

February 28, 2014

Attn: Document Control Desk
U.S. Nuclear Regulatory Commission
Mr. Drew Persinko, Deputy Director
Decommissioning & Uranium Recovery Licensing Directorate
Division of Waste Management & Environmental Protection
Office of Federal and State Materials &
Environmental Management Programs
11545 Rockville Pike
Rockville, MD 20852-2738

Subject: License SUA-1314) SUA-1341
Docket No. 040-08502
Willow Creek Project
ALARA Report
Semi-Annual Effluent and
Environmental Monitoring Report

Dear Mr. Persinko:

In accordance with 10 CFR 40.65 and per license conditions 12.1 and 12.3 of Source Materials License SUA-1341, please find enclosed the Semi-Annual Effluent and Environmental Monitoring Report for the period of July 1 through December 31, 2013.

Please contact me should you have any questions regarding this report. (307) 696-8113.

Sincerely,



Tim McCullough
Manager Site SHE

cc: L. Arbogast
J. Winter
S. Schierman

FSME20

Table of Contents

| | |
|--|---|
| Introduction | 1 |
| 1.0 Results from Employee Urinalyses | 1 |
| 2.0 Operational Monitoring | 1 |
| 2.1 Groundwater Volumes Injected and Recovered | 1 |
| 2.2 Injection Manifold Pressures | 1 |
| 3.0 Environmental Monitoring | 3 |
| 3.1 Regional Ranch Wells | 3 |
| 3.2 Surface Water Monitoring | 3 |
| 3.3 Spill and Leak Reports | 3 |
| 3.4 Soil Sampling | 3 |
| 3.5 Vegetation Sampling | 4 |
| 4.0 Air Monitoring | 4 |
| 4.1 Environmental Radon Monitoring | 4 |
| 4.2 Dryer Stack Emissions | 4 |
| 4.3 Environmental Airborne Radionuclides | 4 |
| 4.4 Environmental Gamma Radiation Monitoring | 4 |
| 4.5 Public Dose | 4 |
| 5.0 Other Information Required by Section 12.6 – NRC License | 5 |
| 5.1 ALARA Audit | 5 |
| 5.2 Land Use Survey | 5 |
| 5.3 January 1 through June 30, 2013 Site Inspections | 5 |
| 5.3.1 OSHA Inspections | 4 |
| 5.3.2 NRC Inspections | 4 |
| 5.3.3 WDEQ-LQD Inspections | 5 |
| 5.4 January 1 through June 30, 2013 SERP Summary | 6 |
| 5.5 Daily Walk-Through Inspections | 6 |

Table of Contents

List of Appendices

- Appendix A Tables
- Table 1 Groundwater Volumes Injected and Recovered
 - Table 2 Injection Manifold Pressures
 - Table 3 Regional Ranch Wells
 - Table 4 Surface Water Monitoring
 - Table 5 Soil Sampling
 - Table 6 Environmental Radon Monitoring
 - Table 7 Dryer Stack Emissions Testing Results
 - Table 8 Environmental Airborne Radionuclides
 - Table 9 Environmental Gamma Radiation Monitoring
 - Table 10 Public Dose Summary
 - Table 11 SERP Summary
 - Table 12 Daily Walk-Through Inspections

**Uranium One USA, Inc.
Irigaray and Christensen Ranch Projects**

2013 SEMI-ANNUAL EFFLUENT AND MONITORING REPORT (NRC)

(July 1 through December 31, 2013)

February 28, 2014

INTRODUCTION

In accordance with Sections 12.1 and 12.3 of the Nuclear Regulatory Commission (NRC) Source License No. SUA-1341, Uranium One USA, Inc. hereby submits the 2013 Semi-Annual Effluent and Monitoring Report. This document summarizes the required operational and environmental monitoring conducted at the Irigaray (IR) and Christensen Ranch (CR) projects from July 1, 2013 through December 31, 2013.

1.0 Results from Employee Urinalyses.

1.1 During the report period no bio-assay samples exceeded the 15 µg/l uranium action level. Samples are collected on a monthly basis from Plant operators, wellfield operators, laboratory personal, wellfield maintenance personal and Electricians at the Christensen Ranch Site. At the Irigaray Process Plant samples are collected on a monthly basis from the plant operators except during yellowcake drying operations, samples are collected once per shift every four days. Sample analysis is conducted by an outside laboratory. Review of the bioassay data shows that administration of the bioassay program is consistent with Reg. Guide 8.22 as referenced in license condition 10.12.

2.0 Operational Monitoring

2.1 Groundwater Volumes Injected and Recovered

During this reporting period an overall wellfield bleed was maintained at 0.8%. A total of 1,636,585,717 gallons were injected and 1,622,821,183 gallons were recovered during this period. This data is summarized in Table 1 and is located in Appendix A of this report.

2.2 Injection Manifold Pressures

Injection manifold pressures at the CR project are limited to 140 psi during wellfield operations and 168 psi during maintenance tasks, as per License Condition 11.1. License Condition 11.1 requires that the injection manifold pressures be recorded daily. A pressure chart recorder is installed in every Wellfield Module Building and the pressure data is continuously logged on the recorder chart graphs. This data is summarized in Table 2 and is located in Appendix A of this report.

February 2014

1

Semi-Annual Effluent
Monitoring Report
Willow Creek Project
SUA-1341

The 140 psi limit was exceeded on 15 separate occasions.

Module 7-1 had a quick spike in pressure to 165 psi on July 14, 2013 due to an injection booster pump associated with the module building tripping off.

Module 5-2 had a quick spike in pressure to 145 psi on July 7, 2013 due to another module building being shut down causing a pressure spike.

Module 5-2 had a quick spike in pressure to 152 psi on July 17, 2013 due to a surge in flow rate at the module building.

Module 5-2 had a quick spike to 155 psi due to a booster station going down.

Module 5-2 had a quick spike in pressure to 145 psi on August 28, 2003 due to losing a pump at a booster station.

Module 5-2 had a quick spike in pressure to 149 psi on September 3, 2013 during an IX column swap in the Satellite Plant.

Module 5-2 had a quick spike in pressure to 146 psi on September 21, 2013 due to the site experiencing a power bump.

Module 5-2 had a quick spike in pressure to 142 psi on October 5, 2013 due to a booster station going down.

Module 5-2 had a quick spike in pressure to 142 psi on October 23, 2013 due to a booster station going down.

Module 5-2 had a quick spike in pressure to 146 psi on November 9, 2013 due to a surge in flow rate at the module building.

Module 5-2 had a quick spike to 142 psi on November 15, 2013 due to a maintenance shut down in Mine Unit 8.

Module 5-2 had a quick spike in pressure to 143 psi on November 19, 2003 due to a valve problem in Booster Station 4.

Module 5-2 had a quick spike in pressure to 150 psi on December 3, 2013 due to lines freezing up in MU-10.

Module 10-6 had a quick spike in pressure to 142 psi on December 8, 2013 due to lines freezing up in the building.

Module 7-3 had a quick spike in pressure to 145 psi on December 18, 2013 due to a mechanical failure in the building.

As a result of the rising number of pressure increases associated with the Module Building 5-2, Uranium One has ordered a pressure reduction valve that has been installed in the building in February 2014.

3.0 Environmental Monitoring

3.1 Regional Ranch Wells

During the reporting period Quarterly groundwater samples were collected from five ranch wells near the CR project and one ranch well near IR. The samples were analyzed for Uranium, Thorium-230, Radium-226, Lead-210 and Polonium-210. All analytical results for radionuclides were at or near minimum detection levels (MDLs) which are consistent with historical data. Review of the analytical data indicates no upward trends were observed. Sampling was consistent with the requirements of License Condition 11.3 and Section 5.8 of the License Renewal Application. This data is summarized in Table 3 and is located in Appendix A of this report.

3.2 Surface Water Monitoring

During the reporting period Surface Water samples were collected across the Willow Creek Project. Willow Creek is the only source of surface water present within and adjacent to the permit boundaries of both the IR and CR projects. Willow Creek is an ephemeral stream which was sampled on a quarterly basis. Three sample locations are designated at both project sites; upstream, downstream and within the permit boundary. The Powder River is also sampled annually at the Brubaker Ranch, which is approximately 4.5 miles downstream from its confluence with Willow Creek. All radionuclide data was at or near minimum detection levels, and no exceedances of NRC 10 CFR 20, Appendix B effluent limits occurred. Review of the analytical data does not indicate any upward trends for radionuclide or chemical parameter concentrations. This data is summarized in Table 4 and is located in Appendix A of this report.

3.3 Spill and Leak Reports

There were three reportable spills during this report period. Emails, written notifications and summary reports were submitted to the NRC and WDEQ regarding these events and will not be duplicated in this report.

3.4 Soil Sampling

Annual soil sampling at two of the nine Willow Creek environmental locations occurred during the reporting period. The samples were taken from one location at the Irigaray Project (IR-13 Employee house trailer) and one location at the Christensen Project (AS-5A CR Plant Upwind S. E.). These two samples were inadvertently missed during the annual sampling event which was reported in the previous report. The results of the referenced missed samples are summarized in Table 5 which is located in Appendix A of this report.

