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Underground Test Area October 1, 2015, to December 31, 2016 Quality Assurance Report Nevada National Security Site, Nevada

April 2017

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UNDERGROUND TEST AREA
OCTOBER 1, 2015, TO DECEMBER 31, 2016
QUALITY ASSURANCE REPORT
NEVADA NATIONAL SECURITY SITE, NEVADA

U.S. Department of Energy,
Environmental Management Nevada Program
Las Vegas, Nevada

April 2017

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List of Acronyms and Abbreviations

AIMS	Assessment and Issue Management System
ALS	ALS Laboratory Group
ARS	ARS International, LLC
BMP	Best management practice
C	Carbon
°C	Degrees Celsius
CADD	Corrective action decision document
CAI	Corrective action investigation
CAIP	Corrective action investigation plan
CAP	Corrective action plan
CAU	Corrective action unit
Cl	Chlorine
COC	Contaminant of concern
COPC	Contaminant of potential concern
CR	Closure report
CRAD	Criteria and review approach document
CV	Curriculum vitae
CY	Calendar year
DC	Derivative classifier
DIC	Dissolved inorganic carbon
DOC	Dissolved organic carbon
DOE	U.S. Department of Energy
DRI	Desert Research Institute
E/I	Event/issue
ES	Electric submersible
F/F	Find and fix

List of Acronyms and Abbreviations *(Continued)*

FFACO	*Federal Facility Agreement and Consent Order*
FY	Fiscal year
GEL	General Engineering Laboratory
^{2}H	Deuterium
^{3}H	Tritium
He	Helium
I	Iodine
ITS	Issues Tracking System
LANL	Los Alamos National Laboratory
LCS	Laboratory control sample
LLNL	Lawrence Livermore National Laboratory
MAPEP	Mixed Analyte Performance Evaluation Program
MCL	Maximum contaminant level
MDL	Minimum detection level
M&O	Management and operating
MSDS	Material Safety Data Sheet
N/A	Not applicable
NA	Not available
NDEP	Nevada Division of Environmental Protection
NELAC	National Environmental Laboratory Accreditation Conference
N-I	Navarro-Intera, LLC
NIST	National Institute of Standards and Technology
NNSA/NFO	U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office
NNSS	Nevada National Security Site
NSTec	National Security Technologies, LLC

List of Acronyms and Abbreviations (Continued)

NTID	Nuclear Test Information Database
O	Oxygen
OA	Oversight assessment
OAA	Operational awareness activity
OBS	Observation
OE/LL	Operating Experience/Lessons Learned
OFI	Opportunity for improvement
pCi/L	Picocuries per liter
PEP	Performance evaluation program
PER	Preemptive review
PI	Principal investigator
pmc	Percent modern carbon
POD	Plan of the day
Pu	Plutonium
QA	Quality assurance
QAP	Quality Assurance Plan
RCT	Radiological control technician
RM/SM	Rainier Mesa/Shoshone Mountain
RPD	Relative percent difference
S	Sulfur
SBMS	Standards-Based Management System
SD	Standard deviation
SDS	Safety Data Sheet
SME	Subject matter expert
SOP	Standard operating procedure
Sr	Strontium

List of Acronyms and Abbreviations (Continued)

Tc	Technetium
TDR	Technical Data Repository
TIC	Total inorganic carbon
U	Uranium
U of A	University of Arizona
UGTA	Underground Test Area
USGS	U.S. Geological Survey
YF/CM	Yucca Flat/Climax Mine
$d^{13}C$	Delta carbon-13
$\delta^{2}H$	Delta deuterium
$\delta^{18}O$	Delta oxygen-18

1.0 Introduction

This report is required by the Underground Test Area (UGTA) Activity Quality Assurance Plan (QAP) (NNSA/NFO, 2015) and identifies the UGTA quality assurance (QA) activities from October 1, 2015, through December 31, 2016 (hereafter, called "the reporting period"). This expanded reporting period allows this report to be converted to a calendar-year (CY) reporting cycle. This change is being made to better align this report with the annual UGTA sampling and the Nevada National Security Site (NNSS) environmental reports.

All UGTA organizations—U.S. Department of Energy (DOE) Office of Environmental Management (EM) Nevada Program; Desert Research Institute (DRI); Lawrence Livermore National Laboratory (LLNL); Los Alamos National Laboratory (LANL); National Security Technologies, LLC (NSTec); Navarro Research and Engineering, Inc. (Navarro); and the U.S. Geological Survey (USGS)—conducted QA activities in the reporting period. The activities included conducting oversight assessments for QAP compliance, identifying findings and completing corrective actions, evaluating laboratory performance, reviewing technical work, and publishing documents.

UGTA Activity participants conducted 23 assessments on topics including safe operations, QAP compliance, and activity planning. These assessments are summarized in Section 2.0. Corrective actions tracked are presented in Appendix A.

Section 3.0 identifies and justifies the UGTA Activity use of laboratories not certified by Nevada.

Laboratory performance was evaluated based on four approaches: (1) established performance evaluation programs (PEPs), (2) interlaboratory comparisons, (3) blind samples, or (4) data review. The results of the laboratory performance evaluations are summarized in Section 4.0.

The contract managers, corrective action unit (CAU) leads, preemptive review (PER) committee members, and topical committee members are listed by name and organization in Section 5.0. Other activities that affected UGTA quality are discussed in Section 6.0.

Section 7.0 provides the UGTA QA program conclusions, and Section 8.0 lists the references.

2.0 Assessments and Corrective Action Tracking

2.1 Assessments

The UGTA Activity continued to conduct management and independent assessments during the reporting period. Management assessments are conducted by the responsible managers or a designee to identify process improvements or efficiencies. Independent assessments (also called oversight assessments) are conducted by personnel independent of the work being done. Causal analyses are independent assessments that evaluate the underlying causes of an issue or event. EM Nevada Program personnel conduct oversight assessments (OAs) and operational awareness activities (OAAs), (both are referred to as "surveillances" in Table 2-1), which are defined as an analysis or review of contractor programs, processes, or products in accordance with National Nuclear Security Administration, Nevada Field Office Order 226.X, Rev. 2, *Federal Oversight Program* (NNSA/NFO, 2016a). Assessments will continue throughout the UGTA Activity as part of normal operations. The assessments are listed in Table 2-1 in the order they were conducted.

2.2 EM Nevada Program Assessments

EM Nevada Program personnel conducted three OAAs and one OA during the reporting period. Criteria review approach documents (CRADs) in accordance with NFO Order 226.X, Rev. 2, *Federal Oversight Program* were completed. Each CRAD documents the objective, requirements, criteria, review approach, conclusions, records reviewed, personnel interviewed, work observed, results, and any issues identified. The assessments (Table 2-1) resulted in four findings, two opportunities for improvement (OFIs), and three observations (OBSs).

2.3 Participant Assessments

Table 2-1 lists the participant assessments for the reporting period. The EM Nevada Program Activity Lead mandated management assessments as fiscal year (FY) 2016 and FY 2017 milestones for each participant. The 19 assessments listed in Table 2-1 resulted in 13 findings, 24 OFIs, 7 OBSs, 2 best management practices (BMPs), 2 Find and Fix (F/F), and 1 Event/Issue (E/I).

Table 2-1
UGTA Assessments
(Page 1 of 2)

Tracking Number	Date Conducted	Assessing Org.	Type	Scope	Result			
					Finding	OFI	OBS	Other
A-460	10/16/2015	Navarro	Causal Analysis	Issue I-1601, UGTA Technician Eye Exposure to Defoaming Chemical	2	1	1	0
A-402	11/20/2015	Navarro	Management	LLNL Data Record Package Compliance	1	0	0	1 E/I
A-483	11/30/2015	Navarro	Management	Review of Data and Logbook Documentation to Ensure Appropriate Quality and Completeness	1	6	3	0
A-462	12/15/2015	Navarro	Management	Closure Support & Geologic Interpretation Integration Assessment	0	8	0	0
A-408	12/21/2015	Navarro	Independent	UGTA Work Control and Authorization	2	2	0	1 BMP
A-655	12/30/2015	EM Nevada Program	Surveillance	Oversight Assessment of Navarro Plan of the Day (POD); OAA-16-AMEM-RB-12-30-2015	0	0	0	0
A-415	02/12/2016	Navarro	Independent	Qualification Quality Affecting Software Codes	5	0	0	0
A-543	03/02/2016	Navarro	Surveillance	In-Process Drilling Activities at Well ER-3-3	0	0	0	1 F/F 1 BMP
A-549	03/03/2016	EM Nevada Program	Surveillance	Oversight Assessment of UGTA Drilling Site Safety Walk-down Effectiveness: MSA-16-AMEM-057	0	0	0	0
A-547	03/31/2016	Navarro	Surveillance	In-Process Drilling Activities at Well ER-4-1	0	0	0	0
A-657	04/14/2016	EM Nevada Program	Surveillance	Assessment of Navarro Laboratory Selection Process, Las Vegas, Nevada: OAA-16-AMEM-KJC-04/14/16	0	0	0	0
A-438	04/08/2016	Navarro	Management	Assessment of Environmental Compliance (EC) Activities at Drill Sites	0	0	0	0
A-558	06/10/2016	EM Nevada Program	Oversight	LLNL Laboratory Analysis and Corrective Action Completion	4	2	3	0
A-427	06/17/2016	Navarro	Management	Data Integration Process Improvement	0	1	3	0
A-635	06/23/2016	NSTec	Management	UGTA Integrated Safety Management System Assessment (MA-16-H000-019)	0	0	0	0
A-537	07/29/2016	DRI	Management	Standard Operating Procedures (SOP) Implementation and Management	0	0	0	0

