

RECORD OF TECHNICAL CHANGE

Technical Change No. DOE/NV—1117 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 204, CAS 05-33-01, Kay Blockhouse 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 constraints. Also, the present-day radiological activities of U-238 are below the Industrial Area PAL and may be removed from the UR.

Additionally, the FALs for lead and RDX (explosives) 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 FALs. Therefore, the 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 204: Storage Bunkers, 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

UNCLASSIFIED

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

Approved for public release; further dissemination unlimited.



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

UNCLASSIFIED

UNCONTROLLED When Printed

Available for sale to the public from:

U.S. Department of Commerce
National Technical Information Service
5301 Shawnee Road
Alexandria, VA 22312
Telephone: 800.553.6847
Fax: 703.605.6900
E-mail: orders@ntis.gov
Online Ordering: <http://www.ntis.gov/help/ordermethods.aspx>

Available electronically at <http://www.osti.gov/bridge>

Available for a processing fee to U.S. Department of Energy and its contractors,
in paper, from:

U.S. Department of Energy
Office of Scientific and Technical Information
P.O. Box 62
Oak Ridge, TN 37831-0062
Phone: 865.576.8401
Fax: 865.576.5728
Email: reports@adonis.osti.gov

Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.



**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

Approved for public release; further dissemination unlimited.

**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

6.0 CAU 204, CAS 05-33-01 – Kay Blockhouse

6.1 CAS Description

CAS 05-33-01, Kay Blockhouse, consists of an area of approximately 11 acres and includes the Kay Blockhouse, two burn pits with steel frames, one burn pit with a soil berm, two open pits, two steel-lined subsurface pits, one berm with embedded piping, one berm with piping debris, a burn area with a large concrete block with an embedded steel prong, and one open pit with a concrete foundation at the north end. The Kay Blockhouse was constructed in 1951 and was used as an instrumentation bunker for Operation Ranger, a series of five atmospheric nuclear tests. The burn pits and other surface features within the CAS boundary were not part of the nuclear testing. The Kay Blockhouse is constructed of concrete with a wooden entryway door. The details of the construction of the floor are unknown (NNSA/NSO, 2004b).

During closure activities, lead- and radiologically impacted soil was removed, and verification samples were collected. Friable asbestos material was removed from the burn pits; the asbestos and steel frames from the burn pits were disposed of at the Area 23 Sanitary Landfill. In addition, the two steel-lined pits were filled with native soil and capped with 1.5 ft of concrete. The bunker was secured by installing security fencing and a gate around the entrance to the bunker. The RMA was reestablished and fenced with T-post and wire-rope fencing (NNSA/NSO, 2006a).

6.2 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. Eleven UR warning signs were posted along the fence. Site monitoring requirements for the FFAO UR include annual visual inspections of UR signs and fencing, and maintenance as needed (NNSA/NSO, 2006a).

6.3 Basis for Current UR

Site characterization samples were collected for VOCs, SVOCs, RCRA metals, beryllium, TPH-DRO and TPH-GRO, PCBs, gamma spectroscopy, isotopic Pu, isotopic U, Sr-90, and explosives. The

radionuclides actinium (Ac)-228, bismuth (Bi)-212, lead (Pb)-212, thallium (Tl)-208, Th-234, and U-238 exceeded the PALs; lead and RDX also exceeded the PALs. Asbestos-containing material was discovered in the steel-lined burn pits, the steel-framed burn pit, and the burn pit with soil berm, at concentrations ranging from 1 to 20 percent asbestos. Table 6-1 contains analytical results of all COCs at CAS 05-33-01 that are the basis for the current URs. The sample matrix for all samples is soil.

The PALs for radiological contaminants were established in the ROTC to the CAIP (NNSA/NSO, 2004f) and were based on the NCRP Report No. 129 recommended screening limits for construction, commercial, and industrial land use scenarios (NCRP, 1999) scaled from 25- to 15-mrem/yr dose and the generic guidelines for residual concentration of radionuclides in DOE Order 5400.5 (DOE, 1993).

