RECORD OF TECHNICAL CHANGE

Technical Change No. DOE/NV-1246 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 543, CAS 15-23-03, Contaminated Sump, Piping 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.

Additionally, the FALs for Aroclor-1258 and Aroclor-1260 were revised using the OU exposure scenario using the EPA Region 9 Regional Screening Levels for Chemical Contaminants at Superfund Sites Calculator and the latest input values. The chemical results are below the revised OU FAL. Therefore, FFACO UR is being downgraded to an Administrative UR. See attached "Recommendation to Downgrade Use Restriction" for detailed information.

The task time will be Unchanged by approximately 0 days.

Applicable Activity-Specific Document(s):

Closure Report for Corrective Action Unit 543: Liquid Disposal Units, 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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Nevada Field Office

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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

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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

12.0 CAU 543, CAS 15-23-03 – Contaminated Sump, Piping

12.1 CAS Description

CAS 15-23-03, Contaminated Sump, Piping, is located approximately 875 ft south of the Building 15-06 foundation at the EPA Farm. The EPA Farm was constructed in Area 15 of the NNSS as a fully functional dairy to support various studies including the transport of radioiodine from the environment to man, the uptake by plants of long-lived fission products, and metabolism studies. This CAS consists of a sump measuring approximately 25 by 25 by 6 ft deep, with concrete sides and an unlined bottom and approximately 60 ft of associated piping to the distribution box north of the sump. The sump and piping were installed in 1972 to accept nonradioactive or low-level radioactive wastes from the metabolism and slaughter rooms inside Laboratory Building 15-06; CAS 15-23-03 received effluents from the Laboratory Building (NNSA/NSO, 2004d).

Video surveys were conducted inside approximately 60 ft of piping leading from the distribution box to the sump to identify any breaches or residual material in the piping, and to verify the presence and extent of piping. No breaches or residual material were identified in the piping (NNSA/NSO, 2005c); therefore, the piping was left in place during closure activities. Closure activities at the CAS included removing and disposing of miscellaneous debris, filling the sump with native soil and compacting the soil, and posting UR signs around the perimeter of the sump (NNSA/NSO, 2008).

12.2 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. The UR applies to the sump and underground piping between the sump and former location of a distribution box. The UR applies to PCB and radiological contamination of the sump and underground piping. Five UR signs and four underground radioactive material area signs were placed around the perimeter of the sump on posts adjacent to the existing fence. Fencing is not required for this UR, but annual inspections are required to ensure the UR signs are intact and legible (NNSA/NSO, 2008).

12.3 Basis for Current UR

A total of 14 soil samples were collected and submitted for laboratory analysis. Samples were analyzed for VOCs, SVOCs, RCRA metals, beryllium, TPH-DRO, TPH-GRO, PCBs, gamma spectroscopy, isotopic U, isotopic Pu, Sr-90, pesticides, and herbicides. Only Aroclor 1248, Aroclor 1260, and Pu-238 exceeded the PALs. The PALs for the PCBs were established in the EPA Region 9 Risk-Based PRGs for chemical constituents in industrial soils (EPA, 2002). The PALs for the radionuclides were established in the CAIP Record of Technical Change CAIP-2 (NNSA/NSO, 2005e) and are based on NCRP 25-mrem/yr dose-based levels (NCRP, 1999) and the recommended levels for certain radionuclide in DOE Order 5400.5 (DOE, 1993).

Table 12-1 contains analytical results of all COCs at CAS 15-23-03 that are the basis for the current UR. The sample matrix for all samples is soil.

Table 12-1
Sample Results for COCs at CAS 15-23-03 Used To Establish Current UR

Sample ID	Sample Depth (ft bgs)	Aroclor 1248	Aroclor 1260	Pu-238
		PAL 0.74 mg/kg	PAL 0.74 mg/kg	PAL 13.0 pCi/g
543G001	0.0 - 1.0	1.1	1.2	--
543G004	0.0 - 0.5	--	--	8,800 (M3)

M3 = The requested MDC was not met, but the report activity is greater than the reported MDC.
-- = No detects above action levels.