3.5 Vegetation Sampling

Annual soil sampling at the Willow Creek environmental locations occurred during the previous reporting period and will not be duplicated in this report.

4.0 Air Monitoring

4.1 Environmental Radon Monitoring

Radon gas is monitored continuously at six environmental air sampling locations at or near the Irigaray Project and at five locations at or near the Christensen Ranch Project. Passive outdoor radon detectors are exchanged and analyzed quarterly by Landauer, Inc., a NVLAP accredited company. No trends or abnormal results were noted and all concentrations were well below the 10 CFR Parts 20, Appendix B effluent limit for radon of 1E-10uCi/ml. This data is summarized in Table 6 and is located in Appendix A of this report.

4.2 Dryer Stack Emissions

The semiannual Dryer Stack Emission testing was performed on December 2, 2013 by Western Environmental Services and Testing Services. The test showed a release rate of 0.014 lb/hr, which demonstrates compliance with the allowable particulate emission rate of 0.30 lb/hr per the WDEQ Air Quality Permit OP 254. A summary of the total emissions released is in Table 7 of Appendix 1.

4.3 Environmental Airborne Radionuclides

During dryer operations, continuous airborne radionuclide sampling is required at the five specified environmental air sampling locations at the IR project. The yellowcake dryer was in operation during the 3rd and 4th Quarter of 2013. This data is summarized in Table 8 and is located in Appendix A of this report.

4.4 Environmental Gamma Radiation Monitoring

Gamma radiation is monitored continuously at six environmental air locations surrounding the Irigaray Project and at five locations surrounding the Christensen Ranch Project. TLDs are exchanged and analyzed quarterly by Landauer Dosimetry Services, a NVLP accredited company. No trends or abnormal results were noted. This data is summarized in Table 9 and is located in Appendix A of this report.

4.5 Public Dose

Public dose determination is calculated for the "off-shift" operations personnel that utilize the man-camps at Irigaray and Christensen is used to demonstrate compliance with public dose limits as these individuals have been identified as the member of the public likely to receive the highest dose from the Willow Creek Operations. This data is summarized in Table 10 and is located in Appendix A of this report.

5.0 OTHER INFORMATION REQUIRED BY SECTION 12.6 - NRC LICENSE

5.1 ALARA Audit

The 2013 As Low As Reasonably Achievable (ALARA) audit has not yet been performed. The ALARA report will be submitted to the NRC when it has been completed.

5.2 Land Use Survey

The primary use of surrounding lands at both IR and CR projects continues to be rural sheep and cattle ranching. Livestock actively graze these lands, but fencing prevents access to the evaporation ponds, plant sites and wellfields.

The secondary use of surrounding lands continues to be petroleum production from wells dispersed throughout the region. The closest oil well at the CR project is located approximately one third of a mile west of the CR plant. The closest oil well at the IR site is located approximately one half mile east of the PU 9 wellfield. During the reporting period there was one CBM well drilled approximately 2.4 miles WNW of the Christensen Ranch Satellite and one oil and gas well drilled approximately 1.75 miles ESE of the Irigaray Plant.

Over the past several years (2001 - 2013) some additional interest has developed in the immediate areas of the IR and CR projects in the development of coal bed methane (CBM) gas. Several CBM wells were drilled within a half-mile of CR MU 5 & 6 during 2012. At present these wells are in production.

The nearest residence to the IR site is 4 miles to the north (the Brubaker ranch) and the nearest residence to CR is the John Christensen ranch located 3 miles southeast of the CR plant site. Both are ranch housing with a population of 6 or less. One new residence has been added at the Christensen ranch site. This is the man camp for the CR operators to stay in during off shift hours.

There were five notices filed with the Wyoming State Engineers Office during 2013 for any new water wells with water rights located within a two mile radius from the Christensen Ranch Satellite and wellfields. All were associated with MU10A or MU8 and were filed by Uranium One.

5.3 July 1 through December 31, 2013 Site Inspections

5.3.1 During the report period no O.S.H.A. inspections were held.

5.3.2 During the reporting period the NRC held two site inspections.

On July 31 – August 2, 2013 the NRC conducted a routine inspection at the Willow Creek Project. No violations were issued.

On November 7, 2013 the NRC conducted a routine inspection at the

Willow Creek Project for the PFN logging tool that is stored on site. No violations were issued.

5.3.3 During the reporting period there was one inspection held by the WDEQ-LQD and two inspections held by the WDEQ-WQD.

On August 13 the WDEQ-WQD was on site to perform an Inspection on the Deep Disposal Wells. No violations were issued.

On October 24, 2013 the WDEQ-LQD was on site to perform their Annual Inspection of the Willow Creek Project. No violations were issued.

On October 24, 2013 the WDEQ-WQD was on site to perform a Storm Water Pollution Prevention Plan (SWPPP) Inspection of the Willow Creek Project. Minor erosion concerns were identified and promptly addressed.

5.4 July 1 through December 31, 2013 SERP Summary

Uranium One's Safety and Environmental Review Panel (SERP) [NRC License Condition 9.4 (C)] conducted one review during the second half of 2013. A summary of the SERPs is located in Table 11 of Appendix A.

5.5 Daily Walk –Through Inspections

Daily walk – through inspections are conducted at the Irigaray and Christensen Ranch locations. Routinely minor Corrective Actions are summarized on the Inspection Forms and promptly addressed. This data is summarized as Table 12 located in Appendix A.

APPENDIX A

Tables 1-12

February 2014

2013 Semi-Annual Effluent
Monitoring Report
Willow Creek Project
SUA-1341

Table 1
Page 1 of 2
Uranium One USA, Inc. - Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
Groundwater Volumes Injected and Recovered

| Date | MU 5-2 Monthly Totals | | | |
|----------------|-----------------------|---------------------|------------------|--------------|
| | Production (gallons) | Injection (gallons) | Bleed (gallons) | % Bleed |
| July 2013 | 12,340,544 | 12,232,544 | 108,000 | 0.9 % |
| August 2013 | 9,874,080 | 9,594,720 | 279,360 | 2.8 % |
| September 2013 | 8,953,240 | 8,726,520 | 226,720 | 2.5 % |
| October 2013 | 12,144,960 | 11,545,440 | 599,520 | 4.9 % |
| November 2013 | 10,091,520 | 9,682,560 | 408,960 | 4.1 % |
| December 2013 | 8,873,917 | 8,414,389 | 459,528 | 5.2 % |
| Totals | 62,278,261 | 60,196,173 | 2,082,088 | 3.3 % |

| Date | MU 7 Monthly Totals | | | |
|----------------|----------------------|---------------------|-----------------|--------------|
| | Production (gallons) | Injection (gallons) | Bleed (gallons) | % Bleed |
| July 2013 | 112,629,199 | 112,372,527 | 256,672 | 0.2 % |
| August 2013 | 84,683,125 | 84,897,983 | -214,858 | -0.3 % |
| September 2013 | 74,981,798 | 75,246,130 | -264,332 | -0.4 % |
| October 2013 | 79,218,693 | 79,189,492 | 29,201 | 0.0 % |
| November 2013 | 60,954,251 | 60,652,676 | 301,575 | 0.5 % |
| December 2013 | 62,679,620 | 61,862,556 | 817,064 | 1.3 % |
| Totals | 475,146,686 | 474,221,364 | 925,322 | 0.2 % |

| Date | MU 8 Monthly Totals | | | |
|----------------|----------------------|---------------------|------------------|--------------|
| | Production (gallons) | Injection (gallons) | Bleed (gallons) | % Bleed |
| July 2013 | 106,725,209 | 105,695,200 | 1,030,009 | 1.0 % |
| August 2013 | 81,901,264 | 80,939,682 | 961,582 | 1.2 % |
| September 2013 | 80,435,717 | 80,568,370 | -132,653 | -0.2 % |
| October 2013 | 97,513,188 | 97,548,918 | -35,730 | 0.0 % |
| November 2013 | 82,384,381 | 82,239,169 | 145,212 | 0.2 % |
| December 2013 | 78,535,052 | 77,478,012 | 1,057,040 | 1.3 % |
| Totals | 527,494,811 | 524,469,351 | 3,025,460 | 0.6 % |

