter Samples
SDG Number	:	46619

CASE NARRATIVE

I. Introduction

On April 10, 2013, 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 J3D100435.

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
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
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:

Sandra Leger
Erika Jordan
for 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

Date: 30-Apr-13

TestAmerica

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

Report No. : 55334 **SDG No:** 46619

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RER2
3104033 FFSR									
X098 R1 NYC filters and beaker									
	M0KM21AA	U-234	1.17E-02 +- 1.9E-03		UCI/SA	92%	5.82E-05	9.00E-15	
		U-235	4.21E-04 +- 1.2E-04		UCI/SA	92%	3.22E-05	9.00E-15	
		U-238	1.12E-02 +- 1.8E-03		UCI/SA	92%	5.87E-05	9.00E-15	
X099 R2 NYC filters and beaker									
	M0KM31AA	U-234	1.09E-02 +- 1.8E-03		UCI/SA	99%	4.45E-05	9.00E-15	
		U-235	4.48E-04 +- 1.2E-04		UCI/SA	99%	3.72E-05	9.00E-15	
		U-238	1.11E-02 +- 1.8E-03		UCI/SA	99%	5.16E-05	9.00E-15	
X100 R1 Baghouse filter and be									
	M0KM11AA	U-234	4.22E-02 +- 6.6E-03		UCI/SA	92%	4.42E-05	9.00E-15	
		U-235	2.05E-03 +- 3.9E-04		UCI/SA	92%	2.33E-05	9.00E-15	
		U-238	4.31E-02 +- 6.8E-03		UCI/SA	92%	3.28E-05	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 V5.2.23
A2002

QC Results Summary

Date: 30-Apr-13

TestAmerica

Ordered by Method, Batch No, QC Type,.

Report No. : 55334 **SDG No.:** 46619

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
FFSR								
3104033 BLANK QC,								
M0LDR1AA	U-234	2.37E-08 +- 2.8E-08	U	UCI/SA	93%			4.66E-08
	U-235	-4.89E-10 +- 1.2E-08	U	UCI/SA	93%			2.46E-08
	U-238	5.01E-08 +- 3.9E-08		UCI/SA	93%			4.19E-08
3104033 LCS,								
M0LDR1AC	U-234	9.06E-07 +- 3.3E-07		UCI/SA	93%	93%	-0.1	2.90E-08
	U-238	9.23E-07 +- 3.3E-07		UCI/SA	93%	91%	-0.1	3.11E-08

No. of Results: 5

TestAmerica

rptSTLRchQcSummary V5.2.23 A2002

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: 30-Apr-13

Lab Name:	TestAmerica	**SDG:**	46619	**Collection Date:**	4/3/2013 7:30:00 AM
Lot-Sample No.:	J3D100435-2	**Report No. :**	55334	**Received Date:**	4/10/2013 10:30:00 AM
Client Sample ID:	X098 R1 NYC filters and beaker	**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: 3104033	FFSR			**Work Order:**	M0KM21AA		**Report DB ID:**	9M0KM210				
U-234	***1.17E-02***		5.0E-04	1.9E-03	5.82E-05	UCI/SA	92%	*(201.5)*	4/25/13 10:22 p	1.0	0.00119	ALP3
						2.17E-05	9.00E-15	*(12.4)*		Sample	Sample	
U-235	***4.21E-04***		9.6E-05	1.2E-04	3.22E-05	UCI/SA	92%	*(13.1)*	4/25/13 10:22 p	1.0	0.00119	ALP3
						8.75E-06	9.00E-15	*(7.3)*		Sample	Sample	
U-238	***1.12E-02***		4.9E-04	1.8E-03	5.87E-05	UCI/SA	92%	*(190.)*	4/25/13 10:22 p	1.0	0.00119	ALP3
						2.20E-05	9.00E-15	*(12.4)*		Sample	Sample	

Ratio U-234/238 = 1.1

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

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: 30-Apr-13

Lab Name:	TestAmerica	SDG:	46619	Collection Date:	4/4/2013 7:30:00 AM
Lot-Sample No.:	J3D100435-3	Report No. :	55334	Received Date:	4/10/2013 10:30:00 AM
Client Sample ID:	X099 R2 NYC filters and beaker	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: 3104033	FFSR			Work Order: M0KM31AA		Report DB ID: 9M0KM310						
U-234	***1.09E-02***		4.8E-04	1.8E-03	4.45E-05	UCI/SA	99%	*(245.2)*	4/25/13 10:22 p	1.0	0.00118	ALP4
						1.51E-05	9.00E-15	*(12.5)*		Sample	Sample	
U-235	***4.48E-04***		9.8E-05	1.2E-04	3.72E-05	UCI/SA	99%	*(12.)*	4/25/13 10:22 p	1.0	0.00118	ALP4
						1.15E-05	9.00E-15	*(7.5)*		Sample	Sample	
U-238	***1.11E-02***		4.8E-04	1.8E-03	5.16E-05	UCI/SA	99%	*(214.8)*	4/25/13 10:22 p	1.0	0.00118	ALP4
						1.87E-05	9.00E-15	*(12.5)*		Sample	Sample	

Ratio U-234/238 = 1.0

No. of Results: 3 Comments:

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.
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: 30-Apr-13

Lab Name:	TestAmerica	SDG:	46619	Collection Date:	4/4/2013 9:00:00 AM
Lot-Sample No.:	J3D100435-1	Report No. :	55334	Received Date:	4/10/2013 10:30:00 AM
Client Sample ID:	X100 R1 Baghouse filter and be	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: 3104033	FFSR			Work Order:	M0KM11AA		Report DB ID:	9M0KM110				
U-234	***4.22E-02***		9.9E-04	6.6E-03	4.42E-05	UCI/SA	92%	*(955.)*	4/25/13 10:21 p	1.0	0.00109	ALP2
						1.43E-05	9.00E-15	*(12.8)*		Sample	Sample	
U-235	***2.05E-03***		2.2E-04	3.9E-04	2.33E-05	UCI/SA	92%	*(87.9)*	4/25/13 10:21 p	1.0	0.00109	ALP2
						3.81E-06	9.00E-15	*(10.6)*		Sample	Sample	
U-238	***4.31E-02***		1.0E-03	6.8E-03	3.28E-05	UCI/SA	92%	*(1316.2)*	4/25/13 10:21 p	1.0	0.00109	ALP2
						8.53E-06	9.00E-15	*(12.8)*		Sample	Sample	

Ratio U-234/238 = 1.0

No. of Results: 3 Comments:

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.
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: 30-Apr-13

Lab Name: TestAmerica

Matrix: FILTER

SDG: 46619

Report No. : 55334

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: 3104033	FFSR			Work Order:	M0LDR1AA		Report DB ID:	M0LDR1AB				
U-234	2.37E-08	U	2.8E-08	2.8E-08	4.66E-08	UCI/SA	93%	0.51	4/25/13 10:22 p	0.15	0.15	ALP5
					1.50E-08	9.00E-15		(1.7)		Sample	Sample	
U-235	-4.89E-10	U	1.2E-08	1.2E-08	2.46E-08	UCI/SA	93%	-0.02	4/25/13 10:22 p	0.15	0.15	ALP5
					4.02E-09	9.00E-15		-0.08		Sample	Sample	
U-238	5.01E-08		3.7E-08	3.9E-08	4.19E-08	UCI/SA	93%	(1.2)	4/25/13 10:22 p	0.15	0.15	ALP5
					1.27E-08	9.00E-15		(2.5)		Sample	Sample	
								Ratio U-234/238 = 0.5				

No. of Results: 3 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: 30-Apr-13

Lab Name: TestAmerica

Matrix: FILTER

SDG: 46619

Report No. : 55334

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: 3104033	FFSR			Work Order:	M0LDR1AC		Report DB ID:	M0LDR1CS					
U-234	9.06E-07		1.5E-07	3.3E-07	2.90E-08	UCI/SA	93%	9.73E-07	5.08E-09	93%	4/25/13 10:22 p	0.12	ALP6
							Rec Limits:	70	130	-0.1		Sample	
U-238	9.23E-07		1.5E-07	3.3E-07	3.11E-08	UCI/SA	93%	1.02E-06	5.32E-09	91%	4/25/13 10:22 p	0.12	ALP6
							Rec Limits:	70	130	-0.1		Sample	

No. of Results: 2 Comments:

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

rptSTLRchLcs
V5.2.23 A2002

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☐

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TAL-4124 (1007)

Client: Tetco	Project Manager: Dean Kitchen	Date: 4/5/2013	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, Garrett Palmer	Lab Contact:	
Project Name and Location (State): Energy Fuels 2013 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	Zn(Ac)/NaOH	Analysis (Attach list if more space is needed): U-Nat	TH-230	Ra-226	Lead-210	Special Instructions/ Conditions of Receipt
X100 R1 Baghouse filter and beaker	4/4/2013	9:00	X										X				mokm1
X098 R1 NYC filters and beaker	4/3/2013	7:30	X										X				mokm2
X099 R2 NYC filters and beaker	4/4/2013	7:30	X										X				mokm3

J3D100435
SDG-466619
Due 5-8-13

J3D100435

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: [signature]	Date: 4/8/13	Time: 10	1. Received By: Julie Bock [signature] TALL	Date: 4-10-13	Time: 1030
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

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Sample Check-in List

Date/Time Received: 4-10-13 | 1030 Container GM Screen Result: (Airlock) .6 Initials [B]
Sample GM Screen Result (Sample Receiving) .12 Initials [B]

Client: DEN SDG #: 460019 NA [ ] SAF #: NA [B]

Lot Number: J3D100435

Chain of Custody #

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

Samples received inside shipping container/cooler/box Yes [B] 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 [B]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [B]
3. Cooler temperature: _____°C NA [B]
4. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [B]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [B] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 3
7. Containers received: 3x filter; 3 x beaker
8. Sample holding times exceeded? NA [ ] Yes [ ] No [B]
9. Samples have:
   - ____tape
   - ____custody seals
   - [B] hazard labels
   - [B] appropriate sample labels
10. Matrix:
    - [B] A (FLT, Wipe, Solid, Soil)
    - [B] S (Air, Niosh 7400)
    - ____I (Water)
    - ____T (Biological, Ni-63)
11. Samples:
    - [B] are in good condition
    - ____are broken
    - ____are leaking
    - ____have air bubbles (Only for samples requiring no head space)
    - ____Other
12. Sample pH appropriate for analysis requested Yes [ ] No [ ] NA [B]
    (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 : N/A
13. Were any anomalies identified in sample receipt? Yes [ ] No [B]
14. Description of anomalies (include sample numbers): NA [B]

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

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

16. Additional Information: N/A

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

Sample Custodian: Julie Roch Date: 4-10-13

Client Informed on ______ by ______ Person contacted ______

[X] No action necessary; process as is

Project Manager Erika Gord Date 4-12-13

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

JRoch 4-10-13 JRoch 4-10-13

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

Laboratory Report
Test Dates:
April 3-4, 2013

(Samples Re-analyzed for Th-230, Pb-210, and Ra-226)

Analytical Data Package Prepared For

Denison Mines (USA) Corp.

Energy Fuels 2013 1st Quarter

Radiochemical Analysis By

TestAmerica

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

Assigned Laboratory Code:

Data Package Contains 14 ***Pages***

Report No.: 56105

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.
46700		X098 R1 NYC filters and beaker	J3E020428-1	M0QQV1AC	9M0QQV10	3122080
		X098 R1 NYC filters and beaker	J3E020428-1	M0QQV1AA	9M0QQV10	3122081
		X098 R1 NYC filters and beaker	J3E020428-1	M0QQV1AD	9M0QQV10	3122082
		X099 R2 NYC filters and beaker	J3E020428-2	M0QQ21AC	9M0QQ210	3122080
		X099 R2 NYC filters and beaker	J3E020428-2	M0QQ21AA	9M0QQ210	3122081
		X099 R2 NYC filters and beaker	J3E020428-2	M0QQ21AD	9M0QQ210	3122082

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Certificate of Analysis

July 11, 2013

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

Attention: Dean Kitchen

Date Received at Lab	:	April 10, 2012 / May 2, 2013 (Additional Testing Requested)
Project Name	:	Energy Fuels 2013 1st Quarter
Sample Type	:	Two (2) Stack Filter Samples
SDG Number	:	46700

CASE NARRATIVE

I. Introduction

On April 10, 2013, three stack filter samples were received at TestAmerica's Richland laboratory for radiochemical analysis. On May 2, 2013, the client requested additional testing for two of the three samples. 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 re-assigned to Lot Number J3E020428.

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
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
The blank result of Th-230 has a result above the achieved MDA; suspect some tailing from the Th-229 tracer. The FWHM is elevated, due to the typical and expected tailing from the Th-229 tracer. 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.

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
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

Date: 11-Jul-13

TestAmerica

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

Report No. : 56105 **SDG No:** 46700

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RER2
3122081 RICHRC5011									
X098 R1 NYC filters and beaker									
	M0QQV1AA	TH-228	-4.89E-09 +- 8.0E-09	U	uCi/Sample	63%	2.85E-08		
		TH-230	6.35E-07 +- 1.2E-07		uCi/Sample	63%	2.15E-08	3.00E-15	
		TH-232	1.15E-08 +- 1.1E-08	U	uCi/Sample	63%	1.41E-08		
X099 R2 NYC filters and beaker									
	M0QQ21AA	TH-228	1.30E-08 +- 1.3E-08	U	uCi/Sample	49%	1.71E-08		
		TH-230	6.65E-07 +- 1.3E-07		uCi/Sample	49%	1.30E-08	3.00E-15	
		TH-232	9.64E-09 +- 1.1E-08	U	uCi/Sample	49%	1.58E-08		
3122082 RICHRC5011									
X098 R1 NYC filters and beaker									
	M0QQV1AD	Pb-210	2.85E-06 +- 7.1E-07		uCi/Sample	49%	6.79E-07	6.00E-14	
X099 R2 NYC filters and beaker									
	M0QQ21AD	Pb-210	3.10E-06 +- 9.5E-07		uCi/Sample	36%	1.16E-06	6.00E-14	
3122080 RL-RA-001									
X098 R1 NYC filters and beaker									
	M0QQV1AC	RA-226	8.51E-08 +- 1.9E-07	U	uCi/sample	56%	3.81E-07	9.00E-14	
X099 R2 NYC filters and beaker									
	M0QQ21AC	RA-226	-4.46E-08 +- 1.9E-07	U	uCi/sample	34%	4.35E-07	9.00E-14	

No. of Results: 10

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: 11-Jul-13

TestAmerica

Ordered by Method, Batch No, QC Type,.

