

**2019 Annual Land-Use Covenant
Inspection Report
for DOE Areas at the Laboratory
for Energy-Related Health
Research/Old Campus Landfill
Superfund Site
University of California, Davis**

January 2020



**U.S. DEPARTMENT OF
ENERGY**

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Abbreviations

DOE	U.S. Department of Energy
DSS	Domestic Septic System
DTSC	California Department of Toxic Substances Control
EDPs	Eastern Dog Pens
EH&S	Environmental Health and Safety
EPA	U.S. Environmental Protection Agency
LEHR	Laboratory for Energy-Related Health Research
LUC	Land-Use Covenant
Ra/Sr	Radium/Strontium
RD/RA	Remedial Design/Remedial Action
ROD	Record of Decision
SMP	Soil Management Plan
SWT	Southwest Trenches
UC Davis	University of California, Davis
Weiss	Weiss Associates

1.0 Introduction

This report documents inspection of land-use restrictions implemented by the U.S. Department of Energy (DOE) to control exposure to residual soil contaminants at DOE Areas of the Laboratory for Energy-Related Health Research/Old Campus Landfill Superfund Site (LEHR or site) located at the University of California, Davis (UC Davis) (Figure 1). The requirements for land-use controls at the DOE Areas at the site are documented in the Record of Decision (ROD) (DOE 2009) and an associated Land-Use Covenant (LUC), which was recorded by Solano County in 2014 (DTSC 2014). The implementation procedures for land-use controls are documented in the Remedial Design/Remedial Action Work Plan (RD/RA Work Plan) (DOE 2010) and the 2019 Soil Management Plan (SMP) (DOE 2019).

The DOE Areas subject to land-use restrictions (Figure 2) are the Radium/Strontium (Ra/Sr) Treatment Systems Area, Domestic Septic System (DSS) 3 and DSS 4 Areas, Dry Wells A–E Area, Eastern Dog Pens (EDPs) Area, and Southwest Trenches (SWT) Area. The DSS 2 Area is within the Ra/Sr Treatment Systems Area. The DSS 4 Area contains a portion subject to a prohibition on residential use.

The Western Remediation Support Area and Eastern Remediation Support Area shown in Figure 2 do not contain residual contamination but are required to be accessible for the staging of equipment and supplies if contingent remedial actions were to be implemented at the Ra/Sr Treatment Systems Area, DSS 3 and DSS 4 Areas, Dry Wells A–E Area, EDPs Area, or SWT Area.

The LUC states that the following conditions must be maintained until the concentrations of contaminants in the soil are at or below cleanup levels specified in the ROD:

- Residential use, use for day care for children, and cultivation of crops for human consumption are prohibited in the DSS 4 Area (Figure 2).
- Soil-disturbing activities at the Ra/Sr Treatment Systems Area, DSS 3 and DSS 4 Areas, Dry Wells A–E Area, EDPs Area, and SWT Area must be implemented in accordance with the SMP.
- Interference, tampering with, or destruction of the groundwater monitoring system is prohibited.
- The California Department of Toxic Substances Control (DTSC) and U.S. Environmental Protection Agency (EPA) Region 9 shall have reasonable right-of-entry and access to the site for periodic inspections to ensure compliance with land-use restrictions.
- Access must be granted to DOE for the purpose of implementing operation and maintenance activities.
- An inspection verifying compliance with the LUC needs to be conducted annually, with a report of the inspection provided to DTSC and EPA by January 15.

1.1 Inspection and Reporting Requirements

This section contains the inspection and reporting requirements specified in LUC Section 4.06, which includes verification of permits obtained for soil-disturbing activities, a review of soil-disturbing activities for compliance with the SMP, a review of disposal practices for waste generated during soil-disturbing activities, and suggested changes to the SMP.

Per LUC Section 4.06, the inspection report is required to contain:

- The dates and times of inspection and names of those who conducted the inspection and reviewed the report.
- An explanation of how the observations that were the basis for the statements and conclusions were performed (e.g., drive-by, flyover, walkthrough).
- The annual inspection results.
- A review of compliance with the requirements of the SMP.
- A certification of compliance with the LUC.
- A discussion of any soil-disturbing activities and wastes generated.

If violations are noted, the annual inspection report must detail the steps taken to return to compliance. The inspection report is due to DTSC and EPA on or before January 15 each year.

1.2 Period Covered

This report covers the period from December 10, 2018, to December 9, 2019.

1.3 Activities Conducted During the Reporting Period

DOE performed limited field activities during the reporting period including groundwater sample collection, water-level monitoring, monitoring well maintenance, and weed abatement. DOE performed no soil sampling or other soil-disturbing activities during the reporting period.

DOE also updated the SMP during the reporting period to address vegetation management including the handling and disposal of fallen trees and shrubs. The 2019 LUC inspection addresses compliance with the new SMP requirements.

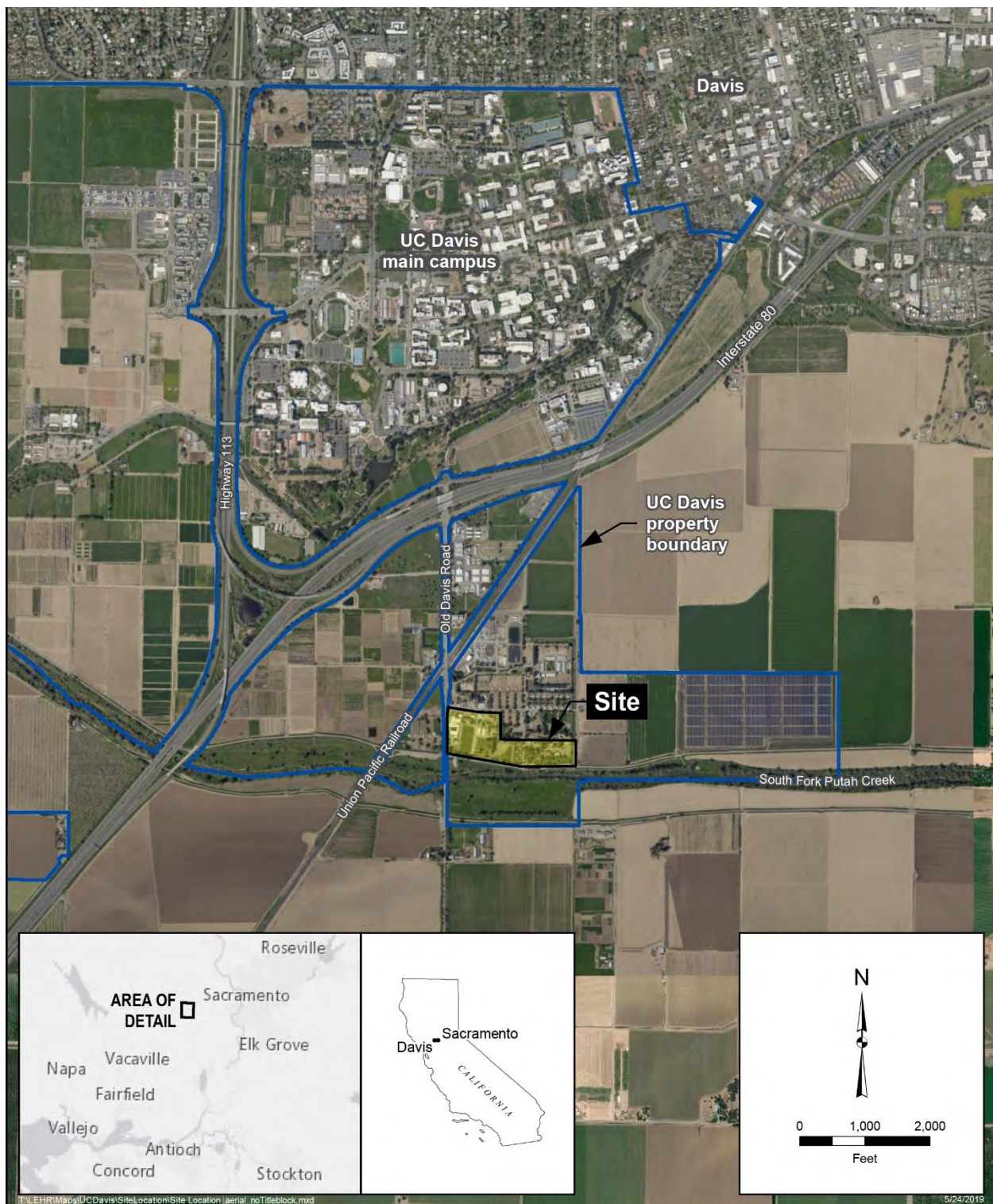


Figure 1. Location of the LEHR Superfund Site, UC Davis, Solano County, California

