LMS/LEH/S32843

2020 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 2021

U.S. DEPARTMENT OF ENERGY | Legacy Management

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Report Distribution

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Appendixes

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
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 the November 4 and 5, 2020, inspection of land-use controls 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). This inspection and report fulfill the requirements of the Covenant to Restrict Use of Property, Environmental Restrictions (Covenant) recorded by Solano County on July 11, 2014 (DTSC 2014).

The requirements for land-use controls at the DOE Areas at the site are documented in the Record of Decision (DOE 2009) (ROD) and in the Covenant. The implementation procedures for land-use controls are documented in the Remedial Design/Remedial Action Work Plan (DOE 2010) (RD/RA Work Plan) and the Soil Management Plan (DOE 2019) (SMP).

The DOE Areas subject to land-use controls (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 Covenant 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 controls.
- Access must be granted to DOE for the purpose of implementing operation and maintenance activities.
- An inspection verifying compliance with the Covenant needs to be conducted annually, with a report of the inspection provided to DTSC and EPA by January 15.

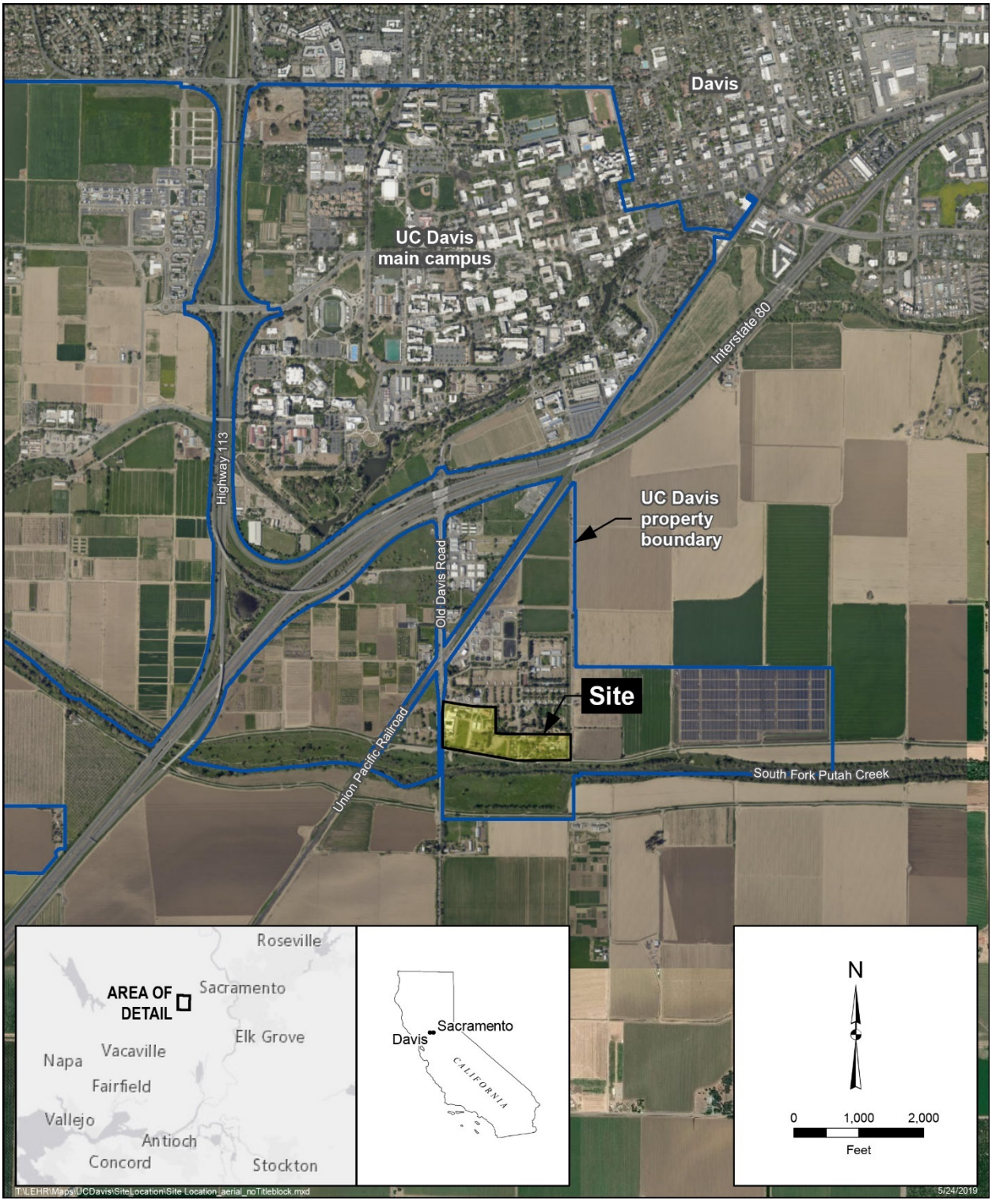

Figure 1. Location of the LEHR Superfund Site, UC Davis, Solano County, California