Report No. : 56105 **SDG No.:** 46700

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
RICHRC5011								
3122081 BLANK QC,								
M0QTJ1AA	TH-228	7.53E-10 +- 8.6E-09	U	uCi/Sample	42%			2.59E-08
	TH-230	4.56E-08 +- 2.7E-08		uCi/Sample	42%			2.37E-08
	TH-232	3.46E-09 +- 7.5E-09	U	uCi/Sample	42%			1.95E-08
3122081 LCS,								
M0QTJ1AC	TH-230	2.18E-06 +- 3.9E-07		uCi/Sample	34%	97%	0.0	2.17E-08
RICHRC5011								
3122082 BLANK QC,								
M0QTK1AA	Pb-210	1.95E-07 +- 2.4E-07	U	uCi/Sample	82%			3.85E-07
3122082 LCS,								
M0QTK1AC	PB-210	1.01E-05 +- 1.8E-06		uCi/Sample	82%	111%	0.1	4.10E-07
RL-RA-001								
3122080 BLANK QC,								
M0QTH1AA	RA-226	3.88E-09 +- 8.5E-08	U	uCi/sample	94%			1.80E-07
3122080 LCS,								
M0QTH1AC	RA-226	1.24E-05 +- 3.3E-06		uCi/sample	94%	125%	0.3	2.31E-07

No. of Results: 8

TestAmerica

rptSTLRchQcSummary V5.2.23 A2002

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: 11-Jul-13

Lab Name: TestAmerica | **SDG:** 46700 | **Collection Date:** 4/3/2013 7:30:00 AM

Lot-Sample No.: J3E020428-1 | **Report No. :** 56105 | **Received Date:** 5/2/2013 12:05:00 PM

Client Sample ID: X098 R1 NYC filters and beaker | **COC No. :** | **Matrix:** FILTER

Energy Fuels 2013 1st 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: 3122080	RL-RA-001			**Work Order:**	M0QQV1AC		**Report DB ID:**	9M0QQV10				
RA-226	**8.51E-08**	U	1.9E-07	1.9E-07	3.81E-07	uCi/sample	56%	*0.22*	7/2/13 07:13 p	1.0	0.9821	ASCEHA
						1.72E-07	9.00E-14	*0.87*		Sample	Sample	
Batch: 3122081	RICHRC5011			**Work Order:**	M0QQV1AA		**Report DB ID:**	9M0QQV10				
TH-228	**-4.89E-09**	U	7.9E-09	8.0E-09	2.85E-08	uCi/Sample	63%	*-0.17*	6/28/13 03:50 a	1.0	0.98212	ALP121
						1.06E-08		*-(1.2)*		Sample	Sample	
TH-230	**6.35E-07**		8.0E-08	1.2E-07	2.15E-08	uCi/Sample	63%	*(29.6)*	6/28/13 03:50 a	1.0	0.98212	ALP121
						7.35E-09	3.00E-15	*(10.2)*		Sample	Sample	
TH-232	**1.15E-08**	U	1.1E-08	1.1E-08	1.41E-08	uCi/Sample	63%	*0.81*	6/28/13 03:50 a	1.0	0.98212	ALP121
						3.67E-09		*(2.)*		Sample	Sample	
Batch: 3122082	RICHRC5011			**Work Order:**	M0QQV1AD		**Report DB ID:**	9M0QQV10				
Pb-210	**2.85E-06**		5.0E-07	7.1E-07	6.79E-07	uCi/Sample	49%	*(4.2)*	7/5/13 11:19 a	1.0	0.98212	GPC32C
						3.29E-07	6.00E-14	*(8.)*		Sample	Sample	

No. of Results: 5 **Comments:**

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.
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: 11-Jul-13

Lab Name: TestAmerica | **SDG:** 46700 | **Collection Date:** 4/4/2013 7:30:00 AM

Lot-Sample No.: J3E020428-2 | **Report No. :** 56105 | **Received Date:** 5/2/2013 12:05:00 PM

Client Sample ID: X099 R2 NYC filters and beaker | **COC No. :** | **Matrix:** FILTER

Energy Fuels 2013 1st 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: 3122080	RL-RA-001			**Work Order:**	M0QQ21AC		**Report DB ID:**	9M0QQ210				
RA-226	**-4.46E-08**	U	1.9E-07	1.9E-07	4.35E-07	uCi/sample	34%	*-0.1*	7/2/13 07:13 p	1.0	0.9756	ASCGAB
						1.87E-07	9.00E-14	*-0.48*		Sample	Sample	
Batch: 3122081	RICHRC5011			**Work Order:**	M0QQ21AA		**Report DB ID:**	9M0QQ210				
TH-228	**1.30E-08**	U	1.3E-08	1.3E-08	1.71E-08	uCi/Sample	49%	*0.76*	6/28/13 04:13 a	1.0	0.97558	ALP118
						5.19E-09		*(2.)*		Sample	Sample	
TH-230	**6.65E-07**		7.8E-08	1.3E-07	1.30E-08	uCi/Sample	49%	*(51.3)*	6/28/13 04:13 a	1.0	0.97558	ALP118
						3.38E-09	3.00E-15	*(10.5)*		Sample	Sample	
TH-232	**9.64E-09**	U	1.1E-08	1.1E-08	1.58E-08	uCi/Sample	49%	*0.61*	6/28/13 04:13 a	1.0	0.97558	ALP118
						4.77E-09		*(1.8)*		Sample	Sample	
Batch: 3122082	RICHRC5011			**Work Order:**	M0QQ21AD		**Report DB ID:**	9M0QQ210				
Pb-210	**3.10E-06**		7.9E-07	9.5E-07	1.16E-06	uCi/Sample	36%	*(2.7)*	7/5/13 11:19 a	1.0	0.97558	GPC32D
						5.63E-07	6.00E-14	*(6.5)*		Sample	Sample	

No. of Results: 5 **Comments:**

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.
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: 11-Jul-13

Lab Name: TestAmerica

Matrix: FILTER

SDG: 46700

Report No. : 56105

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: 3122082	RICHRC5011			**Work Order:**	M0QTK1AA	**Report DB ID:**		M0QTK1AB				
Pb-210	1.95E-07	U	2.3E-07	2.4E-07	3.85E-07	uCi/Sample	82%	0.51	7/5/13 06:47 p	1.0	1.0	GPC31B
					1.86E-07	6.00E-14		(1.6)		Sample	Sample	
Batch: 3122080	RL-RA-001			**Work Order:**	M0QTH1AA	**Report DB ID:**		M0QTH1AB				
RA-226	3.88E-09	U	8.5E-08	8.5E-08	1.80E-07	uCi/sample	94%	0.02	7/2/13 07:13 p	1.0	1.0	ASCHMA
					7.97E-08	9.00E-14		0.09		Sample	Sample	
Batch: 3122081	RICHRC5011			**Work Order:**	M0QTJ1AA	**Report DB ID:**		M0QTJ1AB				
TH-228	7.53E-10	U	8.6E-09	8.6E-09	2.59E-08	uCi/Sample	42%	0.03	6/28/13 03:54 a	1.0	1.0	ALP123
					7.83E-09			0.17		Sample	Sample	
TH-230	4.56E-08		2.6E-08	2.7E-08	2.37E-08	uCi/Sample	42%	(1.9)	6/28/13 03:54 a	1.0	1.0	ALP123
					7.19E-09	3.00E-15		(3.4)		Sample	Sample	
TH-232	3.46E-09	U	7.4E-09	7.5E-09	1.95E-08	uCi/Sample	42%	0.18	6/28/13 03:54 a	1.0	1.0	ALP123
					5.09E-09			0.93		Sample	Sample	

No. of Results: 5 **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: 11-Jul-13

Lab Name: TestAmerica

Matrix: FILTER

SDG: 46700

Report No. : 56105

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: 3122082	RICHRC5011			**Work Order:**	M0QTK1AC		**Report DB ID:**	M0QTK1CS					
PB-210	1.01E-05		5.0E-07	1.8E-06	4.10E-07	uCi/Sample	82%	9.11E-06	1.53E-07	111%	7/5/13 06:47 p	1.0	GPC31C
							Rec Limits:	75	125	0.1		Sample	
Batch: 3122080	RL-RA-001			**Work Order:**	M0QTH1AC		**Report DB ID:**	M0QTH1CS					
RA-226	1.24E-05		7.5E-07	3.3E-06	2.31E-07	uCi/sample	94%	9.90E-06	1.01E-07	125%	7/3/13 08:30 a	1.0	ASCKMD
							Rec Limits:	75	125	0.3		Sample	
Batch: 3122081	RICHRC5011			**Work Order:**	M0QTJ1AC		**Report DB ID:**	M0QTJ1CS					
TH-230	2.18E-06		1.8E-07	3.9E-07	2.17E-08	uCi/Sample	34%	2.25E-06	2.33E-08	97%	6/28/13 03:54 a	1.0	ALP124
							Rec Limits:	75	125	0.0		Sample	

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

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

rptSTLRchLcs
V5.2.23 A2002

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☐

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TAL-4124 (1007)

Client	Project Manager	Date	Chain of Custody Number
Tetco	Dean Kitchen	4/5/2013	
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	Page 1 of 1
391 East 620 South	801-492-9106		

City	State	Zip Code	Site Contact	Lab Contact
American Fork	Ut	84003	Scott Christiansen, Garren Palmer	

Project Name and Location (State): Energy Fuels 2013 1st Quarter

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.:

Analysis (Attach list if more space is needed): U-Nat, TH-230, Ra-226, Lead-210

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	Zn(Ac)/NaOH	U-Nat	TH-230	Ra-226	Lead-210	Special Instructions/ Conditions of Receipt
X100 R1 Baghouse filter and beaker	4/4/2013	9:00	X										x				mokm1
X098 R1 NYC filters and beaker	4/3/2013	7:30	X										x				mokm2
X099 R2 NYC filters and beaker	4/4/2013	7:30	X										x				mokm3

J3D100435
SDG-466619
Due 5-8-13

J3D100435

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):

	Date	Time		Date	Time
1. Relinquished By	4/8/13	10	1. Received By: Julie Lock Lock TALL	4-10-13	1030
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

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

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Sample Check-in List

Date/Time Received: 4-10-13 | 1030 Container GM Screen Result: (Airlock) .6 Initials [ ]
Sample GM Screen Result (Sample Receiving) .12 Initials [ ]

Client: DEN SDG #: 46619 NA [ ] SAF #: NA [ ]

Lot Number: J3D100435

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; 3 x 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 : N/A
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.

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

16. Additional Information: N/A

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

Sample Custodian: [signature] Date: 4-10-13

Client Informed on ______ by ______ Person contacted ______

[X] No action necessary; process as is

Project Manager [signature] Date 4-12-13

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

LS-023, Rev. 15, 07/11

See over for additional information.

Laboratory Report
Test Dates:
June 5-6, 2013

Analytical Data Package Prepared For

Denison Mines (USA) Corp.

Denison Mines 2013 2nd Quarter

Radiochemical Analysis By

TestAmerica

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

Assigned Laboratory Code:

Data Package Contains 12 ***Pages***

Report No.: 56176

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.
46884		R1 Grizzly filter (X132)and be	J3F120435-1	M04KG1AC	9M04KG10	3172023
		R1 Grizzly filter (X132)and be	J3F120435-1	M04KG1AA	9M04KG10	3172024

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Certificate of Analysis

July 17, 2013

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

Attention: Dean Kitchen

Date Received at Lab	:	June 11, 2012
Project Name	:	Energy Fuels 2013 2nd Quarter
Sample Type	:	One (1) Stack Filter Sample
SDG Number	:	46884

CASE NARRATIVE

I. Introduction

On June 11, 2013, one stack filter sample was received at TestAmerica's Richland laboratory for radiochemical analysis. Upon receipt, the sample was assigned the TestAmerica identification numbers as described on the cover page of the Analytical Data Package report form. The sample was assigned to Lot Numbers J3F120435.

II. Sample Receipt

The sample was 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
Uranium-234, -235, -238 by method RL-ALP-004
Thorium-228, -230, -232 by method RL-ALP-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

The blank result of Th-230 has a result above the achieved MDA; suspect some tailing from the Th-229 tracer. The FWHM is elevated, due to the typical and expected tailing from the Th-229 tracer. 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.

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.

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
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

Date: 17-Jul-13

TestAmerica

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

Report No. : 56176 **SDG No:** 46884

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RER2
3172024	**RICHRC5011**								
R1 Grizzly filter (X132)and be									
	M04KG1AA	TH-228	1.48E-08 +- 1.0E-08		uCi/Sample	93%	1.38E-08		
		TH-230	1.28E-06 +- 2.1E-07		uCi/Sample	93%	1.21E-08	3.00E-15	
		TH-232	3.08E-08 +- 1.3E-08		uCi/Sample	93%	8.39E-09		
3172023	**FFSR**								
R1 Grizzly filter (X132)and be									
	M04KG1AC	U-234	5.82E-05 +- 4.3E-05		uCi/Sample	77%	2.96E-05	9.00E-15	
		U-235	1.47E-05 +- 2.1E-05	U	uCi/Sample	77%	2.96E-05	9.00E-15	
		U-238	5.09E-05 +- 4.0E-05		uCi/Sample	77%	2.96E-05	9.00E-15	

No. of Results: 6

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

TestAmerica

Ordered by Method, Batch No, QC Type,.

