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## Chapter 22. Land Use Controls

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### 22.1 Overview

This chapter describes existing agreements and controls to address contamination at ARC. It also summarizes applicable regulations. Information and data presented in this chapter was obtained from the 2009 NASA ARC ERD (Design, Community & Environment 2002) and other sources.

### 22.2 Regulatory Background

LUCs are engineered controls or non-engineered instruments undertaken to reduce environmental or health risk. ICs, a subset of LUCs, are non-engineered instruments, such as administrative or legal controls (e.g., deed restrictions, building or excavation permits, well drilling prohibitions or easements), that are imposed on properties to prevent exposure to contaminants or protect the integrity of response actions.

Although treatment and engineering controls are primarily used in response actions, LUCs are often important components of response action implementation. The NCP emphasizes that ICs are meant to supplement engineering controls and that ICs will rarely be the sole remedy at a site. LUCs can be implemented when contamination is first discovered, when remedies are ongoing, and when residual contamination does not allow for unrestricted use after completion of response actions.

NASA ARC has responsibility for LUCs from two main requirements:

- Response actions undertaken by NASA for NASA sources of contamination (NCP, CERCLA, and NASA ARC's FFA), and
- Response actions undertaken by Responsible Parties (Navy and MEW Companies) on NASA ARC property that require implementation of LUCs to be fully protective of human health and the environment are completed through NASA ARC implementation of those associated LUCs (NASA ARC FFA). Such LUCs are documented in the Parties' response action RODs that are approved by EPA, Region 9, and the RWQCB.

In addition to specific LUCs that are established for response actions at individual sites, as property owner, NASA's general LUC responsibilities for NASA and other Responsible Parties' response actions include:

- Providing for reasonable site access for response action implementation and regulatory agency oversight,
- Preventing alteration of, interference with or damage to response action systems by NASA, NASA contractors or tenants, and
- Incorporating LUC requirements in NASA land planning documents, contracts, leases, agreements, and deed covenants.



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## 22.3 Current Agreements and Land Use Controls

### 22.3.1 1992 Memorandum of Understanding between Department of the Navy and NASA regarding Moffett Field, California

The 1992 MOU provides that the Navy retains complete responsibility for compliance with all terms and provisions of the Navy's 1989 FFA and all other environmental restoration or remediation requirements and regulations arising from its activities on Former NAS Moffett Field, whether from Navy or Navy contractor sources. Further, the Navy is responsible for contamination that migrates onto or from Former NAS Moffett Field, regardless of the source and regardless of whether identified in the Navy's FFA. NASA is not a party to the Navy's 1989 FFA. In addition, the Navy retains complete responsibility for all environmental requirements and regulations associated with the activities of the Navy associated with Former NAS Moffett Field.

NASA's institutional control responsibilities under the 1992 MOU consist of the following:

- NASA is responsible for any contamination resulting from NASA activities.
- NASA shall ensure that the Navy, DOD, EPA, and the State of California have unobstructed access to known or suspected areas of contamination or response action areas.
- NASA and its contractors and tenants shall not engage in any activity or construct any obstacles that would hinder or prevent the Navy from implementing its response action responsibilities.
- NASA and its contractors and tenants shall give notice to the Navy prior to any construction on or adjacent to areas of known or suspected contamination.

### 22.3.2 2008 Memorandum of Agreement between Navy and NASA for Installation Restoration Site 22 Landfill, Former NAS Moffett Field, California

The 2008 Memorandum of Agreement (MOA) establishes roles and responsibilities of the Navy and NASA for monitoring and ICs pursuant to the 2002 ROD for Navy IR Site 22 landfill. The approved remedy for Site 22 consists of a biotic barrier cap to prevent burrowing animals from disturbing subsurface contamination, management of surface water flows across the site, groundwater and landfill gas monitoring, and ICs to prevent excavation of waste.

NASA's ICs responsibilities are:

- Include land use and access restrictions in NASA's land use planning documents and materials related to NASA's facility master planning process.
- Incorporate the terms and conditions of the MOA into APRs.
- Allow Navy, Navy contractors, and regulatory agencies reasonable access to the site.
- Protect the structural aspects of the landfill cap (biotic barrier).