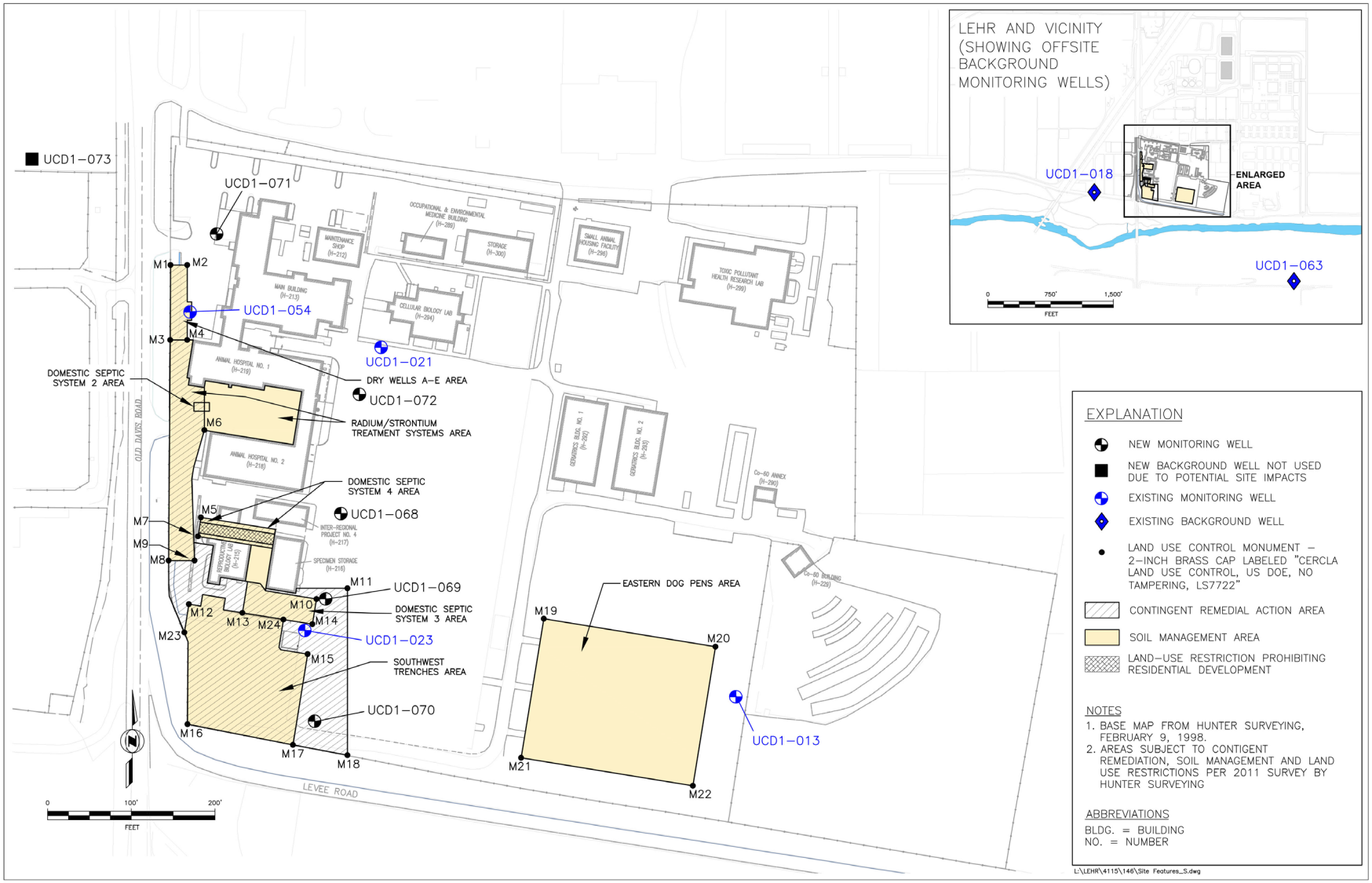

Figure 2. DOE Areas of the LEHR Federal Facility Subject to Land-Use Controls and Locations of DOE Groundwater Monitoring Wells and Survey Monuments

1.1 Inspection and Reporting Requirements

This section contains the inspection and reporting requirements specified in Covenant 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 Covenant 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 Covenant.
- 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 Reporting Period

This report covers the period from December 10, 2019, to December 9, 2020.

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.

On December 18, 2019, DOE collected samples of the small elderberry shrub (specimen 16222) that was found dead and fallen in the EDPs Area in 2019 and submitted the samples for laboratory analysis according to SMP requirements. On February 27, 2020, at a routine Project Team Meeting, DOE presented a summary of the sample results and the attending agencies agreed to return the specimen 16222 branches to the EDPs as documented in Project Team Meeting Minutes (Weiss 2020). On March 25, 2020, DOE returned the specimen 16222 branches to the EDPs. The baseline vegetation inventory table and map from the SMP (DOE 2019) were updated to indicate specimen 16222 is no longer present (see Appendix E).

On July 16 and December 1, 2020, DOE performed maintenance on monitoring wells UCD1-063, -069, and -071 and repaired/replaced tree tags at two locations as documented in Table F-1 in Appendix F.

2.0 Inspections

Tim Utterback, a California Professional Engineer, of Weiss Associates (Weiss) performed walkthrough inspections of the DOE Areas on November 4, 2020, between 9:00 a.m. and 5:00 p.m. and November 5, 2020, between 9:00 a.m. and 4:00 p.m., as discussed below. 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 4, 2020, 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 4, 2020, 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 and Tree/Shrub Removal

No evidence of soil-disturbing activities was observed in the DOE Areas during the site inspection on November 4 and 5, 2020. Walkthrough observations of the DOE Areas indicated no topographic changes such as excavations, areas of subsidence, soil piles, or deep vehicle tire ruts. No equipment or materials that could cause soil disturbance or obscure the ability to identify soil disturbance was identified. As reported by Chris Wright of the Environmental Health and Safety (EH&S) Unit at UC Davis, no permit-required soil-disturbing or tree/shrub removal activities were performed during the reporting period (see Section 3.2). No soil was disposed of offsite.

On November 5, 2020, Mr. Utterback performed a walkthrough inspection of trees and shrubs identified in the modified baseline vegetation inventory table and map from the SMP (DOE 2019) included in Appendix E. Brass tags with embossed numbers are attached to each listed tree or shrub at a height of approximately 5 feet to facilitate inspections.

All trees and shrubs in the inventory table were located and found to be undisturbed since the 2019 inspection. The basis for this determination was that the trees and shrubs were still standing and there was no evidence of saw cuts or torn branches or other serious physical trauma to the trees and shrubs except as noted in the third bullet below. Issues identified during the vegetation inspection were:

- Trunk tissue was covering part of the tag attached to tree 16234.
- The tag previously attached to tree 16242 was absent.

- Tree 16236 was alive at the time of the inspection, but one of its larger limbs is dead and appears partially fallen to the ground, but remains attached to the tree. Review of photographs taken in 2019 and 2020 indicates the condition of the dead limb has not changed since 2019. No action is recommended with respect to the dead limb because it does not pose an immediate safety hazard and the tree will be removed during the UC Davis landfill capping project.

Photographs of trees 16234 and 16236 are provided in Appendix E. Tag issues for trees 16234 and 16242 are addressed in Appendix F.

Tree/shrub management activities were conducted during the reporting period for the remaining branches from the small elderberry shrub (Survey ID 16222) that was found dead and fallen in the EDPs Area during the 2019 inspection, as discussed in Section 1.3.

2.4 Inspections of Groundwater Monitoring Wells

On November 4–5, 2020, Mr. Utterback inspected monitoring wells UCD1-013, UCD1-018, UCD1-021, UCD1-023, UCD1-054, UCD1-063, and UCD1-068 through UCD1-073 (Figure 2). Monitoring wells with standpipe completions (UCD1-013, UCD1-018, UCD1-063, UCD1-070, and UCD1-073) were observed to be in good condition and secured with functioning padlocks, and there was no evidence of tampering such as pry marks or indentations on the standpipes or locks. The concrete pads at the foot of the standpipe wells were observed to be undamaged and in sturdy condition. Monitoring wells UCD1-021, UCD1-023, UCD1-054, UCD1-069, UCD1-071, and UCD1-072 have surface completions, with lids secured by bolts or a screw-on lid (UCD1-023). The vaults, lids, and bolts on the surface completion wells were observed to be in good condition with no evidence of tampering such as pry marks or indentations, except the threads are worn off (stripped) on bolts used to secure the lid to well UCD1-054 (see Appendix F). All components inside the wells, including well casings, pump ports, suspension hardware, port plugs, and caps, were found in good condition, except the cap used to cover the pump ports on well UCD1-063 had fallen into the annular space between the well and the standpipe and was too deep to retrieve (see Appendix F). Identification plates were present and in acceptable condition on all wells. Appendix D includes photographs of the groundwater monitoring wells and well boxes.

On November 4–5, 2020, the pumps in 11 of 12 wells were tested by Mr. Utterback to determine if they were functioning properly for groundwater sample collection. The pump in well UCD1-073 was not tested because no groundwater monitoring program samples are planned at this well during the forthcoming year and testing equipment access at this well is problematic (access on foot through active horse stalls). If well UCD1-073 sample collection plans change in 2021, the pump will be tested before use. 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). Pumps in wells UCD1-013 and UCD1-069 pumped at the low end of the target flow range but were deemed acceptable.

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

3.2 Soil-Disturbing and Tree/Shrub Removal 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 9, 2020, no soil disturbance and tree/shrub removal permits were issued and no observations of soil-disturbing or tree/shrub removal activities were recorded by the EH&S Unit during the reporting period (Appendix A).

3.3 Waste Disposal

On the basis of site inspections and the interview documented in this report, no soil or tree/shrub waste from the DOE Areas was disposed of during the 2020 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 Covenant terms and conditions occurred during this reporting period.