6.4 Basis for UR Modification

The revised FAL for RDX was calculated using the OU exposure scenario. The FAL for RDX was revised using the EPA Region 9 RSLs for Chemical Contaminants at Superfund Sites Calculator (EPA, 2013b) and the latest input values (NNSA/NFO, 2013c). The OU scenario assumes occasional work activities at the site, and that a worker will be on the site for an equivalent of 80 hr/yr (or 10 days) for 5 years. (NNSA/NSO, 2012b).

Only the IA or RW exposure scenarios are used to calculate a Tier 2 action level for lead (NNSA/NFO, 2013c) using the EPA Adult Lead Methodology calculator (EPA, 2003). The RW FAL will be used for lead. The RW scenario assumes non-continuous work activities at a site and that a worker will be exposed to the site contaminants for up to 336 hr/yr (or 42 days) (NNSA/NSO, 2012b).

The present-day radiological 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 OU RRMGs are based on the 25-mrem/yr TED constraint, which represents the concentrations in soil for a specific radionuclide that would result in a 25-mrem/yr TED to a receptor for a specific exposure time.

**Table 6-1
 Sample Results for COCs at CAS 05-33-01 Used To Establish Current UR**

Sample ID	Depth (ft bgs)	Lead	RDX	Ac-228	Bi-212	Pb-212	Tl-208	Th-234	U-238
		PAL 750 mg/kg	PAL 16 mg/kg	PAL 5 pCi/g	PAL 5 pCi/g	PAL 5 pCi/g	PAL 5 pCi/g	PAL 63.2 pCi/g	PAL 63.2 pCi/g
204E034	0.0 - 0.5	2,300	--	--	--	--	--	--	--
204E036	0.0 - 0.5	1,300	170	29.1 ± 5.2	27.1 ± 8.2	31.1 ± 5.3	8.3 ± 1.6	--	--
204E037	0.0 - 0.5	1,200	--	--	--	--	--	--	--
204E040	0.0 - 0.5	--	--	--	--	--	--	--	65.6 ± 9.2
204E050	0.0 - 0.5	--	--	--	--	--	--	--	72.5 ± 9.6
204E189	0.0 - 0.5	--	--	--	--	--	--	66.6 ± 8.7	64 ± 11 (Y2, M3)
204E190	0.0 - 0.5	--	--	--	--	--	--	67.4 ± 8.4	--
204E212	0.0 - 0.5	--	--	--	--	--	--	--	77 ± 14 (Y2)
204E220	0.0 - 0.5	--	--	--	--	--	--	95 ± 12	87 ± 14 (M3)

MDC = Minimum detectable concentration

M3 = The requested MDC was not met, but the reported activity is greater than the reported MDC.

Y2 = Chemical yield outside default limits.

-- = No detects above action levels.

Because the half-lives of Bi-212, Tl-208, Pb-212, and Th-234 are so short and these radionuclides decay rapidly, the present-day radiological activities for the radionuclides are effectively 0 pCi/g. The radionuclides Th-234 and U-238 are reflective of the same contaminants; therefore, only U-238 had the present-day activities calculated.

The present-day radiological activities, OU RRMGs, and the TED for the U-238 are listed in Table 6-2, which demonstrates that the TED of U-238 is below the 25-mrem/yr TED constraint for the OU exposure scenario. The lead and RDX results and their revised FALs are also listed in Table 6-2, which demonstrates that the lead and RDX results are below their respective FALs.