Date: 17-Jul-13

Report No. : 56176

SDG No.: 46884

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
RICHRC5011								
3172024 BLANK QC,								
M06WL1AA	TH-228	2.71E-10 +- 3.1E-09	U	uCi/Sample	84%			9.31E-09
	TH-230	2.51E-08 +- 1.2E-08		uCi/Sample	84%			7.46E-09
	TH-232	2.64E-10 +- 3.0E-09	U	uCi/Sample	84%			9.07E-09
3172024 LCS,								
M06WL1AC	TH-230	1.76E-06 +- 2.9E-07		uCi/Sample	96%	97%	0.0	9.14E-09
FFSR								
3172023 BLANK QC,								
M06WK1AA	U-234	1.09E-07 +- 1.4E-07	U	uCi/Sample	94%			2.18E-07
	U-235	7.51E-08 +- 1.2E-07	U	uCi/Sample	94%			1.87E-07
	U-238	1.16E-07 +- 1.4E-07	U	uCi/Sample	94%			1.87E-07
3172023 LCS,								
M06WK1AC	U-234	2.48E-05 +- 5.0E-06		uCi/Sample	59%	107%	0.1	3.07E-07
	U-238	2.34E-05 +- 4.7E-06		uCi/Sample	59%	97%	0.0	3.07E-07

No. of Results: 9

TestAmerica

rptSTLRchQcSummary V5.2.23 A2002

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: 17-Jul-13

Lab Name:	**TestAmerica**	**SDG:**	46884	**Collection Date:**	6/5/2013 3:00:00 PM
Lot-Sample No.:	**J3F120435-1**	**Report No. :**	56176	**Received Date:**	6/11/2013 12:45:00 PM
Client Sample ID:	**R1 Grizzly filter (X132)and be**	**COC No. :**		**Matrix:**	FILTER

Denison Mines 2013 2nd 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: 3172023	FFSR			**Work Order:**	M04KG1AC		**Report DB ID:**	9M04KG10				
U-234	**5.82E-05**		4.2E-05	4.3E-05	2.96E-05	uCi/Sample	77%	*(2.)*	7/1/13 10:55 p	1.0	0.00104	ALP219
						4.84E-06	9.00E-15	*(2.7)*		Sample	Sample	
U-235	**1.47E-05**	U	2.1E-05	2.1E-05	2.96E-05	uCi/Sample	77%	*0.5*	7/1/13 10:55 p	1.0	0.00104	ALP219
						4.84E-06	9.00E-15	*(1.4)*		Sample	Sample	
U-238	**5.09E-05**		3.9E-05	4.0E-05	2.96E-05	uCi/Sample	77%	*(1.7)*	7/1/13 10:55 p	1.0	0.00104	ALP219
						4.84E-06	9.00E-15	*(2.6)*		Sample	Sample	
							Ratio U-234/238 = 1.1					
Batch: 3172024	RICHRC5011			**Work Order:**	M04KG1AA		**Report DB ID:**	9M04KG10				
TH-228	**1.48E-08**		1.0E-08	1.0E-08	1.38E-08	uCi/Sample	93%	*(1.1)*	7/2/13 09:50 a	1.0	0.98048	ALP117
						5.22E-09		*(2.9)*		Sample	Sample	
TH-230	**1.28E-06**		7.9E-08	2.1E-07	1.21E-08	uCi/Sample	93%	*(105.6)*	7/2/13 09:50 a	1.0	0.98048	ALP117
						4.40E-09	3.00E-15	*(12.)*		Sample	Sample	
TH-232	**3.08E-08**		1.3E-08	1.3E-08	8.39E-09	uCi/Sample	93%	*(3.7)*	7/2/13 09:50 a	1.0	0.98048	ALP117
						2.54E-09		*(4.6)*		Sample	Sample	

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

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.
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: 17-Jul-13

Lab Name: TestAmerica

Matrix: FILTER

SDG: 46884

Report No. : 56176

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: 3172023	FFSR			**Work Order:**	M06WK1AA	**Report DB ID:**	M06WK1AB					
U-234	1.09E-07	U	1.4E-07	1.4E-07	2.18E-07	uCi/Sample	94%	0.5	7/1/13 10:55 p	1.0	0.17	ALP220
					5.37E-08	9.00E-15		(1.5)		Sample	Sample	
U-235	7.51E-08	U	1.2E-07	1.2E-07	1.87E-07	uCi/Sample	94%	0.4	7/1/13 10:55 p	1.0	0.17	ALP220
					3.80E-08	9.00E-15		(1.3)		Sample	Sample	
U-238	1.16E-07	U	1.4E-07	1.4E-07	1.87E-07	uCi/Sample	94%	0.62	7/1/13 10:55 p	1.0	0.17	ALP220
					3.80E-08	9.00E-15		(1.6)		Sample	Sample	
							Ratio U-234/238 = 0.9					
Batch: 3172024	RICHRC5011			**Work Order:**	M06WL1AA	**Report DB ID:**	M06WL1AB					
TH-228	2.71E-10	U	3.1E-09	3.1E-09	9.31E-09	uCi/Sample	84%	0.03	7/2/13 09:51 a	1.0	1.0	ALP118
					2.82E-09			0.17		Sample	Sample	
TH-230	2.51E-08		1.2E-08	1.2E-08	7.46E-09	uCi/Sample	84%	(3.4)	7/2/13 09:51 a	1.0	1.0	ALP118
					1.94E-09	3.00E-15		(4.1)		Sample	Sample	
TH-232	2.64E-10	U	3.0E-09	3.0E-09	9.07E-09	uCi/Sample	84%	0.03	7/2/13 09:51 a	1.0	1.0	ALP118
					2.75E-09			0.17		Sample	Sample	

No. of Results: 6 **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: 17-Jul-13

Lab Name: TestAmerica

Matrix: FILTER

SDG: 46884

Report No. : 56176

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: 3172023	FFSR			**Work Order:**	M06WK1AC		**Report DB ID:**	M06WK1CS					
U-234	2.48E-05		2.7E-06	5.0E-06	3.07E-07	uCi/Sample	59%	2.31E-05	1.22E-07	107%	7/1/13 10:56 p	0.14	ALP221
							Rec Limits:	75	125	0.1		Sample	
U-238	2.34E-05		2.7E-06	4.7E-06	3.07E-07	uCi/Sample	59%	2.42E-05	1.28E-07	97%	7/1/13 10:56 p	0.14	ALP221
							Rec Limits:	75	125	0.0		Sample	
Batch: 3172024	RICHRC5011			**Work Order:**	M06WL1AC		**Report DB ID:**	M06WL1CS					
TH-230	1.76E-06		9.7E-08	2.9E-07	9.14E-09	uCi/Sample	96%	1.82E-06	1.88E-08	97%	7/2/13 09:51 a	1.0	ALP119
							Rec Limits:	75	125	0.0		Sample	

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

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

rptSTLRchLcs
V5.2.23 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: 6/07/2013	Chain of Custody Number
Address: 391 East 620 South	Telephone Number (Area Code)/Fax Number: 801-492-9106	Lab Number	Page _____ of _____
City: American Fork; State: Ut; Zip Code: 84003	Site Contact: Scott Christensen, Garren Palmer	Lab Contact	
Project Name and Location (State): Denison Mine 2013 2nd 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
R1 Grizzly filter (X132) and beaker	6/5,6/13	15:00	X												X	X											M04KG
J3F120435																											
SDL-46884																											
Due 7-9-13																											

J3F120435

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)

	Date	Time		Date	Time
1. Relinquished By	6-07-13	12:00	1. Received By: Julie Bock TALL	6-11-13	1245
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

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: 6-11-13 / 1245 Container GM Screen Result: (Airlock) 40 cpm Initials [JB]
Sample GM Screen Result (Sample Receiving) 40 cpm Initials [JB]

Client: DEN SDG #: 468484 SAF #: _____ NA [JB]

Lot Number: J3F120435

Chain of Custody # _____

Shipping Container ID or 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): 1
7. Containers received: 1x filter; 1x beaker
8. Sample holding times exceeded? NA [ ] Yes [ ] No [JB]
9. Samples have: ____ tape ____ hazard labels ____ custody seals [JB] appropriate sample labels
10. Matrix: [JB] A (FLT, Wipe, Solid, Soil) ____ I (Water) [JB] S (Air, Niosh 7400) [JB] T (Biological, Ni-63)
11. Samples: JB 6-18-13
[JB] are in good condition ____ are leaking ____ are broken
____ have air bubbles (Only for samples requiring no head space) ____ Other _____
12. Sample pH appropriate for analysis requested Yes [ ] No [ ] NA [JB]
(If acidification is necessary go to pH area & document sample ID, initial pH, amount of HNO_3 added and pH after addition on table)
13. Were any anomalies identified in sample receipt? Yes [ ] No [JB]
14. Description of anomalies (include sample numbers): NA [JB] _____
15. Sample Location, Sample Collector Listed on COC? * Yes [ ] No [JB]
*For documentation only. No corrective action needed.
16. Additional Information: N/A

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

Sample Check-in List completed by Sample Custodian:
Signature: Juan Bosch Date: 6-11-13

Client Notification needed? Yes [ ] No [ ] Date: _____
By: _____
Person contacted: _____

[X] No action necessary; process as is

Project Manager Emilia Ford Date: 6-17-13

APPENDIX D

South Yellow Cake Scrubber
- Figure 1. Facility Schematic Representation

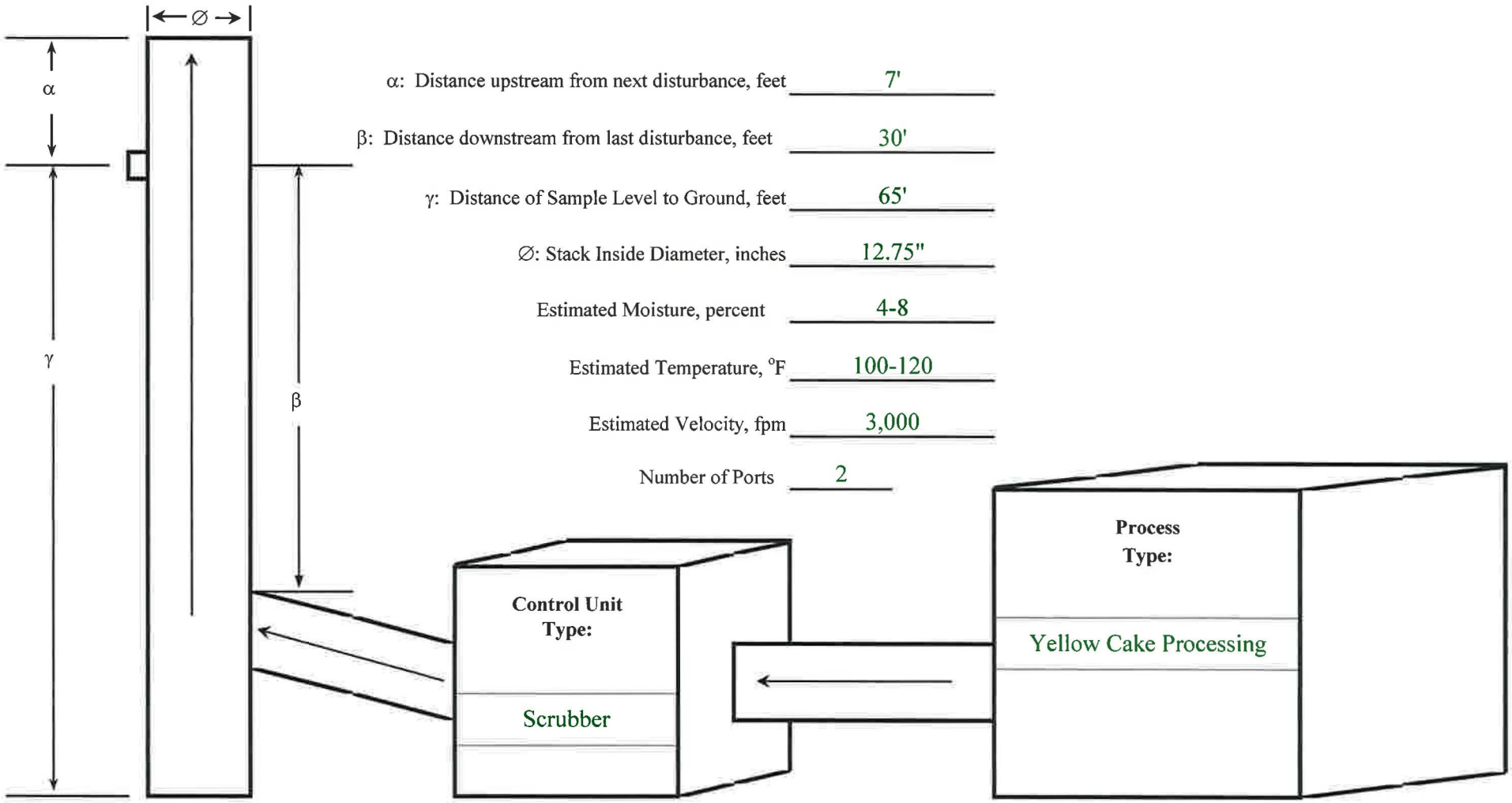
Yellow Cake Dryer Baghouse
- Figure 2. Facility Schematic Representation

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'

∅: Stack Inside Diameter, inches 12.75"

