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MEMORANDUM FOR DISTRIBUTION

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SITE 300 REMEDIAL PROJECT MANAGER

SUBJECT: Addendum to the General Services Area Operable Unit Record of Decision at the Lawrence Livermore National Laboratory, Site 300

This Memorandum documents the formal incorporation of a land use control for the General Services Area (GSA) Operable Unit (OU) 1 that prohibits the transfer of lands with unmitigated contamination that could cause potential harm under residential or unrestricted land use. The requirement for this land use was identified in the second Five-Year Review performed for the GSA OU in 2006 because some volatile organic compounds may remain at the Central GSA following the achievement of subsurface soil cleanup standards for volatile organic compounds. This land use control will also be included in the Lawrence Livermore National Laboratory (LLNL) Site 300 Integrated Strategic Plan and other appropriate institutional planning documents as applicable. The Department of Energy (DOE) is responsible for implementing, maintaining, reporting on, and enforcing the land use controls. Table 1 and Figure 1 present a description of: (1) the institutional/land use control objective and duration; (2) the risk necessitating land use controls; and (3) the specific institutional/land use controls and implementation mechanisms used to prevent exposure to contamination.

In addition, DOE issued a Memorandum to the FILE in March 2007 that documented DOE's land use control policy for LLNL Livermore Site and Site 300. This memorandum documented the industrial land use restriction for LLNL, and prevents the transfer of any part of the Livermore Site and Site 300 with unmitigated contamination that could cause potential harm under residential or unrestricted land use.

In addition, the following changes have been made to location-, chemical-, or action-specific requirements since the Final Record of Decision (ROD) for the GSA OU was signed in 1997:

- The Federal Maximum Contaminant Level (MCL) for total trihalomethanes (TTHM) was changed from 100 micrograms per liter ($\mu\text{g/L}$) to 80 $\mu\text{g/L}$ in 2002. The maximum TTHM concentration detected in GSA ground water in the second semester of 2005 was 5.6 $\mu\text{g/L}$, well below the 80 $\mu\text{g/L}$ MCL for TTHM. Therefore, there is no impact on the protectiveness of the remedy related to the reduction in the TTHM MCL;
- The National Toxics Rule (NTR) was last amended on November 9, 1999. The NTR is an applicable or relevant and appropriate requirement (ARAR) for the discharge to Corral

Hollow Creek of treated ground water from the remediation system in the Eastern GSA. However, the Eastern GSA surface water discharge was eliminated before 2010, therefore there is no impact on the protectiveness of the remedy;

- The California Toxics Rule (CTR) was adopted on May 18, 2000 and amended on February 13, 2001. The CTR is an ARAR for the discharge to Corral Hollow Creek of treated ground water from the remediation system in the Eastern GSA. However, the Eastern GSA surface water discharge was eliminated before 2010, therefore there is no impact on the protectiveness of the remedy;
- The State Implementation Policy was adopted in March 2000 and modified on February 24, 2005. It contains policies and procedures for implementation of the NTR and the CTR and is also an ARAR for the discharge to Corral Hollow Creek of treated ground water from the remediation system in the Eastern GSA. However, the Eastern GSA surface water discharge was eliminated before 2010, therefore there is no impact on the protectiveness of the remedy; and
- The California Code and Regulations, Title 22, Section 67391.1 was adopted April 19, 2003. It contains requirements for imposing legal limitations on future site uses and activities through a land use covenant. There is no impact on the protectiveness of the remedy related to the new requirement for a land use covenant at the time of property transfer.

The 2006 GSA OU Five-Year Review identified these changes in location-, chemical-, or action-specific requirements since the Final ROD for the GSA OU was signed in 1997. This Memorandum enters these changes into the administrative record for the GSA ROD.