Table 2-1
UGTA Assessments
(Page 2 of 2)

Tracking Number	Date Conducted	Assessing Org.	Type	Scope	Result			
					Finding	OFI	OBS	Other
A-534	09/30/2016	USGS	Management	USGS MSA-16-USGS-001, Records Disposition Management	2	0	0	0
A-542	09/30/2016	LANL	Management	SOP Compliance	0	0	0	0
A-616	09/30/2016	LLNL	Management	C-14 Analyses, Data Package Preparation	0	3	0	0
A-636	09/30/2016	NSTec	Management	UGTA Project Well Sampling Operations (MA-16-H000-015)	0	0	0	0
A-658	10/17/2016	LLNL	Surveillance	E-Tunnel Sampling	0	1	0	0
A-440	11/30/2016	Navarro	Management	Archiving of Model Output and Results	0	0	0	1 F/F
A-640	11/30/2016	Navarro	Causal Analysis	Issue I-1901, "FFACO comments on an FFACO document were not addressed"	0	2	0	0
				Totals	17	26	10	2 BMPs 2 F/F 1 E/I

2.4 Corrective Action Tracking

UGTA participants provide UGTA-related issues (including those identified outside of assessments), assessment plans, assessment reports, corrective actions, and related closure documentation to Navarro for tracking and summarization on the Navarro UGTA SharePoint site. Items (findings, OFIs, OBSs, BMPs, F/Fs, and E/Is) may be identified during an assessment, outside an assessment, or as a result of an event. Assessments are scheduled and items are tracked in the Navarro Assessment and Issue Management System (AIMS). The open corrective actions are presented in Table A-1, and the closed corrective actions in Table A-2.

Not all issues are found during UGTA assessments or assigned to UGTA personnel (e.g., safety); therefore, there are corrective actions in Tables A-1 and A-2 not associated with UGTA assessments and "missing" corrective actions that were assigned to non-UGTA personnel. However, these issues are tracked outside of UGTA processes. UGTA corrective actions are discussed during the monthly contract managers meeting.

During the reporting period, 106 corrective actions were tracked, and 96 were closed.

3.0 Noncertified Laboratory Use

This section identifies and justifies analyses performed during the reporting period by laboratories not certified by the Nevada Division of Environmental Protection (NDEP) Bureau of Safe Drinking Water. Required analyses associated with each UGTA CAU are described within the associated *Federal Facility Agreement and Consent Order* (FFACO) regulatory planning document. These documents include the corrective action investigation plan (CAIP) for the corrective action investigation (CAI) stage, the corrective action decision document (CADD)/corrective action plan (CAP) for the CADD/CAP stage, and the closure report (CR) for the CR stage. The required analyses within these documents are consistent with the NNSS Integrated Sampling Plan, which is not an FFACO regulatory document.

The NNSS Integrated Groundwater Sampling Plan was developed by a committee made up of technical representatives from each UGTA organization (NNSA/NFO, 2014). This committee combined information from previous investigations, an understanding of the NNSS inventory radionuclides relative mobility, previous sampling and analysis data, and modeling results to develop an analyte list that is dependent on the CAU and location type (characterization, source/plume, early detection, distal, community, and inactive). While the sampling plan identifies only analyses performed by a commercial laboratory certified by NDEP Bureau of Safe Drinking Water, additional analyses that require a noncertified laboratory are routinely performed to support characterization, model evaluation activities, and/or QA.

Table 3-1 lists the analyses performed by the noncertified labs (DRI, LLNL, and USGS) for characterization and source/plume locations. Samples collected from early-detection locations are analyzed by LLNL for low-level tritium (^{3}H) for all CAUs except Frenchman Flat. The Frenchman Flat CAU is in the closure stage; therefore, commercial laboratories are used for all analyses, and LLNL data are occasionally used for corroborative purposes. Samples collected from distal locations are generally analyzed for ^{3}H by the commercial laboratories using standard analyses. In some cases, the commercial laboratory and/or LLNL may be used for low-level ^{3}H measurements. Low-level ^{3}H measurements may be performed to verify lack of contaminant migration in these distal areas.

Table 3-1
CAU-Specific Source/Plume and Characterization Location Analyses by Noncertified Laboratories

CAU	Characterization		Source/Plume
	LLNL	Other	LLNL
Frenchman Flat	None	None	None
Pahute Mesa [a]	• ^{14}C and ^{36}Cl • $\delta^{2}H$ and $\delta^{18}O$ • TIC/TOC and $\delta^{13}C$ • Noble gases • ^{3}H (low level) if ^{3}H is <300 pCi/L • ^{99}Tc, ^{129}I, and Pu if ^{3}H is >5,000 pCi/L	• DRI: DOC $\delta^{13}C/^{14}C$ if ^{3}H is <5,000 pCi/L • USGS: $^{34/32}S$ if ^{3}H is <200,000 pCi/L	^{14}C, ^{36}Cl, ^{99}Tc, ^{129}I
Rainier Mesa/Shoshone Mountain (RM/SM)		None	
Yucca Flat/Climax Mine (YF/CM)			

[a] New wells in Pahute Mesa sampled for the first time also require $^{234/238}U$ and $^{87/86}Sr$ by LLNL.

Notes:
(1) Samples collected using a bailer will be analyzed only by a commercial lab certified by NDEP, Bureau of Safe Drinking Water.
(2) Analysis of an anion sample (chloride) is required to support ^{36}Cl analysis and analysis of a metals sample (Sr, U) is required for $^{87/86}Sr$ and $^{234/238}U$ analysis.

C = Carbon
Cl = Chlorine
DOC = Dissolved organic carbon
I = Iodine
pCi/L = Picocuries per liter
Pu = Plutonium
S = Sulfur
Sr = Strontium
Tc = Technetium
TIC = Total inorganic carbon
TOC = Total organic carbon
U = Uranium
$\delta^{13}C$ = Delta carbon-13
$\delta^{2}H$ = Delta deuterium
$\delta^{18}O$ = Delta oxygen-18

Table 3-2
Justification for Noncertified Laboratory Analyses
(Page 1 of 3)

Analyte	Purpose	Justification for Use of Laboratory Other Than Commercial
Lawrence Livermore National Laboratory		
^{3}H (Low-Level)	^{3}H is the only contaminant of concern (COC) identified in the sampling plan. Low-level measurements provide early detection of the contaminant plume, support groundwater velocity calculations, and provide estimates of the contribution of recent recharge to the aquifer where ^{3}H presence is not test-related. Also, measurements may be used to corroborate commercial laboratory results.	LLNL uses a helium ingrowth method with a mass spectrometer by which the ^{3}H concentration is determined based on the production of its radiogenic daughter (^{3}He). Commercial labs use a sample preconcentration method followed by liquid scintillation counting. LLNL achieves a slightly lower minimum detection level (MDL) (~1 vs ~4 pCi/L), but more importantly, confidence in the low-level result is gained by using the two very different methods. Low-level ^{3}H is only measured when ^{3}H is less than 300 pCi/L.
^{14}C	Identified as a contaminant of potential concern (COPC) for all CAUs in the sampling plan, and analyzed to evaluate extent and trends in contamination resulting from underground nuclear testing (i.e., evaluate contaminant transport). Also used for evaluating groundwater flow paths, estimating groundwater travel times/velocities, and assessing local recharge extent in areas where no test-related ^{14}C is present.	LLNL provides specialized analyses that measure this analyte at much lower levels (MDL is less than 0.05 pCi/L) than the commercial laboratory (MDL is ~500 pCi/L). Also, commercial laboratories cannot generally measure ^{14}C in NNSS groundwater samples because samples with ^{14}C above the commercial laboratory's MDL also have high ^{3}H (~10^{7} pCi/L), and the high ^{3}H results in spectral interferences. Therefore, commercial laboratories are useful for verifying nondetects below the 2,000 pCi/L maximum contaminant level (MCL) but LLNL analyses are necessary to meet other sampling objectives. Also, the low-level measurement provides confidence in results and in any exceedances reported by the commercial laboratory.
^{36}Cl	Identified as a COPC for all CAUs in the sampling plan, and analyzed to evaluate extent and trends in contamination resulting from underground nuclear testing. Also used for evaluating groundwater flow paths and estimating groundwater travel times/velocities, and used in chloride mass balance calculations.	LLNL provides specialized analyses that measure this analyte at much lower levels (<0.004 pCi/L) than the commercial laboratory (4 pCi/L). LLNL can measure natural ^{36}Cl levels. Most NNSS sampling locations have ^{36}Cl activities below the commercial laboratory MDL. No samples exceed the 700 pCi/L MCL. Therefore, commercial laboratories are useful for verifying concentrations below the MCL and can be used to evaluate trends in a small number of NNSS locations. LLNL's lower detection capability is required for evaluating trends in the majority of NNSS locations and for meeting other sampling objectives. Also, the low-level measurement provides confidence in results and in any exceedances reported by the commercial laboratory.

