RECORD OF TECHNICAL CHANGE

Technical Change No. DOE/NV-1045 ROTC-2

Page 1 of 1

Activity Name Industrial Sites

Date 12/11/2013

The following technical changes (including justification) are requested by:

Cathleen Birney
(Name)

N-I CAU Lead
(Title)

Description of Change:

Downgrade the FFACO UR at CAU 357, CAS 10-09-06, Mud Pit; Stains; Material to an Administrative UR.

Justification:

Since this FFACO UR was established, practices and procedures relating to the implementation of risk-based corrective actions (RBCA) have changed. Therefore, this UR was re-evaluated against the current RBCA criteria as defined in the *Soils Risk-Based Corrective Action Evaluation Process*. This re-evaluation consisted of 1) assuming that the future land use for this CAS is Occasional Use (OU), 2) calculating the present-day activities of the original data used to define the need for the UR, and 3) using the current risk-based OU residual radioactive material guidelines (RRMGs) to calculate the total effective dose (TED). The risk-based RRMGs were developed using the current Soils RBCA process and the most current RRMGs for the OU exposure scenario. The TED is below the 25-millirem per OU year constraint. Therefore, FFACO UR is being downgraded to an Administrative UR. See attached "Recommendation to Downgrade Use Restriction" for detailed information.

The task time will Unchanged by approximately 0 days.

Applicable Activity-Specific Document(s):

Closure Report for Corrective Action Unit 357: Mud Pits and Waste Dump, Nevada Test Site, Nevada

Approved By: /s/ Tiffany A. Lantow
Activity Lead

Date 12/11/2013

/s/ Robert F. Boehlecke
EM Operations Manager

Date 12/12/13

/s/ Jeff MacDougall
NDEP

Date 12/17/13

Nevada
Environmental
Management
Operations Activity

DOE/NV--1509-Rev.1

Recommendations and Justifications
for Modifications To Downgrade
Use Restrictions Established
under the U.S. Department of Energy,
National Nuclear Security Administration
Nevada Field Office
*Federal Facility Agreement
and Consent Order*

Controlled Copy No.: _
Revision No.: 1

October 2013

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/s/ Joseph P. Johnston, N-I CO 10/08/2013

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**RECOMMENDATIONS AND JUSTIFICATIONS
FOR MODIFICATIONS TO DOWNGRADE
USE RESTRICTIONS ESTABLISHED
UNDER THE U.S. DEPARTMENT OF ENERGY,
NATIONAL NUCLEAR SECURITY ADMINISTRATION
NEVADA FIELD OFFICE
*FEDERAL FACILITY AGREEMENT
AND CONSENT ORDER***

U.S. Department of Energy, National Nuclear Security Administration
Nevada Field Office
Las Vegas, Nevada

Controlled Copy No.: _

Revision No.: 1

October 2013

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**RECOMMENDATIONS AND JUSTIFICATIONS
FOR MODIFICATIONS TO DOWNGRADE USE RESTRICTIONS ESTABLISHED
UNDER THE U.S. DEPARTMENT OF ENERGY,
NATIONAL NUCLEAR SECURITY ADMINISTRATION NEVADA FIELD OFFICE
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER**

Approved by: /s/ Tiffany A. Lantow

Tiffany A. Lantow
Industrial Sites Activity Lead

Date: 10/9/2013

Approved by: /s/ Robert F. Boehlecke

Robert F. Boehlecke
Environmental Management Operations Manager

Date: 10/9/2013

8.0 CAU 357, CAS 10-09-06 – Mud Pit; Stains; Material

8.1 CAS Description

CAS 10-09-06, Mud Pit; Stains; Material, is a mud pit located east of the U-10am #5 potential crater in Area 10. This mud pit is believed to have supported drilling of the experimental hole U-10am #5 completed on June 21, 1969, and associated with the Tun-D Test conducted on December 10, 1969, and sponsored by Lawrence Livermore National Laboratory. It is assumed that this mud pit was used during the pretest drilling of U-10am #5. The drilling mud and associated constituents are the primary source of potential contamination and were the focus of the CAI. Drilling mud was not consistently present within this mud pit, but a spill area was identified in the northern portion of the mud pit. The spill area appeared to be drilling mud or bentonite/cement grout, and was sampled as part of this investigation. Closure activities at this CAS included removing surface debris, implementing an FFACO UR, and posting UR signs (NNSA/NSO, 2005a).