Table 1
Page 2 of 2
Uranium One USA, Inc. - Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
Groundwater Volumes Injected and Recovered

| Date | MU 10A Monthly Totals | | | |
|----------------|-----------------------|---------------------|------------------|--------------|
| | Production (gallons) | Injection (gallons) | Bleed (gallons) | % Bleed |
| July 2013 | 45,870,387 | 45,376,161 | 494,226 | 1.1 % |
| August 2013 | 37,188,093 | 36,764,219 | 423,874 | 1.1 % |
| September 2013 | 37,212,421 | 36,881,128 | 331,293 | 0.9 % |
| October 2013 | 40,264,578 | 39,886,031 | 378,547 | 0.9 % |
| November 2013 | 37,680,829 | 36,896,244 | 784,585 | 2.1 % |
| December 2013 | 39,298,009 | 37,911,912 | 1,386,097 | 3.5 % |
| Totals | 237,514,317 | 233,715,695 | 3,798,622 | 1.6 % |

| Date | MU 10B Monthly Totals | | | |
|----------------|-----------------------|---------------------|------------------|--------------|
| | Production (gallons) | Injection (gallons) | Bleed (gallons) | % Bleed |
| July 2013 | 37,211,612 | 36,879,902 | 331,710 | 0.9 % |
| August 2013 | 39,057,379 | 38,921,886 | 135,493 | 0.3 % |
| September 2013 | 50,132,740 | 49,364,269 | 768,471 | 1.5 % |
| October 2013 | 74,392,123 | 73,362,847 | 1,029,276 | 1.4 % |
| November 2013 | 67,079,928 | 66,357,543 | 722,385 | 1.1 % |
| December 2013 | 66,277,860 | 65,332,153 | 945,707 | 1.4 % |
| Totals | 334,151,642 | 330,218,600 | 3,933,042 | 1.2 % |

| | | | | |
|----------------|----------------------|----------------------|-------------------|--------------|
| Overall | 1,636,585,717 | 1,622,821,183 | 13,764,534 | 0.8 % |
|----------------|----------------------|----------------------|-------------------|--------------|

Table 2
Page 1 of 4
Uranium One USA, Inc. - Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
Injection Manifold Pressures

Mine Unit 7

| Week Ending | Weekly Maximum injection Pressure (Maximum Permissible 140 psi) | | | | | |
|-------------|---|--------------------|------------|------------|------------|------------|
| | Module 7-1 | Module 7-2 | Module 7-3 | Module 7-4 | Module 7-5 | Module 7-6 |
| 7/6/2013 | 138 | 116 | 117 | 112 | 125 | 122 |
| 7/13/2013 | 138 | 111 | 135 | 101 | 122 | 108 |
| 7/20/2013 | 165 | 127 | 116 | 111 | 131 | 108 |
| 7/27/2013 | 127 | 121 | 116 | 114 | 123 | 102 |
| 8/3/2013 | 136 | 126 | 123 | 114 | 127 | 106 |
| 8/10/2013 | 137 | 121 | 135 | 132 | 127 | 106 |
| 8/17/2013 | 131 | 114 | 126 | 102 | 135 | 107 |
| 8/24/2013 | 138 | 112 | 133 | 124 | 132 | 113 |
| 8/31/2013 | 130 | (not in operation) | 132 | 117 | 132 | 110 |
| 9/7/2013 | 132 | (not in operation) | 132 | 117 | 132 | 111 |
| 9/14/2013 | 124 | (not in operation) | 127 | 117 | 127 | 110 |
| 9/21/2013 | 127 | (not in operation) | 126 | 120 | 119 | 101 |
| 9/28/2013 | 139 | (not in operation) | 130 | 135 | 119 | 108 |
| 10/5/2013 | 136 | (not in operation) | 124 | 122 | 116 | 110 |
| 10/12/2013 | 125 | (not in operation) | 119 | 92 | 96 | 82 |
| 10/19/2013 | 115 | 119 | 113 | 96 | 113 | 95 |
| 10/26/2013 | 82 | 116 | 114 | 104 | 113 | 92 |
| 11/2/2013 | 121 | 129 | 125 | 102 | 125 | 113 |
| 11/9/2013 | 124 | 126 | 126 | 92 | 121 | 105 |
| 11/16/2013 | 74 | 121 | 129 | 55 | 117 | 96 |
| 11/23/2013 | 127 | 124 | 130 | 48 | 112 | 100 |
| 11/30/2013 | 127 | 129 | 124 | 49 | 114 | 99 |
| 12/7/2013 | 123 | 126 | 126 | 50 | 122 | 100 |
| 12/14/2013 | 125 | 121 | 126 | 53 | 115 | 84 |
| 12/21/2013 | 130 | 127 | 145 | 52 | 135 | 89 |
| 12/28/2013 | 114 | 125 | 129 | 49 | 135 | 95 |

Table 2

Page 2 of 4

Uranium One USA, Inc. - Willow Creek Project
 2013 Semi-Annual Effluent and Monitoring Report
 Injection Manifold Pressures

Mine Unit 8

| Week Ending | Weekly Maximum injection Pressure (Maximum Permissible 140 psi) | | | | | |
|-------------|---|------------|------------|--------------|------------|------------|
| | Module 8-1 | Module 8-2 | Module 8-3 | Module 8-4/5 | Module 8-6 | Module 8-7 |
| 7/6/2013 | 78 | 120 | 68 | 78 | 78 | 105 |
| 7/13/2013 | 78 | 120 | 65 | 73 | 77 | 103 |
| 7/20/2013 | 76 | 118 | 72 | 74 | 81 | 96 |
| 7/27/2013 | 85 | 117 | 70 | 85 | 86 | 95 |
| 8/3/2013 | 84 | 117 | 67 | 76 | 83 | 95 |
| 8/10/2013 | 90 | 115 | 66 | 75 | 80 | 98 |
| 8/17/2013 | 74 | 108 | 65 | 73 | 77 | 96 |
| 8/24/2013 | 81 | 112 | 62 | 76 | 80 | 97 |
| 8/31/2013 | 85 | 108 | 66 | 82 | 81 | 93 |
| 9/7/2013 | 78 | 110 | 63 | 80 | 77 | 92 |
| 9/14/2013 | 77 | 111 | 74 | 81 | 84 | 84 |
| 9/21/2013 | 77 | 112 | 71 | 86 | 80 | 88 |
| 9/28/2013 | 85 | 115 | 69 | 85 | 81 | 91 |
| 10/5/2013 | 84 | 124 | 99 | 95 | 82 | 92 |
| 10/12/2013 | 90 | 115 | 100 | 82 | 78 | 80 |
| 10/19/2013 | 82 | 117 | 64 | 76 | 75 | 82 |
| 10/26/2013 | 85 | 118 | 66 | 75 | 70 | 82 |
| 11/2/2013 | 75 | 112 | 65 | 73 | 74 | 87 |
| 11/9/2013 | 75 | 123 | 66 | 77 | 75 | 85 |
| 11/16/2013 | 95 | 122 | 62 | 73 | 86 | 85 |
| 11/23/2013 | 115 | 126 | 125 | 70 | 88 | 103 |
| 11/30/2013 | 91 | 114 | 74 | 66 | 72 | 88 |
| 12/7/2013 | 100 | 115 | 70 | 75 | 72 | 86 |
| 12/14/2013 | 111 | 121 | 75 | 82 | 93 | 99 |
| 12/21/2013 | 106 | 120 | 65 | 75 | 90 | 91 |
| 12/28/2013 | 108 | 119 | 66 | 78 | 94 | 85 |

Table 2

Page 3 of 4

Uranium One USA, Inc. - Willow Creek Project
 2013 Semi-Annual Effluent and Monitoring Report
 Injection Manifold Pressures

Mine Unit 8 (Cont.) and Mine Unit 5-2

| Week Ending | Weekly Maximum injection Pressure (Maximum Permissible 140 psi) | | | | |
|-------------|---|------------|--|------------|--|
| | Module 8-8 | Module 8-9 | | Module 5-2 | |
| 7/6/2013 | 83 | 100 | | 135 | |
| 7/13/2013 | 82 | 104 | | 145 | |
| 7/20/2013 | 90 | 105 | | 152 | |
| 7/27/2013 | 85 | 99 | | 122 | |
| 8/3/2013 | 89 | 106 | | 132 | |
| 8/10/2013 | 95 | 117 | | 155 | |
| 8/17/2013 | 95 | 106 | | 136 | |
| 8/24/2013 | 90 | 106 | | 136 | |
| 8/31/2013 | 103 | 90 | | 145 | |
| 9/7/2013 | 86 | 95 | | 149 | |
| 9/14/2013 | 88 | 95 | | 129 | |
| 9/21/2013 | 91 | 97 | | 146 | |
| 9/28/2013 | 100 | 104 | | 126 | |
| 10/5/2013 | 105 | 114 | | 140 | |
| 10/12/2013 | 90 | 96 | | 142 | |
| 10/19/2013 | 87 | 96 | | 140 | |
| 10/26/2013 | 89 | 82 | | 142 | |
| 11/2/2013 | 95 | 100 | | 137 | |
| 11/9/2013 | 96 | 95 | | 146 | |
| 11/16/2013 | 105 | 96 | | 142 | |
| 11/23/2013 | 94 | 94 | | 143 | |
| 11/30/2013 | 88 | 92 | | 134 | |
| 12/7/2013 | 100 | 96 | | 150 | |
| 12/14/2013 | 105 | 94 | | 131 | |
| 12/21/2013 | 95 | 90 | | 128 | |
| 12/28/2013 | 91 | 97 | | 136 | |

Table 2

Page 4 of 4

Uranium One USA, Inc. - Willow Creek Project
 2013 Semi-Annual Effluent and Monitoring Report
 Injection Manifold Pressures