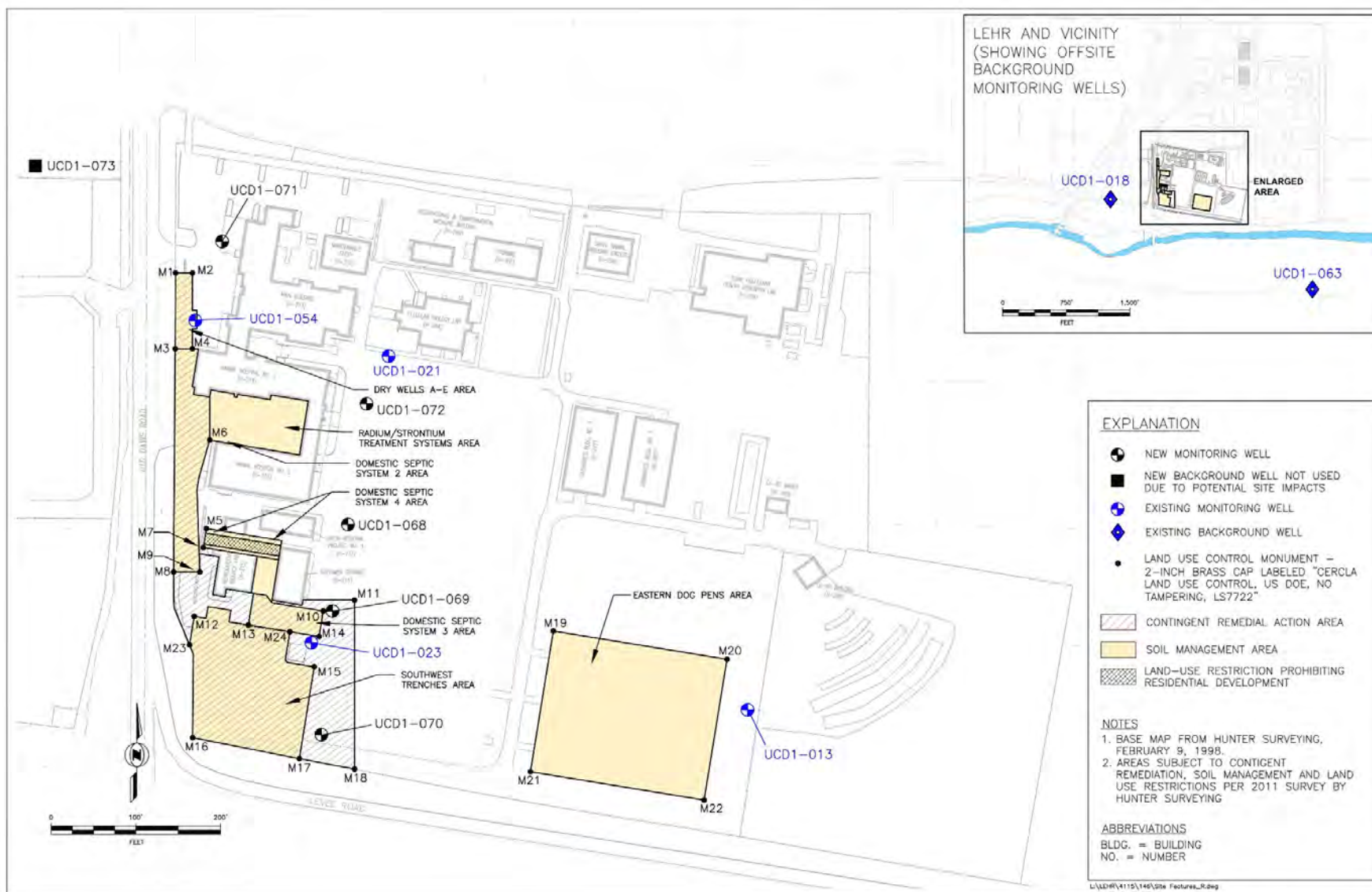


Figure 2. DOE Areas of the LEHR Federal Facility Subject to Land-Use Controls and Locations of DOE Groundwater Monitoring Wells and Survey Monuments

2.0 Inspections

Tim Utterback, a California Professional Engineer, of Weiss Associates (Weiss) performed walkthrough inspections of the DOE Areas on November 6, 2019, between 8:00 a.m. and 5:00 p.m.; November 7, 2019, between 8:00 a.m. and 5:00 p.m.; and November 15, 2019, between 10:00 a.m. and 1:00 p.m., as discussed below. Holly Hadlock of EPA, Randall Bleichner of DTSC, Michael Butherus of Navarro, and Bob Devany of Weiss observed portions of the inspection on November 6, 2019. The inspection checklists are included in Appendix A, and photographs documenting the inspection are included in Appendixes B, C, and D.

2.1 Inspection of Survey Monuments

All 24 survey monuments (Figure 2) were found in good condition during the November 6, 2019, inspection as documented in the checklists and photographs in Appendixes A and B, respectively.

2.2 Inspection of Domestic Septic System 4 Area for Prohibited Land Uses

No evidence of residential use, use for day care for children, cultivation of crops for human consumption, or indications of a change in land use were observed in the DSS 4 Area (Figure 2) during the inspection on November 6, 2019, as documented in the checklists and photographs in Appendixes A and C, respectively.

2.3 Inspection of DOE Areas for Evidence of Soil-Disturbing Activities

No evidence of soil-disturbing activities was observed in the DOE Areas during the site inspection on November 6, 2019.

2.4 Inspections of Groundwater Monitoring Wells

No evidence of tampering of groundwater monitoring wells UCD1-013, UCD1-018, UCD1-021, UCD1-023, UCD1-054, UCD1-063, and UCD1-068 through UCD1-073 (Figure 2) was observed during the well inspection on November 6–7, 2019. Monitoring wells with standpipe completions (UCD1-013, UCD1-018, UCD1-063, UCD1-070, and UCD1-073) were observed to be secured with functioning padlocks. Monitoring wells UCD1-021, UCD1-023, UCD1-054, UCD1-069, UCD1-071, and UCD1-072 have surface completions, with intact lids secured with bolts or a screw-on lid (UCD1-023). Although the lid on well UCD1-068 was secured, the rubber gasket on it has failed and needs to be replaced. Otherwise, all well boxes and standpipes were structurally sound, and the wells appeared to be in good condition. Identification plates were present on all wells, except the plaque inside the standpipe at well UCD1-063 was missing and will be replaced. Appendix D includes photographs of the groundwater monitoring wells and well boxes.

On November 6–7, 2019, the pumps in all 12 wells were tested by Mr. Utterback to determine if they were functioning properly for groundwater sample collection. The tests indicated all pumps produced water within the target flow rate range of 0.1 to 0.5 liter per minute, as specified in the

RD/RA Work Plan (DOE 2010). The pump in well UCD1-073 pumped at the low end of the target flow range but was deemed acceptable. Pump port plugs were noted to be missing in well UCD1-071 (Appendix A).

2.5 Inspections of Trees and Shrubs

On November 7 and 15, 2019, Mr. Utterback performed a walkthrough inspection of trees and shrubs that are identified in the Tree and Shrub Survey in Appendix F of the SMP. Brass tags with embossed numbers were attached to each listed tree or shrub at a height of approximately 5 feet to facilitate future inspections. A table showing the tag numbers for each tree and shrub and a map showing their locations are included in Appendix E.

All trees and shrubs identified in the survey were located during the inspection except a small elderberry shrub (Survey ID 16222) that was found dead and fallen in the EDPs Area (Appendixes E2 and E3). On the basis of historical file photographs, this specimen was an elderberry shrub about 6 feet tall (identified herein as Specimen 16222). The elderberry appeared healthy in 2017 but was dying or dead in 2018 (Appendix E3). The remains of Specimen 16222 were located and photographed, and the survey map and table were updated to indicate this tree as being dead and fallen as of November 2019. Specimen 16222 branches (no leaves were observed) were placed in a plastic bag and will be sampled according to SMP requirements. Per the SMP, DOE will develop a separate report documenting the sampling results and disposition of the plant material and provide this report to the Environmental Health and Safety (EH&S) Unit at UC Davis. The tree and shrub survey table (Appendix E1) and figure (Appendix E2) from the SMP have been updated to reflect the removal of Specimen 16222.

3.0 Soil Management Plan Implementation

Implementing the SMP is the responsibility of DOE. DOE has agreed with the Regents of the University of California that the EH&S Unit at UC Davis will implement selected requirements of the SMP, with DOE retaining ultimate accountability for compliance with the requirements of the ROD that this SMP executes.

3.1 Training

The EH&S Unit at UC Davis conducted annual training to communicate soil management requirements to applicable units that may perform, manage, or contract for work at and near the site. Additionally, personnel working in departments located on or near the site received annual training.

Information on the following topics was provided:

- Roles and responsibilities for soil management in the DOE Areas
- Areas and contaminants subject to soil management requirements
- Soil management during excavation or construction
- Permits for soil-disturbing activities
- Plans and documentation
- Soil management during emergency work
- Waste management
- Waste characterization and disposal
- Inspections

3.2 Soil-Disturbing Activities

On the basis of site inspections and an interview with Chris Wright of the EH&S Unit at UC Davis with Bob Devany of Weiss on December 11, 2019, no soil disturbance permits were issued and no observations of soil-disturbing activities were recorded by the EH&S Unit during the reporting period (Appendix A).

3.3 Soil Disposal

On the basis of site inspections and the interview documented in this report, no soil from the DOE Areas was disposed of during the 2019 reporting period.

4.0 Certification

The U.S. Department of Energy hereby certifies to the best of its knowledge that the information contained in this inspection report is true and accurate and no exceptions to the Land-Use Covenant terms and conditions occurred during this reporting period.

 Digitally signed by JEFFREY MURL
Date: 2019.12.23 12:46:45 -07'00'

Date: 12/23/2019

Jeffrey Murl
Site Manager
U.S. Department of Energy
Office of Legacy Management
11035 Dover Street, Suite 600
Westminster, CO 80021

The University of California hereby certifies to the best of its knowledge that the information contained in this inspection report is true and accurate and no exceptions to the Land-Use Covenant terms and conditions occurred during this reporting period.

 Chris Wright
cn=Chris Wright, o=University of California - Davis, ou=Environmental Manager,
email=cvwright@ucdavis.edu, c=US
2020.01.08 22:26:03 -08'00'

Date: 1/8/2020

Christopher Wright
Environmental Manager
UC Davis Environmental Health and Safety
One Shields Avenue
Davis, CA 95616

5.0 References

DOE (U.S. Department of Energy), 2009. *Record of Decision for DOE Areas at the Laboratory for Energy-Related Health Research, University of California, Davis*, LMS/LEH/S05069, Office of Legacy Management, September.