Table 3-2
Justification for Noncertified Laboratory Analyses
(Page 2 of 3)

Analyte	Purpose	Justification for Use of Laboratory Other Than Commercial
Lawrence Livermore National Laboratory (continued)		
^{99}Tc	Identified as a COPC for all CAUs in the sampling plan, and analyzed to evaluate extent and trends in contamination resulting from underground nuclear testing (i.e., evaluate contaminant transport).	LLNL provides specialized analyses that measure this analyte at much lower levels (<0.001 pCi/L) than the commercial laboratory (10 pCi/L). Most ^{99}Tc results are reported as nondetects by the commercial laboratory. Therefore, the LLNL lower detection capability is required for a quantitative trend evaluation for the majority of the NNSS sampling locations where ^{99}Tc may exist but at concentrations well below the commercial laboratory's MDL.Also, the low-level measurement provides confidence in results and in any exceedances reported by the commercial laboratory.
^{35}S	Used as evidence of the contribution of recent recharge (one year or less) to the sampled aquifer.	These are nonstandard analyses that are not performed by a commercial laboratory certified by the State of Nevada.
^{129}I	Identified as a COPC for all CAUs in the sampling plan, and analyzed to evaluate extent and trends in contamination resulting from underground nuclear testing (i.e., evaluate contaminant transport).	LLNL provides specialized analyses to measure this analyte at much lower levels (<0.001 pCi/L) than the commercial laboratory (1 pCi/L). The reporting limit for the commercial is the same as the MDL. The LLNL lower detection capability is required for a quantitative trend evaluation for the majority of the NNSS sampling locations where ^{129}I may exist but at concentrations well below the commercial laboratory's MDL. Also, the low-level measurement provides confidence in results and in any exceedances reported by the commercial laboratory.
Pu isotopes	Identified as a COPC for the (RM/SM) CAU in the sampling plan, and analyzed to evaluate extent and trends in contamination resulting from underground nuclear testing (i.e., evaluate contaminant transport). Also used to identify which test is responsible for its presence.	Samples from the test cavity or other location where contamination is from one specific nuclear test may be considered classified information, and therefore samples should not be analyzed by a commercial laboratory. This decision has not been finalized. LLNL also determines whether the Pu is in colloidal or aqueous form.
$\delta^{13}C$ and TIC	Used for correcting ^{14}C measured values for reactions along the flow path to support groundwater age estimates. Also needed for calculating ^{14}C activities from measured values reported by the accelerator mass spectrometer.	$\delta^{13}C$ analyses cannot be performed by a commercial laboratory certified by the State of Nevada. TIC analysis is performed in support of the ^{14}C and $\delta^{13}C$ analysis, and is best analyzed for the same sample.

Table 3-2
Justification for Noncertified Laboratory Analyses
(Page 3 of 3)

Analyte	Purpose	Justification for Use of Laboratory Other Than Commercial
Lawrence Livermore National Laboratory (continued)		
Noble Gases	Provides information about groundwater sources, flow paths, and travel times. The composition of the dissolved noble gases (neon-xenon) is directly related to the temperature and altitude of the groundwater recharge location.	Noble gas analysis is highly specialized and cannot be performed by a commercial laboratory certified by the State of Nevada.
$\delta^{2}H$ and $\delta^{18}O$	Provides information about groundwater sources, flow paths, and groundwater mixing.	These are nonstandard analyses that require specialized instrumentation are not performed by a commercial laboratory certified by the State of Nevada.
Desert Research Institute		
DOC and DOC ^{14}C	Used in estimating groundwater travel time/flow velocities. DOC ^{14}C is thought to be less influenced by reactive processes along the flow path and may therefore allow more straightforward interpretations than dissolved inorganic carbon (DIC)^{14}C.	The required low detection limits required for DOC ^{14}C analyses cannot be achieved by a commercial laboratory certified by the State of Nevada.
U.S. Geological Survey		
$^{34}S/^{32}S$	Provides information about groundwater sources, flow paths, and groundwater mixing.	These are nonstandard analyses that are not performed by a commercial laboratory certified by the State of Nevada.

The purpose of the analyses performed by DRI, LLNL, and USGS along with justification for using a noncertified laboratory are presented in Table 3-2. As shown in Table 3-2, LLNL provides specialized analyses with lower MDLs than the commercial laboratory. The majority of the sample results for the radioisotopes are reported as nondetects by the commercial laboratory. While this is satisfactory for ensuring radionuclides do not exceed the MCLs, it is insufficient for quantitatively evaluating contaminant migration. The lower detection limits provided by nonstandard analyses allow the UGTA Activity to evaluate trends in COPCs and also allow early detection of the contaminant plume. Understanding the behavior of these radionuclides migrating from the underground nuclear test aids the development and testing of the contaminant transport models. This evaluation requires the lower detection capabilities of the nonstandard analyses.

Additional LLNL analytes require special methods and cannot be analyzed by a commercial laboratory certified by NDEP (e.g., noble gases, $\delta^{2}H$, $\delta^{13}C$, and $\delta^{18}O$). This is similarly the case for the nonstandard analyses performed by DRI and USGS that are beyond the capabilities of a commercial laboratory certified by the State of Nevada (Tables 3-1 and 3-2).

Samples collected and analyzed by a noncertified laboratory during this reporting period are presented in Table 3-3. Characterization and source/plume samples were analyzed as described in Table 3-1 unless otherwise noted. Also, two inactive locations (TTR-53 and E-Tunnel) were sampled for the full Pahute Mesa CAU characterization suite (Table 3-3). In addition to the characterization suite (Table 3-1), E-Tunnel samples were analyzed for ^{35}S by LLNL. Inactive locations are defined in NNSA/NFO (2014) as locations not currently sampled routinely but available for sampling if conditions warrant. Two new wells (ER-3-3 and ER-20-12), not included in the sampling plan, were sampled for the characterization suite. Several samples were analyzed by LLNL solely for low-level ^{3}H to corroborate the commercial laboratory results. These sampling locations include two Frenchman Flat wells (ER-5-5 and ER-11-2), two piezometers within the RM/SM CAU (ER-12-3_p1 and ER-12-4_p2) and one distal well (ER-EC-1) associated with the Pahute Mesa CAUs.

Confidence in the QA/QC of these laboratories is provided through data verification, data validation, and laboratory assessments. Consistency between multiple measurements from the same location,

Table 3-3
Locations and Associated Location Types Sampled and Analyzed by a Noncertified Laboratory during Reporting Period

CAU	Location	ISPID
Characterization		
Frenchman Flat	ER-5-5	ER-5-5_m1 [a]
Pahute Mesa	ER-EC-2a ER-EC-8 ER-EC-12 ER-20-12	ER-EC-2a_m3 [b] ER-EC-8_m1-3 [b] ER-EC-12_m2 [b] ER-20-12_m1 [c,d] ER-20-12_p1 [c,d]
RM/SM	ER-12-3 ER-12-4 UE-18t	ER-12-3_p1 [a,e] ER-12-4_p2 [a,e] UE-18t_p1 [b]
YF/CM	ER-3-3	ER-3-3_m1 [b,c]
Source/Plume		
YF/CM	UE-2ce	UE-2ce_m1
Distal		
Pahute Mesa	ER-EC-1	ER-EC-1_m1-3 [a]
Inactive		
Frenchman Flat	ER-11-2	ER-11-2_m1 [a]
Pahute Mesa	TTR-53 [b,f]	NA
RM/SM	E-Tunnel [d,f]	NA

[a] Analyzed by LLNL for low-level ^{3}H for corroboration purposes.
[b] ^{3}H <300 pCi/L; therefore, ^{99}Tc, ^{129}I, and Pu were not analyzed, and low-level ^{3}H was analyzed. Pahute Mesa locations also analyzed for DOC and DOC ^{14}C and $^{34}S/^{32}S$.
[c] New characterization well not yet included in NNSA/NFO (2014).
[d] ^{3}H >5,000 pCi/L; therefore, ^{99}Tc, ^{129}I, and Pu were analyzed.
[e] Characterization samples were collected using a bailer and analyzed by LLNL for low-level ^{3}H.
[f] Inactive locations (E-Tunnel and TTR-53) sampled for characterization analytes including $^{87/86}Sr$ and $^{234/238}U$.

ISPID = Integrated Sampling Plan Identification
NA = Not available

Notes:
(1) Characterization and Source/Plume samples analyzed as described in Table 3-1 unless otherwise noted.
(2) Analysis of an anion sample (chloride) is required to support ^{36}Cl analysis and analysis of a metals sample (Sr, U) is required for $^{87/86}Sr$ and $^{234/238}U$ analysis.

between multiple parameters are indicative of similar geochemical processes, and with spatial trends in the data, ensure confidence in the results and data interpretations.

4.0 Performance Evaluation Programs

UGTA water chemistry data were provided by General Engineering Laboratory (GEL); ALS Laboratory Group (ALS); ARS International, LLC (ARS); DRI; LLNL; and USGS. GEL, ALS, and ARS are commercial laboratories that use industry standard chemistry methods to analyze samples, and are certified by the NDEP Bureau of Safe Drinking Water. GEL, ARS, and ALS participate in established PEPs that were not available for ^{14}C and ^{36}Cl, so analysts' demonstrations of capability were performed. Analyses performed by DRI, LLNL, and USGS laboratories (Table 3-2) do not follow industry standard methods and do not have established PEPs. These analyses require interlaboratory comparisons, blind sample analyses, and/or data evaluations to evaluate laboratory performance.