Date: 1/6/2021

Kathleen Whysner
U.S. Department of Energy
Office of Legacy Management
2597 Legacy Way
Grand Junction, CO 81503

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 Covenant terms and conditions occurred during this reporting period.

Chris Wright
cn=Chris Wright, o=University of California - Dais, ou=Environmental Manager, email=cvwright@ucdavi.edu, c=US
2021.01.04 15:51:17 -08'00'

Date: 1/4/21

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.

Weiss (Weiss Associates), 2020. *LEHR Project Team Meeting Summary, Laboratory for Energy-Related Health Research/Old Campus Landfill Site (LEHR/OCL)*, *University of California, Davis*, Environmental Restoration Program, Final, recorded by Jesse Crews, February 27.

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Appendix A

Inspection Checklists

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LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback Inspection Date: November 4, 2020

Area Inspected: Monuments Reporting Period: December 10, 2019 – December 9, 2020

Monument No.	Close-up Photo [1]	Setting Photo [2]	Damaged or missing? (Y/N) If Y, explain	Comments
1	4088	4087	N	
2	4090	4089	N	
3	4092	4091	N	
4	4094	4093	N	
5	4109	4110	N	
6	4107	4108	N	
7	4111	4112	N	
8	4114	4116	N	
9	4117	4118	N	
10	4132	4133	N	
11	4134	4135	N	
12	4136	4137	N	
13	4138	4139	N	

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback

Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback Inspection Date: November 4, 2020

Area Inspected: Monuments Reporting Period: December 10, 2019 – December 9, 2020

Monument No.	Close-up Photo [1]	Setting Photo [2]	Damaged or missing? (Y/N) If Y, explain	Comments
14	4142	4143	N	
15	4144	4145	N	
16	4163	4164	N	
17	4165	4166	N	
18	4167	4168	N	
19	4175	4176	N	
20	4179	4180	N	
21	4171	4172	N	
22	4185	4186	N	
23	4160	4161	N	
24	4140	4141	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.

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback

Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback Inspection Date: November 4, 2020

Area Inspected: Southwest Trenches Reporting Period: December 10, 2019 – December 9, 2020

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]	☐	■	☐	
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, 2019?	☐	■	☐	See note 2
Were any soil disturbance or tree/shrub removal permits issued by the EH&S Unit for this DOE Area since December 10, 2019?	☐	■	☐	See note 2
Were permitted soil disturbing or tree/shrub removal activities conducted in this DOE Area since December 10, 2019?	☐	■	☐	See note 2
If permitted soil disturbing or tree/shrub removal activities were conducted in this DOE Area since December 10, 2019, were the activities in compliance with the Soil Management Plan? If no, explain.	☐	☐	■	See note 2
If waste was generated due to soil disturbing or tree/shrub removal activities since December 10, 2019, was the soil managed and/or disposed in compliance with the Soil Management Plan? If no, explain.	☐	☐	■	See note 2
Are there any suggested changes to the Soil Management Plan at this time? If yes, explain.	☐	■	☐	See note 2

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. 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.

[2] Interview conducted by Bob Devany on December 9, 2020. UC Davis EH&S person interviewed: Chris Wright

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback Date: December 16, 2020

I certify that the interview information presented above is true and accurate. By: Robert D. Devany Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback
Inspection Date: November 4, 2020

Area Inspected: Southwest Trenches
Reporting Period: December 10, 2019 – December 9, 2020

<	Photograph Description	Photo No.	Comments
1	View southeast of Southwest Trenches Area: North Levee of the South Fork of Putah Creek in background	4146	
2	View south of Southwest Trenches Area: North Levee of the South Fork of Putah Creek in background	4147	
3	View southeast of Southwest Trenches Area	4149	
4	View west of Southwest Trenches Area: Shoulder of Old Davis Road in background	4150	
5	View northwest of Southwest Trenches Area	4151	
6	View north of Southwest Trenches Area	4152	
7	View north from center of Southwest Trenches Area	4153	
8	View west from center of Southwest Trenches Area	4154	
9	View south from center of Southwest Trenches Area	4155	
10	View east from center of Southwest Trenches Area	4156	
11	View north of northwest corner of Southwest Trenches Area	4159	
12	View east of Southwest Trenches Area: Western Dog Pens Area and UC Davis Southern Trenches Area in background	4157	

Certification:

I certify that the inspection information presented above is true and accurate. By:  Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback
Inspection Date: November 4, 2020

Area Inspected: Domestic Septic System 3
Reporting Period: December 10, 2019 – December 9, 2020

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]	☐	■	☐	
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, 2019?	☐	■	☐	See note 2
Were any soil disturbance or tree/shrub removal permits issued by the EH&S Unit for this DOE Area since December 10, 2019?	☐	■	☐	See note 2
Were permitted soil disturbing or tree/shrub removal activities conducted in this DOE Area since December 10, 2019?	☐	■	☐	See note 2
If permitted soil disturbing or tree/shrub removal activities were conducted in this DOE Area since December 10, 2019, were the activities in compliance with the Soil Management Plan? If no, explain.	☐	☐	■	See note 2
If waste was generated due to soil disturbing or tree/shrub removal activities since December 10, 2019, was the soil managed and/or disposed in compliance with the Soil Management Plan? If no, explain.	☐	☐	■	See note 2
Are there any suggested changes to the Soil Management Plan at this time? If yes, explain.	☐	■	☐	See note 2

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. 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.

[2] Interview conducted by Bob Devany on December 9, 2020. UC Davis EH&S person interviewed: Chris Wright.

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback Date: December 16, 2020

I certify that the interview information presented above is true and accurate. By: Robert D. Devany Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback
Inspection Date: November 4, 2020

Area Inspected: Domestic Septic System 3
Reporting Period: December 10, 2019 – December 9, 2020

<	Photograph Description	Photo No.	Comments
1	View east over former leach field part of Domestic Septic System 3 Area: Building H 216 to left; Western Dog Pens Area in background.	4127	
2	View east of eastern half of Domestic Septic System 3 Area.	4128	
3	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.	4130	
4	View south of septic tank part of Domestic Septic System 3 Area: Building H-216 to left; Building H-215 to right.	4123	
5	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.	4126	
6	View south of east end of Domestic Septic System 3 Area leach field: Former washdown pad in background.	4129	
7	View east of Domestic Septic System 3 Area: Building H-216 in background, standing north/left of tree.	4124	
8	View east of Domestic Septic System 3 Area: Building H-216 in background, standing south/right of tree.	4125	

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback

Inspection Date: November 4, 2020

Area Inspected: Domestic Septic System 4

Reporting Period: December 10, 2019 – December 9, 2020

Inspection Item	Y	N	NA	Comments
Were any indications of soil disturbance observed during walk-thru inspection? If yes, explain. [1]	☐	■	☐	
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.	☐	■	☐	
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, 2019.	☐	■	☐	See note 2
Were any indications of a change in land use observed during walk-thru inspection? If yes, explain. [1]	☐	■	☐	
Were any soil disturbance permit requests filed with UC Davis Environmental Health and Safety (EH&S) Unit for this DOE Area since December 10, 2019?	☐	■	☐	See note 2
Were any soil disturbance permits issued by the EH&S Unit for this DOE Area since December 10, 2019?	☐	■	☐	See note 2

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. The DSS 4 area does not contain trees or shrubs. 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.

[2] Interview conducted by Bob Devany on December 9, 2020. UC Davis EH&S person interviewed: Chris Wright.