DOE (U.S. Department of Energy), 2010. *Remedial Design/Remedial Action Work Plan for the Former Laboratory for Energy-Related Health Research Federal Facility, University of California, Davis*, LMS/LEH/S05822, Office of Legacy Management, November.

DOE (U.S. Department of Energy), 2019. *Soil Management Plan, Former Laboratory for Energy-Related Health Research Federal Facility, University of California, Davis*, LMS/LEH/S24029, Office of Legacy Management, August.

DTSC (California Department of Toxic Substances Control), 2014. *Covenant to Restrict Use of Property, Environmental Restriction, (Re: Portions of County of Solano Assessor's Parcel No. 110-05-04 UC Davis Laboratory for Energy-Related Health Research/Old Campus Landfill (LEHR/OCL) Superfund Site, Site Code 100424)*, Solano County Recorder's Office Document Number 201400051822, July 11.

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Appendix A

Inspection and Maintenance Checklists

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LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback

Inspection Date 11-6-19

DOE Area: Dry Wells A – E Area

Inspection Period December 10, 2018 – December 9, 2019

Inspection Item	Y	N	NA	Comments
Were any indications of soil disturbance or tree/shrub removal observed during walk-thru inspection? If yes, explain. ^{1,2}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were any soil disturbance or tree/shrub removal permit requests filed with UC Davis Environmental Health and Safety (EH&S) Unit for this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
Were any soil disturbance or tree/shrub removal permits issued by the EH&S Unit for this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
Were permitted soil disturbing or tree/shrub removal activities conducted in this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
If permitted soil disturbing or tree/shrub removal activities were conducted in this DOE Area since December 10, 2018, were the activities in compliance with the Soil Management Plan? If no, explain.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See notes 3 and 4
If waste was generated due to soil disturbing or tree/shrub removal activities since December 10, 2018, was the soil or vegetation managed and/or disposed in compliance with the Soil Management Plan? If no, explain.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See notes 3 and 4
Are there any suggested changes to the Soil Management Plan at this time? If yes, explain.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4

Notes:

¹ Soil disturbing activities include, but are not limited to excavation, grading, trenching, utility installation or repair, and any other human activities that could potentially bring contaminated soil to the surface. Tree/shrub removal also includes any partial removal resulting from pruning or fallen branches.

² Does not apply to landscaping, fire protection, or maintenance work that is conducted at depths less than 1 foot below ground surface and less than 5 cubic yards of soil waste is significantly displaced (e.g., stockpiled, placed in containers) and all soil is returned to the disturbed area. Such work may proceed without restriction.

³ Interview conducted by Bob Devany on December 11, 2019.

⁴ UC Davis EH&S person interviewed: Chris Wright

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback

Inspection Date 11-6-19

DOE Area: Dry Wells A – E Area

Inspection Period December 10, 2018 – December 9, 2019

<	Photograph Description	Photo No.	Comments
1	View north over Dry Wells A through E Area; Old Davis Road to left.	3791	
2	View south over Dry Wells A through E Area; Building H-219 in background/left; facility entrance gate in foreground/right.	3788	
3	View west over Dry Wells A through E Area; site entrance gate to right; Old Davis Road behind.	3789	
4	View southwest over Dry Wells A through E Area; Old Davis Road behind.	3790	

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback

Inspection Date 11-6-19

DOE Area: Radium/Strontium Treatment Systems Area
Inclusive of Domestic Septic System 2

Inspection Period December 10, 2018 – December 9, 2019

Inspection Item	Y	N	NA	Comments
Were any indications of soil disturbance or tree/shrub removal observed during walk-thru inspection? If yes, explain. ^{1,2}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were any soil disturbance or tree/shrub removal permit requests filed with UC Davis Environmental Health and Safety (EH&S) Unit for this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
Were any soil disturbance or tree/shrub removal permits issued by the EH&S Unit for this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
Were permitted soil disturbing or tree/shrub removal activities conducted in this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
If permitted soil disturbing or tree/shrub removal activities were conducted in this DOE Area since December 10, 2018, were the activities in compliance with the Soil Management Plan? If no, explain.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See notes 3 and 4
If waste was generated due to soil disturbing or tree/shrub removal activities since December 10, 2018, was the soil managed and/or disposed in compliance with the Soil Management Plan? If no, explain.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See notes 3 and 4
Are there any suggested changes to the Soil Management Plan at this time? If yes, explain.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4

Notes:

¹ Soil disturbing activities include, but are not limited to excavation, grading, trenching, utility installation or repair, and any other human activities that could potentially bring contaminated soil to the surface. Tree/shrub removal also includes any partial removal resulting from pruning or fallen branches.

² Does not apply to landscaping, fire protection, or maintenance work that is conducted at depths less than 1 foot below ground surface and less than 5 cubic yards of soil waste is significantly displaced (e.g., stockpiled, placed in containers) and all soil is returned to the disturbed area. Such work may proceed without restriction.

³ Interview conducted by Bob Devany on December 11, 2019.

⁴ UC Davis EH&S person interviewed: Chris Wright

LAND USE CONTROL INSPECTION CHECKLIST

Inspector

Tim Uterback

Inspection Date

11-6-19

DOE Area: Radium/Strontium Treatment Systems Area

Inspection Period December 10, 2018 – December 9, 2019

Inclusive of Domestic Septic System 2

<	Photograph Description	Photo No.	Comments
1	View north over southern portion of Radium/Strontium Treatment Systems Area (Ra/Sr Area). Building H-215 to right; Building H-218 back/right.	3809	
2	View west at west perimeter trees/shrubs located in the south end of the Ra/Sr Area and between the Ra/Sr Area and Southwest Trenches Area.	3810	
3	View east at west perimeter trees/shrubs located in the south end of the Ra/Sr Area and between the Ra/Sr Area and Southwest Trenches Area.	3902, 3903	View northeast
4	View east at shrubs in front of Building H-215 and between the Ra/Sr Area and Southwest Trenches Area. TRU 12-5-19 and west at trees located along the southern	3811, 3812	View east View west
5	View west at west perimeter trees/shrubs located west of Building H-215 in southern portion of the Ra/Sr Area.	3813, 3814	View northwest
6	View east at west perimeter trees/shrubs located west of Building H-215 in southern portion of the Ra/Sr Area.	3904, 3905	View northeast
7	View north over middle portion of Ra/Sr Area. Building H-218 to right; Building H-219 in background.	3800	
8	View west at west perimeter trees/shrubs located west of Building H-218 in southern portion of the Ra/Sr Area.	3801	
9	View east at west perimeter trees/shrubs located west of Building H-218 in southern portion of the Ra/Sr Area.	3906	
10	View south over southern portion of Ra/Sr Area. Building H-215 to left.	3802	
11	View north over northern portion of Ra/Sr Area. Building H-219 to right.	3803	
12	View south over middle-south portion of Ra/Sr Area. Building H-218 to left.	3804	
13	View east over middle portion of Ra/Sr Area. Building H-218 to right; Building H-219 to left.	3805	
14	View west over Domestic Septic System 2 area within middle-west portion of Ra/Sr Area.	3806	

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Uterback

Inspection Date 11-6-19

DOE Area: Radium/Strontium Treatment Systems Area
Inclusive of Domestic Septic System 2

Inspection Period December 10, 2018 – December 9, 2019

<	Photograph Description	Photo No.	Comments
15	Roof-level view west over middle portion of Ra/Sr Area. Building H-219 to right; Building H-218 to left.	3815	
16	Roof-level view southwest over middle portion of Ra/Sr Area; Building H-218 in background.	3816	
17	Roof-level view northwest over middle portion of Radium/ Strontium Treatment Systems Area; Building H-219 in background.	3817	
18	View south over northern portion of Ra/Sr Area: Building H-219 to left; west perimeter fence and Old Davis Road to right.	3826	

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback

Inspection Date 11-6-19

DOE Area: Domestic Septic System 4

Inspection Period December 10, 2018 – December 9, 2019

Inspection Item	Y	N	NA	Comments
Were any indications of soil disturbance observed during walk-thru inspection? If yes, explain. ^{1,2}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were any indications of a residence, growing plants for human consumption, or a day care center for children observed during walk-thru inspection? If yes, explain.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Did UC Davis Environmental Health and Safety (EH&S) Unit observe or receive report of any indications of a residence, growing plants for human consumption, or a day care center for children in this DOE Area since December 10, 2018.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
Were any indications of a change in land use observed during walk-thru inspection? If yes, explain. ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were any soil disturbance permit requests filed with UC Davis Environmental Health and Safety (EH&S) Unit for this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
Were any soil disturbance permits issued by the EH&S Unit for this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4

Notes:

¹ Soil disturbing activities include, but are not limited to excavation, grading, trenching, utility installation or repair, and any other human activities that could potentially bring contaminated soil to the surface.

² Does not apply to landscaping, fire protection, or maintenance work that is conducted at depths less than 1 foot below ground surface and less than 5 cubic yards of soil waste is significantly displaced (e.g., stockpiled, placed in containers) and all soil is returned to the disturbed area. Such work may proceed without restriction.

³ Interview conducted by Bob Devany on December 11, 2019.