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- Maintain vegetation, topsoil layer, irrigation system and drainage components encompassed within or adjacent to the Site 22 landfill boundary to ensure NASA operations do not impact the remedy.
  - Prohibit alterations to the drainage patterns or modifications of surface contours.
  - Prohibit extraction of groundwater from the site.
  - Prohibit residential land use.
  - Maintain and keep Building 191 pumping station in operation.
  - Obtain prior written approval from the Navy before conducting any subsurface excavation, digging, drilling, or any other disturbance of the Site 22 surface.
  - Conduct at least quarterly monitoring or visual inspections of the site to ensure compliance with and proper maintenance of the ICs.
  - Require regulatory approval for consideration of alternative land uses.
  - Identify parties responsible for ongoing operations, maintenance and monitoring activities for the site.
  - Provide periodic updates (such as annual reports) to EPA regarding implementation, monitoring, and efficacy of the ICs.
  - Require all current and prospective tenants, contractors, and subcontractors to comply with the terms of the MOA and provide any necessary training. Incorporate requirements into contracts and subcontracts as necessary.
  - Incorporate the ICs into all current prospective lease agreements for parcels including or adjacent to the site.
  - Include a restrictive deed covenant with ICs in place for transfer of the property to a non-federal entity.
  - Transfer by NASA of the property to another federal agency will require such agency to enter into an interagency agreement with the Navy agreeing to assume NASA's responsibilities under the MOA.
  - Restrictive covenants and/or interagency agreements shall include requirement for Navy review and written approval prior to any proposed construction activities, improvements, or alterations to property that may impact the Site 22 landfill remedy.

### **22.3.3 1999 Memorandum of Agreement between Navy and NASA Regarding Institutional Controls at Operable Units One and Five, Moffett Field, California:**

The 1999 MOA documents the major points of agreement that NASA will use in implementing the ICs required in the Navy RODs for Navy OUs 1 and 5.

NASA's institutional control responsibilities under the MOA are:



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- NASA will not undertake any activities that would compromise the integrity of the landfill cap at Site 1. Navy will conduct any required ongoing maintenance needed to maintain the integrity of the landfill cap.
  - NASA will maintain the Building 191 pump station and drain/subdrain system associated with Site 1 and Site 5 as long as NASA either owns the property or maintains operational control of the sites.
  - NASA will note the necessity of these restrictions and actions in NASA's land use planning documents (Master Plan) and real property records.
  - If NASA conveys the property, NASA will notify subsequent landowners of these requirements by appropriate notices and land use restrictions.

#### **22.3.4 2010 Middlefield-Ellis-Whisman Record of Decision Amendment for the Vapor Intrusion Pathway**

The 2010 MEW ROD Amendment addresses potential long-term exposure risk from VOCs through the vapor intrusion pathway associated with the Regional Groundwater Plume. Vapor intrusion is an exposure pathway from shallow subsurface contamination that is being addressed by actions under the MEW Superfund Site's 1989 ROD and Amendments. The MEW companies, Navy, and NASA have designated areas of responsibility at NASA Ames for the vapor intrusion pathway.

The 2010 MEW ROD Amendment includes ICs to ensure ongoing implementation of the vapor intrusion remedy. As property owner, NASA's institutional control responsibilities are:

- Prevent interference with the current implementation of the vapor intrusion remedy,
- Ensure ongoing implementation of the remedy in future development, and
- Provide information to building occupants about the remedy being implemented.

#### **22.3.5 2014 Navy Installation Restoration Site 26 Record of Decision Amendment**

The Navy IR Site 26 ROD Amendment remedy consists of:

- Active groundwater treatment by biostimulation/bioaugmentation injection,
- Groundwater monitoring, and
- Implementation of ICs.

NASA is the responsible party for implementing, maintaining, reporting on, and enforcing ICs for Navy Site 26 until cleanup standards have been met in groundwater underlying the site. ICs identified for NASA implementation are:

- Prohibit use of and access to groundwater (except for treatment and dewatering) until cleanup levels are met.



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- Protect and maintain the integrity of the remedial action, including monitoring systems.
  - Notify and require property owners and developers that any new building or construction planned over the groundwater plume be designed and constructed in a manner that will mitigate potential unacceptable health risk from vapor intrusion, or evaluate and demonstrate that there is not potential unacceptable vapor intrusion risk prior to construction. All vapor intrusion risk evaluations will require written approval by the regulatory agencies.