Mine Unit 10

| Week Ending | Weekly Maximum injection Pressure (Maximum Permissible 140 psi) | | | | | |
|-------------|---|-------------|-------------|-------------|--------------------|--------------------|
| | Module 10-1 | Module 10-2 | Module 10-3 | Module 10-4 | Module 10-5 | Module 10-6 |
| 7/6/2013 | 112 | 130 | 104 | 61 | (not in operation) | (not in operation) |
| 7/13/2013 | 115 | 104 | 106 | 64 | (not in operation) | (not in operation) |
| 7/20/2013 | 109 | 110 | 101 | 55 | (not in operation) | (not in operation) |
| 7/27/2013 | 110 | 94 | 96 | 85 | (not in operation) | (not in operation) |
| 8/3/2013 | 116 | 107 | 99 | 95 | (not in operation) | (not in operation) |
| 8/10/2013 | 128 | 120 | 86 | 84 | (not in operation) | (not in operation) |
| 8/17/2013 | 124 | 99 | 87 | 86 | (not in operation) | (not in operation) |
| 8/24/2013 | 110 | 98 | 95 | 82 | 119 | (not in operation) |
| 8/31/2013 | 119 | 100 | 78 | 88 | 128 | (not in operation) |
| 9/7/2013 | 125 | 100 | 76 | 93 | 125 | (not in operation) |
| 9/14/2013 | 118 | 98 | 80 | 92 | 124 | (not in operation) |
| 9/21/2013 | 123 | 114 | 82 | 100 | 130 | (not in operation) |
| 9/28/2013 | 127 | 136 | 77 | 106 | 128 | (not in operation) |
| 10/5/2013 | 117 | 136 | 93 | 117 | 128 | 103 |
| 10/12/2013 | 108 | 129 | 80 | 110 | 127 | 110 |
| 10/19/2013 | 109 | 117 | 83 | 111 | 127 | 120 |
| 10/26/2013 | 115 | 97 | 84 | 102 | 126 | 125 |
| 11/2/2013 | 122 | 105 | 85 | 117 | 129 | 122 |
| 11/9/2013 | 122 | 110 | 93 | 115 | 127 | 136 |
| 11/16/2013 | 121 | 111 | 104 | 116 | 132 | 131 |
| 11/23/2013 | 138 | 111 | 107 | 118 | 132 | 134 |
| 11/30/2013 | 115 | 109 | 96 | 110 | 132 | 135 |
| 12/7/2013 | 122 | 115 | 105 | 118 | 129 | 135 |
| 12/14/2013 | 120 | 124 | 107 | 124 | 127 | 142 |
| 12/21/2013 | 125 | 115 | 104 | 124 | 130 | 129 |
| 12/28/2013 | 117 | 117 | 117 | 127 | 127 | 134 |

Table 3
Page 1 of 2
Uranium One USA, Inc. - Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
Regional Ranch Wells

| Sample Location | Christensen Ranch House #3 | | Christensen Ellendale #4 | |
|------------------------|-----------------------------------|----------------------------------|-----------------------------------|----------------------------------|
| Sample Date | 3rd quarter September 12, 2013 | 4th quarter November 20, 2013 | 3rd quarter September 12, 2013 | 4th quarter November 20, 2013 |
| Uranium | Well was down | Well was down | 3.0E-10 (µCi/ml) | 8.1E-10 (µCi/ml) |
| Thorium-230 | | | N/D | N/D |
| Radium-226 | | | 1.9E-09 (µCi/ml) | 3.0E-10 (µCi/ml) |
| Lead-210 | | | N/D | N/D |
| Polonium-210 | | | N/D | N/D |

| Sample Location | Christensen Middle Artesian | | Christensen Del Gulch Lower #13 | |
|------------------------|------------------------------------|----------------------------------|--|----------------------------------|
| Sample Date | 3rd quarter September 12, 2013 | 4th quarter November 20, 2013 | 3rd quarter September 12, 2013 | 4th quarter November 20, 2013 |
| Uranium | 1.0E-08 (µCi/ml) | 9.6E-09 (µCi/ml) | 1.1E-09 (µCi/ml) | 2.7E-10 (µCi/ml) |
| Thorium-230 | N/D | N/D | N/D | N/D |
| Radium-226 | 2.0E-10 (µCi/ml) | 3.0E-10 (µCi/ml) | 6.0E-10 (µCi/ml) | 9.0E-10 (µCi/ml) |
| Lead-210 | 1.5E-9 (µCi/ml) | 1.2E-9 (µCi/ml) | N/D | N/D |
| Polonium-210 | N/D | N/D | N/D | N/D |

| Sample Location | Christensen Willow Corral #32 | | Irigaray Willow # 2 | |
|------------------------|--------------------------------------|----------------------------------|-----------------------------------|----------------------------------|
| Sample Date | 3rd quarter September 12, 2013 | 4th quarter November 20, 2013 | 3rd quarter September 12, 2013 | 4th quarter November 20, 2013 |
| Uranium | N/D | N/D | N/D | N/D |
| Thorium-230 | N/D | N/D | N/D | N/D |
| Radium-226 | N/D | 2.0E-10 (µCi/ml) | N/D | 3.0E-10 (µCi/ml) |
| Lead-210 | N/D | N/D | N/D | N/D |
| Polonium-210 | N/D | N/D | N/D | N/D |

Table 3
Page 2 of 2
Uranium One USA Inc.- Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
Regional Ranch Wells

| Sample Location | Christensen First Artesian Well #1 | |
|------------------------|---|----------------------------------|
| Sample Date | 3rd quarter September 12, 2013 | 4th quarter November 20, 2013 |
| Uranium | N/D | N/D |
| Thorium-230 | N/D | N/D |
| Radium-226 | N/D | N/D |
| Lead-210 | N/D | N/D |
| Polonium-210 | N/D | N/D |

LLD's

- Uranium 2.0E-10 µCi/ml
- Thorium-230 2.0E-10 µCi/ml
- Radium-226 2.0E-10 µCi/ml
- Lead-210 1.0E-9 µCi/ml
- Polonium-210 1.0E-9 µCi/ml

N/D = NON DETECTABLE

Table 4
Page 1 of 1
Uranium One Inc. - Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
Surface Water Monitoring

| Date | Uranium (µCi/ml) | Thorium 230 (µCi/ml) | Radium 226 (µCi/ml) | Lead 210 (µCi/ml) | Polonium 210 (µCi/ml) | Total Alkalinity (mg/L) | Chloride (mg/L) | TDS (mg/L) | Specific Conductivity (µmhos/cm) | Sulfate (mg/L) | pH (s.u.) | Arsenic (mg/L) | Selenium (mg/L) | Estimated Flow Rate: | |
|--|-------------------------------|----------------------|---------------------|-------------------|-----------------------|-------------------------|-----------------|------------|----------------------------------|----------------|-----------|----------------|-----------------|----------------------|-----|
| Willow Creek IR-9 Downstream | | | | | | | | | | | | | | | |
| 3rd Quarter 2013 | No sample was taken - all dry | | | | | | | | | | | | | | |
| 4th Quarter 2013 | No sample was taken - all dry | | | | | | | | | | | | | | |
| Reporting Limit | 2.0E-10 | 2.0E-10 | 2.0E-10 | 1.0E-09 | 1.0E-09 | 5 | 1 | 10 | 5 | 1 | 0.1 | 0.005 | 0.005 | | |
| Willow Creek IR-14 Upstream | | | | | | | | | | | | | | | |
| 3rd Quarter 2013 | No sample was taken - all dry | | | | | | | | | | | | | | |
| 4th Quarter 2013 | 11/21/2013 | 1.0E-09 | N/D | 6.0E-10 | N/D | N/D | 1980 | 10 | 2080 | 3250 | 17 | 8.9 | N/D | N/D | Low |
| Reporting Limit | | 2.0E-10 | 2.0E-10 | 2.0E-10 | 1.0E-09 | 1.0E-09 | 5 | 1 | 10 | 5 | 1 | 0.1 | 0.005 | 0.005 | |
| Willow Creek IR-17 Mine Site | | | | | | | | | | | | | | | |
| 3rd Quarter 2013 | No sample was taken - all dry | | | | | | | | | | | | | | |
| 4th Quarter 2013 | 11/21/2013 | 2.6E-08 | N/D | N/D | 1.3E-09 | N/D | 533 | 31 | 2770 | 4950 | 2570 | 8.3 | N/D | N/D | Low |
| Reporting Limit | | 2.0E-10 | 2.0E-10 | 2.0E-10 | 1.0E-09 | 1.0E-09 | 5 | 1 | 10 | 5 | 1 | 0.1 | 0.005 | 0.005 | |
| Powder River (Sampled Annually) | | | | | | | | | | | | | | | |
| | 5/23/2013 | 1.7E-09 | N/D | N/D | N/D | N/D | 116 | 54 | 560 | 923 | 197 | 8.2 | N/D | N/D | Med |
| Reporting Limit | | 2.0E-10 | 2.0E-10 | 2.0E-10 | 1.0E-09 | 1.0E-09 | 5 | 1 | 10 | 5 | 1 | 0.1 | 0.005 | 0.005 | |
| Willow Creek GS-01 Downstream | | | | | | | | | | | | | | | |
| 3rd Quarter 2013 | No sample was taken - all dry | | | | | | | | | | | | | | |
| 4th Quarter 2013 | No sample was taken - all dry | | | | | | | | | | | | | | |
| Reporting Limit | | | | | | | | | | | | | | | |
| Willow Creek CG-05 Upstream | | | | | | | | | | | | | | | |
| 3rd Quarter 2013 | No sample was taken - all dry | | | | | | | | | | | | | | |
| 4th Quarter 2013 | 11/21/2013 | 2.2E-08 | N/D | N/D | 1.4E-09 | N/D | 319 | 13 | 2450 | 2860 | 1310 | 8.4 | N/D | N/D | Low |
| Reporting Limit | | 2.0E-10 | 2.0E-10 | 2.0E-10 | 1.0E-09 | 1.0E-09 | 5 | 1 | 10 | 5 | 1 | 0.1 | 0.005 | 0.005 | |
| Willow Creek GS-03 Mine Site | | | | | | | | | | | | | | | |
| 3rd Quarter 2013 | No sample was taken - all dry | | | | | | | | | | | | | | |
| 4th Quarter 2013 | No sample was taken - all dry | | | | | | | | | | | | | | |
| Reporting Limit | | 2.0E-09 | 2.0E-10 | 2.0E-10 | 1.0E-09 | 1.0E-09 | 5 | 1 | 10 | 5 | 1 | 0.1 | 0.005 | 0.005 | |