⁴ UC Davis EH&S person interviewed: Chris Wright

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback

Inspection Date 11-6-19

DOE Area: Domestic Septic System 4

Inspection Period December 10, 2018 – December 9, 2019

Inspection Item	Y	N	NA	Comments
Were permitted soil disturbing activities conducted in this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
If permitted soil disturbing activities were conducted in this DOE Area since December 10, 2018, were the activities in compliance with the Soil Management Plan? If no, explain.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See notes 3 and 4
If waste was generated due to soil disturbing activities since December 10, 2018, was the soil managed and/or disposed in compliance with the Soil Management Plan? If no, explain.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See notes 3 and 4
Are there any suggested changes to the Soil Management Plan at this time? If yes, explain.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4

<	Photograph Description	Photo No.	Comments
1	View north over Domestic Septic System 4 septic tank location and east end of leach field; Building H-215 to left, Building H-216 to right; Building H-217 in background.	3827	
2	View west over east end of Domestic Septic System 4 leach field; Building H-215 in background.	3828	
3	View east over Domestic Septic System 4 septic tank location. Building H-216 in background.	3829	
4	View east over western portion of Domestic Septic System 4 Area; Building H-215 in background.	3830	

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback

Inspection Date 11-6-19

DOE Area: Domestic Septic System 3

Inspection Period December 10, 2018 – December 9, 2019

Inspection Item	Y	N	NA	Comments
Were any indications of soil disturbance or tree/shrub removal observed during walk-thru inspection? If yes, explain. ^{1,2}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were any soil disturbance or tree/shrub removal permit requests filed with UC Davis Environmental Health and Safety (EH&S) Unit for this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
Were any soil disturbance or tree/shrub removal permits issued by the EH&S Unit for this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
Were permitted soil disturbing or tree/shrub removal activities conducted in this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
If permitted soil disturbing or tree/shrub removal activities were conducted in this DOE Area since December 10, 2018, were the activities in compliance with the Soil Management Plan? If no, explain.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See notes 3 and 4
If waste was generated due to soil disturbing or tree/shrub removal activities since December 10, 2018, was the soil managed and/or disposed in compliance with the Soil Management Plan? If no, explain.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See notes 3 and 4
Are there any suggested changes to the Soil Management Plan at this time? If yes, explain.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4

Notes:

¹ Soil disturbing activities include, but are not limited to excavation, grading, trenching, utility installation or repair, and any other human activities that could potentially bring contaminated soil to the surface. Tree/shrub removal also includes any partial removal resulting from pruning or fallen branches.

² Does not apply to landscaping, fire protection, or maintenance work that is conducted at depths less than 1 foot below ground surface and less than 5 cubic yards of soil waste is significantly displaced (e.g., stockpiled, placed in containers) and all soil is returned to the disturbed area. Such work may proceed without restriction.

³ Interview conducted by Bob Devany on December 11, 2019.

⁴ UC Davis EH&S person interviewed: Chris Wright

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback

Inspection Date 11-6-19

DOE Area: Domestic Septic System 3

Inspection Period December 10, 2018 – December 9, 2019

<	Photograph Description	Photo No.	Comments
1	View east over former leach field part of Domestic Septic System 3 Area; Building H-216 to left; storage unit to right; Western Dog Pens Area in background.	3831	
2	View east over eastern half of Domestic Septic System 3 Area.	3832	
3	View west over former leach field part of Domestic Septic System 3 Area; Buildings H-215 and H-216 to right; Southwest Trenches Area to left; shoulder of Old Davis Road in background.	3833	
4	View south over septic tank part of Domestic Septic System 3 Area; Building H-216 to left; Building H-215 to right; <u>tree 16211 center.</u>	3834 → 3835	
5	View north over septic tank part of Domestic Septic System 3 Area; Building H-215 to left, Building H-216 to right; Domestic Septic System 4 Area in background; <u>tree 16211 center.</u>	3836 3837	TRY photo 3836 is lower quality than 3837
6	View south over east end of Domestic Septic System 3 leach field; trailer in background.	3838	
7	View east; Building H-216 in background, standing north/left of tree.	3839	
8	View east; Building H-216 in background, standing south/right of tree.	3840	

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback

Inspection Date 11-6-19

DOE Area: Southwest Trenches

Inspection Period December 10, 2018 – December 9, 2019

Inspection Item	Y	N	NA	Comments
Were any indications of soil disturbance or tree/shrub removal observed during walk-thru inspection? If yes, explain. ^{1,2}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were any soil disturbance or tree/shrub removal permit requests filed with UC Davis Environmental Health and Safety (EH&S) Unit for this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
Were any soil disturbance or tree/shrub removal permits issued by the EH&S Unit for this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
Were permitted soil disturbing or tree/shrub removal activities conducted in this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
If permitted soil disturbing or tree/shrub removal activities were conducted in this DOE Area since December 10, 2018, were the activities in compliance with the Soil Management Plan? If no, explain.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See notes 3 and 4
If waste was generated due to soil disturbing or tree/shrub removal activities since December 10, 2018, was the soil managed and/or disposed in compliance with the Soil Management Plan? If no, explain.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See notes 3 and 4
Are there any suggested changes to the Soil Management Plan at this time? If yes, explain.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4

Notes:

¹ Soil disturbing activities include, but are not limited to excavation, grading, trenching, utility installation or repair, and any other human activities that could potentially bring contaminated soil to the surface. Tree/shrub removal also includes any partial removal resulting from pruning or fallen branches.

² Does not apply to landscaping, fire protection, or maintenance work that is conducted at depths less than 1 foot below ground surface and less than 5 cubic yards of soil waste is significantly displaced (e.g., stockpiled, placed in containers) and all soil is returned to the disturbed area. Such work may proceed without restriction.

³ Interview conducted by Bob Devany on December 11, 2019.

⁴ UC Davis EH&S person interviewed: Chris Wright

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback

Inspection Date 11-6-19

DOE Area: Southwest Trenches

Inspection Period December 10, 2018 – December 9, 2019

<	Photograph Description	Photo No.	Comments
1	View southeast over Southwest Trenches Area; North levee in background.	3855	
2	View east over Southwest Trenches Area; Storage shed to left; north levee to right; Western Dog Pens Area and UC Davis Southern Trenches Area in background.	3859	
3	View north over northwest corner of Southwest Trenches Area.	3860	
4	View south over Southwest Trenches Area; North levee in background; shoulder of Old Davis Road to right.	3856	
5	View southeast over Southwest Trenches Area.	3857	
6	View west over Southwest Trenches Area; shoulder of Old Davis Road in background.	3861	
7	View northwest over Southwest Trenches Area.	3862	
8	View north over Southwest Trenches Area.	3863	
9	View north from center of Southwest Trenches Area.	3864	
10	View west from center of Southwest Trenches Area.	3865	
11	View south from center of Southwest Trenches Area.	3866	
12	View east from center of Southwest Trenches Area.	3867	
13	View north at trees/shrubs located along the north boundary of the Southwest Trenches Area; Building H-215 in background.	3868, 3869	close-up of pine tree in northwest corner of SWT4
14	View south at trees/shrubs located along the north boundary of the Southwest Trenches Area.	3858	
15	View west at trees/shrubs located along the west perimeter of the Southwest Trenches Area.	3870	
16	View east at trees/shrubs located along the west perimeter of the Southwest Trenches Area.	3907	

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback

Inspection Date 11-6-19

DOE Area: Southwest Trenches

Inspection Period December 10, 2018 – December 9, 2019

<	Photograph Description	Photo No.	Comments
17	View southwest at perimeter trees/shrubs located along the southwest corner of the Southwest Trenches Area.	3871	
18	View northeast at perimeter trees/shrubs located along the southwest corner of the Southwest Trenches Area.	3908	
19	View south at trees/shrubs located along the south perimeter of the Southwest Trenches Area.	3872	
20	View north at trees/shrubs located along the south perimeter of the Southwest Trenches Area.	3909	

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback

Inspection Date 11-6-19

DOE Area: Eastern Dog Pens Area

Inspection Period December 10, 2018 – December 9, 2019

Inspection Item	Y	N	NA	Comments
Were any indications of soil disturbance or tree/shrub removal observed during walk-thru inspection? If yes, explain. ^{1,2}	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tree 16222 Found dead and fallen during Tree inspection on 11-15-19
Were any soil disturbance or tree/shrub removal permit requests filed with UC Davis Environmental Health and Safety (EH&S) Unit for this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
Were any soil disturbance or tree/shrub removal permits issued by the EH&S Unit for this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
Were permitted soil disturbing or tree/shrub removal activities conducted in this DOE Area since December 10, 2018?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4
If permitted soil disturbing or tree/shrub removal activities were conducted in this DOE Area since December 10, 2018, were the activities in compliance with the Soil Management Plan? If no, explain.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See notes 3 and 4
If waste was generated due to soil disturbing or tree/shrub removal activities since December 10, 2018, was the soil managed and/or disposed in compliance with the Soil Management Plan? If no, explain.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See notes 3 and 4
Are there any suggested changes to the Soil Management Plan at this time? If yes, explain.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See notes 3 and 4

Notes:

¹ Soil disturbing activities include, but are not limited to excavation, grading, trenching, utility installation or repair, and any other human activities that could potentially bring contaminated soil to the surface. Tree/shrub removal also includes any partial removal resulting from pruning or fallen branches.

² Does not apply to landscaping, fire protection, or maintenance work that is conducted at depths less than 1 foot below ground surface and less than 5 cubic yards of soil waste is significantly displaced (e.g., stockpiled, placed in containers) and all soil is returned to the disturbed area. Such work may proceed without restriction.

³ Interview conducted by Bob Devany on December 11, 2019.