Attachments:

- (1) Table 1: Description of Institutional/Land Use Controls for the General Services Area Operable Unit
- (2) Figure 1: General Services Area (GSA) Operable Unit Institutional/Land Use Controls

cc (w/att.):

M. Brown

K. Setian, EPA

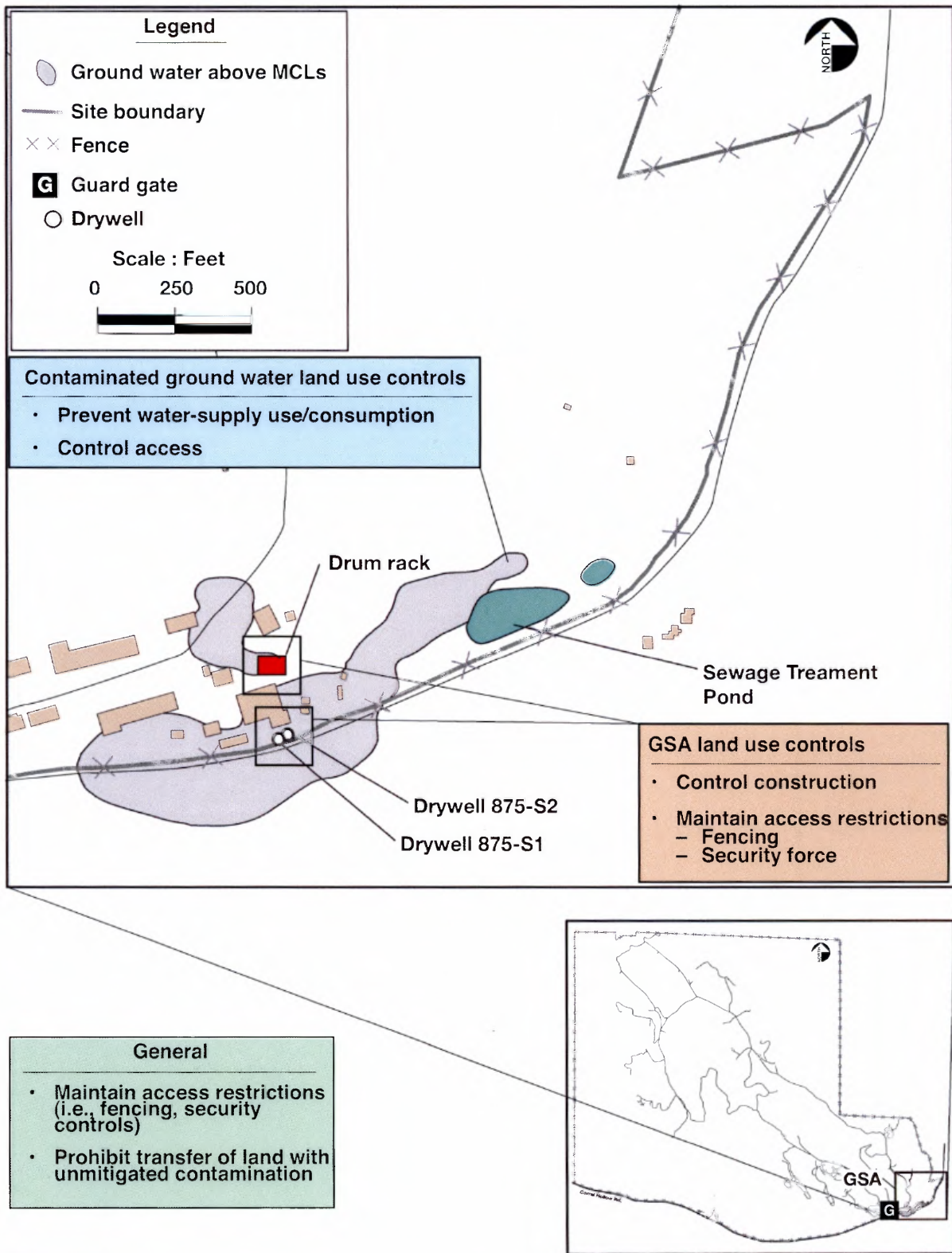
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Figure 1. General Services Area (GSA) Operable Unit institutional/land use controls.

Table 1. Description of institutional/land use controls for the General Services Area Operable Unit.