4.1 Established PEPs

GEL participated in the following:

- RadCheM™ and MRaD™, conducted by Environmental Resources Associates
- Mixed Analyte Performance Evaluation Program (MAPEP), conducted by the Radiological and Environmental Sciences Laboratory
- National Environmental Laboratory Accreditation Conference (NELAC) Fields of Testing for *Clean Water Act* and *Safe Drinking Water Act,* conducted by NSI Lab Solutions
- WatR™ Pollution Proficiency Testing, conducted by Environmental Resources Associates
- Water Pollution Proficiency Testing, conducted by phenova™ Certified Reference Materials
- Water Pollution Proficiency Testing, conducted by Sigma-Aldrich RTC Inc.

ALS participated in the following:

- RadCheM™ and MRaD™, conducted by Environmental Resources Associates
- MAPEP, conducted by the Radiological and Environmental Sciences Laboratory
- NELAC Fields of Testing for *Clean Water Act* and *Safe Drinking Water Act,* conducted by NSI Lab Solutions

ARS participated in the following:

- RadCheM™ and MRaD™, conducted by Environmental Resources Associates
- MAPEP, conducted by the Radiological and Environmental Sciences Laboratory
- NELAC Fields of Testing for *Clean Water Act* and *Safe Drinking Water Act,* conducted by NSI Lab Solutions
- WatR™ Pollution Proficiency Testing, conducted by Environmental Resources Associates

Laboratory results were within acceptable limits for these performance programs during the reporting period. PEP reports are business proprietary information and can be provided as needed.

4.2 Demonstration of Capability

The analyst's ability to meet measurement quality objectives (e.g., for precision and bias) is demonstrated by one of the following:

- Acceptable performance of a blind sample (single- or double-blind to the analyst)
- At least four consecutive laboratory control samples (LCSs) with acceptable levels of precision and accuracy

If the above cannot be performed, then an authentic sample can be analyzed and the results compared to those of another analyst. The results must be statistically indistinguishable between the two analysts.

4.3 Interlaboratory Comparisons

Laboratory performance for LLNL low-level ^{3}H was assessed by comparing reported results for wells ER-EC-1, ER-EC-12, ER-5-5, ER-12-3, and ER-11-2 commensurate samples to the data provided by GEL. The relative percent difference (RPD) was within the established acceptance criteria (±25 percent) for the ER-12-3 samples (Table 4-1). No ^{3}H was detected in the remaining wells by either laboratory.

Commercial laboratory and LLNL detection limit differences precluded an interlaboratory comparison of ^{14}C, ^{36}Cl, and ^{129}I. To evaluate LLNL ^{14}C and $\delta^{13}C$ performance, additional samples were submitted to the National Science Foundation-Arizona Accelerator Mass Spectrometry

Table 4-1
Interlaboratory Comparison for Low-Level ^{3}H (pCi/L)

Sample (ISPID)	LLNL	Commercial Lab	RPD[a]
ER-EC-1_m1-3	<0.42 <0.25	<2.87 <3.05	--
ER-EC-12_m2	<0.19	<3.11 <2.99	--
ER-5-5_m1	1.62 ± 0.48	<3.65	--
ER-12-3_p1	22.2 ± 0.9 21.0 ± 1.2	21.6 ± 2.9 23.5 ± 2.9	4.3
ER-11-2_m1	<0.33	<3.0	--

[a] Calculated using the average when duplicate analyses are reported.

-- = Calculation does not apply.

Note: Values below the MDL are reported as "<" MDL value.

Laboratory at the University of Arizona (U of A). The LLNL DIC $\delta^{13}C$ and DIC ^{14}C values were outside the ± 1 per mil and ± 25 percent acceptance criteria, respectively. These exceedances will be investigated further as part of the LLNL 2017 management assessment. The investigation will determine whether the DIC ^{14}C acceptance criteria are appropriate because they were established based on standard analyses and may not be reasonable for low-level measurements. The DOC ^{14}C and $\delta^{13}C$ results from DRI have not yet been received. The interlaboratory comparison for these data will be presented in next year's report.

Table 4-2
Interlaboratory Comparison for $\delta^{13}C$ (‰) and ^{14}C (pmc)

Sample (ISPID)	LLNL	U of A	Difference [a]	LLNL	U of A	Difference [b]
	$\delta^{13}C$ (‰)			^{14}C (pmc)		
ER-EC-12_m2	-4.6 -4.6	-6.2 -5.9	1.4 1.4	13.9 13.0	8.8 9.2	43 36
ER-EC-2A_m3	-1.0	-3.2	2.2	11.9	5.7	71

[a] Absolute difference calculated using the average of U of A duplicate values.
[b] Percent difference calculated using the average of U of A duplicate values.

pmc = Percent modern carbon

4.4 Blind Samples

A blind sample is defined as a sample with a known or previously measured detectable quantity of analyte that is submitted to a laboratory in a manner consistent with a field sample. Blind samples were provided by DRI to LLNL for analysis. These samples were collected by DRI and submitted for analysis to the University of Nevada, Reno (UNR) 15 times between 2004 and 2012. The δ^2H and $\delta^{18}O$ and standard deviations (SDs) reported by DRI are -108.9 per mil (SD = 0.4) and -14.3 per mil (SD = 0.1), respectively. The values reported by LLNL are shown in Table 4-3. These values are within the acceptability criteria for δ^2H (± 2 ‰) and $\delta^{18}O$ (± 0.2 per mil) with the exception of the CS-29 $\delta^{18}O$ result. This will be investigated further as part of the LLNL 2017 management assessment.

Table 4-3
Blind Sample Comparison for δ^2H and $\delta^{18}O$ (‰)

Sample	δ^2H		$\delta^{18}O$	
	LLNL	Difference	LLNL	Difference
CS-28	-108.4	0.5	-14.1	0.2
CS-29	-108.9	0.0	-13.8	0.5

Note: Difference between LLNL result and mean of 15 UNR measurements between 2004 and 2012.

4.5 Data Evaluation

Commercial laboratory ^{14}C, ^{36}Cl, and USGS ^{34}S were evaluated. The data evaluations concluded that appropriate SOPs, quality control samples, sample collection, and analytical methodology were used. LLNL ^{36}Cl and ^{129}I processes were evaluated during the EM Nevada Program oversight assessment A-558 and were found to be acceptable.

5.0 Key Personnel

The following tables identify participants, committee memberships, and responsibilities, with any personnel changes that occurred during the reporting period.

5.1 Contract Managers

Each organization assigns a contract manager responsible for managing the participants' tasks. There is a monthly contract managers meeting with the EM Nevada Program. Table 5-1 lists each manager by organization. There were no changes in contract managers during this reporting period.

Table 5-1
Contract Managers by Organization

Name	Organization
Karl Pohlmann	DRI
Kay Birdsell	LANL
Andrew Tompson	LLNL
Ken Rehfeldt	Navarro
Ken Ortego	NSTec
Jeff Sanders	USGS

5.2 CAU Leads and Science Advisors

Each UGTA CAU is assigned a lead, who coordinates CAU-specific technical scope and priorities with other CAU leads, focuses PER committee reviews, and communicates progress. There are periodic CAU lead meetings with the EM Nevada Program. Table 5-2 lists the CAU leads and their respective organizations. A Frenchman Flat CAU lead was reestablished to monitor the sampling activities associated with closure.

The science advisors split the CAUs:

- Irene Farnham, Navarro, monitors the YF/CM and Frenchman Flat CAUs.
- Chuck Russell, DRI, monitors the Pahute Mesa and RM/SM CAUs.

Table 5-2
CAU Leads

Name	CAU	Organization
Ed Kwicklis	CAU 97, YF/CM	LANL
Brian Haight	**CAU 98, Frenchman Flat**	**Navarro**
Andrew Tompson	CAU 99, RM/SM	LLNL
Ken Rehfeldt	CAUs 101 and 102, Central and Western Pahute Mesa	Navarro

Note: Bold text denotes changes.

5.3 Preemptive Review Committee Members

The CAU-specific PER committees provide internal technical review of ongoing work throughout the CAU life cycle. Nye County representatives were added to the CAU PERs. Table 5-3 lists the members in each CAU committee.

Table 5-3
PER Committee Membership
(Page 1 of 2)

Name	Organization
CAU 97, YF/CM	
Karl Pohlmann	DRI
Nicole DeNovio	Golder and Associates
Andrew Tompson	LLNL
Joe Fenelon, Chair	USGS
Britt Jacobson, ex-officio	NDEP
Jamie Walker, ex-officio	**Nye County**
Jeff Wurtz	**Navarro**
Keith Halford	USGS

Table 5-3
PER Committee Membership
(Page 2 of 2)

Name	Organization
CAU 99, RM/SM	
Kay Birdsell	LANL
Dave Finnegan	LANL
Mavrik Zavarin, Chair	LLNL
Britt Jacobson, ex-officio	NDEP
Peter Martian	**Navarro**
John Klenke, ex-officio	**Nye County**
Jenny Chapman	DRI
Margaret Townsend	NSTec
Joe Fenelon	USGS
CAUs 101 and 102, Central and Western Pahute Mesa	
Karl Pohlmann	DRI
Jenny Chapman	DRI
Kay Birdsell	LANL
Tim Rose	LLNL
Andrew Tompson	LLNL
Mark McLane, ex-officio	NDEP
Sig Drellack	NSTec
Sharad Kelkar	**Navarro**
Jamie Walker, ex-officio	**Nye County**
Wayne Belcher, Chair	USGS

Note: Bold text denotes changes.