⁴ UC Davis EH&S person interviewed: Chris Wright

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback

Inspection Date 11-6-19

DOE Area: Eastern Dog Pens Area

Inspection Period December 10, 2018 – December 9, 2019

<	Photograph Description	Photo No.	Comments
1	View northeast over Eastern Dog Pens Area ground surface and trees/shrubs from southwest corner.	3881	
2	View east over Eastern Dog Pens Area ground surface.	3884	
3	View east at trees/shrubs in Eastern Dog Pens Area.	3885	
4	View southeast over Eastern Dog Pens Area ground surface and trees/shrubs from northwest corner.	3886	
5	View south over Eastern Dog Pens Area ground surface and trees/shrubs.	3889	
6	View southwest over Eastern Dog Pens Area ground surface from northeast corner.	3890	
7	View southwest at trees/shrubs in Eastern Dog Pens Area from northeast corner.	3891	
8	View west over Eastern Dog Pens Area ground surface.	3894	
9	View west at trees/shrubs in Eastern Dog Pens Area.	3895	
10	View ^{north} east at fence line trees/shrubs located between Eastern Dog Pens Area and Cobalt-60 Area.	3896	
11	View ^{north} west at fence line trees/shrubs located between Eastern Dog Pens Area and Cobalt-60 Area.	3897	
12	View northwest into Eastern Dog Pens Area from southeast corner.	3898	
13	View northwest at trees/shrubs in Eastern Dog Pens Area from southeast corner.	3899	
14	View north over Eastern Dog Pens Area ground surface and trees/shrubs from north levee.	3910	

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback

Inspection Date 11-6-19

Survey Monuments

Inspection Period December 10, 2018 – December 9, 2019

Monument No.	Close-up Photo ¹	Setting Photo ²	Damaged or missing? (Y/N) If Y, explain	Comments
1	3792	3793	N	
2	3794	3795	N	
3	3796	3797	N	Needs new cone cone disposed TRM 11-8-19
4	3798	3799	N	
5	3818	3819	N	
6	3807	3808	N	
7	3820	3821	N	
8	3824	3825	N	
9	3822	3823	N	
10	3841 3842	3842 3843	N	
11	3843	3844	N	
12	3845	3846	N	
13	3847	3848	N	
14	3849	3850	N	
15	3851	3852	N	

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback

Inspection Date 11-6-19

Survey Monuments

Inspection Period December 10, 2018 – December 9, 2019

Monument No.	Close-up Photo ¹	Setting Photo ²	Damaged or missing? (Y/N) If Y, explain	Comments
16	3874	3878	N	
17	3875	3879	N	
18	3876	3880	N	
19	3887	3888	N	
20	3892	3893	N	
21	3882	3883	N	
22	3900	3901	N	
23	3873	3877	N	
24	3853	3854	N	

Notes:

¹ Take zoom photograph of monument. Record photograph number.

² Place orange ring marker around monument and step back to take photo of monument location with recognizable site features (ex. buildings, fence, road, etc) in view. Record photograph number.

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback

Inspection Date 11-6-19

DOE Areas Monitoring Wells

Inspection Period December 10, 2018 – December 9, 2019

Well ID and Completion Type	Photographs		Evidence of tampering? (Y/N) If Y, explain	Locks/Bolts Secure? ³ (Y/N) If N, explain	ID Plaques OK? ⁴ (Y/N) If N, explain	Vault and Seal Sound? ⁵ (Y/N) If N, explain	Pump OK? ⁶ (Y/N) If N, explain	Comments
	Wellhead / tag ¹	Vault / tag ²						
UCD1-013 standpipe								
UCD1-018 standpipe								
UCD1-021 flush								
UCD1-023 flush	3912 3913	3914 3915	N	Y	Y	Y	Y	
UCD1-054 flush								
UCD1-063 standpipe								
UCD1-068 flush	3925 3926	3927 3929	N	Y	Y	Y	Y	Barely made 300 ml/min
UCD1-069 flush	3921 3922	3923 3924	N	Y	Y	Y	Y	Water in vault

TRU
11-8-19

TRU
11-8-19

TRU
11-8-19

TRU
11-8-19

TRU
11-8-19

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim U+terback

Inspection Date 11-6-19

DOE Areas Monitoring Wells

Inspection Period December 10, 2018 – December 9, 2019

Well ID and Completion Type	Photographs		Evidence of tampering? (Y/N) If Y, explain	Locks/Bolts Secure? ³ (Y/N) If N, explain	ID Plaques OK? ⁴ (Y/N) If N, explain	Vault and Seal Sound? ⁵ (Y/N) If N, explain	Pump OK? ⁶ (Y/N) If N, explain	Comments
	Wellhead / tag ¹	Vault / tag ²						
UCD1-070 standpipe	3917 3918	3919 3920	N	Y	Y	Y	Y	
UCD1-071 flush								TRY 11-8-19
UCD1-072 flush								TRY 11-8-19
UCD1-073 standpipe								TRY 11-8-19

Notes:

¹ Take photograph inclusive of wellhead features including concrete pad. Take zoom photograph of wellhead identification plaque (tag). Record photograph numbers.

² Open well vault and take photograph inclusive of vault inner features. Take zoom photograph of identification plaque (tag) stored in vault. Record photograph numbers.

³ Verify that standpipe well locks are present, in good condition, and secured with the lock at the time of inspection. Verify that flush mount well bolts are present, in good condition, and properly secured at the time of inspection. Document any issues.

⁴ Verify that well identification plaques fixed to the outside of the well and stored inside the well are legible and in good condition. Document any issues.

⁵ Verify that concrete pads are structurally sound. Document any issues.

⁶ Connect pump to controller and discharge approximately 300 milliliters of water to bucket. Document any issues.

LAND USE CONTROL INSPECTION CHECKLIST

Inspector Tim Utterback Inspection Date 11-7-19

DOE Areas Monitoring Wells

Inspection Period December 10, 2018 – December 9, 2019

Well ID and Completion Type	Photographs		Evidence of tampering? (Y/N) If Y, explain	Locks/Bolts Secure? ³ (Y/N) If N, explain	ID Plaques OK? ⁴ (Y/N) If N, explain	Vault and Seal Sound? ⁵ (Y/N) If N, explain	Pump OK? ⁶ (Y/N) If N, explain	Comments
	Wellhead / tag ¹	Vault / tag ²						
UCD1-013 standpipe	3952 3953	3954 3955	N	Y	Y	Y	Y	
UCD1-018 standpipe	3960 3961	3962 3963	N	Y	Y	Y	Y	
UCD1-021 flush	3936 3938	3939 3940	N	Y	Y	Y	Y	
UCD1-023 flush								
UCD1-054 flush	3941 3943	3944 3946	N	Y	Y	Y	Y	Vault lid plaque worn but legible
UCD1-063 standpipe	3957 3958	3959 —	N	Y	N	Y	Y	Inner plaque TRU missing not retrieved
UCD1-068 flush								
UCD1-069 flush								

TRU
11-8-19

TRU
11-8-19

TRU
11-8-19

LAND USE CONTROL INSPECTION CHECKLIST

Inspector

Tim Utterback

Inspection Date

11-7-19

DOE Areas Monitoring Wells

Inspection Period December 10, 2018 – December 9, 2019

Well ID and Completion Type	Photographs		Evidence of tampering? (Y/N) If Y, explain	Locks/Bolts Secure? ³ (Y/N) If N, explain	ID Plaques OK? ⁴ (Y/N) If N, explain	Vault and Seal Sound? ⁵ (Y/N) If N, explain	Pump OK? ⁶ (Y/N) If N, explain	Comments
	Wellhead / tag ¹	Vault / tag ²						
UCD1-070 standpipe								
UCD1-071 flush	3947 3948	3949 3951	N	Y	Y	Y	Y	No port plugs
UCD1-072 flush	3932 3933	3934 3935	N	Y	Y	Y	Y	
UCD1-073 standpipe	3964 3965	3966 3968	N	Y	Y	Y	N	Only 175ml/min flow

TRU
11-8-19

Notes:

¹ Take photograph inclusive of wellhead features including concrete pad. Take zoom photograph of wellhead identification plaque (tag). Record photograph numbers.

² Open well vault and take photograph inclusive of vault inner features. Take zoom photograph of identification plaque (tag) stored in vault. Record photograph numbers.

³ Verify that standpipe well locks are present, in good condition, and secured with the lock at the time of inspection. Verify that flush mount well bolts are present, in good condition, and properly secured at the time of inspection. Document any issues.

⁴ Verify that well identification plaques fixed to the outside of the well and stored inside the well are legible and in good condition. Document any issues.

⁵ Verify that concrete pads are structurally sound. Document any issues.

⁶ Connect pump to controller and discharge approximately 300 milliliters of water to bucket. Document any issues.

Appendix B

Photographs of Survey Monuments at Permanent Reference Points for Areas Subject to Land-Use Restrictions

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Survey Monument 1: Northwest corner of Dry Wells A–E Area
(Photo No. 3792).



View northwest: Survey Monument 1, within orange ring (outside diameter is 14 inches); entrance sign in background (Photo No. 3793).



Survey Monument 2: Northeast corner of Dry Wells A–E Area
(Photo No. 3794).



View west: Survey Monument 2, within orange ring; retracted entrance gate in background (Photo No. 3795).



Survey Monument 3: Southwest corner of Dry Wells A–E Area
(Photo No. 3796).



Survey Monument 4: Southeast corner of Dry Wells A–E Area
(Photo No. 3798).



View northwest: Survey Monument 3, within orange ring; west
perimeter fence behind survey monument; orange delineator right of
survey monument (Photo No. 3797).



View east: Survey Monument 4, within orange ring; Building H-219
in background (Photo No. 3799).



Survey Monument 5: Northwest corner of Domestic Septic System 4 Area (Photo No. 3818).



View east: Survey Monument 5, within orange ring; Building H-215 in background (Photo No. 3819).