Estimated Moisture, percent 4-8

Estimated Temperature, °F 100-120

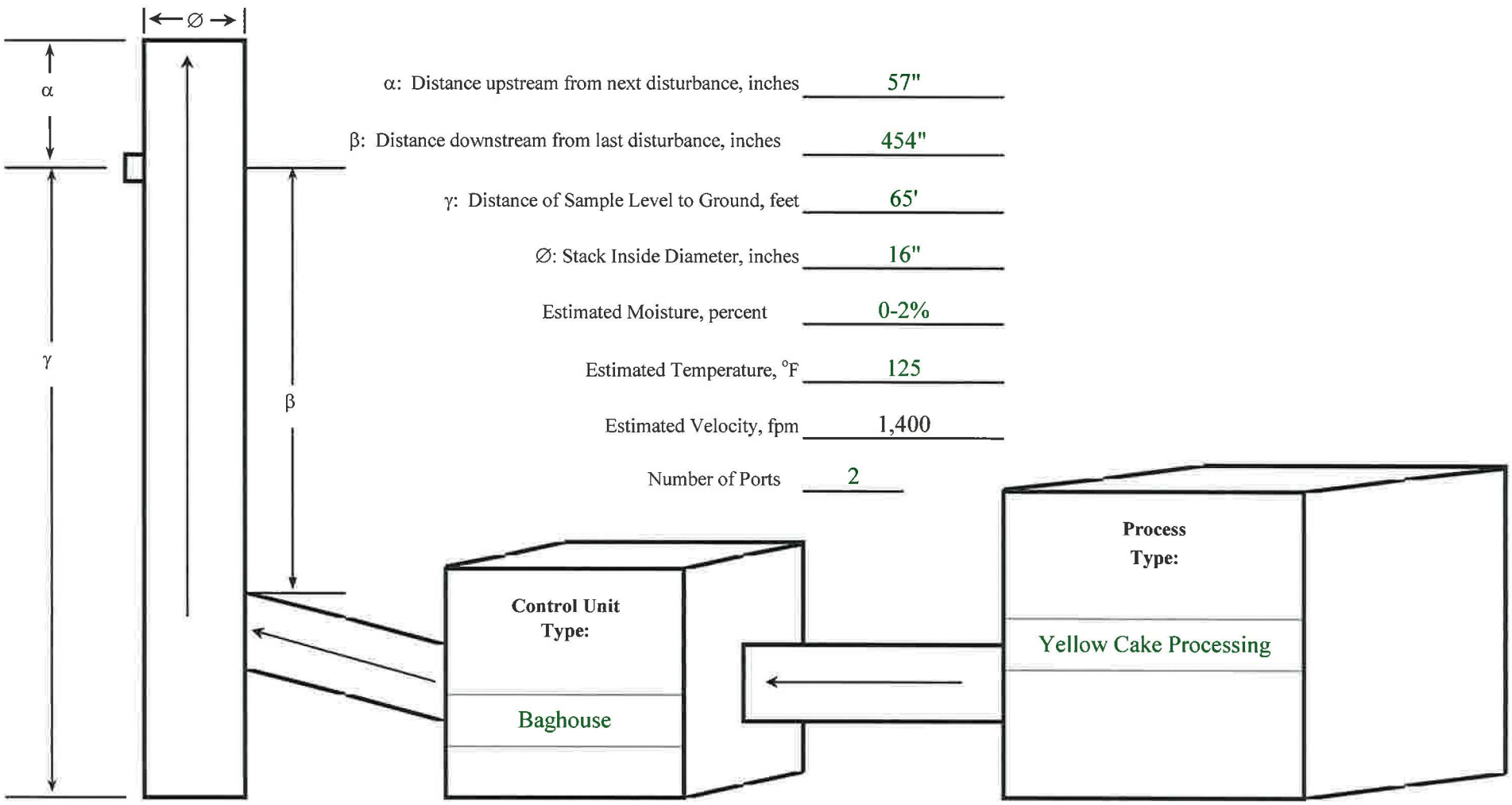
Estimated Velocity, fpm 3,000

Number of Ports 2

Figure 1. Facility Schematic Representation

Facility: Energy Fuels Resources

Stack Identification: Yellow Cake Dryer Baghouse

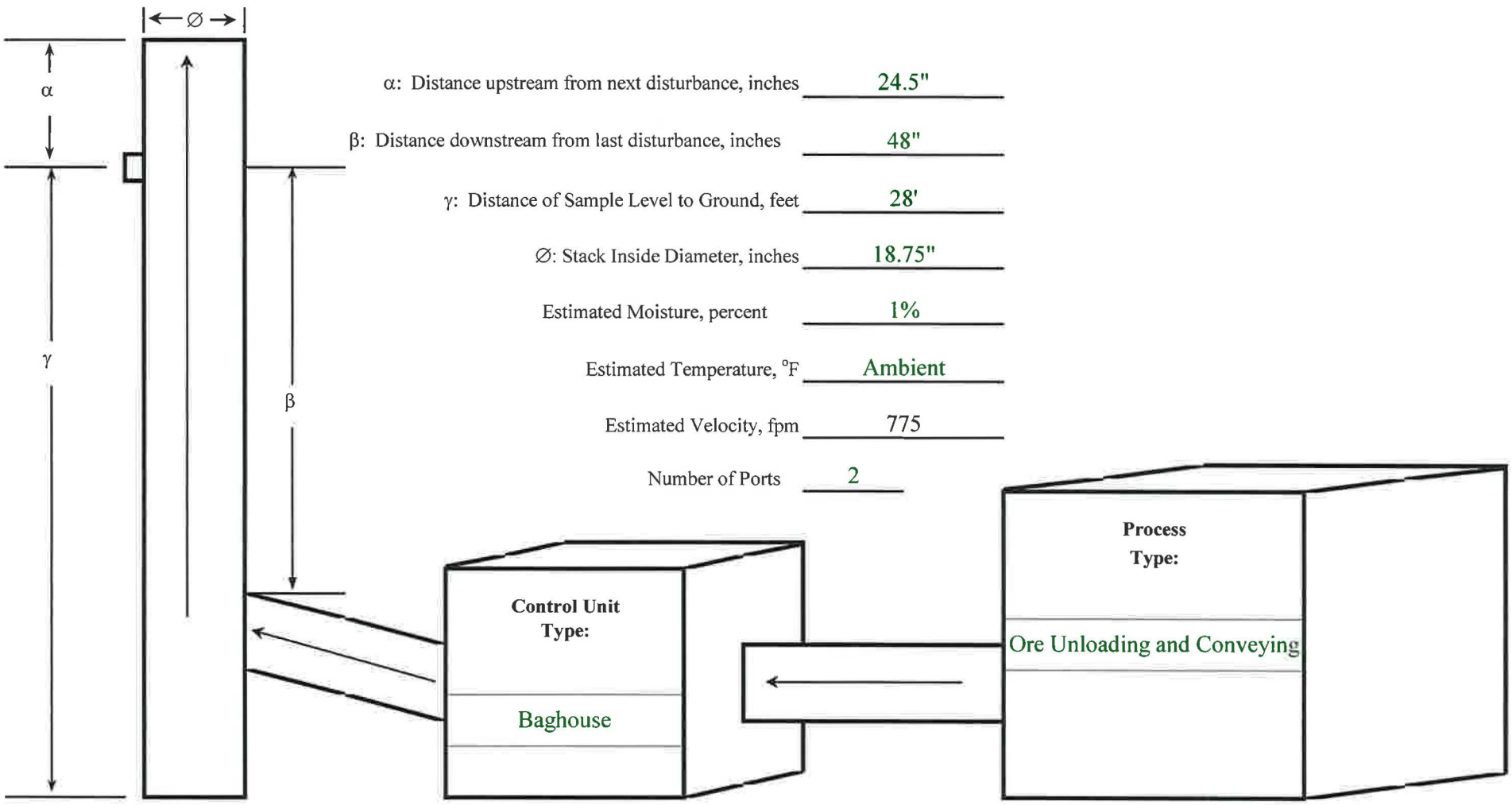


α: Distance upstream from next disturbance, inches	57"
β: Distance downstream from last disturbance, inches	454"
γ: Distance of Sample Level to Ground, feet	65'
∅: Stack Inside Diameter, inches	16"
Estimated Moisture, percent	0-2%
Estimated Temperature, °F	125
Estimated Velocity, fpm	1,400
Number of Ports	2

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: 4/3/13	
	Scrubber Flow GPM		
Time	#1	#2	ΔP
7:30	30.9		10.7
8:00	30.9		10.7
8:30	31.0		10.7
9:00	31.9		10.7
9:30	31.9		10.7
10:00	32.0		10.7
10:30	32.0		10.7
11:00	32.0		10.7
11:30	32.1		10.7
12:00	32.0		10.7
12:30	32.3		10.7
13:00	32.2		10.7
13:30	32.5		10.7
14:00	33.0		10.7
14:30	33.3		~~10.7~~ ~~33.3~~
15:00	33.3		10.7
15:30	33.2		10.7
16:00	33.1		10.7

Energy Fuels Resources, Blanding, UT Process Data

Source: South Yellow Cake		Date: 4/4/13	
	Scrubber Flow GPM		
Time	#1	#2	ΔP
7:30	32.8		10.7
8:00	32.8		~~32~~ 10.7
8:30	32.0		10.7
9:00	31.4		~~31.4~~ 10.7
9:30	31.4		10.7
10:00	32.3		10.7
10:30	32.1		10.7
11:00	32.7		10.7
11:30	32.4		10.7
12:00	32.4		10.7
12:30	32.3		10.7
13:00	32.5		10.7
13:30	32.6		10.7
14:00	32.0		10.7
14:30	32.3		10.7
15:00	32.4		10.7
15:30	22.3		10.7

Energy Fuels Resources, Blanding, UT Process Data

Source: Grizzly Baghouse		Date: 6/5-6/13	
Time	Tons (Integrator)	tph	fpm
15:55	611410	125	108.9
16:15	611470	125	108.9
16:35	611525	125	109.0
16:55	611575	145	108.9
17:15	611635	185	109.1
17:35	611690	140	108.8
17:55	611750	125	108.7
18:15	611805	145	108.7
18:35	611860	155	108.5
18:55	611915	135	108.8
19:15	611975	145	106.8
19:35	612030	155	108.8
6/6/13 7:38	613170	130	108.9
8:00	613235	130	108.9
8:20	613290	135	109.0
8:40	613345	185	108.7
9:00	613405	125	108.9
9:20	613445	120	108.7
9:40	613505	140	109.0
10:00	613555	130	108.7
10:20	613615	135	108.7
10:40	613670	145	108.5
11:00	613725	145	108.8
11:34	613790	130	108.8

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

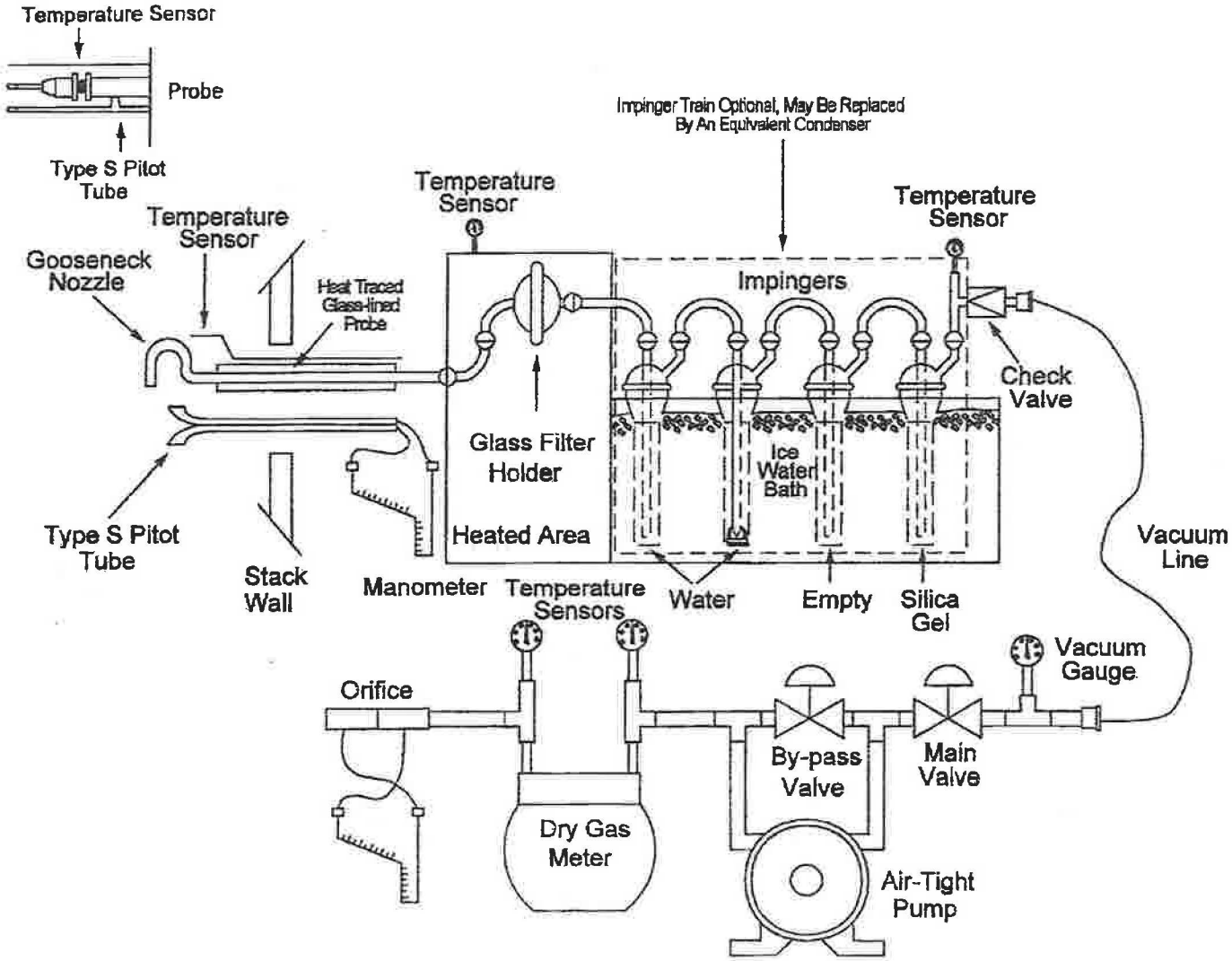


Figure 3 Schematic of Method 5/114 Sampling Train

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.