5.4 Topical Committee Members

Topical committees may be formed on an ad hoc basis to address items such as non-CAU-specific issues, questions, concerns, and readiness. The committees may be disbanded when their scope is complete. Table 5-4 lists the current committees and membership.

Table 5-4
Topical Committee Membership

Name	Organization
Modeling	
Clay Cooper	DRI
Edward Kwicklis	LANL
Andrew Tompson, Chair	LLNL
Sharad Kelkar	**Navarro**
Keith Halford	USGS
Well Purging and Sampling Methods	
Chuck Russell, Chair	DRI
Mavrik Zavarin	LLNL
Irene Farnham, Science Advisor	**Navarro**
Jeff Wurtz	Navarro
Brian Haight	**Navarro**
Karl Pohlmann	DRI
Ken Ortego	NSTec
Terry Sonnenburg	NSTec
Jeff Sanchez	**USGS**
Western Pahute Mesa Guidance	
Karl Pohlmann, Chair	DRI
Chuck Russell, Science Advisor	DRI
Edward Kwicklis	LANL
Mavrik Zavarin	LLNL
Mark McLane	NDEP
Irene Farnham, Science Advisor	Navarro
Ken Rehfeldt	**Navarro**
Jeff Wurtz	Navarro
Sig Drellack	NSTec
Ken Ortego	NSTec
Joe Fenelon	USGS

Note: Bold text denotes changes.

6.0 Other Activities

6.1 Sampling Report

In December 2016, Navarro produced the *Underground Test Area Calendar Year 2014 Annual Sampling Analysis Report* (NNSA/NFO, 2016b). This report presented the analytical data for FY 2014 and CY 2014 (October 1, 2013, through December 31, 2014), and an evaluation of the data to ensure that the sampling plan's objectives are met. In addition, the sample results for state-issued water discharge permits and onsite drinking water supply were presented. Special investigations that took place in 2014 relevant to the sampling plan (NNSA/NFO, 2014) were also presented. A strategy document was published in 2016 (Navarro, 2016a) to implement the sampling plan and water-level monitoring.

6.2 Responses to YF/CM External Peer Review Recommendations

Responses to the external peer review recommendations were completed during the reporting period. The YF/CM modeling team reanalyzed existing data and models, and ran new models recommended by the reviewers. The UGTA Activity drilled three new wells (ER-2-2, ER-3-3, and ER-4-1), and sampled additional wells. The new wells were drilled near deeply buried, large-yield detonations (ER-2-2 and ER-4-1) or near faults (ER-2-2 and ER-3-3) to investigate the extent of contamination associated with tests near the lower carbonate aquifer or faults. The response was published in *Response to External Peer Review Team Report for Corrective Action Unit 97: Yucca Flat/Climax Mine, Nevada National Security Site, Nye County, Nevada* (Navarro, 2016b).

6.3 UGTA Activity Guidance Documents

Two UGTA Activity guidance documents were also published during the reporting period:

1. *Underground Test Area Activity Preemptive Review Guidance, Nevada National Security Site, Nevada* (NNSA/NFO 2016c)

2. *Underground Test Area Activity Communication/Interface Plan, Nevada National Security Site, Nevada* (NNSA/NFO, 2016d)

7.0 Conclusion

During the reporting period, the UGTA Activity focused on drilling one new well on Pahute Mesa (ER-20-12) and three new wells in Yucca Flat (ER-2-2, ER-3-3, and ER-4-1). The first round of closure sampling for Frenchman Flat was completed in accordance with the Frenchman Flat CR (NNSA/NFO, 2016e). There were corresponding emphases on drilling activities and model documentation in the management assessments.

8.0 References

FFACO, see *Federal Facility Agreement and Consent Order*.

Federal Facility Agreement and Consent Order. 1996 (as amended March 2010). Agreed to by the State of Nevada; U.S. Department of Energy, Environmental Management; U.S. Department of Defense; and U.S. Department of Energy, Legacy Management. Appendix VI, which contains the Underground Test Area Strategy, was last modified June 2014, Revision No. 5.

NNSA/NFO, see U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office.

Navarro. 2016a. *NNSS Integrated Sampling Plan and Water-Level Monitoring Implementation Strategy*, Rev. 0, N/0002653-027. Las Vegas, NV.

Navarro. 2016b. *Response to External Peer Review Team Report for Corrective Action Unit 97: Yucca Flat/Climax Mine, Nevada National Security Site, Nye County, Nevada*, Rev. 1, N/0002653--031-REV. 1. Las Vegas, NV

U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office. 2014. *Nevada National Security Site Integrated Groundwater Sampling Plan,* Rev. 0, DOE/NV--1525. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office. 2015. *Underground Test Area Activity Quality Assurance Plan Nevada National Security Site, Nevada*, Rev. 2, DOE/NV--1450-Rev.2. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office. 2016a. *Federal Oversight (LO) Program*, NFO Order 226.X, Rev. 2. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office. 2016b. *Underground Test Area Calendar Year 2014 Annual Sampling Analysis Report*, *Nevada National Security Site, Nevada*, Rev. 0, DOE/NV--1555. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office. 2016c. *Underground Test Area Activity Preemptive Review Guidance Nevada National Security Site, Nevada*, Rev. 0, DOE/NV--1552. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office. 2016d. *Underground Test Area Activity Communication/Interface Plan, Nevada National Security Site, Nevada*, Rev. 0. DOE/NV--1553. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office. 2016e. *Underground Test Area (UGTA) Closure Report for Corrective Action Unit 98: Frenchman Flat, Nevada National Security Site, Nevada,* Rev. 1, DOE/NV--1538-Rev. 1. Las Vegas, NV.

Appendix A

Tracked Corrective Actions

Table A-1
Open Corrective Actions
(Page 1 of 3)

Asst No.	Track	Title	Type	Owning Organization	Due Date	Deficient Condition/Description	Corrective Action
N/A	I-117	Inconsistently reported data and outdated database	OFI	LLNL	09/30/2017	Underground test information was not always reported consistently between investigators or consistent with the UGTA Nuclear Test Information Database (NTID).	LLNL tasked with definitive cavity radius paper.
A-301	I-880	Implementing documents not approved	Finding	Navarro	03/31/2017	Technical Data Repository (TDR) implementing documents; UGTA Sub-Project Information/ Data Management Plan (Rev. 0, January 2012) and Navarro-Intera UGTA Sub-Project Information/ Data Management Plan (Rev. 0 01/21/2012) are not approved.	Extension granted to coordinate with Data Management Plan.
A-415	I-1783	Incomplete support documentation for single-application codes	Finding	Navarro	02/28/2017	Directions on how to use single- application codes and the verification documentation for these codes was not found in the associated model documentation packages.	1. Conduct extent of condition. 2. Verify and document undocumented single-use codes; document these efforts in a new data package; and add a note to each deficient data package identified under this activity referencing the new data package.

Table A-1
Open Corrective Actions
(Page 2 of 3)

Asst No.	Track	Title	Type	Owning Organization	Due Date	Deficient Condition/Description	Corrective Action
N/A	I-1848	Work supporting closure of Frenchman Flat self-assessment not documented in data package	Finding	Navarro	01/31/2017	N-I 418 closed in 2012, and the closure memo for finding, 418.1 (Level of Data Package Detail), indicates that the deficient conditions have been corrected and that corrective action memos to file have been included in the affected data packages.	1. Submit updated data package. 2 Review Navarro policy regarding departure checklist to document work in progress that needs to be completed by another associate.
A-558	I-1883	Strontium SOP update	OFI	LLNL	06/30/2017	Strontium analysis SOP needs update to reflect new equipment.	Update SOP.
A-427	I-1947	Identify subject matter experts (SMEs)/data resource owners for software applications used for project work scopes	OBS	Navarro	03/31/2017	Lack of identification for SMEs or data resource owners who administer the applications used to complete project work scopes.	Establish SME/data resource owners for software applications by 12/31/2016.
A-427	I-1948	Establish schedule for stratigraphic lithology database updates	OBS	Navarro	08/01/2017	Stratigraphic lithology database has switched SME ownership. There is not a schedule to update this database with new data (recent drilling data).	Establish schedule for stratigraphic lithology database updates.
A-427	I-1949	Some of the UGTA staff and participants are not well versed in the utilization of the TDR and its components; schedule TDR/SharePoint training for all UGTA staff and participants	OBS	Navarro	03/31/2017	The UGTA staff and participants must be trained on UGTA SharePoint and use of TDR. Training should also include how to update data and an explanation of task responsibilities.	Execute formal training on TDR and introduce the latest TDR toolsets. Walk through each of the datasets and explain them.

Table A-1
Open Corrective Actions
(Page 3 of 3)

Asst No.	Track	Title	Type	Owning Organization	Due Date	Deficient Condition/Description	Corrective Action
A-640	I-1977	Process Improvement; UGTA project manager should ensure that final document comment completeness reviews have been completed prior to document approval	OFI	Navarro	01/23/2017	Procedure DR-DM-1, Section 2.2 Step 10 requires that a document issuance checklist must be completed and signed. The checklist contains a requirement that the document has been checked to ensure external review comments are incorporated.	Weekly management meetings involving the project manager, integration manager, modeling manager, closure support manager, geologic interpretation manager; and project controls to better define roles and responsibilities.
A-640	I-1978	Process improvement; UGTA project manager to ensure concurrent job assignments are not excessive	OFI	Navarro	01/23/2017	Supervisor and UGTA project manager will ensure that authors do not have excessive concurrent job assignments.	Weekly management meetings involving the project manager, integration manager, modeling manager, closure support manager, geologic interpretation manager; and project controls to better define roles and responsibilities.