8.2 Current UR Description

The future use of any land related to this CAU is restricted from any DOE or USAF activity that may alter or modify the containment control, as approved by the State of Nevada and identified in the CAU CR or other CAU documentation, unless appropriate concurrence is obtained in advance. Four UR signs are posted on the fence surrounding the CAS. Annual inspections of the fence and postings are required, with maintenance as needed (NNSA/NSO, 2005a).

8.3 Basis for Current UR

Decision I surface soil samples were analyzed for VOCs, SVOCs, RCRA metals, TPH-DRO, PCBs, gamma spectroscopy, isotopic U, isotopic Pu, and Sr-90. Decision II samples were analyzed only for gamma spectroscopy. Co-60 was the only COC present that exceeded the PAL. The PALs for the radionuclides were based on NCRP Report No. 129 recommended screening limits for construction, commercial, industrial land-use scenarios (NCRP, 1999); the values provided in this source document were scaled to 15-mrem/yr dose. Table 8-1 contains analytical results for Co-60 at CAS 10-09-06 that are the basis for the current UR. The sample matrix for all samples is soil.

**Table 8-1
Sample Results for Co-60 at CAS 10-09-06
Used To Establish Current UR**

Sample ID	Depth (ft bgs)	Co-60
		PAL 1.61 pCi/g
357K002	0.0 - 0.5	5.04 (G)
357K003	0.0 - 0.5	5.33 (G)
357K004	0.0 - 0.5	4.12 (G)
357K005	0.0 - 0.5	140 (G)
357K006	1.5 - 2.0	2.41 (G)

G = Sample density differs by more than 15% of laboratory control sample density.

8.4 Basis for UR Modification

The assumption for this CAS is that the future land use is OU, which assumes non-continuous work activities at a site and that a worker will be exposed to the site contaminants for up to 80 hr/yr for 5 years (NNSA/NSO, 2012b). The present-day Co-60 activities were calculated using the standard decay equation; the decay calculations take into account the half-life of the radionuclide and the time since the samples were originally collected. The radionuclide RRMG for Co-60 is based on the 25-mrem/yr TED constraint, which represents the concentrations in soil for a specific radionuclide (e.g., Co-60) that would result in a 25-mrem/yr TED to a receptor for a specific exposure time. Table 8-2 presents the present-day Co-60 activities, OU RRMG, and the TED, which indicates that the TED for Co-60 is below the 25-mrem/yr TED constraint for the OU exposure scenario.

8.5 Proposed Modification

Remove the FFACO UR and postings from this CAS; discontinue the annual inspections; and change to an Administrative UR. These modifications will not affect or modify any non-FFACO requirements at this site. Note that the half-life of Co-60 is 5.27 years, and after an additional seven years, the Co-60 activity will be below the IA PAL; therefore, no UR will be required. Administrative controls should be reevaluated after approximately seven years.

Table 8-2
Present-Day Radiological Activities, OU RRMG, and TED
for Co-60 at CAS 10-09-06

Sample ID	Depth (ft bgs)	Co-60	TED (mrem/OU-yr)
		OU RRMG 409 pCi/g	
357K002	0.0 - 0.5	1.8	0.11
357K003	0.0 - 0.5	1.9	0.12
357K004	0.0 - 0.5	1.4	0.09
357K005	0.0 - 0.5	48.9	2.99
357K006	1.5 - 2.0	0.8	0.05

References

NCRP, see National Council on Radiation Protection and Measurements.