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback Date: December 16, 2020

I certify that the interview information presented above is true and accurate. By: Robert D. Devany Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback

Inspection Date: November 4, 2020

Area Inspected: Domestic Septic System 4

Reporting Period: December 10, 2019 – December 9, 2020

Inspection Item	Y	N	NA	Comments
Were permitted soil disturbing activities conducted in this DOE Area since December 10, 2019?	☐	■	☐	See note 2
If permitted soil disturbing activities were conducted in this DOE Area since December 10, 2019, were the activities in compliance with the Soil Management Plan? If no, explain.	☐	☐	■	See note 2
If waste was generated due to soil disturbing activities since December 10, 2019, was the soil managed and/or disposed in compliance with the Soil Management Plan? If no, explain.	☐	☐	■	See note 2
Are there any suggested changes to the Soil Management Plan at this time? If yes, explain.	☐	■	☐	See note 2

<	Photograph Description	Photo No.	Comments
1	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.	4122	
2	View west of east end of Domestic Septic System 4 Area leach field; Building H-215 in background.	4120	
3	View east of Domestic Septic System 4 Area septic tank location: Building H-216 in background.	4121	
4	View east of western portion of Domestic Septic System 4 Area: Building H-215 in background.	4119	

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback Date: December 16, 2020

I certify that the interview information presented above is true and accurate. By: Robert D. Dacey Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback

Inspection Date: November 4, 2020

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

Reporting Period: December 10, 2019 – December 9, 2020

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]	□	■	□	
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, 2019?	□	■	□	See note 2
Were any soil disturbance or tree/shrub removal permits issued by the EH&S Unit for this DOE Area since December 10, 2019?	□	■	□	See note 2
Were permitted soil disturbing or tree/shrub removal activities conducted in this DOE Area since December 10, 2019?	□	■	□	See note 2
If permitted soil disturbing or tree/shrub removal activities were conducted in this DOE Area since December 10, 2019, were the activities in compliance with the Soil Management Plan? If no, explain.	□	□	■	See note 2
If waste was generated due to soil disturbing or tree/shrub removal activities since December 10, 2019, was the soil managed and/or disposed in compliance with the Soil Management Plan? If no, explain.	□	□	■	See note 2
Are there any suggested changes to the Soil Management Plan at this time? If yes, explain.	□	■	□	See note 2

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. 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.

[2] Interview conducted by Bob Devany on December 9, 2020. UC Davis EH&S person interviewed: Chris Wright.

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback Date: December 16, 2020

I certify that the interview information presented above is true and accurate. By: Robert D. Devany Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback

Inspection Date: November 4, 2020

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

Reporting Period: December 10, 2019 – December 9, 2020

<	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; Buildings H-218 and H-219 in background.	4095	
2	View north of middle portion of Radium/Strontium Treatment Systems Area: building cooling unit and Building H-218 roof to upper in right central portion of photo; Building H-219 in background	4096	
3	View south over southern portion of Ra/Sr Area. Building H-215 to left.	4097	
4	View north over northern portion of Ra/Sr Area. Building H-219 to right.	4098	
5	View south over middle-south portion of Ra/Sr Area. Building H-218 to left; west perimeter gate and fence to right.	4099	
6	View east over central portion of Ra/Sr Area. Building H-218 to right; Building H-219 to left.	4100	
7	View west over Domestic Septic System 2 area within middle-west portion of Ra/Sr Area.	4102	
8	Roof-level view west over middle portion of Ra/Sr Area. Building H-219 to right; Building H-218 to left.	4103	
9	Roof-level view southwest over central portion of Ra/Sr Area; Building H-218 in background.	4104	
10	Roof-level view northwest over central portion of Radium/ Strontium Treatment Systems Area; Building H-219 in background.	4105	
11	View south over northern portion of Ra/Sr Area: Building H-219 to left; west perimeter fence and Old Davis Road to right.	4106	

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback Inspection Date: November 4, 2020

Area Inspected: Dry Wells A–E Area Reporting Period: December 10, 2019 – December 9, 2020

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]	☐	■	☐	
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, 2019?	☐	■	☐	See note 2
Were any soil disturbance or tree/shrub removal permits issued by the EH&S Unit for this DOE Area since December 10, 2019?	☐	■	☐	See note 2
Were permitted soil disturbing or tree/shrub removal activities conducted in this DOE Area since December 10, 2019?	☐	■	☐	See note 2
If permitted soil disturbing or tree/shrub removal activities were conducted in this DOE Area since December 10, 2019, were the activities in compliance with the Soil Management Plan? If no, explain.	☐	☐	■	See note2
If waste was generated due to soil disturbing or tree/shrub removal activities since December 10, 2019, was the soil or vegetation managed and/or disposed in compliance with the Soil Management Plan? If no, explain.	☐	☐	■	See note 2
Are there any suggested changes to the Soil Management Plan at this time? If yes, explain.	☐	■	☐	See note 2

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. 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.

[2] Interview conducted by Bob Devany on December 9, 2020. UC Davis EH&S person interviewed: Chris Wright.

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback Date: December 16, 2020

I certify that the interview information presented above is true and accurate. By: Robert D. Devany Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback

Inspection Date: November 4, 2020

Area Inspected: Dry Wells A–E Area

Reporting Period: December 10, 2019 – December 9, 2020

<	Photograph Description	Photo No.	Comments
1	View north of Dry Wells A–E Area: Old Davis Road to left.	4086	
2	View south of Dry Wells A–E Area: Building H-219 in background/left.	4083	
3	View west of Dry Wells A–E Area and main gate; Old Davis Road in background.	4084	
4	View southwest of Dry Wells A–E Area.	4085	

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback Inspection Date: November 4, 2020

Area Inspected: Eastern Dog Pens Area Reporting Period: December 10, 2019 – December 9, 2020

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]	☐	■	☐	
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, 2019?	☐	■	☐	See note 2
Were any soil disturbance or tree/shrub removal permits issued by the EH&S Unit for this DOE Area since December 10, 2019?	☐	■	☐	See note 2
Were permitted soil disturbing or tree/shrub removal activities conducted in this DOE Area since December 10, 2019?	☐	■	☐	See note 2
If permitted soil disturbing or tree/shrub removal activities were conducted in this DOE Area since December 10, 2019, were the activities in compliance with the Soil Management Plan? If no, explain.	☐	☐	■	See note 2
If waste was generated due to soil disturbing or tree/shrub removal activities since December 10, 2019, was the soil managed and/or disposed in compliance with the Soil Management Plan? If no, explain.	☐	☐	■	See note 2
Are there any suggested changes to the Soil Management Plan at this time? If yes, explain.	☐	■	☐	See note 2

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. 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.

[2] Interview conducted by Bob Devany on December 9, 2020. UC Davis EH&S person interviewed: Chris Wright.