N/A = Not applicable

Table A-2
Closed Corrective Actions
(Page 1 of 20)

Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
N/A	I-103	Cations and trace elements data verification and validation	Finding	LLNL	12/29/2015	QAP compliance for cation and trace element analyses not documented in procedure or process.	SOP revised, and a checklist added for data verification and validation.
A-296	I-856	SOPs do not yet fully implement the analytical laboratory QA provisions of the QAP	Finding	LLNL	01/28/2016	SOPs for some analytes do not yet fully implement various LCS requirements.	SOPs revised to include LCS requirements.
A-296	I-858	Some LCSs are not independent of the National Institute of Standards and Technology (NIST) standards used for calibration	Finding	LLNL	12/30/2015	For ^{99}Tc, ^{36}Cl, anions, ^{18}O & ^{2}H, and trace elements, LCSs are not independent of the NIST standards used for calibration.	A series of in-house water standards, which have been calibrated against NIST standards, have been developed and are analyzed with unknown samples and used as calibration standards.
A-301	I-875	TDR does not have hardware and software long-term archival issues documented	Finding	Navarro	07/29/2016	TDR software and hardware needs evaluation not documented.	TDR needs documented.
A-314	I-898	Record management	OFI	NSTec	12/30/2016	The delay between record generation and formal records management presents an unnecessary risk.	Records on network drives transferred to formal records management system.
A-336	I-934	Clarify well zone naming convention	OFI	Navarro	11/24/2015	Clarify well zone naming convention.	Integrated Sampling Plan location identification protocol developed.

Table A-2
Closed Corrective Actions
(Page 2 of 20)

Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
A-339	I-1394	Documentation issue with data package	Finding	LANL	12/29/2015	The data package was structured such that the independent analyst was not able to rerun the simulations without significant help from the original analyst who generated the data package.	Fixed package and revised data package completion process.
A-352	I-1396	Incomplete field activity worksheets	Finding	DRI	11/17/2015	Some information fields on some of the field activity worksheets have been left blank. According to the QAP, these fields must be filled in or crossed out and initialed/dated.	Principal investigator (PI) reviews all field documentation to ensure it is correctly and completely filled out.
A-352	I-1397	Sample Identification numbers not consistently recorded	Finding	DRI	11/17/2015	Sample identification numbers for precipitation samples are not consistently recorded in the field logbook and/or field worksheet, though the fact that samples were collected is noted.	PI reviews all field documentation to ensure it is correctly and completely filled out.
A-400	I-1417	No formal protocol or procedure identifying who has authority to release personnel following an off-normal event	OBS	Navarro	05/19/2016	Depending on the nature of an event, it may be necessary to involve Radiation Control, Health and Safety, Industrial Hygiene, Security, line management, or others in the determination to release personnel.	Revised protocols developed and communicated to ensure implementation of appropriate roles and responsibilities.

Table A-2
Closed Corrective Actions
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Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
A-400	I-1418	Radiation Services manager not a mandatory signatory on UGTA Work Packages	OBS	Navarro	04/05/2016	A radiation expert should review all work packages to determine whether radiation controls are needed.	Revised work authorization process to require review by Radiation Services.
A-400	I-1427	Evaluate the need for improved security and access controls at well sites	OFI	Navarro	06/20/2016	Wells routinely do not have locks or tamper-evident seals on them that discourage (and facilitate detection of) unauthorized access.	Evaluation of well heads completed.
N/A	I-1452	Integration of field staff to support UGTA drilling	E/I	Navarro	10/28/2015	Navarro has experienced the loss of some UGTA senior field staff members.	Strategy letter developed and consultation between closure support, UGTA management, UGTA field staff, and Navarro functional leads identify resources, crew assignments, and cross-training needs.
N/A	I-1504	Data files not saved in data package	Finding	Navarro	01/26/2016	Data package UGTA-4-301 (UGTA-4-301_LVCF087143_YF_FlowModel_Uncertainty Analyses) does not contain all of the input and output files associated with the Yucca Flat uncertainty analysis.	A-373 determined RM model was appropriately documented according to standards-based management system (SBMS) procedures. Upgrades to the “central” server resolved modeling product backups issues.

Table A-2
Closed Corrective Actions
(Page 4 of 20)

Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
N/A	I-1546	Well UE-7nS planning and coordination	E/I	Navarro	11/02/2015	Navarro did not involve the Navarro geology interpretation lead early in the planning process to mitigate problems with pumping.	The closure support manager, UGTA manager, and the geologic interpretation lead developed a communication strategy defining the interactions between closure support staff and the SME.
A-456	I-1557	Training records	Finding	LLNL	01/28/2016	Training records were not available to verify required procedural training.	LLNL maintains and attaches a "Read, Sign, and Authorization" list to each SOP used in chemical analysis laboratories to identify individuals authorized to perform the specific analyses. The contract manager maintains curricula vitae (CVs) of all authorized individuals. LLNL-UGTA management SOP developed.
A-456	I-1558	Chain of custody	Finding	LLNL	01/28/2016	LLNL chain of custody is maintained from receipt through analysis, but not through disposal.	Developed and implemented database for sample tracking. Laptop and software present in the sample library to ensure sample tracking.
A-456	I-1559	Sample cooler temperature	Finding	LLNL	12/19/2015	LLNL does not document the sample cooler temperature upon arrival.	All individuals authorized in the sample analysis workflow read and signed SOP-UGTA-109 "Management of Samples and Records."

Table A-2
Closed Corrective Actions
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Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
A-456	I-1560	Records	Finding	LLNL	05/23/2016	LLNL does not maintain or submit their records to a storage and retrieval system that is consistent with the UGTA QAP requirements except for documents that go through the Information Management system and are assigned LLNL document numbers.	LLNL-UGTA management SOP defines the types of records produced by LLNL that will be subject to the UGTA QAP requirements. Depending on their type, these records will either be entered into the LLNL Information Management system or added to the UGTA TDR, or both if applicable.
A-456	I-1561	Document control and management processes	Finding	LLNL	05/23/2016	LLNL does not develop, maintain, or document management processes associated with UGTA other than analytical procedures, nor does it use institutionalized process available. LLNL does not have a system for distributing controlled documents to ensure personnel are supplied with the most current version of the document. LLNL received Controlled Copy 19 of the UGTA QAP but was not able to locate the actual document.	LLNL-UGTA management SOP identifies and documents processes for (1) managing, controlling, storing, protecting, or transferring institutional records; (2) summarizing technical SOPs; (3) tracking issues; and (4) documenting workforce training and authorizations.
A-456	I-1562	Information protection	Finding	LLNL	05/23/2016	LLNL uploads data into the UGTA database (SharePoint) without documentation, marking, or identification of a derivative classifier (DC) review.	LLNL UGTA management SOP (1) defines records and nonrecords, (2) properly defines how DC review will be performed, and (3) defines how records can or will be stored.

Table A-2
Closed Corrective Actions
(Page 6 of 20)

Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
A-456	I-1563	Effective corrective actions	Finding	LLNL	01/28/2016	LLNL corrective actions do not appear to be effective. Two deficiencies with implemented corrective actions still exist. Four LLNL UGTA issues have been open for over a year and are overdue.	LLNL Issues Tracking System (ITS) used to manage corrective actions and issues.
N/A	I-1567	Tritium-contaminated water splashed outside of casing	E/I	Navarro	06/07/2016	While releasing pressure from the bailer at a depth of 5 feet below the well casing, the pressure release caused ^{3}H-contaminated muddy water to splash up and out of the well casing. A small amount of the muddy water splashed onto the radiological control technician (RCT).	Work was stopped, and a fact-finding meeting was convened. Causal analysis conducted.
N/A	I-1601	UGTA technician eye exposure to defoaming chemical	E/I	Navarro	05/02/2016	UGTA field technician working in Bldg. 6-909 was splashed in the eyes by a defoaming agent.	Work was stopped, and a fact-finding meeting was convened. Causal analysis conducted.
N/A	I-1606	Lack of DC review of UGTA document	Finding	Navarro	05/05/2016	A report was distributed via email to the UGTA RM/SM PER committee. The document was not reviewed by a DC before distribution.	Classification review processes evaluated with the Navarro classification officer. Staff and management reminded of the requirement to obtain a DC review of all material before it is released.