12.4 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). Revised FALs were calculated for the Aroclor 1248 and Aroclor 1260 using the OU exposure scenario using the EPA Region 9 RSLs for Chemical Contaminants at Superfund Sites Calculator (EPA, 2013b) and the latest input values (NNSA/NFO, 2013c).

The present-day Pu-238 activity was calculated using the standard decay equation which takes into account the half-life of the radionuclide and the time since the samples were originally collected. The revised RRMG are based on the 25-mrem/yr TED constraint. As indicated in Table 12-2, the Aroclor 1248 and Aroclor 1260 results are below the OU FALs, and the TED of Pu-238 is below the 25-mrem/yr TED constraint for the OU exposure scenario.

Table 12-2
Revised OU FALs, Present-Day Radiological Activities, OU RRMG, and TED
for COCs at CAS 15-23-03

Sample ID	Sample Depth (ft bgs)	Aroclor 1248	Aroclor 1260	Pu-238	TED (mrem/OU-yr)
		OU FAL 93 mg/kg	OU FAL 93 mg/kg	OU RRMG 74,940 pCi/g	
543G001	0.0 - 1.0	1.1	1.2	--	N/A
543G004	0.0 - 0.5	--	--	8,459.1	2.82

-- = No detects above action levels.

12.5 Proposed Modification

Remove the FFACO UR, postings, and annual inspection requirements from this site; and change to an Administrative UR. These modifications will not affect or modify any non-FFACO requirements at this site.

References

DOE, see U.S. Department of Energy.

EPA, see U.S. Environmental Protection Agency.

NCRP, see National Council on Radiation Protection and Measurements.

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

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. 1993. *Radiation Protection of the Public and the Environment*, DOE Order 5400.5, Change 2. Washington, DC.

U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office. 2013c. Written communication. Subject: *Soils Risk-Based Corrective Action Evaluation Process*. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. 2004d. *Corrective Action Investigation Plan for Corrective Action Unit 543: Liquid Disposal Units, Nevada Test Site, Nevada*, Rev. 0, DOE/NV--968. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. 2005c. *Corrective Action Decision Document for Corrective Action Unit 543: Liquid Disposal Units, Nevada Test Site, Nevada*, Rev. 0, DOE/NV--1082. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. 2005d. *Record of Technical Change to CAIP for CAU 543: Liquid Disposal Units, Revision 0, May 2004*, Technical Change No. CAIP-2. 26 May. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. 2008. *Closure Report for Corrective Action Unit 543: Liquid Disposal Units, Nevada Test Site, Nevada*, Rev. 0, DOE/NV--1246. 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.

U.S. Environmental Protection Agency. 2002. *Region IX Preliminary Remediation Goals (PRGs)*. Prepared by S.J. Smucker. San Francisco, CA.

U.S. Environmental Protection Agency. 2013b. *Regional Screening Levels for Chemical Contaminants at Superfund Sites (RSL Calculator)*. As accessed at http://epa.rgs.ornl.gov/cgi-bin/chemicals/csl_search on 19 February. Prepared by EPA Office of Superfund and Oak Ridge National Laboratory.

Use Restriction Information

CAU Number/Description: CAU 543/Liquid Disposal Units

Applicable CAS Number/Description: CAS 15-23-03/Contaminated Sump, Piping

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

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	4,118,212.8	585,103.3
Southwest Corner	4,118,207.1	585,085.8
Northwest Corner	4,118,236.6	585,076.3
North 1	4,118,240.2	585,090.1
North 2	4,118,255.1	585,088.5
Northeast Corner	4,118,256.0	585,090.5
East 1	4,118,238.6	585,096.2

Depth: 10 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) and chemical contaminants above the IA FAL. 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 543. 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 543 CAS 15-23-03, Contaminated Sump, Piping			
Constituent	Maximum Concentration	Action Level	Units
Aroclor-1258	1.1	93	mg/kg
Aroclor-1260	1.2	93	mg/kg
Pu-238	8,459.1	74,940	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.

Note: Effective upon acceptance of closure documents by NDEP

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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 543 CAS 15-23-03
Contaminated Sump, Piping

Explanation

Administrative Use Restriction Boundary

Coordinate System: NAD 1983 UTM Zone 11N, Meter

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