Estimated Flow Rate:
 Low = <5cfs
 Medium = 5 - 50 cfs
 High = > 50 cfs

Table 5
Page 1 of 1
Uranium One USA, Inc. - Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
Soil Sampling

| Location | Uranium * $\mu\text{Ci} / \text{gram}$ | Th-230 $\mu\text{Ci} / \text{gram}$ | Ra-226 $\mu\text{Ci} / \text{gram}$ | Pb-210 $\mu\text{Ci} / \text{gram}$ |
|---|---|--|--|--|
| IRIGARAY PROJECT | | | | |
| IR-1 (Downwind of Restricted Area) | 3.68E-08 | 1.20E-09 | 2.40E-09 | 2.40E-09 |
| IR-3 (Upwind of Restricted Area) | 8.50E-08 | 9.00E-10 | 1.20E-09 | 1.50E-09 |
| IR-4 (North Road - Background) | 1.11E-08 | 8.00E-10 | 1.30E-09 | 1.10E-09 |
| IR-5 (Irigaray Ranch - nearest resident) | 5.10E-09 | 4.00E-10 | 8.00E-10 | 1.50E-09 |
| IR-6 (Ridge Road S.E.) | 8.40E-09 | 8.00E-10 | 1.00E-09 | 1.30E-09 |
| IR-13 (Employee house trailer) | 3.40E-09 | N/D | 1.30E-09 | 2.00E-09 |
| CHRISTENSEN PROJECT | | | | |
| AS-1 (Table Mountain - Background) | 5.60E-09 | 7.00E-10 | 8.00E-10 | 2.10E-09 |
| AS-5A (CR Plant Upwind S.E.) | 1.10E-09 | 5.00E-10 | 9.00E-10 | N/D |
| AS-5B (CR Plant Downwind N.W.) | 1.17E-08 | 9.00E-10 | 1.40E-09 | 1.50E-09 |
| AS-6 (Christensen Ranch-Nearest Resident) | 1.10E-08 | 7.00E-10 | 1.10E-09 | 1.50E-09 |
| AS-7 (Christensen Employee house trailer) | 5.70E-09 | 6.00E-10 | 1.30E-09 | 1.20E-09 |

Analyses performed by Inter-Mountain Labs (IML), Sheridan, Wyoming

* The activity for uranium is a mathematical calculation based on a chemical analysis, therefore, no precision estimate (error) is given. The Inter-Mountain Lab reporting limit (RL) is listed below are based on the weight of the samples.

RL's ($\mu\text{Ci} / \text{Kg}$): Uranium = 2.00E-10
 Th-230 = 2.00E-10
 Ra-226 = 2.00E-10
 Pb-210 = 1.00E-9

N/D = Non Detectable

Table 6
Page 1 of 1
Uranium One USA, Inc. - Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
Environmental Radon Monitoring

| Location | 3rd Quarter 2013 μCi/ml | 4th Quarter 2013 μCi/ml | Location Average 2012 μCi/ml |
|---------------------------------------|--|--|---|
| IRIGARAY PROJECT | | | |
| IR-1 (Downwind of Restricted Area) | 1.10E-09 | 4.00E-10 | 7.50E-10 |
| IR-3 (Upwind of Restricted Area) | 9.00E-10 | 7.00E-10 | 8.00E-10 |
| IR-4 (North Road) | 8.00E-10 | 4.00E-10 | 6.00E-10 |
| IR-5 (Irigaray Ranch) | 7.00E-10 | 4.00E-10 | 5.50E-10 |
| IR-6 (Ridge Road - S.E. - Background) | 8.00E-10 | 7.00E-10 | 7.50E-10 |
| IR-13 (IR Employee House Trailer) | 2.10E-09 | 5.00E-10 | 1.30E-09 |
| (IR-13 / nearest residence) | | | |
| CHRISTENSEN PROJECT | | | |
| AS-1 (Table Mountain - Background) | 5.00E-10 | 4.00E-10 | 4.50E-10 |
| AS-5A (CR Plant Upwind S.E.) | 1.30E-09 | 6.00E-10 | 9.50E-10 |
| AS-5B (CR Plant Downwind N.W) | 8.00E-10 | 7.00E-10 | 7.50E-10 |
| AS-6 (Christensen Ranch) | 6.00E-10 | 5.00E-10 | 5.50E-10 |
| AS-7 (CR Employee House Trailer) | 1.20E-09 | 6.00E-10 | 9.00E-10 |
| (AS-7 / nearest residence) | | | |
| | | | |
| | | | |

LLD = 0.3 pCi/l

Table 7
Page 1 of 3
Uranium One USA, Inc. - Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
Dryer Stack Emissions Testing Results

SUMMARY OF STACK EMISSIONS SURVEY RESULTS
Irigaray Dryer and Packaging Circuit

| Survey month and year | Total Particulates lbs/hour (% limit) | U3O8 Emissions lbs / hour | Unat. Concentration uCi / ml | Th-230 Concentration uCi / ml | Ra-226 Concentration uCi / ml | Pb-210 Concentration uCi / ml |
|-----------------------|---------------------------------------|---------------------------|------------------------------|-------------------------------|-------------------------------|-------------------------------|
| December 1994 | 0.074 (25%) | 0.0047 | 3.06 E-10 | 6.7 E-13 | 7.75 E-13 | 2.33 E-12 |
| March 1995 | 0.149 (50%) | 0.0106 | 7.53 E-10 | 3.9 E-12 | 3.86 E-12 | 3.93 E-12 |
| September 1995 | 0.167 (52%) | 0.005 | 3.37 E-10 | 1.5 E-12 | 9.17 E-13 | 8.7 E-13 |
| March 1996 | 0.056 (19%) | 0.0041 | 2.92 E-10 | 1.13 E-12 | 1.51 E-13 | 1.13 E-12 |
| September 1996 | 0.029 (10%) | 0.0035 | 2.04 E-10 | 1.68 E-13 | 1.52 E-12 | 1.10 E-12 |
| May 1997 | 0.057 (19%) | 0.007 | 4.28 E-10 | 1.34 E-12 | 6.71 E-13 | 1.73 E-12 |
| October 1997 | 0.065 (22%) | 0.0123 | 6.80 E-10 | 1.88 E-12 | 1.86 E-12 | 4.23 E-13 |
| May 1998 | 0.084 (28%) | 0.0118 | 6.18 E-10 | 2.50 E-12 | 9.12 E-13 | * NA |
| October 1998 | 0.035 (12%) | 0.0063 | 3.08 E-10 | 1.21 E-12 | 1.54 E-12 | 2.94 E-11 |
| June 1999 | 0.070 (23%) | 0.0163 | 9.33 E-10 | 6.70 E-13 | 9.46 E-14 | 7.82 E-11 |
| December 1999 | 0.014 (5%) | 0.0107 | 6.67 E-10 | 9.01 E-14 | 1.53 E-13 | 2.73 E-12 |
| May 2000 | 0.052 (17%) | 0.0073 | 5.73 E-10 | 3.30 E-12 | 3.10 E-13 | 3.76 E-11 |
| November 2001 | 0.071 (24%) | 0.0082 | 6.36 E-10 | < 1.42 E-12 | < 6.51 E-13 | < 4.35 E-13 |
| January 2005 | 0.054 (18%) | 0.0033 | 2.46E-10 | 1.19E-13 | 6.92E-14 | 2.91E-12 |
| November 2011 | 0.041 (14%) | 0.0087 | .8.80E-10 | 4.07E-12 | 2.37E-12 | 6.08E-11 |
| June 2012 | 0.038 (13%) | 0.0086 | 6.21E-10 | <4.88E-10 | <5.65E-10 | 4.09E-10 |
| December 2012 | 0.043 (14%) | 0.0041 | 2.41 E-10 | 4.69 E-13 | 3.46E-12 | 2.83E-11 |
| June 2013 | 0.023 (8%) | 0.0061 | 7.25 E-10 | 7.07 E-13 | 4.19 E-12 | 1.77 E-11 |
| December 2013 | 0.014 (5%) | 0.0058 | 6.36 E-10 | 5.54 E-13 | 7.92 E-13 | 2.16 E-11 |
| | Permit Limit 0.30 | | | | | |

COMMENTS:

* Pb-210 was not determined in May 98, because the sample was destroyed by the lab before the analysis was completed.