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

National Council on Radiation Protection and Measurements. 1999. *Recommended Screening Limits for Contaminated Surface Soil and Review of Factors Relevant to Site-Specific Studies*, NCRP Report No. 129. Bethesda, MD.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. 2005a. *Closure Report for Corrective Action Unit 357: Mud Pits and Waste Dump, Nevada Test Site, Nevada*, Rev. 0, DOE/NV--1045. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. 2012b. *Soils Risk-Based Corrective Action Evaluation Process*, Rev. 0, DOE/NV--1475. Las Vegas, NV.

Use Restriction Information

CAU Number/Description: CAU 357/Mud Pits and Waste Dump

Applicable CAS Number/Description: CAS 10-09-06/Mud Pit; Stains; Material

Contact (DOE AL/Activity): Tiffany Lantow/Industrial Sites - DP

FFACO Use Restriction Physical Description:

Surveyed Area (UTM, Zone 11, NAD 83, meters):

UR Points	Northing	Easting
N/A		

Depth:

Survey Source (GPS, GIS, etc):

Basis for FFACO UR(s):

Summary Statement: _____

Contaminants Table:

Maximum Concentration of Contaminants for CAU XXX CAS xx-xx-xx, Title			
Constituent	Maximum Concentration	Action Level	Units

Site Controls:

Use Restriction Information

Administrative Use Restriction Physical Description*:

Surveyed Area (UTM, Zone 11, NAD 83, meters):

UR Points	Northing	Easting
Southeast Corner	4,114,246.8	581,929.9
South Corner	4,114,224.6	581,896.3
Northwest Corner	4,114,281.1	581,858.4
North Corner	4,114,299.5	581,894.3

Depth: 2 ft bgs

Survey Source (GPS, GIS, etc): GPS

*Coordinates for the Administrative Use Restriction exclude the area defined by the FFACO Use Restriction coordinates.

Basis for Administrative UR(s):

Summary Statement: This administrative UR is to protect site workers from inadvertent exposure to radioactivity above 25 millirem/Industrial Area year (mrem/IA-yr). As a best management practice, this administrative use restriction will prevent future (more intensive) use of the area. The analytical results and location of all samples collected are presented in the CR for CAU 357. Additional information is presented in *Recommendations and Justifications for Modifications to Downgrade Use Restrictions Established under the U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office Federal Facility Agreement and Consent Order* document.

Contaminants Table:

Maximum Concentration of Contaminants for CAU 357 CAS 10-09-06, Mud Pit; Stains; Material			
Constituent	Maximum Concentration	Action Level	Units
Co-60	48.9	409	pCi/g

Site Controls: This administrative UR area is established at the boundary identified by the coordinates listed above and depicted in the attached figure. No physical site controls are required for this administrative use restriction.

UR Maintenance Requirements (applies to both FFACO and Administrative UR(s) if Administrative UR exists):

Description: This administrative UR is recorded in the FFACO database, NNSA/NFO M&O GIS, and the NNSA/NFO CAU/CAS files. No site controls are required for this administrative UR other than the administrative controls for land use at the NNSS.

Inspection/Maintenance Frequency: N/A

The future use of any land related to this Corrective Action Unit (CAU), as described by the above surveyed location, is restricted from any DOE or Air Force activity that may alter or modify the containment control as approved by the state and identified in the CAU CR or other CAU documentation unless appropriate concurrence is obtained in advance.

Use Restriction Information

Comments: Personnel are restricted from performing work in this location that would require any use of the area within the UR for activities that would result in a more intensive use of the site than the current land use (i.e., activities consistent with the occasional use exposure scenario). Activities included in the current land use would include short duration activities such as site visits, maintenance of the fence, radiological surveys, short duration radiological training, and retrieval of objects within the use-restricted area. Any activities to be conducted within this area that are not consistent with this defined current land use require the prior notification and approval of the NDEP.

Submitted By: /s/ Tiffany A. Lantow

Date: 12/11/2013

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Administrative Use Restriction
CAU 357 CAS 10-09-06
Mud Pits; Stains; Material

Explanation
Administrative Use Restriction Boundary

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