**Table 6-2
 Revised FALs, Present-Day Radiological Activities, OU RRMGs,
 and TED for COCs at CAS 05-33-01**

Sample ID	Depth (ft bgs)	Lead	RDX	U-238	TED (mrem/OU-yr)
		RW FAL 8,356 mg/kg	OU FAL 2,960 mg/kg	OU RRMG 31,190 pCi/g	
204E034	0.0 - 0.5	2,300	--	--	N/A
204E036	0.0 - 0.5	1,300	170	--	N/A
204E037	0.0 - 0.5	1,200	--	--	N/A
204E040	0.0 - 0.5	--	--	65.6	0.05
204E050	0.0 - 0.5	--	--	72.5	0.06
204E189	0.0 - 0.5	--	--	64	0.05
204E212	0.0 - 0.5	--	--	77	0.06
204E220	0.0 - 0.5	--	--	87	0.07

N/A = Not applicable

-- = No detects above action levels.

6.5 Proposed Modification

Remove the FFACO UR and postings from this site; discontinue annual inspections; and change to an Administrative UR for lead and RDX. Because the present-day U-238 activity is below the IA PAL of 1,581 pCi/g, the radionuclides (U-238) may be removed from this 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. 2004b. *Corrective Action Decision Document for Corrective Action Unit 204: Storage Bunkers, Nevada Test Site, Nevada*, Rev. 0, DOE/NV--959. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. 2004f. *Record of Technical Change to Corrective Action Investigation Plan for Corrective Action Unit 204: Storage Bunkers, Nevada Test Site, Nevada*, Rev. 0, DOE/NV--866-RTC1. Technical Change No. 1, 10 March. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. 2006a. *Closure Report for Corrective Action Unit 204: Storage Bunkers, Nevada Test Site, Nevada*, Rev. 0, DOE/NV--1117. 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. 2003. *Recommendations of the Technical Review Workgroup for Lead for an Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil*, EPA-540-R-03-001. As accessed at <http://www.epa.gov/superfund/health/contaminants/lead/products.htm> on 4 March 2013.

U.S. Environmental Protection Agency. 2013b. *Regional Screening Levels for Chemical Contaminants at Superfund Sites (RSL Calculator)*. As accessed at http://epaprgs.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 204/Storage Bunkers
 Applicable CAS Number/Description: CAS 05-33-01/Kay Blockhouse

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	4,076,033.0	592,315.2
South 1	4,076,001.8	592,296.9
South 2	4,076,002.5	592,254.3
Southwest Corner	4,076,022.7	592,212.0
Northwest Corner	4,076,122.3	592,211.6
North Corner	4,076,145.8	592,248.7
Northeast Corner	4,076,101.9	592,306.0

Depth: 20 ft bgs

Survey Source (GPS, GIS, etc): GPS

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

Basis for Administrative UR(s):

Summary Statement: This administrative UR is to protect site workers from inadvertent exposure to chemical contaminants (lead and RDX) 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 204. 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 204 CAS 05-33-01, Kay Blockhouse			
Constituent	Maximum Concentration	Action Level	Units
Lead	2,300	8,356	mg/kg
RDX (explosives)	170	2,960	mg/kg

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 FFAO and Administrative UR(s) if Administrative UR exists):

Description: This administrative UR is recorded in the FFAO 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 NNS.

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.