Table 7

Page 2 of 3

Uranium One USA, Inc. - Willow Creek Project
 2013 Semi-Annual Effluent and Monitoring Report
 Sample Type: Dryer Stack Emissions Test

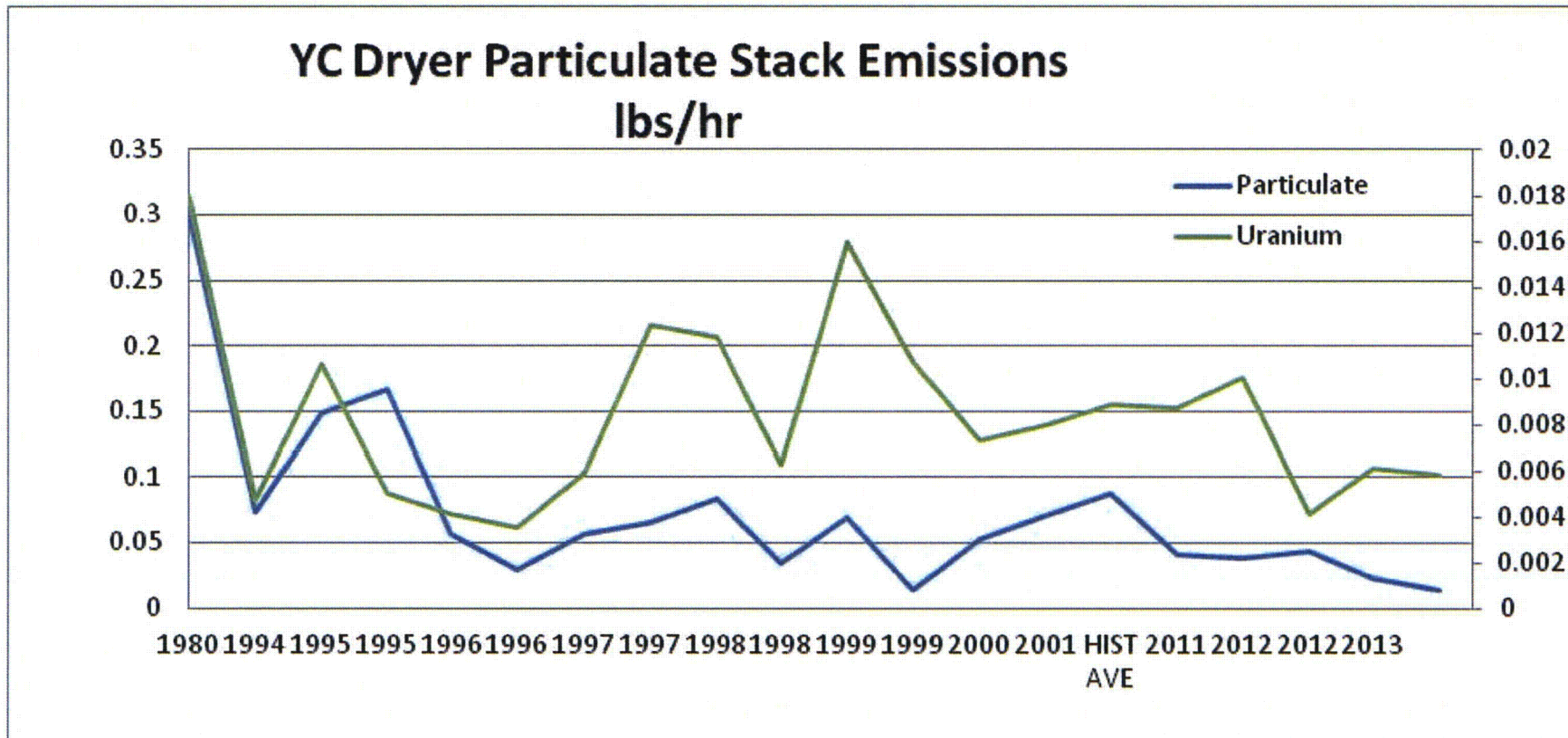


Table 7

Page 3 of 3

Uranium One USA, Inc. - Willow Creek Project
 2013 Semi-Annual Effluent and Monitoring Report
 Sample Type: Dryer Stack Emissions Test

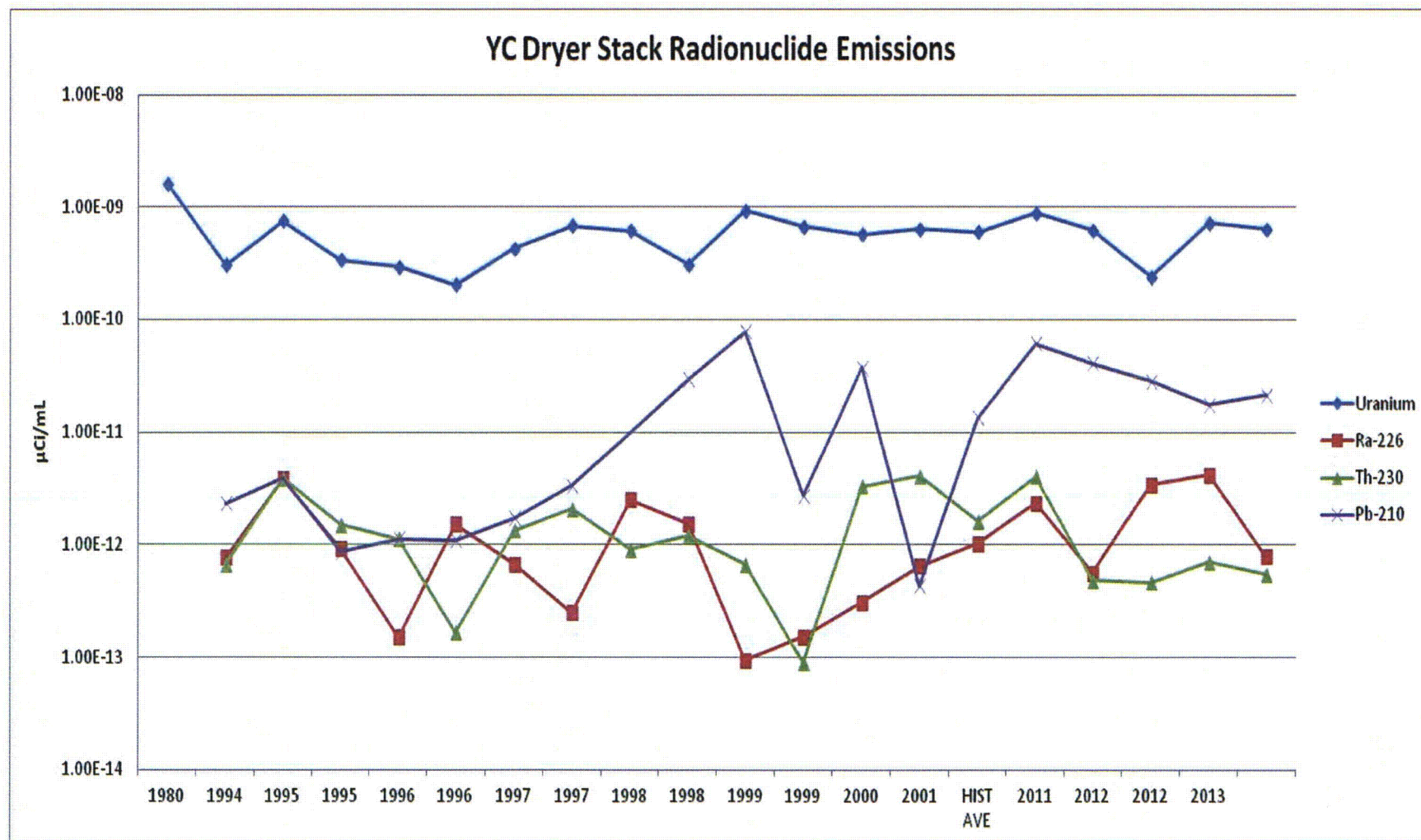


Table 8
Page 1 of 1
Uranium One USA, Inc. - Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
Environmental Airborne Radionuclides