Institutional/land use control performance objective and duration	Risk necessitating institutional/land use control	Institutional/land use controls and implementation mechanism
<p>Prevent water-supply use/consumption of contaminated ground water until ground water cleanup standards are met.</p>	<p>VOC concentrations in ground water exceeding cleanup standards.</p>	<p>Central GSA: There are no existing or planned water-supply wells in the Central GSA Operable Unit. Any proposed well drilling activities would be submitted to the LLNL Work Induction Board, and are reviewed by LLNL Environmental Restoration Department to ensure that new water-supply wells are not located in areas of ground water contamination. Existing offsite downgradient water-supply wells are monitored monthly for contaminants of concern in ground water that could potentially impact the wells. There is a Memorandum of Understanding with the owners of the offsite downgradient water-supply wells that includes point-of-use treatment if VOCs above MCLs are detected in the well.</p> <p>Eastern GSA: In 2006, VOC concentrations in Eastern GSA ground water have been reduced to below ground water cleanup standards (MCLs) through remediation, therefore this institutional/land use control is no longer needed.</p>
<p>Control excavation activities to prevent onsite worker exposure to VOCs in subsurface soil until it can be verified that concentrations do not pose an exposure risk to onsite workers.</p>	<p>Potential exposure to VOCs at depth in subsurface soil at the Building 875 dry well pad^a.</p>	<p>Central GSA: All proposed excavation activities must be cleared through the LLNL Work Induction Board and require an excavation permit. The Work Induction Board coordinates with LLNL Environmental Restoration Department to identify if there is a potential for exposure to contaminants in the proposed construction areas. If a potential for contaminant exposure is identified, LLNL Environmental Safety and Health personnel ensure that hazards are adequately evaluated and the necessary controls are identified and implemented prior to the start of work. The Work Induction Board including the LLNL Environmental Analyst will also work with the Program proposing the construction project to determine if the work plans can be modified to move construction activities outside of areas of contamination. Controls for excavation activities will be incorporated into the LLNL Site 300 Integrated Strategic Plan or other appropriate institutional planning documents.</p> <p>Eastern GSA: Institutional/land use controls are not necessary to prevent worker exposure to VOCs in surface and subsurface soil because concentrations are below the U.S. EPA's industrial and residential Preliminary Remediation Goals.</p>

Table 1. Description of institutional/land use controls for the General Services Area Operable Unit (continued).

Institutional/land use control performance objective and duration	Risk necessitating institutional/land use control	Institutional/land use controls and implementation mechanism
<p>Maintain engineering controls to prevent onsite site worker inhalation exposure to VOCs inside Building 875 until annual risk re-evaluation indicates that the risk is less than 10⁻⁶.</p>	<p>A pre-remediation risk of 1 x 10⁻⁵ was identified for onsite workers from inhalation of VOCs volatilizing from subsurface soil into ambient air inside Building 875 (Central GSA).</p>	<p>Central GSA: Engineering controls (heating, ventilating, and air-conditioning system for Building 875) were implemented to prevent onsite worker exposure to VOCs that could migrate from the subsurface into the building until the inhalation risk was mitigated through remediation.</p> <p>The risk has been successfully reduced to less than 10⁻⁶ through ground water and soil vapor extraction and treatment in the Building 875 area as of 2000 (see Section 3.5), therefore this institutional/land use control is no longer needed.</p> <p>Eastern GSA: There is no risk or hazard associated with soil in the Eastern GSA.</p>
<p>Prohibit transfer of lands with unmitigated contamination that could cause potential harm under residential or unrestricted land use.</p>	<p>Potential exposure to contaminated waste and/or environmental media.</p>	<p>The Site 300 Federal Facility Agreement contains provisions that assure DOE will not transfer lands with unmitigated contamination that could cause potential harm. In the event that the Site 300 property is transferred in the future, DOE will execute a land use covenant at the time of transfer in compliance with Title 22 California Code of Regulations, Division 4.5, Chapter 39, Section 67391.1.</p> <p>Development will be restricted to industrial land usage. These restrictions will remain in place until and unless a risk assessment is performed in accordance with then current U.S. EPA risk assessment guidance and is agreed by the DOE, U.S. EPA, DTSC, and RWQCB as adequately showing no unacceptable risk for residential or unrestricted land use. These restrictions will be incorporated into the LLNL Site 300 Integrated Strategic Plan or other appropriate institutional planning document.</p>

Notes:

DOE = United States Department of Energy.

DTSC = California Department of Toxic Substances Control.

GSA = General Services Area.

LLNL = Lawrence Livermore National Laboratory.

MCLs = Maximum Contaminant Levels.

RWQCB = California Regional Water Quality Control Board.

U.S. EPA = United States Environmental Protection Agency.

VOCs = Volatile organic compounds.

^a Risk for onsite worker exposure to VOCs at depth in subsurface soil could not be re-calculated as there are no new subsurface soil data. Land use controls based on the potential exposure to VOCs in subsurface soil during ground-breaking construction activities conservatively assume that the VOCs in subsurface soil may pose a risk to human health.