Survey Monument 6: Adjacent to northwest corner of Building H-218; Radium/Strontium Treatment Systems Area (Photo No. 3807).



View east: Survey Monument 6, within orange ring; corner of Building H-218 in background (Photo No. 3808).



Survey Monument 7: Southwest corner of Domestic Septic System 4 Area (Photo No. 3820).



View east: Survey Monument 7, within orange ring; Building H-215 in background (Photo No. 3821).



Survey Monument 8: Southwest corner of radium-226 leach trench; Radium/Strontium Treatment Systems Area (Photo No. 3824).



View southwest: Survey Monument 8, within orange ring; west perimeter fence right of survey monument; orange delineator left of survey monument (Photo No. 3825).



Survey Monument 9: Southeast corner of radium-226 leach trench; Radium/Strontium Treatment Systems Area (Photo No. 3822).



View east: Survey Monument 9, within orange ring; planter and foot of Building H-215 in background (Photo No. 3823).



Survey Monument 10: Northeast corner of former leach field in Domestic Septic System 3 Area (Photo No. 3841).



View east: Survey Monument 10, within orange ring in foreground; delineator behind survey monument; well UCD1-069 in background (Photo No. 3842).



Survey Monument 11: Northeast corner of Eastern Remediation Support Area (Photo No. 3843).



View west: Survey Monument 11, within orange ring; delineator right of survey monument; Building H-216 in background (Photo No. 3844).



Survey Monument 12: Northwest corner of Southwest Trenches Area (Photo No. 3845).



View south: Survey Monument 12, within orange ring in foreground; water hydrant in background (Photo No. 3846).



Survey Monument 13: Southwest corner of Domestic Septic System 3 Area, at northern perimeter of Southwest Trenches Area (Photo No. 3847).



View south: Survey Monument 13, within orange ring at edge of concrete swale (Photo No. 3848).



Survey Monument 14: Southeast corner of Domestic Septic System 3 Area (Photo No. 3849).



View north: Survey Monument 14, within orange ring; delineator right of survey monument (Photo No. 3850).



Survey Monument 15: Eastern corner of Southwest Trenches Area
(Photo No. 3851).



Survey Monument 16: Southwest corner of Southwest Trenches Area
(Photo No. 3874).



View northwest: Survey Monument 15, within orange ring; delineator
right of survey monument, trailer storage unit in background
(Photo No. 3852).



View southwest: Survey Monument 16, within orange ring; delineator
left of survey monument; southwest corner post of perimeter fence
behind survey monument (Photo No. 3878).



Survey Monument 17: Southeast corner of Southwest Trenches Area (Photo No. 3875).



View southwest: Survey Monument 17, within orange ring; delineator right of survey monument; south perimeter fence behind survey monument; foot of North Levee in background (Photo No. 3879).



Survey Monument 18: Southeast corner of Eastern Remediation Support Area (Photo No. 3876).



View southeast: Survey Monument 18, within orange ring; delineator left of survey monument; south perimeter fence behind survey monument; foot of North Levee in background (Photo No. 3880).



Survey Monument 19: Northwest corner of Eastern Dog Pens Area
(Photo No. 3887).



Survey Monument 20: Northeast corner of Eastern Dog Pens Area
(Photo No. 3892).



View southeast: Survey Monument 19, within orange ring;
delineator right of survey monument; Eastern Dog Pens Area
in background (Photo No. 3888).



View southwest: Survey Monument 20, within orange ring;
delineator right of survey monument; Eastern Dog Pens Area in background
(Photo No. 3893).



Survey Monument 21: Southwest corner of Eastern Dog Pens Area
(Photo No. 3882).



View northeast: Survey Monument 21, within orange ring; delineator
right of survey monument; Eastern Dog Pens Area in background
(Photo No. 3883).



Survey Monument 22: Southeast corner of Eastern Dog Pens Area
(Photo No. 3900).



View northwest: Survey Monument 22, within orange ring; delineator
right of survey monument; Eastern Dog Pens Area in background
(Photo No. 3901).



Survey Monument 23: Western perimeter point of Southwest Trenches Area (Photo No. 3873).



View northwest: Survey Monument 23, within orange ring; delineator right of survey monument; west perimeter fence behind and left of survey monument (Photo No. 3877).



Survey Monument 24: Northeast corner of Southwest Trenches Area, at southern perimeter of Domestic Septic System 3 Area (Photo No. 3853).



View south: Survey Monument 24, within orange ring on edge of concrete swale; trailer storage unit behind survey monument (Photo No. 3854).

Appendix C

Photographs of DOE Areas Subject to Land-Use Restrictions

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*View southeast of Southwest Trenches Area:
North Levee of the South Fork of Putah Creek in
background (Photo No. 3855).*



*View south of Southwest Trenches Area: North Levee of the
South Fork of Putah Creek in background (Photo No. 3856).*



*View southeast of Southwest Trenches Area
(Photo No. 3857).*



*View west of Southwest Trenches Area: Shoulder of
Old Davis Road in background (Photo No. 3861).*



*View northwest of Southwest Trenches Area
(Photo No. 3862).*



*View north of Southwest Trenches Area
(Photo No. 3863).*



*View north from center of Southwest Trenches Area
(Photo No. 3864).*



*View west from center of Southwest Trenches Area
(Photo No. 3865).*



*View south from center of Southwest Trenches Area
(Photo No. 3866).*



*View east from center of Southwest Trenches Area
(Photo No. 3867).*



*View east over former leach field part of Domestic Septic System 3 Area:
Building H-216 to left; Western Dog Pens Area in background
(Photo No. 3831).*



*View east of eastern half of Domestic Septic System 3 Area
(Photo No. 3832).*



*View west of former leach field part of Domestic Septic System 3:
Buildings H-215 and H-216 to right; Old Davis Road obscured by
trees in background (Photo No. 3833).*



*View south of septic tank part of Domestic Septic System 3 Area:
Building H-216 to left; Building H-215 to right (Photo No. 3834).*



View north of portions of Domestic Septic System 3 and 4 Areas: Building H-215 to left; Building H-216 to right; Domestic Septic System 4 Area in background (Photo No. 3837).



View south of east end of Domestic Septic System 3 Area leach field: Former washdown pad in background (Photo No. 3838).



View east of Domestic Septic System 3 Area: Building H-216 in background, standing north/left of tree (Photo No. 3839).



View east of Domestic Septic System 3 Area: Building H-216 in background, standing south/right of tree (Photo No. 3840).



View north of Domestic Septic System 4 Area septic tank location and east end of leach field: Building H-215 to left; Building H-216 to right; Building H-217 in background (Photo No. 3827).



View west of east end of Domestic Septic System 4 Area leach field; Building H-215 in background (Photo No. 3828).



View east of Domestic Septic System 4 Area septic tank location: Building H-216 in background (Photo No. 3829).



View east of western portion of Domestic Septic System 4 Area: Building H-215 in background (Photo No. 3830).



View north of southern portion of Radium/Strontium Treatment Systems Area: Building H-215 to right; Buildings H-218 and H-219 in background (Photo No. 3809).



View north of middle portion of Radium/Strontium Treatment Systems Area: Building H-219 in background (Photo No. 3800).



View south of southern portion of Radium/Strontium Treatment Systems Area: Building H-215 to left (Photo No. 3802).



View north of northern portion of Radium/Strontium Treatment Systems Area: Building H-219 to right (Photo No. 3803).



View south of middle-south portion of Radium/Strontium Treatment Systems Area: Building H-218 to left; west perimeter gate and fence to right (Photo No. 3804).



View east of central portion of Radium/Strontium Treatment Systems Area: Building H-218 to right; Building H-219 to left (Photo No. 3805).



View west of Domestic Septic System 2 Area within middle-west portion of Radium/Strontium Treatment Systems Area (Photo No. 3806).



Roof-level view west of central portion of Radium/Strontium Treatment Systems Area: Building H-219 to right; Building H-218 to left (Photo No. 3815).



Roof-level view southwest of central portion of Radium/Strontium Treatment Systems Area: Building H-218 in background (Photo No. 3816).



Roof-level view northwest of central portion of Radium/Strontium Treatment Systems Area: Building H-219 in background (Photo No. 3817).



View south over northern portion of Radium/Strontium Treatment Systems Area: Building H-219 to left; west perimeter fence and Old Davis Road to right (photo No. 3826).



*View north of Dry Wells A-E Area: Old Davis Road to left
(Photo No. 3791).*



*View south of Dry Wells A-E Area: Building H-219 in
background/left (Photo No. 3788).*



*View west of Dry Wells A-E Area and main gate; Old Davis Road
in background (Photo No. 3789).*



*View southwest of Dry Wells A-E Area
(Photo No. 3790).*



View northeast of Eastern Dog Pens Area from southwest corner showing southwest corner monument location (Photo No. 3881).



View east of Eastern Dog Pens Area; beehives in background (Photo No. 3884).



View southeast of Eastern Dog Pens Area from northwest corner showing northwest corner monument location; downed tree on right side was originally located outside the Eastern Dog Pens Area (Photo No. 3886).



View south of Eastern Dog Pens Area; beehives in background (Photo No. 3889).



View southwest of Eastern Dog Pens Area from northeast corner showing location of northeast corner monument (Photo No. 3890).



View west of Eastern Dog Pens Area; beehives in background (Photo No. 3894).



View northwest into Eastern Dog Pens Area from southeast corner showing location of southeast corner monument (Photo No. 3898).



View north over Eastern Dog Pens Area from North Levee of the South Fork of Putah Creek; beehives in middle ground (Photo No. 3910).

Appendix D

Photographs of Groundwater Monitoring Wells

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UCD1-013 Wellhead (Photo No. 3952).