| 3rd Quarter 2013 Data | | | | |
|-------------------------------|---------------------------|--------------------------|--------------------------|--------------------------|
| | Uranium $\mu\text{Ci/ml}$ | Th-230 $\mu\text{Ci/ml}$ | Ra-226 $\mu\text{Ci/ml}$ | Pb-210 $\mu\text{Ci/ml}$ |
| IR-1 Downwind | 3.4E-14 | 1.1E-16 | 3.6E-16 | 2.1E-14 |
| %of Pt, App. B Effluent Limit | 1.7% | 0.0% | 0.0% | 3.5% |
| IR-3 Upwind | 5.9E-14 | 1.4E-16 | 2.6E-16 | 2.5E-14 |
| %of Pt, App. B Effluent Limit | 3.0% | 0.0% | 0.0% | 4.2% |
| IR-5 Brubaker Ranch | 4.3E-15 | 2.0E-16 | 2.9E-16 | 1.8E-14 |
| %of Pt, App. B Effluent Limit | 0.2% | 0.0% | 0.0% | 3.0% |
| IR-6 Background | 7.5E-15 | 4.5E-16 | 5.9E-16 | 2.1E-14 |
| %of Pt, App. B Effluent Limit | 0.4% | 0.0% | 0.1% | 3.5% |
| IR-13 Employee House Trailer | 2.0E-14 | 1.9E-16 | 2.7E-16 | 2.5E-14 |
| %of Pt, App. B Effluent Limit | 1.0% | 0.0% | 0.0% | 4.2% |

| |
|--|
| 10 CFR Pt. 20, App. B, Effluent Limits ($\mu\text{Ci/ml}$) |
| Uranium = 1.95E-12 (50%D & 50%W) |
| Th-230 = 3.0E-14 (Y) |
| Ra-226 = 9.0E-13 (W) |
| Pb-210 = 6.0E-13 (D) |

| |
|-------------------|
| Lab LLD's |
| Uranium = 1.0E-16 |
| Th-230 = 1.0E-16 |
| Ra-226 = 1.0E-16 |
| Pb-210 = 2.0E-15 |

N/D =Non Detectable

| 4th Quarter 2013 Data | | | | |
|-------------------------------|---------------------------|--------------------------|--------------------------|--------------------------|
| | Uranium $\mu\text{Ci/ml}$ | Th-230 $\mu\text{Ci/ml}$ | Ra-226 $\mu\text{Ci/ml}$ | Pb-210 $\mu\text{Ci/ml}$ |
| IR-1 Downwind | 1.6E-14 | 9.1E-16 | 2.0E-16 | 1.4E-14 |
| %of Pt, App. B Effluent Limit | 0.8% | 0.0% | 0.0% | 2.3% |
| IR-3 Upwind | 5.9E-14 | 1.4E-16 | 1.4E-16 | 1.7E-14 |
| %of Pt, App. B Effluent Limit | 3.0% | 0.0% | 0.0% | 2.8% |
| IR-5 Brubaker Ranch | 1.1E-15 | 1.0E-16 | 1.7E-16 | 2.0E-14 |
| %of Pt, App. B Effluent Limit | 0.1% | 0.0% | 0.0% | 3.3% |
| IR-6 Background | 2.0E-15 | 1.5E-16 | 2.2E-16 | 1.3E-14 |
| %of Pt, App. B Effluent Limit | 0.1% | 0.0% | 0.0% | 2.2% |
| IR-13 Employee House Trailer | 5.2E-15 | 1.6E-16 | 2.2E-16 | 2.4E-14 |
| %of Pt, App. B Effluent Limit | 0.3% | 0.0% | 0.0% | 4.0% |

| |
|--|
| 10 CFR Pt. 20, App. B, Effluent Limits ($\mu\text{Ci/ml}$) |
| Uranium = 1.95E-12 (50%D & 50%W) |
| Th-230 = 3.0E-14 (Y) |
| Ra-226 = 9.0E-13 (W) |
| Pb-210 = 6.0E-13 (D) |

| |
|-------------------|
| Lab LLD's |
| Uranium = 1.0E-16 |
| Th-230 = 1.0E-16 |
| Ra-226 = 1.0E-16 |
| Pb-210 = 2.0E-15 |

N/D =Non Detectable

Table 9
Page 1 of 1
Uranium One USA, Inc. - Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
Environmental Gamma Radiation Monitoring

| Location | 3rd Quarter 2013 mrem/quarter | 4th Quarter 2013 mrem/quarter | Location Average mrem/quarter |
|--|----------------------------------|----------------------------------|----------------------------------|
| IRIGARAY PROJECT | | | |
| IR-1 (Downwind of Restricted Area) | 11.4 | 6.0 | 8.7 |
| IR-3 (Upwind of Restricted Area) | 29.2 | 28.0 | 28.6 |
| IR-4 (North Road) | 9.9 | 8.3 | 9.1 |
| IR-5 (Irigaray Ranch) | 6.7 | 6.0 | 6.4 |
| IR-6 (Ridge Road S.E. - Background) | 10.0 | 10.0 | 10.0 |
| IR-13 (I.R. Employee House Trailer (nearest residence)) | 13.1 | 10.2 | 11.7 |
| Quarterly Average | 13.4 | 11.4 | 12.4 |
| CHRISTENSEN PROJECT | | | |
| AS-1 (Table Mountain - Background) | 11.4 | 10.4 | 10.9 |
| AS-5A(CR Plant Upwind S.E.) | 13.7 | 10.1 | 11.9 |
| AS-5B (CR Plant Downwind N.W.) | 10.6 | 14.3 | 12.5 |
| AS-6 (Christensen Ranch) | 18.0 | 12.6 | 15.3 |
| AS-7 (C.R. Employee House Trailer (nearest residence)) | 3.0 | 4.2 | 3.6 |
| Quarterly Average | 11.3 | 10.3 | 10.8 |

Table 10
Page 1 of 4
Uranium One USA, Inc. - Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
Public Dose - Radon

| IR-13 Irigaray Man Camp Site | | | | | AS-7 Christensen Man Camp Site | | | | |
|-------------------------------------|------------------------------|-------------------|-------------------|-------------------------|---------------------------------------|------------------------------|--------------------|-------------------|-------------------------|
| QTR./YEAR | Man Camp Radon uCi/mL | Bkg uCi/mL | Net uCi/mL | Annual Dose Mrem | QTR./YEAR | Man Camp Radon uCi/mL | Bkg. uCi/mL | Net uCi/mL | Annual Dose Mrem |
| 1st Qtr. | 5.0E-10 | 2.0E-10 | 3.0E-10 | | 1st Qtr. | 1.0E-10 | 1.1E-09 | 0.0E+00 | |
| 2nd Qtr. | 6.0E-10 | 6.0E-10 | 0.0E+00 | | 2nd Qtr. | 7.0E-10 | 3.0E-10 | 4.0E-10 | |
| 3rd Qtr. * | 9.0E-10 | 8.0E-10 | 1.0E-10 | | 3rd Qtr. | 1.2E-09 | 5.0E-10 | 7.0E-10 | |
| 4th Qtr. | 5.0E-10 | 7.0E-10 | 0.0E+00 | | 4th Qtr. | 6.0E-10 | 7.0E-10 | 0.0E+00 | |
| Yearly. Ave. | 6.3E-10 | 5.8E-10 | 5.0E-11 | 5 | Yearly. Ave. | 6.5E-10 | 6.5E-10 | 0.0E+00 | 0 |
| 2013 TOTAL | | | | 5 | 2013 TOTAL | | | | 0 |

*** Detector was found on the ground for IR man camp so highest value from 3rd Q 2011 and 2012 was used for value**

Background for Christensen Site is AS-1 (Table Mountain)

(Rn-222 dtrs present = 1 E-10 µCi/ml = 50 mr/yr)

Background for Irigaray is IR-6 (Ridge Road SE)

Dose assignment was based on 36 hours per week of offshift time spent in mancamp over a 13 week period per quarter. [36 hrs. X 13 weeks = 468 hours/quarter] [1872 hours/year]

Dose assessment concentrations in 10 CFR 20, Appendix B, Table 2 Effluent Concentrations are equivalent to a 50 mrem dose if inhaled or injected continuously over a period of 1 year

Therefore the following equation to determine potential dose at the mancamp is applicable

$$24 \text{ hr/d} \times 7 \text{ d/wk} = 168 \text{ hr/wk}$$

$$168 \text{ hr/wk} \times 52 \text{ wk/yr} = 8736 \text{ hrs/yr}$$

$$1872 \text{ hrs/yr at the mancamp in 2013} \quad 1872 \text{ hr/yr} / 8736 \text{ hrs/yr} = 0.2143 \times 100 = \mathbf{21.43\% \text{ of time spent as time receiving a Public Dose}}$$

Table 10
Page 2 of 4
Uranium One USA, Inc. - Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
Public Dose - Gamma

| IR-13 Irigaray Man Camp Site | | | | | AS-7 Christensen Man Camp Site | | | | |
|-------------------------------------|--------------------|---------------|---------------|-------------------------|---------------------------------------|--------------------|---------------|---------------|-------------------------|
| QTR./YEAR | Man Camp mR | Bkg mR | NET mR | ANNUAL DOSE Mrem | QTR./YEAR | Man Camp mR | Bkg mR | NET mR | ANNUAL DOSE Mrem |
| 1st Qtr./2013 | 7.4 | 6.7 | 0.7 | 0.7 | 1st Qtr./2013 | 2.8 | 6.3 | 0.0 | 0.0 |
| 2nd Qtr./2013 | 8.9 | 10.4 | 0.0 | 0.0 | 2nd Qtr./2013 | -1.5 | 9.1 | 0.0 | 0.0 |
| 3rd Qtr./2013 | 13.1 | 10.0 | 3.1 | 3.1 | 3rd Qtr./2013 | 3.0 | 11.4 | 0.0 | 0.0 |
| 4th Qtr./2013 | 10.2 | 10.0 | 0.2 | 0.2 | 4th Qtr./2013 | 4.2 | 10.4 | 0.0 | 0.0 |
| 2013 TOTAL | | | | 4.0 | 2013 TOTAL | | | | 0 |