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback Date: December 16, 2020

I certify that the interview information presented above is true and accurate. By: Robert D. Devany Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback Inspection Date: November 4, 2020

Area Inspected: Eastern Dog Pens Area Reporting Period: December 10, 2019 – December 9, 2020

<	Photograph Description	Photo No.	Comments
1	View northeast over Eastern Dog Pens Area from southwest corner showing southwest corner monument location.	4170	
2	View east over central Eastern Dog Pens Area.	4173	
3	View southeast over Eastern Dog Pens Area from northwest corner showing northwest corner monument location.	4174	
4	View south over central Eastern Dog Pens Area.	4177	
5	View southwest over Eastern Dog Pens Area from northeast corner showing location of northeast corner monument.	4178	
6	View west over central Eastern Dog Pens Area.	4183	
7	View northwest into Eastern Dog Pens Area from southeast corner showing location of southeast corner monument.	4184	
8	View north over Eastern Dog Pens Area from North Levee of the South Fork of Putah Creek.	4187	

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback Inspection Date: November 5, 2020

Area Inspected: Trees and Shrubs Reporting Period: December 10, 2019 – December 9, 2020

Tree ID	Tag number	Tag Photo [1]	Damaged or missing tag? (Y/N) If Y, explain	Tree healthy? (Y/N) If N, explain	Comments
16196	096	4248	N	Y	
16197	097	4249	N	Y	
16198	098	4250	N	Y	
16199	099	4251	N	Y	
16200	100	4255	N	Y	
16201	001	4265	N	Y	
16202	002	4256	N	Y	
16203	003	4257	N	Y	
16204	004	4258	N	Y	
16205	005	4259	N	Y	
16206	006	4260	N	Y	
16207	007	4261	N	Y	
16208	008	4262	N	Y	
16209	009	4267	N	Y	
16210	010	4268	N	Y	
16211	011	4264	N	Y	
16212	012	4263	N	Y	
16213	013	4290	N	Y	
16214	014	4299	N	Y	
16215	015	4300	N	Y	
16216	016	4274	N	Y	
16217	017	4275	N	Y	
16218	018	4276	N	Y	
16219	019	4269	N	Y	
16220	020	4270	N	Y	
16221	021	4271	N	Y	
16223	023	4291	N	Y	
16224	024	4292	N	Y	
16225	025	4293	N	Y	
16226	026	4294	N	Y	
16227	027	4295	N	Y	
16228	028	4304	N	Y	
16229	029	4296	N	Y	

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback

Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback Inspection Date: November 5, 2020

Area Inspected: Trees and Shrubs Reporting Period: December 10, 2019 – December 9, 2020

Tree ID	Tag number	Tag Photo[1]	Damaged or missing tag? (Y/N) If Y, explain	Tree healthy? (Y/N) If N, explain	Comments
16230	030	4306	N	Y	
16231	031	4307	N	Y	
16232	032	4305	N	Y	
16233	033	4303	N	Y	
16234	034	4310	N	Y	Tree tissue growth over top of tag
16235	035	4302	N	Y	
16236	036	4297	N	Y	Large fallen dead limb (photo 4298)
16237	037	4301	N	Y	
16238	038	4309	N	Y	
16239	039	4308	N	Y	
16240	040	4289	N	Y	
16241	041	4288	N	Y	
16242	042	4287	Y	Y	Tag not found
16243	043	4286	N	Y	
16244	044	4284	N	Y	
16245	045	4285	N	Y	
16246	046	4283	N	Y	
16247	047	4282	N	Y	
16248	048	4278	N	Y	
16249	049	4281	N	Y	
16250	050	4280	N	Y	
16251	051	4279	N	Y	
16252	052	4247	N	Y	
16253	053	4254	N	Y	
16254	054	4253	N	Y	
16255	055	4252	N	Y	

Notes:

[1] Take zoom photograph of tag. Record photograph number.

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback

Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback

Inspection Dates: November 4 and 5, 2020

Area Inspected: Monitoring Wells

Reporting Period: December 10, 2019 – December 9, 2020

Well ID and Completion Type	Photographs		Evidence of tampering? (Y/N) If Y, explain	Locks/Bolts Secure? [3] (Y/N) If N, explain	ID Plates 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	Maintenance Needed? (Y/N) If Y, explain	Comments
	Wellhead / tag[1]	Vault / tag [2]							
UCD1-013 standpipe	4242 4243	4245 4246	N	Y	Y	Y	Y	N	Noticeable delay before pump produced water but flow rate was within acceptable range.
UCD1-018 standpipe	4224 4226	4227 4228	N	Y	Y	Y	Y	N	
UCD1-021 flush	4205 4207	4208 4209	N	Y	Y	Y	Y	N	
UCD1-023 flush	4235 4236	4237 4238	N	Y	Y	Y	Y	N	
UCD1-054 flush	4216 4217	4218 4219	N	N	Y	Y	Y	Y	Vault lid bolt threads worn off (stripped).
UCD1-063 standpipe	4229 4230	4232 4234	N	Y	Y	Y	Y	Y	Pump cap fell in annular space between the well and standpipe to a depth about 5 feet below the top of the standpipe.

Certification:

I certify that the inspection information presented above is true and accurate. By:  Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback

Inspection Dates: November 4 and 5, 2020

Area Inspected: Monitoring Wells

Reporting Period: December 10, 2019 – December 9, 2020

Well ID and Completion Type	Photographs		Evidence of tampering? (Y/N) If Y, explain	Locks/Bolts Secure? [3] (Y/N) If N, explain	ID Plates 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	Maintenance Needed? (Y/N) If Y, explain	Comments
	Wellhead / tag [1]	Vault / tag [2]							
UCD1-068 flush	4197 4198	4199 4200	N	Y	Y	Y	Y	N	
UCD1-069 flush	4192 4194	4195 4196	N	Y	Y	Y	Y	N	
UCD1-070 standpipe	4188 4189	4190 4191	N	Y	Y	Y	Y	N	
UCD1-071 flush	4215 4212	4213 4214	N	Y	Y	Y	Y	N	
UCD1-072 flush	4201 4202	4203 4204	N	Y	Y	Y	Y	N	
UCD1-073 standpipe	4220 4221	4222 4223	N	Y	Y	Y	not tested	N	Pump not tested due to access issues and no samples planned at UCD1-073 in 2021.

Certification:

I certify that the inspection information presented above is true and accurate. By: Tim Utterback Date: December 16, 2020

LAND-USE CONTROL INSPECTION CHECKLIST

Inspector: Tim Utterback

Inspection Dates: November 4 and 5, 2020

Area Inspected: Monitoring Wells

Reporting Period: December 10, 2019 – December 9, 2020

Notes:

[1] Take photograph inclusive of wellhead features including concrete pad. Take zoom photograph of wellhead identification plaque (tag). Record photograph numbers. Photo date stamp shows specific date and time of inspection.

[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 plates are fixed to the outside of the well and stored inside the well are legible and in good condition (two plates per well). 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.

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Appendix B

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

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Survey Monument 1: Northwest corner of Dry Wells A–E Area (Photo No. 4088).

View northwest: Survey Monument 1, within orange ring (outside diameter is 14 inches); lower portion of entrance sign in background (Photo No. 4087).

Survey Monument 2: Northeast corner of Dry Wells A–E Area (Photo No. 4090).

View west: Survey Monument 2, within orange ring; retracted entrance gate in background (Photo No. 4089).

Survey Monument 3: Southwest corner of Dry Wells A–E Area (Photo No. 4092).

View west: Survey Monument 3, within orange ring; west perimeter fence behind survey monument; orange delineator right of survey monument (Photo No. 4091).

Survey Monument 4: Southeast corner of Dry Wells A–E Area (Photo No. 4094).

View east: Survey Monument 4, within orange ring (Photo No. 4093).

Survey Monument 5: Northwest corner of Domestic Septic System 4 Area (Photo No. 4109).

View east: Survey Monument 5, within orange ring; Building H-215 in background (Photo No. 4110).

Survey Monument 6: Adjacent to northwest corner of Building H-218; Radium/Strontium Treatment Systems Area (Photo No. 4107).