UCD1-013 Wellhead plaque (Photo No. 3953).



UCD1-013 Interior (Photo No. 3954).



UCD1-013 Interior plaque (Photo No. 3955).



UCD1-018 Wellhead (Photo No. 3960).



UCD1-018 Wellhead plaque (Photo No. 3961).



UCD1-018 Interior (Photo No. 3962).



UCD1-018 Interior plaque (Photo No. 3963).



UCD1-021 Wellhead (Photo No. 3936).



UCD1-021 Wellhead plaque (Photo No. 3938).



UCD1-021 Interior (Photo No. 3939).



UCD1-021 Interior plaque (Photo No. 3940).



UCD1-023 Wellhead (Photo No. 3912).



UCD1-023 Wellhead plaque (Photo No. 3913).



UCD1-023 Interior (Photo No. 3914).



UCD1-023 Interior plaque (Photo No. 3915).



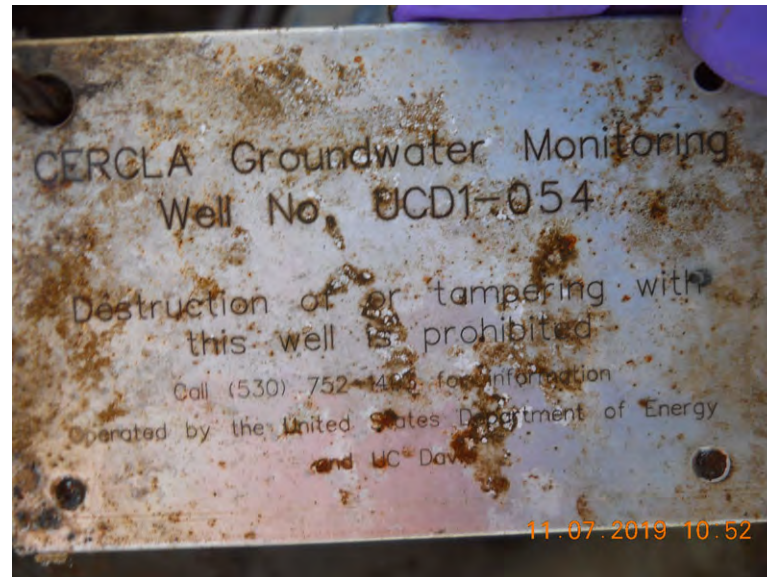
UCD1-054 Wellhead (Photo No. 3941).



UCD1-054 Wellhead plaque (Photo No. 3943).



UCD1-054 Interior (Photo No. 3944).



UCD1-054 Interior plaque (Photo No. 3946).



UCD1-063 Wellhead (Photo No. 3957).



UCD1-063 Wellhead plaque (Photo No. 3958).



UCD1-063 Interior (Photo No. 3959).

*UCD1-063 Interior plaque missing;
no photo.*



UCD1-068 Wellhead (Photo No. 3925).



UCD1-068 Wellhead plaque (Photo No. 3926).



UCD1-068 Interior (Photo No. 3927).



UCD1-068 Interior plaque (Photo No. 3929).



UCD1-069 Wellhead (Photo No. 3921).



UCD1-069 Wellhead plaque (Photo No. 3922).



UCD1-069 Interior (Photo No. 3923).



UCD1-069 Interior plaque (Photo No. 3924).



UCD1-070 Wellhead (Photo No. 3917).



UCD1-070 Wellhead plaque (Photo No. 3918).



UCD1-070 Interior (Photo No. 3919).



UCD1-070 Interior plaque (Photo No. 3920).



UCD1-071 Wellhead (Photo No. 3947).



UCD1-071 Wellhead plaque (Photo No. 3948).



UCD1-071 Interior (Photo No. 3949).



UCD1-071 Interior plaque (Photo No. 3951).



UCD1-072 Wellhead (Photo No. 3932).



UCD1-072 Wellhead plaque (Photo No. 3933).



UCD1-072 Interior (Photo No. 3934).



UCD1-072 Interior plaque (Photo No. 3935).



UCD1-073 Wellhead (Photo No. 3964).



UCD1-073 Wellhead plaque (Photo No. 3965).



UCD1-073 Interior (Photo No. 3966).



UCD1-073 Interior plaque (Photo No. 3968).

Appendix E

Vegetation Inspection Documentation

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Appendix E1

Table Showing DOE Areas Trees and Shrubs December 2019

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Table E1. Catalogue of Trees located In or Near DOE Areas of Laboratory for Energy-Related Health Research/Old Campus Landfill Superfund Site

Tag #	Tree ID	Assessment Date	Genus	Species	Common Name	DBH (cm)	Height (m)	# of Stems	Condition (Notes)
NA	16192	11/4/2016	Juglans	hindsii	California Black Walnut	67	5-10	1	Poor (dead tree). Removed in 2017
NA	16193	11/4/2016	Juglans	hindsii	California Black Walnut	64	5-10	1	Poor (tree canopy is 95% dead with severe mistletoe). Removed in 2017
NA	16194	11/4/2016	Juglans	ninosii	California Black Walnut	57	5-10	1	Poor (dead tree). Removed in 2017
NA	16195	11/4/2016	Morus	alba	White Mulberry	126	16-20	1	Fair (vigorous growth; history of branch failure; moderate branch decay; excessive canopy weight). Not adjacent to DOE Area
096	16196	11/4/2016	Olea	europaea	Olive	13	5-10	2	Good (minor dead branches; structurally sound, but needs corrective pruning to improve branching structure)
097	16197	11/4/2016	Olea	europaea	Olive	13	5-10	2	Good (structurally sound, but needs corrective pruning to improve branching structure)
098	16198	11/4/2016	Celtis	sinensis	Chinese Hackberry	22	11-15	1	Good (vigorous growth; structurally sound; infested with Hackberry Woolly Aphid)
099	16199	11/4/2016	Olea	europaea	Olive	9	<5	4	Good (structurally sound, but needs corrective pruning to improve branching structure)
100	16200	11/4/2016	Celtis	sinensis	Chinese Hackberry	30	11-15	1	Good (vigorous growth; 5-degree lean towards street; infested with Hackberry Woolly Aphid)
001	16201	11/4/2016	Celtis	sinensis	Chinese Hackberry	24	11-15	2	Fair (vigorous growth; multi-trunked with included bark; minor dead branches; infested with Hackberry Woolly Aphid)
002	16202	11/4/2016	Nerium	oleander	Oleander	4	<5	11	Good (vigorous growth)
003	16203	11/4/2016	Nerium	oleander	Oleander	2	<5	11	Good (vigorous growth)
004	16204	11/4/2016	Pinus	halepensis	Aleppo Pine	70	16-20	1	Fair (vigorous growth; 15-degree lean towards building; history of large branch failure)
005	16205	11/4/2016	Pinus	halepensis	Aleppo Pine	79	16-20	1	Fair (vigorous growth; 15-degree lean towards street; excessive canopy weight)
006	16206	11/4/2016	Pinus	halepensis	Aleppo Pine	48	11-15	1	Fair (vigorous growth; 30-degree lean towards street; minor decay at root crown)
007	16207	11/4/2016	Pinus	halepensis	Aleppo Pine	66	16-20	1	Fair (vigorous growth; 10-degree lean southward; excessive canopy weight)
008	16208	11/4/2016	Pinus	halepensis	Aleppo Pine	68	16-20	1	Fair (vigorous growth; 10-degree lean towards street; excessive canopy weight; conflict with fence and light post)
009	16209	11/4/2016	Nerium	oleander	Oleander	2	<5	11	Good (vigorous growth)
010	16210	11/4/2016	Pinus	halepensis	Aleppo Pine	7	<5	1	Good (vigorous growth)
011	16211	11/4/2016	Morus	alba	White Mulberry	107	16-20	1	Fair (vigorous growth; risk of branch failure due to excessive canopy weight)
012	16212	11/4/2016	Nerium	oleander	Oleander	2	<5	11	Good (vigorous growth)
013	16213	11/4/2016	Prunus	dulcis	Almond	30	5-10	1	Fair (minor dead branches; poor branching structure)
014	16214	11/4/2016	Sambucus	nigra	Elderberry	20	<5	11	Poor (tree 75% dead; severe trunk decay; major dead branches)
015	16215	11/4/2016	Sambucus	nigra	Elderberry	22	<5	11	Poor (tree 60% dead; major branch failure)
016	16216	11/5/2016	Pinus	halepensis	Aleppo Pine	55	5-10	1	Fair (vigorous growth; 45-degree lean east; excessive canopy weight)
017	16217	11/5/2016	Pinus	halepensis	Aleppo Pine	96	16-20	1	Good (vigorous growth; excessive canopy weight)
018	16218	11/5/2016	Pinus	halepensis	Aleppo Pine	92	16-20	1	Good (vigorous growth)
019	16219	11/5/2016	Pinus	halepensis	Aleppo Pine	68	16-20	1	Good (vigorous growth)
020	16220	11/5/2016	Pinus	halepensis	Aleppo Pine	61	16-20	1	Fair (vigorous growth; 10-degree lean; history of branch failure; excessive canopy weight)
021	16221	11/5/2016	Pinus	halepensis	Aleppo Pine	89	16-20	1	Fair (vigorous growth; co-dominant trunks with included bark; excessive branch weight)
NA	16222	11/5/2016	Sambucus	nigra	Elderberry	3	<5	11	Poor (dead tree). Tree dead and fallen as of November 2019
023	16223	11/5/2016	Fraxinus	sp.	Ash species	7	<5	3	Good (vigorous growth)
024	16224	11/5/2016	Pinus	halepensis	Aleppo Pine	60	11-15	1	Good (vigorous growth; co-dominant leaders; excessive branch weight)
025	16225	11/5/2016	Pinus	halepensis	Aleppo Pine	47	11-15	2	Fair (vigorous growth; 5-degree lean; excessive branch weight; 2 trunks girdling each other; fluxing on trunk)
026	16226	11/5/2016	Pinus	canariensis	Canary Island Pine	28	11-15	1	Good (vigorous growth; co-dominant leaders)
027	16227	11/5/2016	Pinus	halepensis	Aleppo Pine	21	5-10	1	Fair (vigorous growth; poor branching structure; excessive branch weight)
028	16228	11/4/2016	Prunus	dulcis	Almond	25	<5	11	Poor (tree has toppled due to severe trunk rot; mix of dead branches and new growth)
029	16229	11/5/2016	Pinus	halepensis	Aleppo Pine	28	<5	1	Fair (vigorous growth; 30-degree; excessive branch weight; fluxing from trunk)