2013 Pre-Calibration

							INITIAL	FINAL	AVG (P_{bar})
DATE:	12/13/2012	METER SERIAL #:	27863	BAROMETRIC PRESSURE (in Hg):	25.20	25.20	25.20
METER PART #:	Console 4	CRITICAL ORIFICE SET SERIAL #:	1453S	EQUIPMENT ID #:	Console #4		

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	13	645.607	652.115	6.508	71	78	79	84	87	82	6.00	2.60	5.3812	5.3407	0.992		1.526
	2	0.8137	13	652.115	658.605	6.490	71	79	79	87	87	83	6.00	2.60	5.3564	5.3407	0.997		1.523
	3	0.8137	13	658.606	665.066	6.461	71	79	79	87	87	83.00	6.00	2.60	5.3325	5.3407	1.002		1.523
																AVG =	0.997	-0.30	
19	1	0.5317	13	602.003	607.609	5.606	69	73	74	75	76	74.50	8.00	1.10	4.680	4.6618	0.996		1.521
	2	0.5317	13	613.065	618.669	5.604	69	74	75	76	77	75.50	8.00	1.10	4.6696	4.6618	0.998		1.518
	3	0.5317	13	618.669	624.268	5.599	69	75	75	77	78	76.25	8.00	1.10	4.6589	4.6618	1.001		1.516
																AVG =	0.998	-0.16	
12	1	0.3307	13	628.000	633.184	5.184	71	72	73	75	80	75.00	12.00	0.40	4.3149	4.3411	1.006		1.431
	2	0.3307	13	633.184	638.396	5.212	71	73	76	80	80	77.25	12.00	0.40	4.320	4.3411	1.005		1.425
	3	0.3307	13	638.396	643.626	5.230	71	76	76	80	80	78.00	12.00	0.40	4.3289	4.3411	1.003		1.423
																AVG =	1.005	0.46	

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 $\Delta H_@$ = 1.490

(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
Ice Bath	33	33	33
Ambient Air	62	62	62
Boiling Water	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.

Quality - Service - Reliability

2013 Pre-Calibration

DATE: 12/7/2012
METER PART #: Console 5
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 #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 (%)	$\Delta H_@$
30	1	0.8137	12	128.204	133.588	5.384	70	76	83	76	84	79.75	5.00	2.60	4.5144	4.4990	0.997		1.515
	2	0.8137	12	133.588	139.020	5.432	70	83	85	84	93	86.25	5.00	2.60	4.5004	4.4990	1.000		1.497
	3	0.8137	12	139.020	144.448	5.428	70	85	86	93	94	89.50	5.00	2.60	4.4705	4.4990	1.006		1.488
																AVG =	1.001	0.01	
19	1	0.5317	13	95.7570	100.951	5.194	70	69	70	69	71	69.75	7.50	1.11	4.4184	4.4097	0.998		1.536
	2	0.5317	13	100.951	106.479	5.528	70	70	70	71	72	70.75	8.00	1.11	4.6936	4.7035	1.002		1.534
	3	0.5317	13	106.479	111.698	5.219	70	70	73	72	75	72.50	7.50	1.11	4.4167	4.4097	0.998		1.529
																AVG =	1.000	-0.12	
12	1	0.3307	20	111.900	117.108	5.208	70	74	75	75	76	75.00	12.00	0.40	4.3778	4.3883	1.002		1.414
	2	0.3307	20	117.108	122.339	5.231	70	76	76	76	77	76.00	12.00	0.40	4.3889	4.3883	1.000		1.412
	3	0.3307	20	122.339	127.559	5.220	70	76	77	77	78	76.75	12.00	0.40	4.3736	4.3883	1.003		1.410
																AVG =	1.002	0.11	

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 $\Delta H_@$ = 1.481

(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
32	33	32
72	73	73
203	202	202

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.

ENVIRONMENTAL SUPPLY COMPANY

2013 Pre-Calibration Console 9

DATE: 12/17/2012 | METER SERIAL #: 1297-3246 | BAROMETRIC PRESSURE (in Hg): INITIAL 25.20, FINAL 25.20, AVG (P_{bar}) 25.20

METER PART #: Console 9 | CRITICAL ORIFICE SET SERIAL #: 14635 | EQUIPMENT ID #: Console 9

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 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 (%)	$\Delta H_@$
30	1	0.8137	12	406.579	411.964	5.385	70	76	78	73	74	75.25	6.00	3.00	5.3523	5.3457	0.989		1.782
	2	0.8137	12	411.964	417.814	5.850	70	78	80	74	74	76.5	5.50	3.00	4.8924	4.9002	1.002		1.778
	3	0.8137	12	417.814	423.674	5.860	70	80	81	74	74	77.25	5.50	3.00	4.8939	4.9002	1.001		1.775
																AVG =	1.001	-0.36	
19	1	0.5317	12	388.103	393.271	5.168	70	72	72	42	72	64.50	7.50	1.20	4.3980	4.3663	0.993		1.685
	2	0.5317	12	393.271	398.532	5.261	70	72	75	72	72	72.75	7.50	1.20	4.4077	4.3663	0.991		1.669
	3	0.5317	12	398.532	403.684	5.152	70	75	77	72	72	74.00	7.50	1.20	4.3063	4.3663	1.014		1.665
																AVG =	0.999	-0.50	
12	1	0.3307	12	424.550	429.881	5.331	75	77	77	74	74	75.50	12.50	0.44	4.4336	4.5050	1.016		1.585
	2	0.3307	12	429.881	435.011	5.130	75	77	78	74	74	75.75	12.00	0.44	4.2644	4.3248	1.014		1.584
	3	0.3307	13	435.011	440.174	5.163	75	78	78	74	74	76.00	12.00	0.44	4.2599	4.3248	1.008		1.583
																AVG =	1.013	0.86	

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 $\Delta H_@$ = **1.679**

(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
32	33	33
72	73	73
201	202	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.

Facility : **Energy Fuels**

					INITIAL	FINAL	AVG (P_{bar})
DATE:	6/10/2013	METER SERIAL #:	27863	BAROMETRIC PRESSURE (in Hg):	25.30	25.30	25.30
METER PART #:	Console 4	CRITICAL ORIFICE SET SERIAL #:	1453S	EQUIPMENT ID #:	Console #4		

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						0							
	2	0		.0		.0						0							
	3	0		.0		.0						0.00							
																AVG =			
19	1	0.5317	13	659.541	666.591	7.050	75	80	82	80	83	81.25	10.00	1.10	5.8351	5.8175	0.997		1.513
	2	0.5317	13	666.591	672.794	6.203	75	80	82	81	83	81.50	9.00	1.10	5.1317	5.2357	1.020		1.513
	3	0.5317	13	672.794	678.386	5.592	75	81	82	83	84	82.50	8.00	1.10	4.6176	4.6540	1.008		1.510
																AVG =	1.008	0.00	
12	1					.0						0.00							
	2	0		.0		.0						0.00							
	3	0		.0		.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 = 1.008

AVERAGE $\Delta H_@$ = 1.512

(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
Ice Bath	33	33	33
Ambient Air	62	62	62
Boiling Water	202	203	203

Post Console #4 Calibration 2013

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.

Energy Fuels

							INITIAL	FINAL	AVG (P_{bar})
DATE:	4/8/2013	METER SERIAL #:	68092	BAROMETRIC PRESSURE (in Hg):			24.85	24.85	24.85
METER PART #:	Console 5	CRITICAL ORIFICE SET SERIAL #:	1453S	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 (%)	$\Delta H_@$
	1					.0						0.00							
	2					.0						0.00							
	3					.0						0.00							
																AVG =			
19	1	0.5317	12	861.050	866.129	5.079	63	56	60	60	62	59.50	7.50	1.10	4.3022	4.3344	1.007		1.569
	2	0.5317	12	866.129	871.60	5.471	63	60	62	62	66	62.50	8.00	1.10	4.6076	4.6234	1.003		1.560
	3	0.5317	12	871.60	877.442	5.842	63	62	66	64	65	64.25	8.50	1.10	4.9036	4.9124	1.002		1.555
																AVG =	1.004	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 = 1.004

AVERAGE $\Delta H_@$ = 1.561

(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
32	33	32
72	73	73
203	202	202

post 2013

METHOD 5 DRY GAS METER CALIBRATION USING CRITICAL ORIFICES

ENVIRONMENTAL SUPPLY COMPANY

Energy Fuels

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.

					INITIAL	FINAL	AVG (P_{bar})
DATE:	4/8/2013	METER SERIAL #:	1297-3245	BAROMETRIC PRESSURE (in Hg):	24.85	24.85	24.85
METER PART #:	Console 9	CRITICAL ORIFICE SET SERIAL #:	1453S	EQUIPMENT ID #:	Console 9		

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 (%)	$\Delta H_@$
						.0						0							
						.0						0							
						.0						0							
																AVG =			
25	1	0.6808	12	545.903	551.219	5.316	62	65	66	60	65	64.00	6.00	2.00	4.4761	4.4442	0.993		1.727
	2	0.6808	12	551.219	556.965	5.746	62	66	68	65	66	66.25	6.50	2.00	4.8174	4.8145	0.999		1.719
	3	0.6808	12	556.965	562.719	5.754	62	68	72	66	67	68.25	6.50	2.00	4.8059	4.8145	1.002		1.713
																AVG =	0.998	0.00	
						.0						0.00							
						.0						0.00							
						.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 = 0.998

AVERAGE $\Delta H_@$ = 1.719

(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

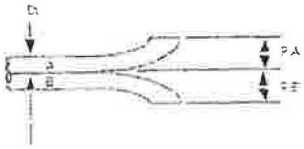
Reference °F	In °F	Out °F
32	33	33
72	73	73
201	202	203

Type S Pitot Tube Inspection Data

Date 12-12-12

Pitot Tube Identification 9-18

Technician K. McNamara



D_t = .375 in

Is $P_A = P_B$? YES

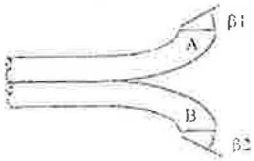
Is $1.05 \cdot D_t \le D_t \le 1.50 \cdot D_t$? YES

P_A = .496 in

P_B = .496 in

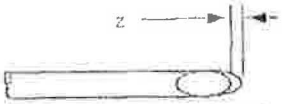
$\alpha_1 < 10°$ α_1 = 1 °

$\alpha_2 < 10°$ α_2 = 1 °



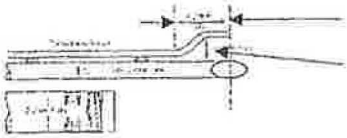
$\beta_1 < 5°$ β_1 = 2 °

$\beta_2 < 5°$ β_2 = 2 °



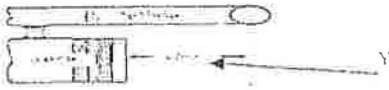
$Z \le 0.125$ in Z = .001 in

$W \le 0.03125$ in W = .001 in



W > 3 inches W = 6 1/2 in

Z > 3/4 inch Z = 1 in



Y ≥ 3 inches Y = 3 1/2 in

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

Temperature Sensor Calibration

Reference _____

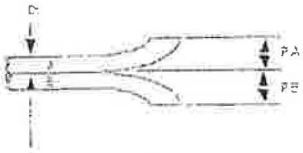
	Temperature Source (Medium)	Temperature Reference (°F)	Temperature Sensor (°F)	Temperature Difference (°F)
Probe	AIR	71	70	1
	Continuity	—	—	YES
	Heat Check 248	—	YES	260
Stack	AIR	71	70	1
	ICE WATER	33	34	1
	BOIL WATER	202	202	0
	SILICONE OIL			

Type S Pitot Tube Inspection Data

Date 12-17-12

Pitot Tube Identification 27-9

Technician K. McNamara



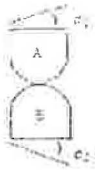
D= .375 in

Is $P_A = P_B$? Yes

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

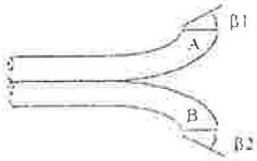
P_A = .440 in

P_B = .440 in



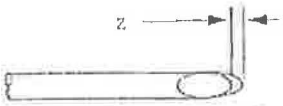
$\alpha_1 < 10°$ α_1 = 2 °

$\alpha_2 < 10°$ α_2 = 0 °

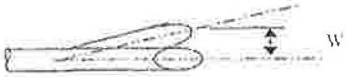


$\beta_1 < 5°$ β_1 = 1 °

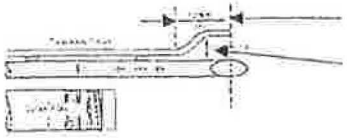
$\beta_2 < 5°$ β_2 = 1 °



Z ≤ 0.125 in Z = .017 in

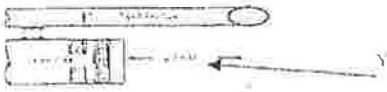


W ≤ 0.03125 in. W = .015 in



W > 3 inches W = 7 in

Z > 3/4 inch Z = 1 in



Y ≥ 3 inches Y = 3 1/2 in

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

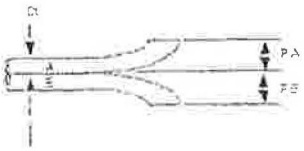
Temperature Sensor Calibration				
Reference				
	Temperature Source (Medium)	Temperature Reference (°F)	Temperature Sensor (°F)	Temperature Difference (°F)
Probe	AIR	73	73	0
	Continuity	—	—	Yes
	Heat Check 243	—	Yes	260
Stack	AIR	73	73	0
	ICE WATER	33	33	0
	BOIL WATER	203	203	0
	SILICONE OIL			