Background for Christensen site is AS-1 (Table Mountain) ,Background for the Irigaray site is IR-6 (Ridge Road)

Dose assignment was based on 36 hours per week spent in mancamp over a 13 week period per quarter. [36 hrs. X 13 weeks = 468 hours/quarter] [1872 hours/year]

N/D = Non-Detectable (less than background)

Table 10

Page 3 of 4

Uranium One USA, Inc. - Willow Creek Project
 2013 Semi-Annual Effluent and Monitoring Report
 Public Dose - Airborne Radionuclide

2013 IRIGARAY MAN CAMP PUBLIC ENVIRONMENTAL AIRBORNE RADIONUCLIDE DOSE ASSIGNMENT

| 1st Quarter 2013 | | IR-13 Irigaray Site | | | 2nd Quarter 2013 | | IR-13 Irigaray Site | | |
|------------------------|--------------|---------------------|------------|------------|------------------------|--------------|---------------------|------------|------------|
| Sample Period | Radionuclide | Air Conc. uCi/mL | Bkg uCi/mL | Net uCi/mL | Sample Period | Radionuclide | Air Conc. uCi/mL | Bkg uCi/mL | Net uCi/mL |
| 1/2/13 through 3/27/13 | Unat | 3.9E-15 | 2.9E-15 | 1.0E-15 | 4/26/12 thru 6/28/2012 | Unat | 4.5E-15 | 9.9E-16 | 3.5E-15 |
| 1/2/13 through 3/27/13 | Th-230 | 2.6E-16 | 4.2E-16 | 0.0E+00 | 4/26/12 thru 6/28/2012 | Th-230 | N/D | 1.1E-16 | 0.0E+00 |
| 1/2/13 through 3/27/13 | Ra-226 | 2.2E-16 | 4.1E-16 | 0.0E+00 | 4/26/12 thru 6/28/2012 | Ra-226 | N/D | 3.5E-17 | 0.0E+00 |
| 1/2/13 through 3/27/13 | Pb-210 | 1.7E-14 | 1.7E-14 | 0.0E+00 | 4/26/12 thru 6/28/2012 | Pb-210 | 1.4E-14 | 8.8E-15 | 0.0E+00 |

| 3rd Quarter 2013 | | IR-13 Irigaray Site | | | 4th Quarter 2013 | | IR-13 Irigaray Site | | |
|------------------------|--------------|---------------------|------------|------------|-----------------------|--------------|---------------------|------------|------------|
| Sample Period | Radionuclide | Air Conc. uCi/mL | Bkg uCi/mL | Net uCi/mL | Sample Period | Radionuclide | Air Conc. uCi/mL | Bkg uCi/mL | Net uCi/mL |
| 6/28/12 thru 10/1/2012 | Unat | 2.0E-14 | 7.5E-15 | 1.3E-14 | 10/1/12 thru 1/2/2013 | Unat | 5.2E-15 | 2.0E-15 | 3.2E-15 |
| 6/28/12 thru 10/1/2012 | Th-230 | 1.9E-16 | 4.5E-16 | 0.0E+00 | 10/1/12 thru 1/2/2013 | Th-230 | 1.6E-16 | 1.5E-16 | 0.0E+00 |
| 6/28/12 thru 10/1/2012 | Ra-226 | 2.7E-16 | 5.9E-16 | 0.0E+00 | 10/1/12 thru 1/2/2013 | Ra-226 | 2.2E-16 | 2.2E-16 | 0.0E+00 |
| 6/28/12 thru 10/1/2012 | Pb-210 | 2.5E-14 | 2.1E-14 | 0.0E+00 | 10/1/12 thru 1/2/2013 | Pb-210 | 2.4E-14 | 1.3E-14 | 0.0E+00 |

| 2013 | | | |
|-------------|-----------------------|------------------|-----------|
| Conc uCi/ml | 10 CFR Effluent Limit | % Effluent Conc. | DOSE Mrem |
| 5.1E-15 | 2.0E-12 | 0.26 | 0.06 |
| 0.0E+00 | 3.0E-14 | 0.00 | 0.00 |
| 0.0E+00 | 9.0E-13 | 0.000 | 0.00 |
| 0.0E+00 | 6.0E-13 | 0.00 | 0.00 |
| 2013 TOTAL | | | 0.06 |

There is no environmental airborne radionuclide sampling performed at the Christensen Satellite Facility as only release is radon.

Dose in the above table is shown as 100% of time as Public Dose exposure. Being used to demonstrate compliance with 40 CFR 190 limit of 10 mrem excluding radon.

When in actuality time spent at man camp as member of Public is as follows:

Dose assignment was based on 36 hours per week of offshift time spent in mancamp over a 13 week period per quarter. [36 hrs. X 13 weeks = 468 hours/quarter] [1872 hours/year]

Dryer Operations were performed during the 1st, 2nd, 3rd and 4th Quarters in 2013.

Table 10
Page 4 of 4
Uranium One USA, Inc. - Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
Public Dose - Airborne Radionuclide

2013 PUBLIC DOSE SUMMARY

| Irigaray Site | | | | Annual Public Dose Mrem |
|----------------------|--------------|--------------|-----------------|--|
| YEAR | Radon | Gamma | Airborne | |
| 2013 | 5.2 | 4.0 | 0.06 | 9.31 |

| Christensen Satellite Site | | | | Annual Public Dose Mrem |
|-----------------------------------|--------------|--------------|-----------------|--|
| YEAR | Radon | Gamma | Airborne | |
| 2013 | 0.0 | 0.0 | 0.06 | 0.06 |

There is no environmental airborne radionuclide sampling performed at the Christensen Satellite Facility, utilized data from Irigaray Site to be a conservative estimate.

Table 11
Page 1 of 1
Uranium One USA, Inc. – Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
SERP Summary

| Number and Date | Description | Revisions to License Application Text |
|--|---|--|
| <p><u>SERP 13-06</u> (7-18-13)</p> | <p>The purpose of this evaluation by the Uranium One Safety and Environmental Review Panel (SERP) is to review the qualifications of Tim McCullough to determine if he meets the qualifications as a Radiation Safety Officer as specified in Radioactive Materials License SUA-1341, Regulatory Guide 8.31 and the Approved 2008 License Renewal Application. The purpose for making this determination would be to provide the site with an additional on site qualified individual that could qualify as the RSO designee in the absence of the site RSO and provide additional qualified assistance to the Radiation staff for equipment release, inspection or other activities as determined appropriate.</p> | |
| | | |

Table 12
Page 1 of 1
Uranium One USA, Inc. - Willow Creek Project
2013 Semi-Annual Effluent and Monitoring Report
Daily Walk-Through Inspections

| Irigaray Site | | | | Christensen Site | | | |
|---------------|-----|----|----------|------------------|-----|----|----------|
| Date: Week | YES | NO | COMMENTS | Date: Week | YES | NO | COMMENTS |
| 7/6/2013 | X | | | 7/6/2013 | X | | |
| 7/13/2013 | X | | | 7/13/2013 | X | | |
| 7/20/2013 | X | | | 7/20/2013 | X | | |
| 7/27/2013 | X | | | 7/27/2013 | X | | |
| 8/3/2013 | X | | | 8/3/2013 | X | | |
| 8/10/2013 | X | | | 8/10/2013 | X | | |
| 8/17/2013 | X | | | 8/17/2013 | X | | |
| 8/24/2013 | X | | | 8/24/2013 | X | | |
| 8/31/2013 | X | | | 8/31/2013 | X | | |
| 9/7/2013 | X | | | 9/7/2013 | X | | |
| 9/14/2013 | X | | | 9/14/2013 | X | | |
| 9/21/2013 | X | | | 9/21/2013 | X | | |
| 9/28/2013 | X | | | 9/28/2013 | X | | |
| 10/5/2013 | X | | | 10/5/2013 | X | | |
| 10/12/2013 | X | | | 10/12/2013 | X | | |
| 10/19/2013 | X | | | 10/19/2013 | X | | |
| 10/26/2013 | X | | | 10/26/2013 | X | | |
| 11/2/2013 | X | | | 11/2/2013 | X | | |
| 11/9/2013 | X | | | 11/9/2013 | X | | |
| 11/16/2013 | X | | | 11/16/2013 | X | | |
| 11/23/2013 | X | | | 11/23/2013 | X | | |
| 11/30/2013 | X | | | 11/30/2013 | X | | |
| 12/7/2013 | X | | | 12/7/2013 | X | | |
| 12/14/2013 | X | | | 12/14/2013 | X | | |
| 12/21/2013 | X | | | 12/21/2013 | X | | |
| 12/28/2013 | X | | | 12/28/2013 | X | | |