Table A-2
Closed Corrective Actions
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Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
A-460	I-1610	Missing SDSs at Building 6-909	Finding	Navarro	04/18/2016	Safety Data Sheets/Material Safety Data Sheets (SDS/MSDS) binders at Bldg. 6-909 are incomplete when compared to the chemicals in the facility.	An SDS for Defoamer-7 was uploaded into the SDS database and is now available both electronically and in hard copy in the Bldg. 6-909 binder. Quarterly review of building in tracking system.
A-460	I-1611	Missing or insufficient labeling on chemical containers	Finding	Navarro	04/18/2016	Labels on chemical bottles are not present or sufficient to relate the contents to a specific SDS/MSDS.	Unlabeled containers within the UGTA lab trailer were labeled.
N/A	I-1620	Century wireline	E/I	Navarro	11/09/2015	Pawls (levers that engages cogwheel) on the Century wireline unit have been failing due to wear.	Purchased new Pawls and repair unit.
A-463	I-1624	Resolve technical problems quickly	OFI	DRI	10/05/2015	Technical problems with DRI's DOC ^{14}C prep line delayed processing of many of the FY2014 and FY2015 samples. As a result, submittal of quality control (QC) samples to the National Science Foundation-Arizona AMS Facility was delayed.	N/A
A-463	I-1625	Backup and archival of data not described in DMP	OFI	DRI	10/05/2015	Backup and archival of data not explicitly described in DMP.	N/A

Table A-2
Closed Corrective Actions
(Page 8 of 20)

Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
A-373	I-1628	Unchecked inconsistencies within the uncertainty analysis for the Rainier Mesa Saturated Zone Flow Model documentation	OFI	Navarro	05/11/2016	Inconsistencies between spreadsheet and data package. Description of scripts and batch files should have been included.	Data and documentation Inconsistencies resolved.
A-464	I-1629	Worksite lighting	Finding	USGS	11/05/2015	Warehouse fluorescent light bulb on north end of core library was not illuminated.	Lights connected to night sensor, tested, and functioning properly.
N/A	I-1630	Nuclear Testing Database data revision and publication	Finding	Navarro	11/05/2015	1. There is no evidence that data in the Nuclear Testing Database have been verified using the checkprinting process (or equivalent). 2. The UGTA SharePoint site queries the Nuclear Testing Database using active server pages.	Disclaimer added to SharePoint site.
A-460	I-1638	Use of goggles or face shields with safety glasses	OFI	Navarro	10/23/2015	Personnel should use goggles or face shields with safety glasses with side shields when transferring bulk product into smaller containers where the splash hazard is high.	Implemented.
N/A	I-1642	UGTA field operations website	Finding	Navarro	04/04/2016	Some of the wells (e.g., HTH-2, WW-3, UE-6e) on the UGTA field ops website cannot be accessed.	The SharePoint pages have been revised and the data are properly displayed.

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Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
N/A	I-1645	UGTA field operations web page maintenance and functionality	Finding	Navarro	01/27/2016	The problems with the web page are compounding and reflect poorly on a system that provides access to critical project data for Navarro personnel and other project participants.	The SharePoint pages have been revised, and data accessibility concerns were addressed.
A-402	I-1649	Incomplete sample data packages	Finding	LLNL	02/09/2016	Documentation of data validation was not provided for FY13 Wells ER-5-5, ER-11-2, and PM-3 and FY14 Well ER-EC-15.	TDR data packages corrected or missing documentation posted.
N/A	I-1650	UGTA logging trailer had control panel issues during bailing	E/I	Navarro	11/30/2015	Smoke detected from panel.	Licensed electrician fixed panel.
N/A	I-1653	NSTec spill incident at ER-20-12 with foaming agent F-485	Finding	Navarro	02/09/2016	The foaming agent drum was not adequately stabilized for the given site conditions.	Navarro will participate and review results of NSTec Management Review.
N/A	I-1654	Lack of Area 6 storage yard gate key led to delays	E/I	Navarro	02/01/2016	This gate is normally locked on the weekends, but not all UGTA assigned personnel have a key to open this gate.	Navarro obtained keys so that the area can be accessed during off-hours.
N/A	I-1655	Torrent F-485 isopropanol mixture foam	OBS	Navarro	01/12/2016	Potentially hazardous flammable vapors.	Drums are rinsed.
N/A	I-1661	ER-20-12 foamer spill; courtesy notification to NDEP	Finding	Navarro	12/15/2015	Lead contractor did not interface with or notify other field activity participants for coordination.	A meeting was held to brief NSTec and Navarro personnel on notification and reporting responsibilities.

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Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
N/A	I-1662	When drilling in cold conditions, use diesel instead of biodiesel	OFI	Navarro	02/02/2016	Use of biodiesel in below-freezing conditions gels up in operating conditions.	Treated diesel works in below-freezing conditions.
A-408	I-1672	Signed Preliminary Hazard Assessment (PHA) not available	Finding	Navarro	03/02/2016	A signed PHA was not available. An unsigned PHA and meeting manager calendar reference were available.	The PHA form must be witnessed by the closure support manager and/or project manager during the readiness review determination that verifies the form was signed.
A-408	I-1673	Uncontrolled form used in field	Finding	Navarro	11/16/2016	An uncontrolled form was used in the field to document tritium sampling.	Tritium sample tracking log template and an approved Expedited Procedure Change Notice (EPCN) published in SBMS.
A-408	I-1677	Remind workers that self-identification through E/I and Operating Experience/Lessons Learned (OE/LL) are beneficial	OFI	Navarro	03/15/2016	Navarro field personnel were confused as to when and how to self-identify OE/LL and E/Is.	The E/I process was discussed in the UGTA staff meeting.
A-408	I-1679	Responsibility for retaining records prior to submittal to Central Files (CF) not defined	OFI	Navarro	01/28/2016	Responsibility for retaining records prior to submittal to CF not defined.	Use one office as the central holding area for all records to be submitted to Central Files. These records will be available for all personnel.
A-483	I-1684	Log Plot data that is included in Navarro morning report, graphs, and figures not formally checked	OFI	Navarro	02/08/2016	Log Plot data that is included in Navarro morning report, graphs, and figures not formally checked.	OFI, tracking only.

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Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
A-483	I-1685	Secondhand notations are valuable but should be supported by firsthand observations or calculations to add validity	OFI	Navarro	02/08/2016	Secondhand notations are valuable but should be supported by firsthand observations or calculations to add validity.	OFI, tracking only.
A-483	I-1686	Shift log book entries missing the shift summary section describing shift activity	OFI	Navarro	02/08/2016	Shift log book entries missing the shift summary section describing shift activity.	OFI, tracking only.
A-483	I-1687	Borehole logging form (N-301) oversight	OFI	Navarro	02/08/2016	Borehole logging form (N-301) oversight.	OFI, tracking only.
A-483	I-1688	Access to site computers hampered by a very long user name	OFI	Navarro	02/04/2016	Access to site computers hampered by a very long user name.	OFI, tracking only.
A-483	I-1689	Several data files containing project data were located on the desktop of site computers	OBS	Navarro	04/07/2016	Several data files containing project data were located on the desktop of site computers.	Notify staff on site about organizing the files; developed template for file organization.
A-483	I-1690	Log Plot software files supporting geophysical log data not properly stored and identified for traceability to stratigraphic units	OBS	Navarro	04/11/2016	Log Plot software files supporting geophysical log data not properly stored and identified for traceability to stratigraphic units.	Field crew reorganized the Log Plot data and is using a new template that provides traceability to stratigraphic units.
A-483	I-1692	Discontinuities observed in the status and the whereabouts of supporting data during assessment	OBS	Navarro	04/07/2016	A number of discontinuities in the status and the whereabouts of data.	Same issue as I-1689 and I-1690. The field staff has been reminded of the need to keep electronic data organized.

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Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
A-483	I-1693	The handling of the custody of the cuttings with respect to custody and radiological release from the site	Finding	Navarro	02/09/2016	The shipment of cuttings from the site on 11/09/2015 was not accompanied by the appropriate release documentation (NSTec Form 0894) from the on-site NSTec rad-con technicians. This is an NSTec responsibility.	Navarro will ensure that the proper form is available on site and that Navarro on-site personnel are reminded of the need to follow the requirements of UF-SC-7.
N/A	I-1720	ER 2-2 safety walkthrough checklist	OBS	Navarro	02/05/2016	Noise survey not yet conducted.	Management and operating (M&O) contractor reminded to schedule survey.
N/A	I-1721	Backing incident with UGTA vehicle		Navarro	05/09/2016	Driver notified closure support manager and provided additional details. Supervisor filled out accident report.	An email was sent to all Navarro personnel with suggestions for preventing backing incidents. Incident discussed at tailgate briefings.
N/A	I-1731	Perkin Elmer Liquid Scintillator problem LVNE100380	E/I	Navarro	02/22/2016	Computer software problem.	The Perkin-Elmer technician repaired the Liquid Scintillator.
A-402	I-1741	Tritium calculation could not be reproduced	E/I	Navarro	04/07/2016	Tritium calculation could not be reproduced.	Calculation step had been omitted.
N/A	I-1746	A storage unit containing Low-Level Waste (LLW) was moved by from Well ER-2-2 to Well ER-3-3 without authorization	Finding	Navarro	04/25/2016	Technical lead at ER-3-3 notified both the Navarro environmental compliance/ waste operations manager and closure support manager.	When demobilization work is being conducted and there is work performed concurrently at two separate drill sites, Navarro and NSTec supervisors will consult each morning prior to work starting to provide a status.

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Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
A-462	I-1753	Conduct a review with field staff and management (UGTA and closure support) to further clarify where additional technical guidance would improve integration and communication	OFI	Navarro	08/08/2016	Improve integration and communication.	OFI, tracking only.
A-462	I-1754	Formalize a process to increase the general knowledge of staff (e.g., general drilling operations, laboratory analysis, administrative)	OFI	Navarro	08/08/2016	Formalize a process to increase the general knowledge of staff (e.g., general drilling operations, laboratory analysis, administrative).	1. On-site discussions with team members. 2. Conduct technical kickoff meetings. 3. Updated well development and testing plan. 4. Geologic Integration lead in field for several days.
A-462	I-1755	Document specific roles and responsibilities for closure support, geologic interpretation, and field staff positions in the established systems. This effort should include discussion with management and field staff and training.	OFI	Navarro	08/15/2016	Document specific roles and responsibilities for closure support, geologic interpretation, and field staff positions in the established systems. This effort should include discussion with management and field staff and training.	PowerPoint presentation developed and provided to field staff.
A-462	I-1756	Increase awareness of email issues for field crews during drilling operations	OFI	Navarro	04/11/2016	Drilling operations staff did not have timely access to emails due to lack of Internet on the job site and maximum hours on their shifts upon returning to Mercury.	Emails from the UGTA technical SME printed and left in a transfer location at Bldg. 310 where the technical leads retrieve them for oncoming shifts.