View east: Survey Monument 6, within orange ring; corner of Building H-218 in background (Photo No. 4108).

Survey Monument 7: Southwest corner of Domestic Septic System 4 Area (Photo No. 4111).

View east: Survey Monument 7, within orange ring (Photo No. 4112).

Survey Monument 8: Southwest corner of radium-226 leach trench; Radium/Strontium Treatment Systems Area (Photo No. 4114).

View southwest: Survey Monument 8, within orange ring; west perimeter fence right of survey monument; orange delineator left of survey monument (Photo No. 4116).

Survey Monument 9: Southeast corner of radium-226 leach trench; Radium/Strontium Treatment Systems Area (Photo No. 4117).

View east: Survey Monument 9, within orange ring; planter at foot of Building H-215 in background (Photo No. 4118).

Survey Monument 10: Northeast corner of former leach field in Domestic Septic System 3 Area (Photo No. 4132).

View east: Survey Monument 10, within orange ring in foreground; delineator behind survey monument (Photo No. 4133).

Survey Monument 11: Northeast corner of Eastern Remediation Support Area (Photo No. 4134).

View north: Survey Monument 11, within orange ring; delineator behind survey monument (Photo No. 4135).

Survey Monument 12: Northwest corner of Southwest Trenches Area (Photo No. 4136).

View south: Survey Monument 12, within orange ring in foreground; water hydrant in background (Photo No. 4137).

Survey Monument 13: Southwest corner of Domestic Septic System 3 Area, at northern perimeter of Southwest Trenches Area (Photo No. 4138).

View north: Survey Monument 13, within orange ring at edge of concrete swale (Photo No. 4139).

Survey Monument 14: Southeast corner of Domestic Septic System 3 Area (Photo No. 4142).

View north: Survey Monument 14, within orange ring; delineator behind survey monument (Photo No. 4143).

Survey Monument 15: Eastern corner of Southwest Trenches Area (Photo No. 4144).

View east: Survey Monument 15, within orange ring; delineator behind survey monument (Photo No. 4145).

Survey Monument 16: Southwest corner of Southwest Trenches Area (Photo No. 4163).

View southwest: Survey Monument 16, within orange ring; delineator left of survey monument; southwest corner post of perimeter fence behind survey monument (Photo No. 4164).

Survey Monument 17: Southeast corner of Southwest Trenches Area (Photo No. 4165).

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. 4166).

Survey Monument 18: Southeast corner of Eastern Remediation Support Area (Photo No. 4167).

View south: 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. 4168).

Survey Monument 19: Northwest corner of Eastern Dog Pens Area (Photo No. 4175).

View southeast: Survey Monument 19, within orange ring; delineator right of survey monument (Photo No. 4176).

Survey Monument 20: Northeast corner of Eastern Dog Pens Area (Photo No. 4179).

View southwest: Survey Monument 20, within orange ring; delineator left of survey monument; Eastern Dog Pens Area in background (Photo No. 4180).

Survey Monument 21: Southwest corner of Eastern Dog Pens Area (Photo No. 4171).

View northeast: Survey Monument 21, within orange ring; delineator left of survey monument; Eastern Dog Pens Area in background (Photo No. 4172).

Survey Monument 22: Southeast corner of Eastern Dog Pens Area (Photo No. 4185).

View northwest: Survey Monument 22, within orange ring; delineator right of survey monument; Eastern Dog Pens Area in background (Photo No. 4186).

Survey Monument 23: Western perimeter point of Southwest Trenches Area (Photo No. 4160).

View west: Survey Monument 23, within orange ring; delineator left of survey monument; west perimeter fence behind survey monument (Photo No. 4161).

Survey Monument 24: Northeast corner of Southwest Trenches Area, at southern perimeter of Domestic Septic System 3 Area (Photo No. 4140).

View south: Survey Monument 24, within orange ring on edge of concrete swale (Photo No. 4141).

Appendix C

Photographs of DOE Areas Subject to Land-Use Controls

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View southeast of Southwest Trenches Area: North Levee of the South Fork of Putah Creek in background (Photo No. 4146).

View south of Southwest Trenches Area: North Levee of the South Fork of Putah Creek in background (Photo No. 4147).

View southeast of Southwest Trenches Area (Photo No. 4149).

View west of Southwest Trenches Area: Shoulder of Old Davis Road in background (Photo No. 4150).

View northwest of Southwest Trenches Area (Photo No. 4151).

View north of Southwest Trenches Area (Photo No. 4152).

View north from center of Southwest Trenches Area (Photo No. 4153).

View west from center of Southwest Trenches Area (Photo No. 4154).

View south from center of Southwest Trenches Area (Photo No. 4155).

View east from center of Southwest Trenches Area (Photo No. 4156).

View north of northwest corner of Southwest Trenches Area (Photo No. 4159).

View east of Southwest Trenches Area: Western Dog Pens Area and UC Davis Southern Trenches Area in background (Photo No. 4157).

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. 4127).

View east of eastern half of Domestic Septic System 3 Area (Photo No. 4128).

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. 4130).

View south of septic tank part of Domestic Septic System 3 Area: Building H-216 to left; Building H-215 to right (Photo No. 4123).

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. 4126).

View south of east end of Domestic Septic System 3 Area leach field: Former washdown pad in background (Photo No. 4129).

View east of Domestic Septic System 3 Area: Building H-216 in background, standing north/left of tree (Photo No. 4124).

View east of Domestic Septic System 3 Area: Building H-216 in background, standing south/right of tree (Photo No. 4125).

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. 4122).

View west of east end of Domestic Septic System 4 Area leach field; Building H-215 in background (Photo No. 4120).

View east of Domestic Septic System 4 Area septic tank location: Building H-216 in background (Photo No. 4121).

View east of western portion of Domestic Septic System 4 Area: Building H-215 in background (Photo No. 4119).

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. 4095).

View north of middle portion of Radium/Strontium Treatment Systems Area: building cooling unit and Building H-218 roof in right central portion of photo; Building H-219 in background (Photo No. 4096).

View south of southern portion of Radium/Strontium Treatment Systems Area: Building H-215 to left (Photo No. 4097).

View north of northern portion of Radium/Strontium Treatment Systems Area: Building H-219 to right (Photo No. 4098).

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. 4099).

View east of central portion of Radium/Strontium Treatment Systems Area: Building H-218 to right; Building H-219 to left (Photo No. 4100).

View west of Domestic Septic System 2 Area within middle-west portion of Radium/Strontium Treatment Systems Area (Photo No. 4102).

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. 4103).

Roof-level view southwest of central portion of Radium/Strontium Treatment Systems Area: Building H-218 in background (Photo No. 4104).

Roof-level view northwest of central portion of Radium/Strontium Treatment Systems Area: Building H-219 in background (Photo No. 4105).

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. 4106).

View north of Dry Wells A–E Area: Old Davis Road to left (Photo No. 4086).

View south of Dry Wells A–E Area: Building H-219 in background/left (Photo No. 4083).

View west of Dry Wells A–E Area and main gate; Old Davis Road in background (Photo No. 4084).

View southwest of Dry Wells A–E Area (Photo No. 4085).

View northeast of Eastern Dog Pens Area from southwest corner with orange delineator showing southwest corner monument location (Photo No. 4170).

View east of Eastern Dog Pens Area; beehive in background (Photo No. 4173).

View southeast of Eastern Dog Pens Area from northwest corner showing northwest corner monument location; downed tree near center of frame was originally located outside the Eastern Dog Pens Area (Photo No. 4174).