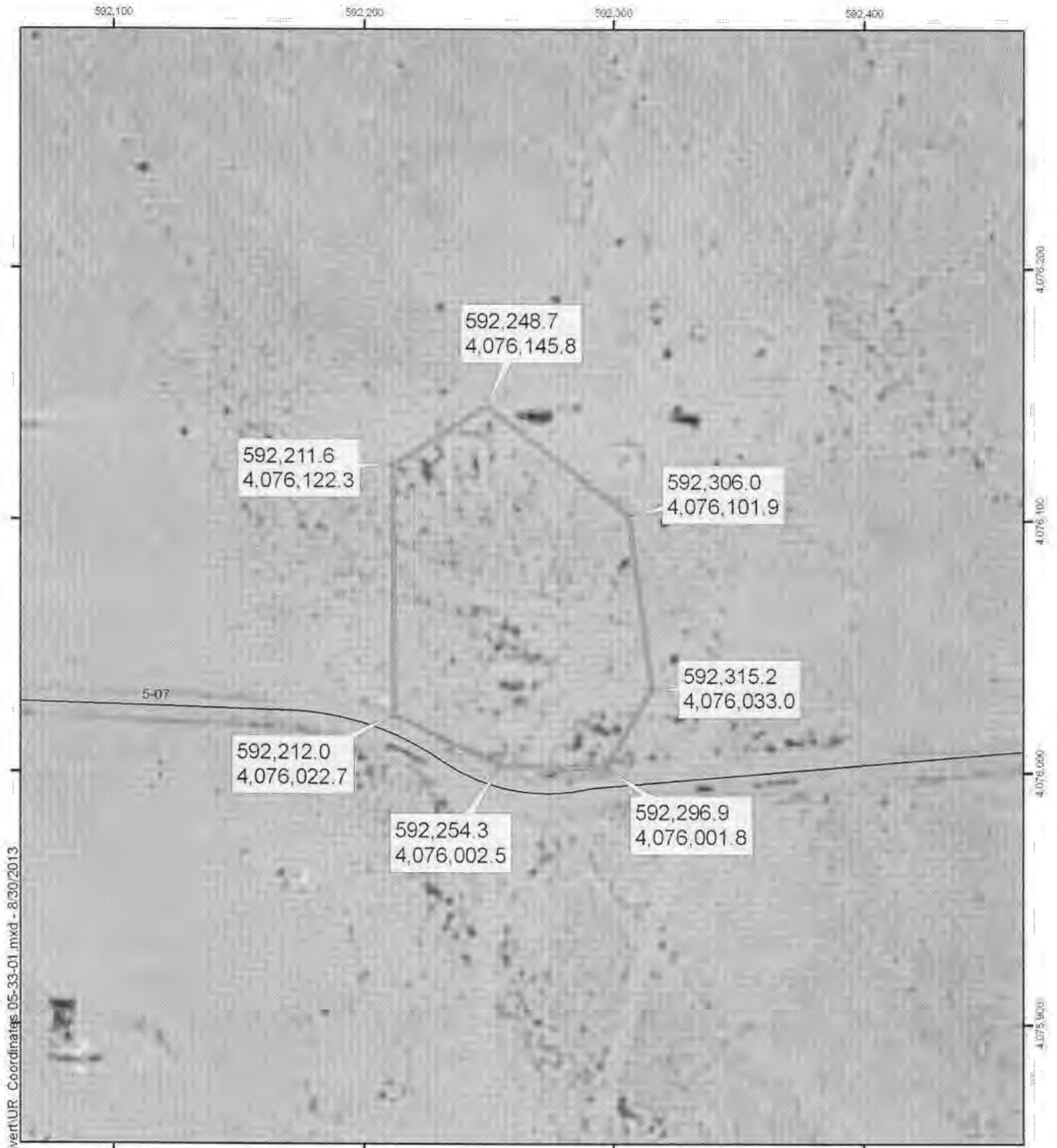
Use Restriction Information

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.

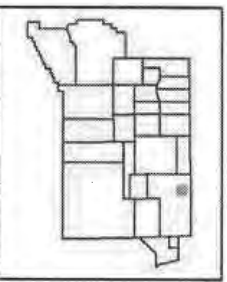
Submitted By: /s/ Tiffany A. Lantow

Date: _____

12/11/2013



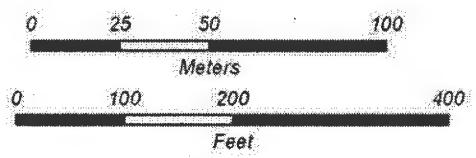
H:\GIS_WORK\GWO660.UR.Convert\UR.Coordinates 05-33-01.mxd - 8/30/2013



Administrative Use Restriction
CAU 137 CAS 05-33-01
Kay Blockhouse

Explanation

 Administrative Use Restriction Boundary



Coordinate System: NAD 1983 UTM Zone 11N, Meter

UNCONTROLLED When Printed