Type S Pitot Tube Inspection Data

Date 12-17-12

Pitot Tube Identification 38-4

Technician: K. McNamara



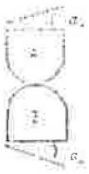
D_t = .375 in

Is $P_A = P_B$? Yes

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

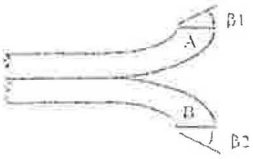
P_A = .460 in

P_B = .460 in



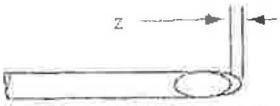
$\alpha_1 < 10°$ α_1 = 1 °

$\alpha_2 < 10°$ α_2 = 1 °

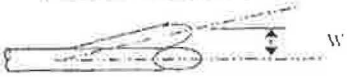


$\beta_1 < 5°$ β_1 = 1 °

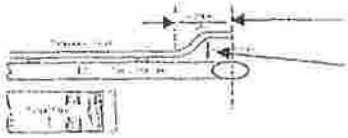
$\beta_2 < 5°$ β_2 = 1 °



$Z \le 0.125$ in Z = .032 in



$W \le 0.03125$ in W = .005 in



W > 3 inches W = 6 in

Z > 3/4 inch Z = 1½ in

Y ≥ 3 inches Y = 3½ in

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

Temperature Sensor Calibration

Reference _____

	Temperature Source (Medium)	Temperature Reference (°F)	Temperature Sensor (°F)	Temperature Difference (°F)
Probe	AIR	72	72	0
	Continuity	—	—	Yes
	Heat Check 243	—	Yes	260
Stack	AIR	72	72	0
	ICE WATER	33	33	0
	BOIL WATER	203	203	0
	SILICONE OIL			

TETCO

Sample Box Temperature Sensor Calibration

Date: 12/19/12 Calibrator: Mike McNamara Reference: Omega CL3512A

Unit ID	Thermocouple Location	Temperature Source (Medium)	Temperature Reference (°F)	Temperature Sensor (°F)	Temp. Diff. or Result (°F), P/F
A	Oven	Water	33	34	1
		Water	204	204	0
	Probe Out	Water	33	34	1
		Water	204	204	0
	Impinger Out	Water	33	34	1
		Water	204	204	0
B	Oven	Water	33	35	2
		Water	204	204	0
	Probe Out	Water	33	35	2
		Water	204	204	0
	Impinger Out	Water	33	34	1
		Water	204	204	0
C	Oven	Water	33	34	1
		Water	204	204	0
	Probe Out	Water	33	34	1
		Water	204	204	0
	Impinger Out	Water	33	34	1
		Water	204	204	0
D	Oven	Water	33	33	0
		Water	204	204	0
	Probe Out	Water	33	33	0
		Water	204	204	0
	Impinger Out	Water	33	34	1
		Water	204	203	-1
E	Oven	Water	33	34	1
		Water	204	204	0
	Probe Out	Water	33	34	1
		Water	204	204	0
	Impinger Out	Water	33	34	1
		Water	204	202	-2
F	Oven	Water	33	34	1
		Water	204	204	0
	Probe Out	Water	33	34	1
		Water	20	204	0
	Impinger Out	Water	33	35	2
		Water	204	202	-2
	Impinger Out G	Water	33	34	1
		Water	204	202	-2
	Impinger Out H	Water	33	35	2
		Water	204	202	-2
	Impinger Out I	Water	33	34	1
		Water	204	204	0
	Impinger Out J	Water	33	34	1
		Water	204	203	-1
	Impinger Out K	Water	33	34	1
		Water	204	204	0

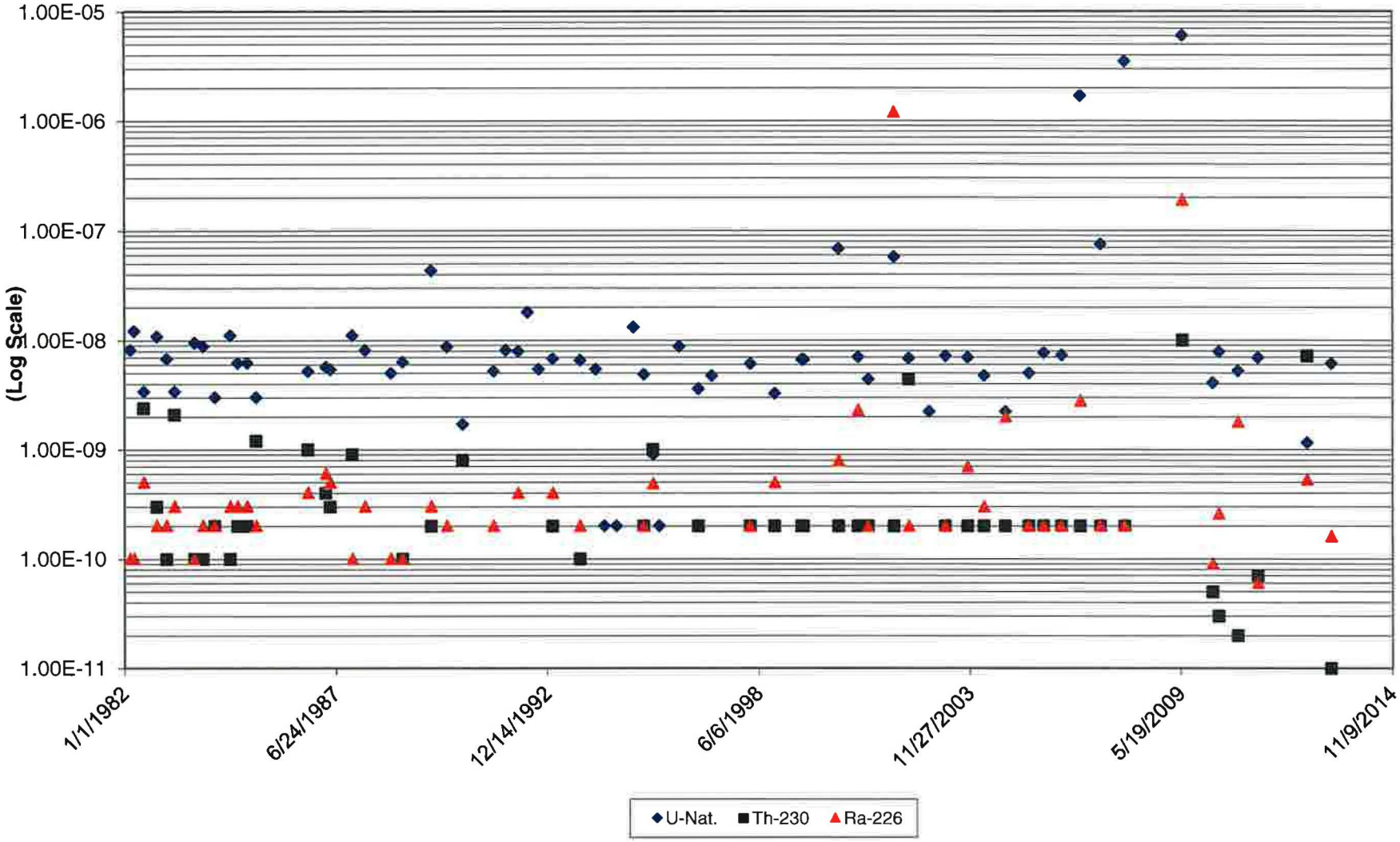
APPENDIX F

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

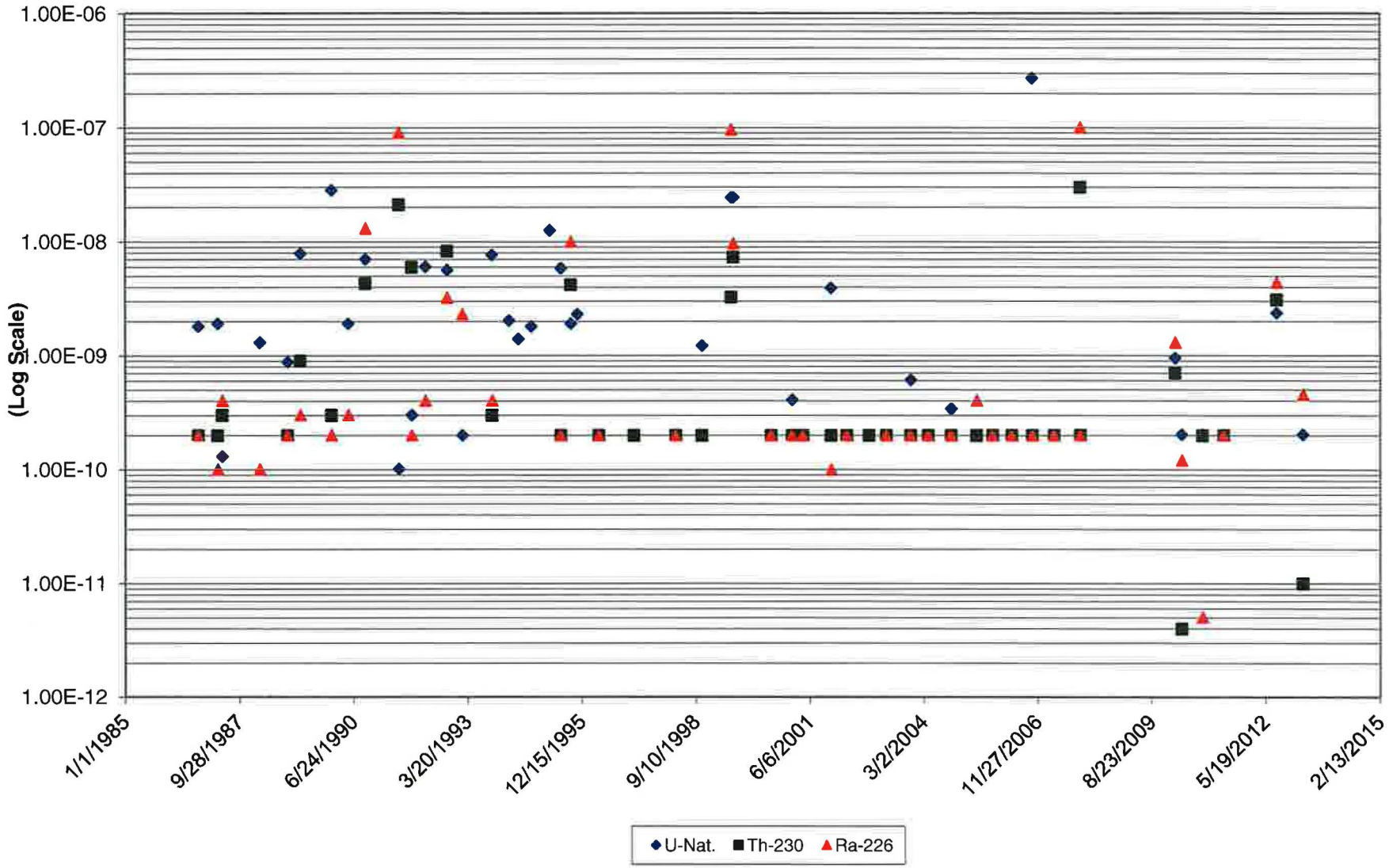
ATTACHMENT H

SURFACE WATER GRAPHS AND FIELD DATA SHEETS

Cottonwood Creek Dissolved Radionuclide Concentrations (uCi/ml)



Cottonwood Creek Suspended Radionuclide Concentrations (uCi/ml)



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e-mail: awal@awal-labs.com

web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Garrin Palmer
Energy Fuels Resources, Inc.
6425 S. Hwy 191
Blanding, UT 84511
TEL: (435) 678-2221

RE: 1st Quarter Surface Water

Dear Garrin Palmer: Lab Set ID: 1303553

American West Analytical Laboratories received 1 sample(s) on 3/22/2013 for the analyses presented in the following report.

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, and Missouri.

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Kyle F. Gross

Digitally signed by Kyle F. Gross
DN: cn=Kyle F. Gross, o=AWAL, ou=AWAL-Laboratory Director, email=kyle@awal-labs.com, c=US
Date: 2013.03.27 16:08:12 -06'00'

Laboratory Director or designee

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

SAMPLE SUMMARY

Client: Energy Fuels Resources, Inc.
Project: 1st Quarter Surface Water
Lab Set ID: 1303553
Date Received: 3/22/2013 1010h

Contact: Garrin Palmer

Lab Sample ID	Client Sample ID	Date Collected	Matrix	Analysis
1303553-001A	Cottonwood Creek	3/15/2013 1040h	Aqueous	Total Dissolved Solids, A2540C
1303553-001A	Cottonwood Creek	3/15/2013 1040h	Aqueous	TSS

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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Inorganic Case Narrative

American West
ANALYTICAL LABORATORIES

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web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Client:	Energy Fuels Resources, Inc.
Contact:	Garrin Palmer
Project:	1st Quarter Surface Water
Lab Set ID:	1303553

Sample Receipt Information:

Date of Receipt:	3/22/2013
Date of Collection:	3/15/2013
Sample Condition:	Intact
C-O-C Discrepancies:	None

Holding Time and Preservation Requirements: The analysis and preparation for the sample was performed within the method holding times. The sample was properly preserved.

Preparation and Analysis Requirements: The sample was analyzed following the methods stated on the analytical reports.

Analytical QC Requirements: All instrument calibration and calibration check requirements were met. All internal standard recoveries met method criterion.

Batch QC Requirements: MB, LCS, RPD, DUP:

Method Blanks (MB): No target analytes were detected above reporting limits, indicating that the procedure was free from contamination.