View south of Eastern Dog Pens Area; beehives in background (Photo No. 4177).

View southwest of Eastern Dog Pens Area from northeast corner showing location of northeast corner monument (Photo No. 4178).

View west of Eastern Dog Pens Area; beehives in background (Photo No. 4183).

View northwest into Eastern Dog Pens Area from southeast corner showing location of southeast corner monument (Photo No. 4184).

View north over Eastern Dog Pens Area from North Levee of the South Fork of Putah Creek; beehives in middle ground (Photo No. 4187).

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Appendix D

Photographs of Groundwater Monitoring Wells

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UCD1-013 Wellhead (Photo No. 4242).

UCD1-013 Wellhead ID plate (Photo No. 4243).

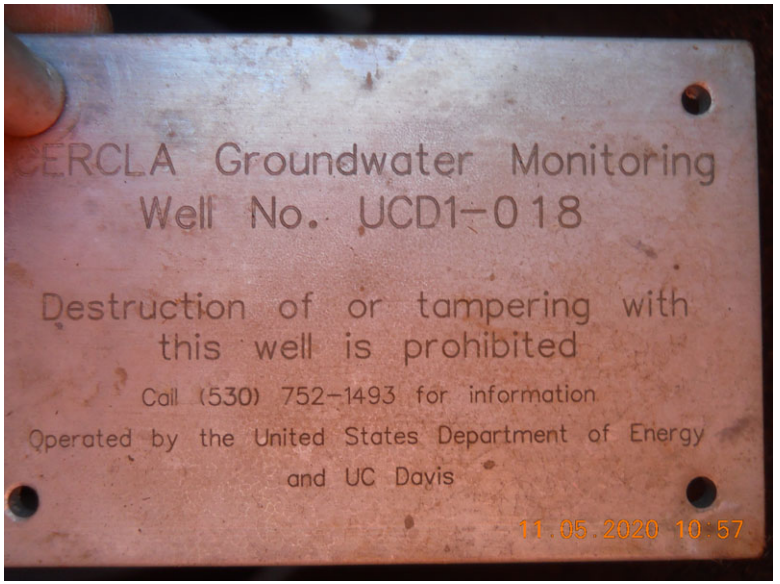
UCD1-013 Interior (Photo No. 4245).

UCD1-013 Interior ID plate (Photo No. 4246).

UCD1-018 Wellhead (Photo No. 4224).

UCD1-018 Wellhead ID plate (Photo No. 4226).

UCD1-018 Interior (Photo No. 4227).



UCD1-018 Interior ID plate (Photo No. 4228).

UCD1-021 Wellhead (Photo No. 4205).

UCD1-021 Wellhead ID plate (Photo No. 4207).

UCD1-021 Interior (Photo No. 4208).

UCD1-021 Interior ID plate (Photo No. 4209).

UCD1-023 Wellhead (Photo No. 4235).

UCD1-023 Wellhead ID plate (Photo No. 4236).

UCD1-023 Interior (Photo No. 4237).

UCD1-023 Interior ID plate (Photo No. 4238).

UCD1-054 Wellhead (Photo No. 4216).

UCD1-054 Wellhead ID plate (Photo No. 4217).

UCD1-054 Interior (Photo No. 4218).

UCD1-054 Interior ID plate (Photo No. 4219).

UCD1-063 Wellhead (Photo No. 4229).

UCD1-063 Wellhead ID plate (Photo No. 4230).

UCD1-063 Interior (Photo No. 4232).

UCD1-063 Interior ID plate (Photo No. 4234).

UCD1-068 Wellhead (Photo No. 4197).

UCD1-068 Wellhead ID plate (Photo No. 4198).

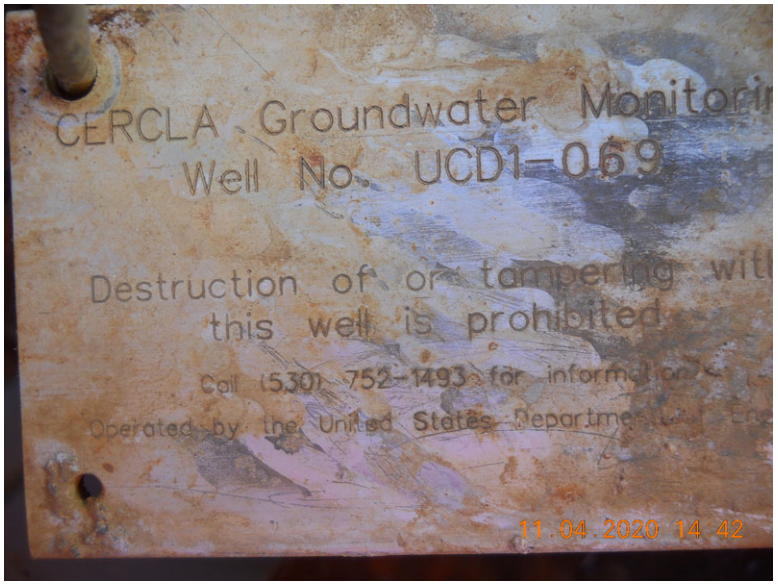
UCD1-068 Interior (Photo No. 4199).

UCD1-068 Interior ID plate (Photo No. 4200).

UCD1-069 Wellhead (Photo No. 4192).

UCD1-069 Wellhead ID plate (Photo No. 4194).

UCD1-069 Interior (Photo No. 4195).



UCD1-069 Interior ID plate (Photo No. 4196).

UCD1-070 Wellhead (Photo No. 4188).

UCD1-070 Wellhead ID plate Photo No. 4189).

UCD1-070 Interior (Photo No. 4190).

UCD1-070 Interior ID plate (Photo No. 4191).

UCD1-071 Wellhead (Photo No. 4215).

UCD1-071 Wellhead ID plate (Photo No. 4212).

UCD1-071 Interior (Photo No. 4213).

UCD1-071 Interior ID plate (Photo No. 4214).

UCD1-072 Wellhead (Photo No. 4201).

UCD1-072 Wellhead ID plate (Photo No. 4202).

UCD1-072 Interior (Photo No. 4203).

UCD1-072 Interior ID plate (Photo No. 4204).

UCD1-073 Wellhead (Photo No. 4220).

UCD1-073 Wellhead ID plate (Photo No. 4221).

UCD1-073 Interior (Photo No. 4222).

UCD1-073 Interior ID plate (Photo No. 4223).

Appendix E

Vegetation Management Documentation

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Appendix E1

Table Showing DOE Areas Trees and Shrubs
December 2020

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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~~[a]	~~Juglans~~	~~bindsil~~	~~California Black Walnut~~	~~67~~	~~5-10~~	~~1~~	~~Poor (dead tree).~~ Removed in 2017
NA	~~16193~~	~~11/4/2016~~[a]	~~Juglans~~	~~bindsil~~	~~California Black Walnut~~	~~64~~	~~5-10~~	~~1~~	~~Poor (tree canopy is 95% dead with severe mistletoe).~~ Removed in 2017
NA	~~16194~~	~~11/4/2016~~[a]	~~Juglans~~	~~ninosii~~	~~California Black Walnut~~	~~57~~	~~5-10~~	~~1~~	~~Poor (dead tree).~~ Removed in 2017
NA	~~16195~~	~~11/4/2016~~[a]	~~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~~[b]	~~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)
030	16230	11/5/2016	Pinus	canariensis	Canary Island Pine	20	5-10	1	Good (vigorous growth)

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

Tag #	Tree ID	Assessment Date	Genus	Species	Common Name	DBH (cm)	Height (m)	# of Stems	Condition (Notes)
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)

Notes:
Strikeouts represent changes from University of California, Davis baseline survey of trees and shrubs (UC Davis 2016)
[a] Trees documented as removed (DOE 2019)
[b] Tree documented as dead and fallen (DOE 2020)

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

References:
UC Davis (University of California, Davis), 2016. *Survey of Trees and Shrubs with Canopies within DOE Areas at LEHR, Facilities Management, Buildings and Grounds, University of California–Davis*, November 7.
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.
DOE (U.S. Department of Energy), 2020. *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*, LMS/LEH/S28507, Office of Legacy Management, January.