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Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
A-462	I-1757	Better define training plans as a function of job roles	OFI	Navarro	08/08/2016	Better define training plans as a function of job roles.	1. On-site discussions with team members. 2. Conduct technical kickoff meetings. 3. Updated well development and testing plan. 4. Geologic integration lead in field for several days.
A-462	I-1759	Develop a more formal process to ensure adequate technical development and effective cross-training/utilization of key staff	OFI	Navarro	10/13/2016	Professional development training could be provided to support specific projects.	Revision of the Quarterly Performance Discussion Form with the incorporation of guidelines.
A-462	I-1760	Improve management communication between UGTA and closure support	OFI	Navarro	08/15/2016	Management communication between the UGTA and closure support organizations has not been effective in resolving concerns and ensuring transparency.	Closure roles and responsibilities presentation discussed with affected personnel.
A-415	I-1781	Procedurally defined and required roles and responsibilities not reassigned when an associate leaves the organization	Finding	Navarro	08/25/2016	Procedurally defined and required roles and responsibilities not reassigned when an associate leaves the organization.	The associate out-processing procedure updated to include Doc Prod to ensure procedures are reassigned to current associates.
A-415	I-1782	The UGTA Software Configuration Management Log has not been kept current	Finding	Navarro	04/07/2016	The UGTA Software Configuration Management Log has not been kept current.	Reviewed UGTA Software Configuration Management Log for accuracy and performed the appropriate updates to obtain accuracy.

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Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
A-415	I-1784	No authorized code custodians for baselined software	Finding	Navarro	04/07/2016	UGTA owner (code custodian) listed who is no longer a modeler on the UGTA project.	Review the existing UGTA Software Configuration Management Log for accuracy and perform the appropriate updates to obtain accuracy. Code custodians for the PEST 11.8 and the Potentiometric Surface Regression Spreadsheet applications updated within the UGTA Software Configuration Management Log.
A-415	I-1786	The Modeling Documentation Process subject area and its associated procedures not reviewed within the prescribed timeframe	Finding	Navarro	05/16/2016	Modeling Documentation Process subject area and its associated procedures were last reviewed two years and ten months ago.	Subject area was reviewed and reissued on May 12, with a May 15, 2016, effective date.
N/A	I-1787	Project rollout of UGTA sample nomenclature	E/I	Navarro	06/27/2016	Not using the standard nomenclature.	Discussed at UGTA all-hands meeting.
N/A	I-1799	Delay in coordinating a briefing review per requirements	Finding	Navarro	09/01/2016	The required classification and technical reviews were obtained with extraordinary effort of the part of DOE Environmental Management and public involvement and the presentation given to the PER committee.	Presented expectations for review at an all-hands meeting on June 16, 2016. UGTA management. reminded UGTA staff of the need for the reviews when anyone in attendance or in the review process is not considered an internal participant.

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Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
N/A	I-1801	Sensitive equipment released for field work before being barcoded for inventory tracking	Finding	Navarro	05/09/2016	Sensitive equipment released for field work before being barcoded for inventory tracking.	Additional receipt inspector was added to expedite the receipt process.
N/A	I-1810	Well ER-20-4 pad	OBS	Navarro	05/17/2016	Several small oily stains on the pad.	Postdrilling cleanup completed at both ER-20-12 and ER-20-4.
A-534	I-1829	USGS file plan out of date	Finding	USGS	09/30/2016	USGS file plan out of date.	Develop and implement a new file plan, in congruency with USGS General Records Disposition Schedule, 432-1-S1, and USGS Water Resources Discipline Scientific Records Disposition Schedule, 342-1-S2.
A-534	I-1830	Redundancy in physical and electronic files	Finding	USGS	09/30/2016	Redundancy in physical and electronic files.	Duplicate copies removed from the USGS computer network and storage cabinets. Items matched to online/paperless form. Templates made for affiliated documents.
A-457	I-1840	Open bailers at depth greater than 50 ft below ground surface to reduce the likelihood of borehole ejecta	OFI	Navarro	05/31/2016	Open bailers at depth greater than 50 ft below ground surface to reduce the likelihood of borehole ejecta.	Implemented.
A-457	I-1841	When feasible, assign someone other than the site supervisor to be the wireline winch operator	OFI	Navarro	05/31/2016	When feasible, assign someone other than the site supervisor to be the wireline winch operator.	Implemented.

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Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
N/A	I-1867	Field pH instrument	E/I	Navarro	08/15/2016	Field pH measurements have encountered some unexplained variability.	Replaced meter.
N/A	I-1868	Laboratory duplicate precision low-level tritium in ER-11-2	E/I	Navarro	12/05/2016	Laboratory duplicate sample not comparable to parent sample.	Results from the second sample event were nondetect, confirming the initial result of 17.48 pCi/L was an anomalous reading.
N/A	I-1873	Ground fault circuit interrupters (GFCIs) in field operation trailer	E/I	Navarro	08/22/2016	GFCIs trip repeatedly in the office/lab trailer.	NSTec electricians performed troubleshooting and provided recommendations on required electrical plugs and GFCIs.
A-558	I-1875	Analytical balances overdue for calibration	Finding	LLNL	10/06/2016	Three analytical balances were found to be overdue for calibration.	SOP-137 revised. All required weights and balances have been recalibrated.
A-558	I-1877	Detection limits not reported	Finding	LLNL	11/28/2016	Detection limits not reported leading to inconsistently reported data with dissolved organic carbon, dissolved inorganic carbon, total organic carbon, and total inorganic carbon data.	TIC data analyses were performed in November 2016: "TIC ^{13}C Data Verification and Validation. Nov 2016.xlsx." High and low detection limits for TIC concentration were noted in spreadsheet. Low limit detection limit for ^{13}C values defined as well.
A-558	I-1878	Missing ^{129}I NIST certificate	Finding	LLNL	07/21/2016	The NIST 3230 certificate of analysis for ^{129}I is not included in the FY15 data package.	Relevant NIST certificate added to data packages.

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Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
A-558	I-1879	^{14}C results contain qualifiers without reason codes	OBS	LLNL	08/17/2016	^{14}C results contain qualifiers without reason codes.	Reason codes for qualifiers were added to the database for this data package. Data were resubmitted to UGTA SharePoint site.
A-558	I-1880	^{36}Cl commitment dates exceeded	OBS	LLNL	08/26/2016	^{36}Cl commitment dates exceeded.	Analysis requests now exclude ^{36}Cl from the 3-month analytical turnaround time requirement.
A-558	I-1881	LLNL Management Practices Manual refinements	OBS	LLNL	12/16/2016	1. Better define how analysts will be provided with the most current, controlled copies of analytical SOPs, 2. Better define which UGTA personnel are required to document their completion of the UGTA required reading list. 3. Add a definition of the “MI” LLNL Information Management release code. 4. Revise the use of the term “all” as referring to specific UGTA personnel in various requirement statements.	The manual has been revised and has been released from LLNL IM review as “LLNL-AM-690620-REV 1.”
A-558	I-1882	Preparation date vs. analysis date	OFI	LLNL	08/29/2016	The preparation date and analysis date are confusing in the database. In the database for ^{36}Cl, the analysis date listed is actually the preparation date.	A data template was created by the UGTA sample and records manager.

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Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
A-558	I-1884	Incomplete plutonium data packages	Finding	LLNL	09/20/2016	Verification and validation sheets not in packages.	Plutonium data packages have been revised and the verification and validation sheets loaded into SharePoint. It is not necessary to update SOP-135 as the requirement for a verification and validation check sheet is already stated as a requirement.
A-616	I-1966	Detailed overview during data input	OFI	LLNL	10/04/2016	Nonanalytic data handling and processing errors can crop up from the most innocuous of sources and steps.	OFI, tracking only.
A-616	I-1967	Data package revision naming convention	OFI	LLNL	10/04/2016	Need a more consistent naming convention for data package revisions, both in terms of the TDR file name and the LLNL release number.	OFI, tracking only.
A-616	I-1968	UGTA discussion on revisions	OFI	LLNL	10/04/2016	Need general discussion with DOE/UGTA on how to address revisions and what aspects of data packages must be updated in any given revision.	OFI, tracking only.

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Asst No.	Track	Title	Type	Owning Organization	Closure Date	Deficient Condition/Description	Corrective Action
N/A	I-1989	A white paper that completed the TIRP review process has numerous typographical errors	OFI	Navarro	12/05/2016	A white paper that completed the TIRP review process has numerous typographical errors.	The typos were fixed and the paper sent to classification to determine whether it needs to go through TIRP again.
A-658	I-2075	Do not need to triple rinse new sample bottles	OFI	Navarro	10/18/2016	Only need to rinse brand new bottles once, since LLNL supplies Navarro with ultra-pure, highest quality sample bottles.	OFI, tracking only.