Table E1 (continued). Catalogue of Trees located In or Near DOE Areas of Laboratory for Energy-Related Health Research/Old Campus Landfill Superfund Site

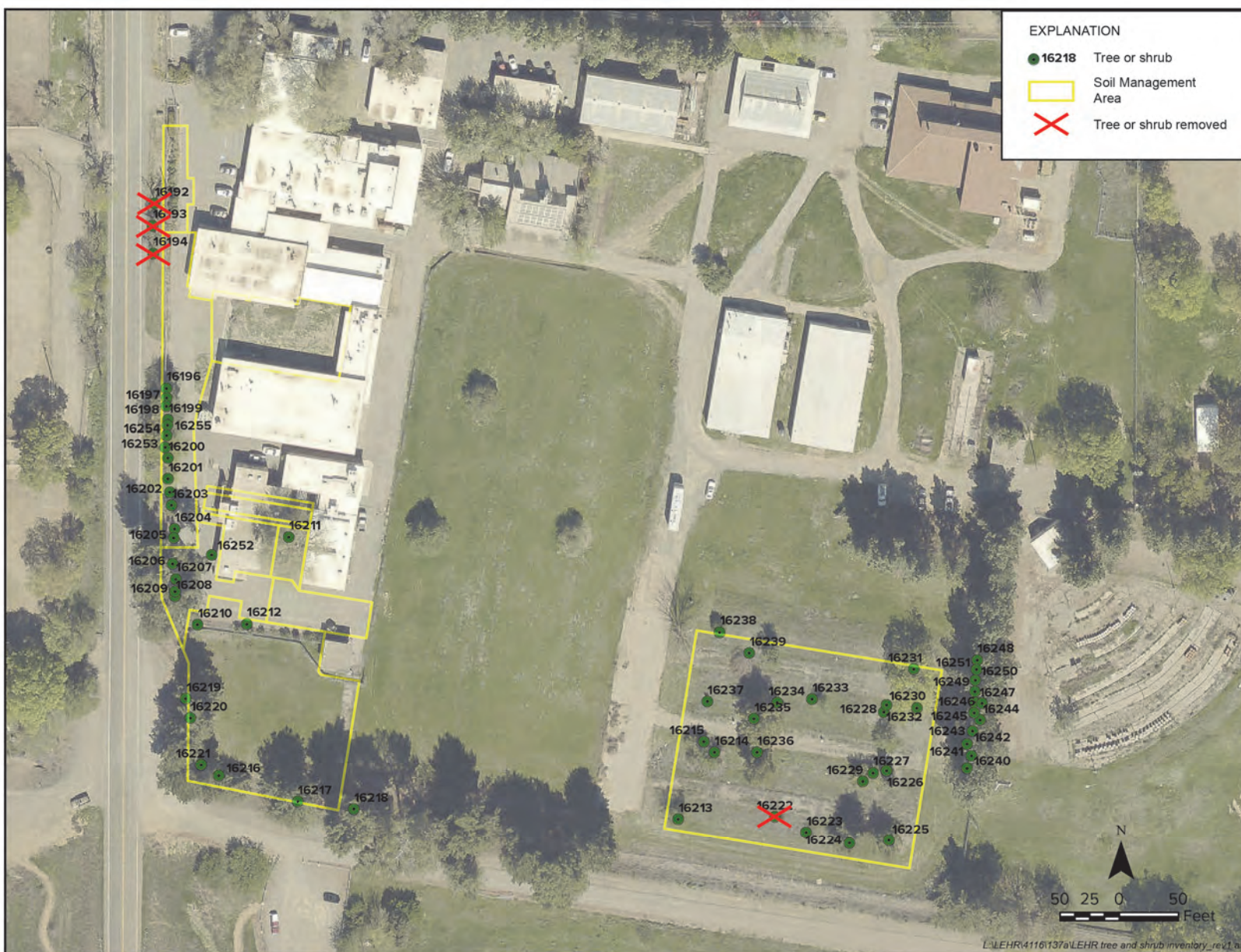
Tag #	Tree ID	Assessment Date	Genus	Species	Common Name	DBH (cm)	Height (m)	# of Stems	Condition (Notes)
030	16230	11/5/2016	Pinus	canariensis	Canary Island Pine	20	5-10	1	Good (vigorous growth)
031	16231	11/5/2016	Celtis	sinensis	Chinese Hackberry	44	5-10	2	Fair (vigorous growth; co-dominant trunks with included bark; minor dead branches)
032	16232	11/4/2016	Prunus	dulcis	Almond	9	<5	2	Fair (co-dominant trunks with included bark)
033	16233	11/5/2016	Sambucus	nigra	Elderberry	10	<5	11	Poor (severe trunk decay; major dead branches)
034	16234	11/5/2016	Pinus	halepensis	Aleppo Pine	2	<5	1	Good (vigorous growth; co-dominant leaders)
035	16235	11/5/2016	Pinus	halepensis	Aleppo Pine	53	11-15	1	Good (vigorous growth; 5-degree lean)
036	16236	11/5/2016	Pinus	halepensis	Aleppo Pine	52	11-15	1	Fair (vigorous growth; co-dominant trunks)
037	16237	11/5/2016	Sambucus	nigra	Elderberry	4	<5	5	Good (growing vigorously; minor dead branches)
038	16238	11/5/2016	Sambucus	nigra	Elderberry	10	<5	11	Fair (vigorous growth; 15-degree lean; minor dead branches)
039	16239	11/5/2016	Sambucus	nigra	Elderberry	20	<5	11	Fair (severe trunk decay; major dead branches; new growth at branch tips)
040	16240	11/5/2016	Pinus	canariensis	Canary Island Pine	51	16-20	1	Good (vigorous growth; 5-degree lean)
041	16241	11/5/2016	Pinus	canariensis	Canary Island Pine	64	16-20	1	Fair (vigorous growth; co-dominant trunks with included bark)
042	16242	11/5/2016	Pinus	canariensis	Canary Island Pine	14	5-10	1	Good (vigorous growth)
043	16243	11/5/2016	Pinus	canariensis	Canary Island Pine	51	16-20	1	Good (vigorous growth; excessive branch weight)
044	16244	11/5/2016	Pinus	canariensis	Canary Island Pine	57	16-20	1	Good (vigorous growth; excessive branch weight)
045	16245	11/5/2016	Prunus	dulcis	Almond	10	<5	2	Fair (co-dominant trunks; 10-degree lean; minor dead branches)
046	16246	11/5/2016	Pinus	canariensis	Canary Island Pine	19	5-10	1	Good (vigorous growth; scaffold branch with included bark)
047	16247	11/5/2016	Pinus	canariensis	Canary Island Pine	35	11-15	1	Good (vigorous growth)
048	16248	11/5/2016	Pinus	canariensis	Canary Island Pine	46	16-20	1	Good (vigorous growth; co-dominant leaders)
049	16249	11/5/2016	Pinus	canariensis	Canary Island Pine	18	<5	1	Fair (vigorous growth; leader has 90-degree bend)
050	16250	11/5/2016	Pinus	canariensis	Canary Island Pine	42	11-15	1	Good (vigorous growth)
051	16251	11/5/2016	Pinus	canariensis	Canary Island Pine	53	16-20	1	Good (vigorous growth; 5-degree lean)
052	16252	11/5/2016	Nerium	oleander	Oleander	2	<5	11	Good (vigorous growth)
053	16253	11/4/2016	Celtis	sinensis	Chinese Hackberry	12	5-10	1	Fair (co-dominant trunks with included bark; minor dead branches; infested with Hackberry Woolly Aphid)
054	16254	11/4/2016	Celtis	sinensis	Chinese Hackberry	45	11-15	1	Good (vigorous growth; minor dead branches; infested with Hackberry Woolly Aphid)
055	16255	11/4/2016	Nerium	oleander	Oleander	3	<5	11	Good (vigorous growth)

Abbreviations:
number
ID identification
DBH diameter of the trunk at breast height
cm centimeters
m meters

Appendix E2

**Map Showing DOE Areas Trees and Shrubs
December 2019**

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Trees and shrubs with canopies within DOE Areas (modified from version provided by UC Davis Facilities Management to focus on DOE Areas and to indicate trees removed in 2017)

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Appendix E3

Historical and November 2019 Inspection Photographs of Specimen 16222

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2018 inspection; view north; Eastern Dog Pens Area from
North Levee; Specimen 16222 right of center; dying or dead (Photo No. 3691).



2019 inspection; view north; Eastern Dog Pens Area from North Levee; Specimen 16222 not visible (Photo No. 3910).



View west; Specimen 16222 remains at bottom of photo; asphalt pile at top of photo (Photo No. 4018).

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