Appendix E2

Map Showing DOE Areas Trees and Shrubs
December 2020

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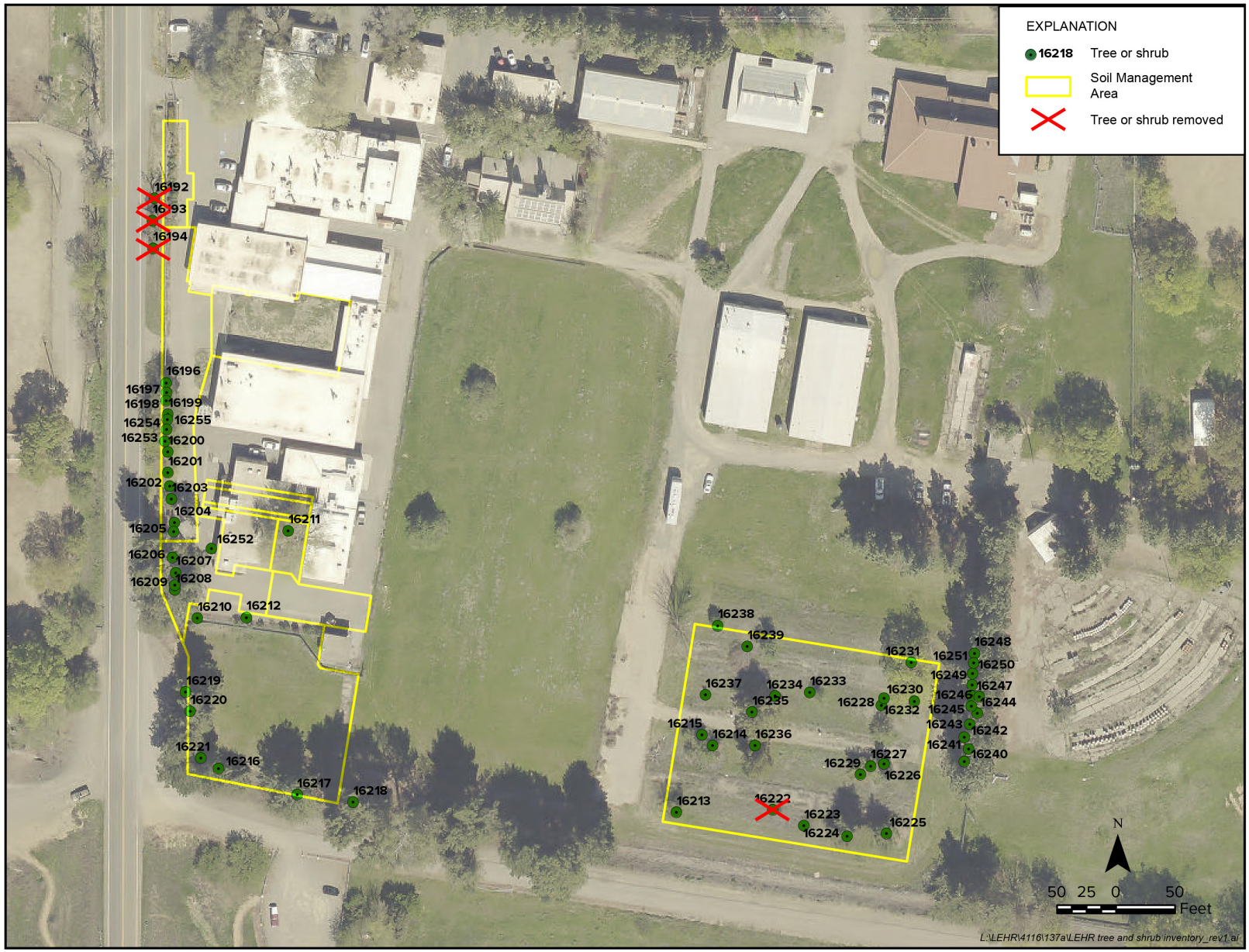

Trees and shrubs with canopies within DOE Areas (modified from version provided by UC Davis Facilities Management to focus on DOE Areas and to indicate trees removed in 2017)

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Appendix E3

November 2020 Inspection
Photographs of Trees 16234 and 16236

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Tissue growing over tag on tree 16234 (Photo No. 4310).

Large dead limb extending from tree 16236 (Photo No. 4298).

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Appendix F

Maintenance Issue Documentation

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Land Use Covenant (Covenant) maintenance items identified in 2019 and 2020 are documented in Table F1 below, followed by photographs of completed repairs. All but one of the Covenant maintenance items identified in 2019 and 2020 were completed during this reporting period (December 10, 2019, to December 9, 2020). The outstanding maintenance item is planned for completion in early 2021, during the annual water monitoring event. Covenant maintenance items identified prior to 2019 were completed before this reporting period.

Table F1. Maintenance Log

Maintenance Item	Date Identified	Description of Completed or Planned Repair	Date Completed	Completion Photo No.
Well UCD1-069 – Water leaking into vault	11/6/2019	Repair Completed – Cleaned gasket and vault seat; reinstalled gasket.	7/16/2020	7852
Well UCD1-063 – Interior identification ID plate missing	11/7/2019	Repair Completed - Installed new ID plate inside standpipe lid.	7/16/2020	7856
Well UCD1-071 – Pump port plugs missing	11/7/2019	Repair Completed - Installed new plugs on pump ports.	7/16/2020	7853
Well UCD1-054 – Vault lid bolt threads worn off (stripped)	11/5/2020	Repair Planned - Install new bolts; re-tap if necessary.	TBD	NA
Well UCD1-063 – Pump cap fell to floor of standpipe; 5 feet below standpipe rim.	11/5/2020	Repair Completed - Retrieved and reinstalled cap. Added clean sand to approximately 1 foot below top-of-casing in standpipe.	12/1/2020	4332
Tree 16234 – Tree tissue covering part of tag	11/5/2020	Repair Completed - Reattached tag such that tag does not injure tree.	12/1/2020	4323
Tree 16242 – Tag missing	11/5/2020	Repair Completed - Installed new tag.	12/1/2020	4324

Abbreviations:
NA = not applicable
TBD = Repair completion date to be determined

Well UCD1-069 – Gasket cleaned and attached to vault lid. Gasket seat surfaces cleaned (Photo No. 7852).

Well UCD1-063 – Identification ID plate attached to inside of standpipe lid (Photo No. 7856).

Well UCD1-071 – New plugs inserted on pump ports (Photo No. 7853).

Well UCD1-063 – Blue pump cap retrieved and reinstalled. Clean sand added to standpipe (Photo No. 4332).

Tree 16234 – Tag reattached allowing space from tree trunk (Photo No. 4323).

Tree 16242 – New tag installed (Photo No. 4324).