Laboratory Control Samples (LCS): All LCS recoveries were within control limits, indicating that the preparation and analysis were in control.

Duplicate (DUP): The parameters that required a duplicate analysis had RPDs within the control limits.

Corrective Action: None required.

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Surface Water
Lab Sample ID: 1303553-001
Client Sample ID: Cottonwood Creek
Collection Date: 3/15/2013 1040h
Received Date: 3/22/2013 1010h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Total Dissolved Solids	mg/L		3/22/2013 1240h	SM2540C	20.0	**436**	
Total Suspended Solids	mg/L		3/22/2013 1630h	SM2540D	3.00	**21.2**	

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web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Energy Fuels Resources, Inc.
Lab Set ID: 1303553
Project: 1st Quarter Surface Water

Contact: Garrin Palmer
Dept: WC
QC Type: DUP

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
1303550-001CDUP	Total Dissolved Solids	mg/L	SM2540C	3,760		3,772		-	0.319	5		3/22/2013 1240h
1303553-001ADUP	Total Dissolved Solids	mg/L	SM2540C	428		436.0		-	1.85	5		3/22/2013 1240h
1303553-001ADUP	Total Suspended Solids	mg/L	SM2540D	22.2		21.20		-	4.61	5		3/22/2013 1630h

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols Pertinent sampling information is located on the attached COC This report is provided for the exclusive use of the addressee Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Energy Fuels Resources, Inc.
Lab Set ID: 1303553
Project: 1st Quarter Surface Water

Contact: Garrin Palmer
Dept: WC
QC Type: LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
LCS-R51899	Total Dissolved Solids	mg/L	SM2540C	186	205.0	0	90.7	80-120				3/22/2013 1240h
LCS-R51855	Total Suspended Solids	mg/L	SM2540D	94.0	100.0	0	94.0	80-120				3/22/2013 1630h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Energy Fuels Resources, Inc.
Lab Set ID: 1303553
Project: 1st Quarter Surface Water

Contact: Garrin Palmer
Dept: WC
QC Type: MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
MB-R51899	Total Dissolved Solids	mg/L	SM2540C	< 10.0				-				3/22/2013 1240h
MB-R51855	Total Suspended Solids	mg/L	SM2540D	< 3.00				-				3/22/2013 1630h

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols Pertinent sampling information is located on the attached COC This report is provided for the exclusive use of the addressee Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science

American West Analytical Laboratories

UL
Denison

WORK ORDER Summary

Work Order: **1303553**

Client: Energy Fuels Resources, Inc.

Due Date: 4/5/2013

Client ID: DEN100

RUSH

Contact: Garrin Palmer

Project: **1st Quarter Surface Water**

QC Level: III

WO Type: Standard

Comments: Holding Time Rush. QC 3 EDD-Denison. CC KWeinel@energyfuels.com;

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1303553-001A	**Cottonwood Creek**	3/15/2013 1040h	3/22/2013 1010h	**TDS-W-2540C**	Aqueous	☐	ww - tss/tds	1
				TSS-W-2540D		☐	ww - tss/tds	

Printed: 3/22/2013 FOR LABORATORY USE ONLY [fill out on page 1]: %M ☐ RT ☐ CN ☐ TAT ☐ QC ☐ HOK_____ HOK_____ HOK_____ COC Emailed_____

Client: Energy Fuels
Address: 6425 South Hwy 191
Blanding UT 84511
City State Zip
Phone: 435 678 2221 Fax:
Contact: Garrin Palmer
E-mail: gpalmer@energyfuels.com
Project Name: 1st Quarter Surface Water
Project Number/P.O.#:
Sampler Name: Garrin Palmer

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115

CHAIN OF CUSTODY

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(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

Lab Sample Set #: 1303553
Page ____ of ____

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)

Sample ID	Date/Time Collected	Matrix	Number of Containers (Total)	Total dissolved Solids	Total Suspended Solids									COMMENTS
Cottonwood Creek	3/15/13 / 1040	W	1	X	X									

TESTS REQUIRED

QC LEVEL: 1 2 2+ (3) 3+ 4

Relinquished By: Signature	Date	Received By: Signature	Date
PRINT NAME: Garrin Palmer	Time: 1200	PRINT NAME	Time
Relinquished By: Signature	Date	Received By: Signature	Date
PRINT NAME	Time	PRINT NAME	Time
Relinquished By: Signature	Date	Received By: Signature	Date
PRINT NAME	Time	PRINT NAME	Time
Relinquished By: Signature	Date	Received By: Signature	Date
PRINT NAME	Time	PRINT NAME	Time

Special Instructions:

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes: Fed Ex
2 Ambient or Chilled
Notes:
3 Temperature 1.0°C
4 Received Broken/Leaking (Improperly Sealed) Y N
Notes:
5 Properly Preserved Y N
Checked at Bench Y N
Notes:
6 Received Within Holding Times Y N
Notes:

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA

Discrepancies Between Sample Labels and COC Record? Y N
Notes:

ANALYTICAL SUMMARY REPORT

May 02, 2013

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

Workorder No.: C13040398

Project Name: 2nd Quarter Surface Water

Energy Laboratories, Inc. Casper WY received the following 2 samples for Energy Fuels Resources (USA) Inc on 4/11/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13040398-001	Cottonwood Creek	04/10/13 8:15	04/11/13	Surface Water	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
C13040398-002	Filter Blank	04/11/13 9:45	04/11/13	Surface Water	Sample Filtering Uranium, Dissolved Gross Alpha minus Rn222 and Uranium Radium 226, Dissolved Thorium, Isotopic

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:

Report Proofing Specialist

Digitally signed by
Sheri M. Mead
Date: 2013.05.02 11:30:17 -06:00

CLIENT: Energy Fuels Resources (USA) Inc
Project: 2nd Quarter Surface Water
Sample Delivery Group: C13040398

Report Date: 05/02/13

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°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.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 2nd Quarter Surface Water
Lab ID: C13040398-001
Client Sample ID Cottonwood Creek

Report Date: 05/02/13
Collection Date: 04/10/13 08:15
DateReceived: 04/11/13
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	452	mg/L		10		A2540 C	04/16/13 11:50 / jz
Solids, Total Suspended TSS @ 105 C	6	mg/L		4		A2540 D	04/12/13 10:04 / ab
METALS - DISSOLVED							
Uranium	0.0090	mg/L		0.0003		E200.8	04/17/13 14:32 / cp
METALS - SUSPENDED							
Uranium	ND	mg/L		0.0003		E200.8	04/17/13 17:31 / cp
RADIONUCLIDES - DISSOLVED							
Gross Alpha minus Rn & U	0.01	pCi/L	U			E900.1	04/24/13 06:29 / lbb
Gross Alpha minus Rn & U Precision (±)	0.3	pCi/L				E900.1	04/24/13 06:29 / lbb
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	04/24/13 06:29 / lbb
Radium 226	0.16	pCi/L				E903.0	04/24/13 10:02 / lmc
Radium 226 precision (±)	0.12	pCi/L				E903.0	04/24/13 10:02 / lmc
Radium 226 MDC	0.16	pCi/L				E903.0	04/24/13 10:02 / lmc
Thorium 230	-0.01	pCi/L	U			E908.0	04/19/13 08:59 / dmf
Thorium 230 precision (±)	0.05	pCi/L				E908.0	04/19/13 08:59 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	04/19/13 08:59 / dmf
RADIONUCLIDES - SUSPENDED							
Radium 226	0.37	pCi/L	U			E903.0	04/22/13 16:28 / lmc
Radium 226 precision (±)	0.32	pCi/L				E903.0	04/22/13 16:28 / lmc
Radium 226 MDC	0.45	pCi/L				E903.0	04/22/13 16:28 / lmc
Thorium 230	0.1	pCi/L	U			E908.0	04/18/13 16:07 / dmf
Thorium 230 precision (±)	0.09	pCi/L				E908.0	04/18/13 16:07 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	04/18/13 16:07 / dmf

- See Case Narrative regarding Ra226 analysis.

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

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 2nd Quarter Surface Water
Lab ID: C13040398-002
Client Sample ID Filter Blank

Report Date: 05/02/13
Collection Date: 04/11/13 09:45
DateReceived: 04/11/13
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS - DISSOLVED							
Uranium	ND	mg/L		0.0003		E200.8	04/17/13 14:36 / cp
RADIONUCLIDES - DISSOLVED							
Gross Alpha minus Rn & U	-0.1	pCi/L	U			E900.1	04/24/13 06:29 / lbb
Gross Alpha minus Rn & U Precision (±)	0.2	pCi/L				E900.1	04/24/13 06:29 / lbb
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	04/24/13 06:29 / lbb
Radium 226	-0.02	pCi/L	U			E903.0	04/24/13 10:02 / lmc
Radium 226 precision (±)	0.09	pCi/L				E903.0	04/24/13 10:02 / lmc
Radium 226 MDC	0.16	pCi/L				E903.0	04/24/13 10:02 / lmc
Thorium 230	0.05	pCi/L	U			E908.0	04/19/13 08:59 / dmf
Thorium 230 precision (±)	0.07	pCi/L				E908.0	04/19/13 08:59 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	04/19/13 08:59 / 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: 2nd Quarter Surface Water

Report Date: 05/02/13
Work Order: C13040398

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: TDS130416A
Sample ID: MB-1_130416A		Method Blank				Run: BAL-19_130416A				04/16/13 11:49
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Sample ID: LCS-2_130416A		Laboratory Control Sample				Run: BAL-19_130416A				04/16/13 11:50
Solids, Total Dissolved TDS @ 180 C		1970	mg/L	20	99	90	110			
Sample ID: C13040398-001A DUP		Sample Duplicate				Run: BAL-19_130416A				04/16/13 11:50
Solids, Total Dissolved TDS @ 180 C		452	mg/L	10					5	
Sample ID: C13040401-001A MS		Sample Matrix Spike				Run: BAL-19_130416A				04/16/13 11:50
Solids, Total Dissolved TDS @ 180 C		1450	mg/L	11	99	90	110			

Qualifiers:

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

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 2nd Quarter Surface Water

Report Date: 05/02/13
Work Order: C13040398

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D									Batch: 130412_1_SLDS-TSS-W	
Sample ID: MBLK1_130412		Method Blank				Run: BAL-19_130412A				04/12/13 09:28
Solids, Total Suspended TSS @ 105 C		ND	mg/L	2						
Sample ID: LCS1_130412		Laboratory Control Sample				Run: BAL-19_130412A				04/12/13 09:28
Solids, Total Suspended TSS @ 105 C		199	mg/L	6.0	99	60	110			

Qualifiers:

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

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 2nd Quarter Surface Water

Report Date: 05/02/13
Work Order: C13040398

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS4-C_130417A	
Sample ID: ICV		Initial Calibration Verification Standard							04/17/13 11:10	
Uranium		0.0496	mg/L	0.00030	99	90	110			
Sample ID: ICSA		Interference Check Sample A							04/17/13 11:15	
Uranium		7.00E-05	mg/L	0.00030						
Sample ID: ICSAB		Interference Check Sample AB							04/17/13 11:19	
Uranium		1.81E-05	mg/L	0.00030						
Method: E200.8									Batch: 37154	
Sample ID: MB-37154		Method Blank				Run: ICPMS4-C_130417A			04/17/13 17:18	
Uranium		5E-05	mg/L	9E-06						
Sample ID: LCS-37154		Laboratory Control Sample				Run: ICPMS4-C_130417A			04/17/13 17:22	
Uranium		0.108	mg/L	0.00030	108	85	115			
Sample ID: C13040470-004AMS		Sample Matrix Spike				Run: ICPMS4-C_130417A			04/17/13 18:15	
Uranium		0.265	pCi/Filter	0.00030	106	70	130			
Sample ID: C13040470-004AMSD		Sample Matrix Spike Duplicate				Run: ICPMS4-C_130417A			04/17/13 18:20	
Uranium		0.263	pCi/Filter	0.00030	105	70	130	0.6	20	
Method: E200.8									Batch: R172572	
Sample ID: C13040389-008BMS4		Sample Matrix Spike				Run: ICPMS4-C_130417A			04/17/13 14:19	
Uranium		8.26	mg/L	0.00030		70	130			A
Sample ID: C13040389-008BMSD		Sample Matrix Spike Duplicate				Run: ICPMS4-C_130417A			04/17/13 14:23	
Uranium		8.09	mg/L	0.00030		70	130	2.1	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: 2nd Quarter Surface Water

Report Date: 05/02/13
Work Order: C13040398

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.1										Batch: GA-0676
Sample ID: LCS-GA-0676		Laboratory Control Sample				Run: BERTHOLD 770-1_130422A				04/24/13 06:29
Gross Alpha minus Rn & U		38.7	pCi/L		104	80	120			
Sample ID: MB-GA-0676	3	Method Blank				Run: BERTHOLD 770-1_130422A				04/24/13 06:29
Gross Alpha minus Rn & U		-0.3	pCi/L							U
Gross Alpha minus Rn & U Precision (±)		0.2	pCi/L							
Gross Alpha minus Rn & U MDC		0.5	pCi/L							
Sample ID: C13040436-003GMS		Sample Matrix Spike				Run: BERTHOLD 770-1_130422A				04/24/13 09:09
Gross Alpha minus Rn & U		84.7	pCi/L		109	70	130			
Sample ID: C13040436-003GMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-1_130422A				04/24/13 10:55
Gross Alpha minus Rn & U		79.4	pCi/L		105	70	130	6.5	20.4	

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: 2nd Quarter Surface Water

Report Date: 05/02/13
Work Order: C13040398

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: 37154
Sample ID: C13040398-001AMS		Sample Matrix Spike				Run: BERTHOLD 770-1_130416A			04/22/13 16:28	
Radium 226		68	pCi/L		102	70	130			
Sample ID: C13040398-001AMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-1_130416A			04/22/13 16:28	
Radium 226		59	pCi/L		89	70	130	14	21.3	
Sample ID: MB-37154	3	Method Blank				Run: BERTHOLD 770-1_130416A			04/22/13 16:28	
Radium 226		-0.1	pCi/Filter							U
Radium 226 precision (±)		0.1	pCi/Filter							
Radium 226 MDC		0.3	pCi/Filter							
Sample ID: LCS-37154		Laboratory Control Sample				Run: BERTHOLD 770-1_130416A			04/22/13 16:28	
Radium 226		21.0	pCi/Filter		99	80	120			
Method: E903.0										Batch: RA226-6600
Sample ID: C13040486-001GMS		Sample Matrix Spike				Run: BERTHOLD 770-2_130417A			04/24/13 11:48	
Radium 226		22	pCi/L		94	70	130			
Sample ID: C13040486-001GMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-2_130417A			04/24/13 11:48	
Radium 226		20	pCi/L		88	70	130	6.4	22	
Sample ID: MB-RA226-6600	3	Method Blank				Run: BERTHOLD 770-2_130417A			04/24/13 15:48	
Radium 226		-0.03	pCi/L							U
Radium 226 precision (±)		0.10	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Sample ID: LCS-RA226-6600		Laboratory Control Sample				Run: BERTHOLD 770-2_130417A			04/24/13 15:48	
Radium 226		11	pCi/L		97	80	120			

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: 2nd Quarter Surface Water

Report Date: 05/02/13
Work Order: C13040398

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0										Batch: 37154
Sample ID: C13040398-001AMS		Sample Matrix Spike				Run: ALPHANALYST_130416A				04/18/13 16:07
Thorium 230		35	pCi/L		115	70	130			
Sample ID: C13040398-001AMSD		Sample Matrix Spike Duplicate				Run: ALPHANALYST_130416A				04/18/13 16:07
Thorium 230		34	pCi/L		110	70	130	4.9	31	
Sample ID: LCS-37154		Laboratory Control Sample				Run: ALPHANALYST_130416A				04/18/13 16:08
Thorium 230		16.0	pCi/Filter		104	80	120			
Sample ID: MB-37154	3	Method Blank				Run: ALPHANALYST_130416A				04/18/13 16:08
Thorium 230		0.02	pCi/Filter							U
Thorium 230 precision (±)		0.09	pCi/Filter							
Thorium 230 MDC		0.2	pCi/Filter							
Method: E908.0										Batch: RA-TH-ISO-1826
Sample ID: LCS-RA-TH-ISO-1826		Laboratory Control Sample				Run: EGG-ORTEC_130416A				04/19/13 08:59
Thorium 230		5.8	pCi/L		92	80	120			
Sample ID: C13040398-002AMS		Sample Matrix Spike				Run: EGG-ORTEC_130416A				04/19/13 08:59
Thorium 230		12	pCi/L		98	70	130			
Sample ID: C13040398-002AMSD		Sample Matrix Spike Duplicate				Run: EGG-ORTEC_130416A				04/19/13 08:59
Thorium 230		10	pCi/L		84	70	130	17	39.4	
Sample ID: MB-RA-TH-ISO-1826	3	Method Blank				Run: EGG-ORTEC_130416A				04/19/13 13:54
Thorium 230		0.4	pCi/L							
Thorium 230 precision (±)		0.2	pCi/L							
Thorium 230 MDC		0.2	pCi/L							

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: 2nd Quarter Surface Water

Report Date: 05/02/13
Work Order: C13040398

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: 37154
Sample ID: C13040470-004AMS		Sample Matrix Spike				Run: ICPMS4-C_130417A				04/17/13 18:15
Uranium		0.252	mg/filter	0.00030	101	75	125			
Sample ID: C13040470-004AMSD		Sample Matrix Spike Duplicate				Run: ICPMS4-C_130417A				04/17/13 18:20
Uranium		0.250	mg/filter	0.00030	100	75	125	0.6	20	
Sample ID: MB-37154		Method Blank				Run: ICPMS4-C_130417A				04/17/13 17:18
Uranium		5E-05	mg/filter	9E-06						
Sample ID: LCS-37154		Laboratory Control Sample				Run: ICPMS4-C_130417A				04/17/13 17:22
Uranium		0.108	mg/filter	0.00030	108	85	115			
Sample ID: C13040398-001ADIL		Serial Dilution				Run: ICPMS4-C_130417A				04/17/13 17:36
Uranium		0.000189	mg/filter	0.00030					20	N

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

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 C13040398

Login completed by: Kerri Schroeder
Date Received: 4/11/2013
Reviewed by: BL2000\kmiller
Received by: ks
Reviewed Date: 4/12/2013
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:	4.6°C 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:

Sample was filtered and preserved in the laboratory for dissolved and suspended analyses.

Sheet 1 of 1

CHAIN OF CUSTODY

Samples Shipped to: Energy Labs
2393 Salt Creek Hwy
Casper, WY 82601

Contact: Garrin Palmer
Ph: 435 678 2221
gpalmer@energyfuels.com
nholliday@energyfuels.com
dturk@energyfuels.com

Chain of Custody/Sampling Analysis Request

Project	Samplers Name	Samplers Signature
2nd Quarter Surface Water 2013	Garrin Palmer	Garrin Palmer

Sample ID	Date Collected	Time Collected	Laboratory Analysis Requested
Cottonwood Creek	4/10/2013	815	TDS
			TSS
			Gross Alpha
			Suspended/Dissolved U-NAT
			Suspended/Dissolved Ra 226
			Suspended/Dissolved TH-230
			*Samples are non filtered and non preserved

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
Garrin Palmer	4/10/2013 1100	K. Schroeder	4-11-13 09:45
Relinquished By:(Signature)	Date/Time	Received By:(Signature)	Date/Time
			4.6°

C13040398

~~C13040400~~ KLS

Attachment A

FIELD WATER ANALYSIS SURFACE WATER
WHITE MESA MILL

LOCATION (Circle one): Cottonwood Creek Westwater Canyon Other (describe)_____

DATE: 3/15/2013 BY: Garrin Palmer
(Sampler's initials)

pH BUFFER 7.0 7.0 pH BUFFER 4.0 4.0

SPECIFIC CONDUCTIVITY 999 µMHOs

STEAM DEPTH: 3"

pH of WATER 7.98 TEMP 8.12

Cond 656.2

COND µmhos 653.8 COND µmhos 659

pH Units 7.98 pH units 7.98

Temp °C 8.11 Temp °C 8.13

COND µmhos 655 COND µmhos 657

pH units 7.98 pH units 7.98

Temp °C 8.12 Temp °C 8.12

Comments:

Arrived on site at 1035. Tanner, Garrin, and David present to collect samples. Grab samples performed at 1040. Left site at 1045

Attachment A

FIELD WATER ANALYSIS SURFACE WATER
WHITE MESA MILL

LOCATION (Circle one): Cottonwood Creek (Westwater Canyon) Other (describe)_____

DATE: 3/15/13 BY: Garrin Palmer
(Sampler's initials)

pH BUFFER 7.0 7.0 pH BUFFER 4.0 4.0

SPECIFIC CONDUCTIVITY 999 µMHOs

STEAM DEPTH: 0"

pH of WATER _____ TEMP _____

COND µmhos _____	COND µmhos _____
pH Units _____	pH units _____
Temp °C _____	Temp °C _____
COND µmhos _____	COND µmhos _____
pH units _____	pH units _____
Temp °C _____	Temp °C _____

Comments:

Arrived on site at 1100. Creek was dry, see photo.
3/21/13 Arrived on site at 0830. Creek was dry, see photo.
3/28/13 Arrived on site at 0915. Creek was dry, see photo.
Garrin and Tanner present for all three attempts.

3/15/13 1100

3/21/13 0830

3/28/13 0915

Attachment A

FIELD WATER ANALYSIS SURFACE WATER
WHITE MESA MILL

LOCATION (Circle one): Cottonwood Creek Westwater Canyon Other (describe)_____

DATE: 4/2/13 BY: Garrin Palmer (Sampler's initials)

pH BUFFER 7.0 7.0 pH BUFFER 4.0 4.0

SPECIFIC CONDUCTIVITY 999 µMHOs

STEAM DEPTH: 3"

pH of WATER 7.77 TEMP 5.49

Cond 705

COND µmhos 703 COND µmhos 705

pH Units 7.72 pH units 7.82

Temp °C 5.48 Temp °C 5.50

COND µmhos 704 COND µmhos 705

pH units 7.77 pH units 7.79

Temp °C 5.49 Temp °C 5.48

Comments:

Arrived on site at 0830. Garrin, Tanner, Clay Most on site for sampling event. Grab samples were collected at 0845. Left site at 0850.

4/2/13 0845

Attachment A

FIELD WATER ANALYSIS SURFACE WATER
WHITE MESA MILL

LOCATION (Circle one): Cottonwood Creek (Westwater Canyon) Other (describe)_____

DATE: 4/2/13 BY: Garrin Palmer (Sampler's initials)

pH BUFFER 7.0 7.0 pH BUFFER 4.0 4.0

SPECIFIC CONDUCTIVITY 999 µMHOs

STEAM DEPTH: _____

pH of WATER _____ TEMP _____

COND µmhos _____ COND µmhos _____

pH Units _____ pH units _____

Temp °C _____ Temp °C _____

COND µmhos _____ COND µmhos _____

pH units _____ pH units _____

Temp °C _____ Temp °C _____

Comments:

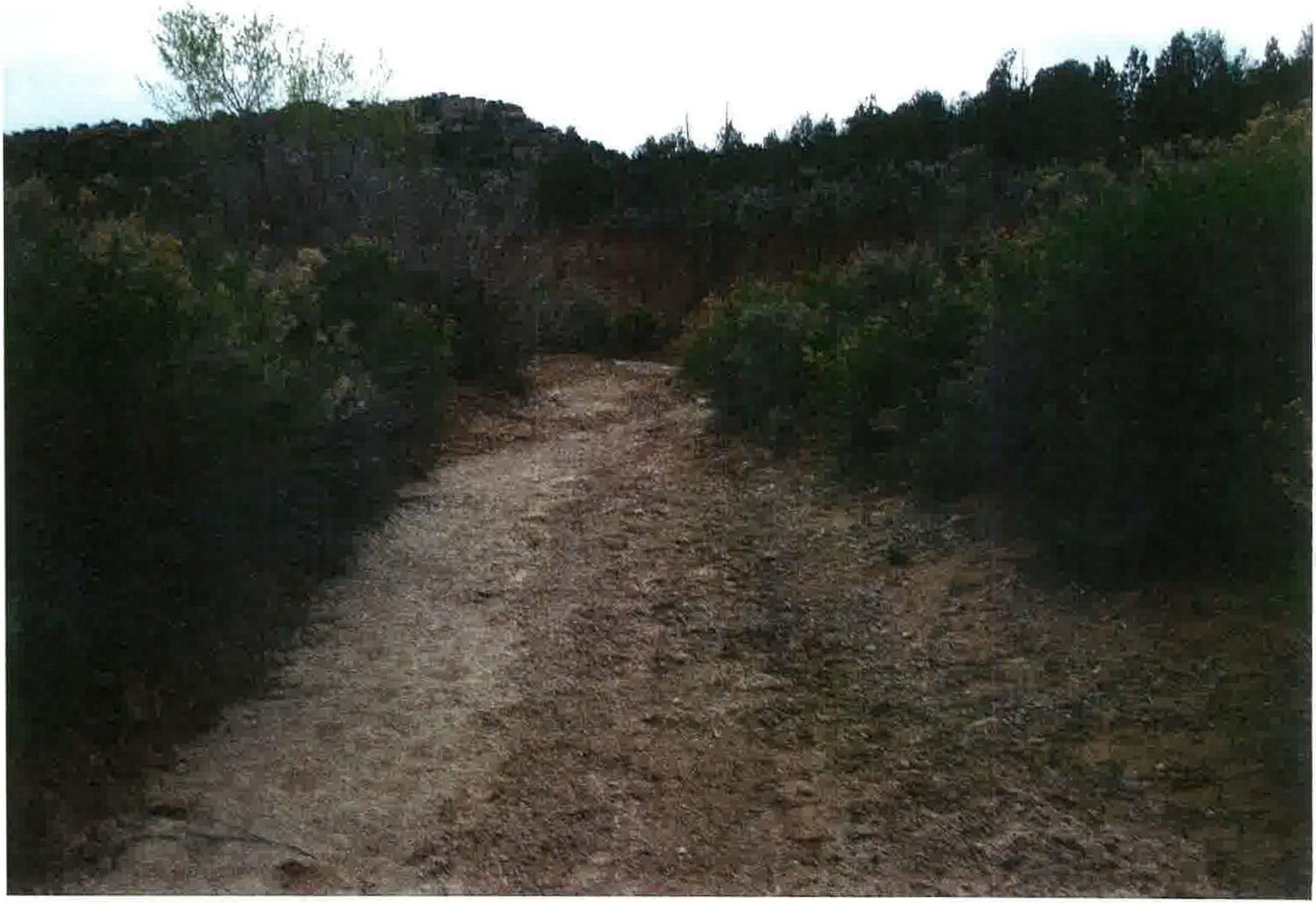
4/2/13 Arrived on site at 0900. Garrin, Tanner, clay present. Creek was dry. photo was taken.

5/9/13 Arrived on site at 1000. Garrin present, creek was dry. See photo.

6/26/13 Arrived on site at 1200. Garrin & David present, creek was dry. See photo.

4/2/15 0900

5/9/13 1000



6/26/13 / 1200

ATTACHMENT I

SOIL SAMPLE GRAPHS, DATA TABLE, LABORATORY RESULTS AND QA/QC

Soil samples are collected during the third quarter. This attachment has been deliberately left blank.