2.0 SITE CHRONOLOGY

Twenty-five PSCs were investigated during the RI/FS phase of OU-1. The results of the OU-1 RI and Basewide risk assessment indicated that the air, surface water, and groundwater resources of Luke AFB did not represent conditions that would pose an imminent and substantial endangerment to public health, welfare, or the environment. However, the soils at eight of the OU-1 PSCs were found to have conditions that could either cause unacceptable human health risks under certain types of land use scenarios or could impact the underlying groundwater. Remedial alternatives were developed for the soils at those eight sites. A remedy selection process was not required for the soils at the remaining 17 PSCs investigated under OU-1 or for the air, surface water, and groundwater resources of the Base. The OU-1 sites are:

- DP-13: Drainage Ditch Disposal Area
- FT-07E: Eastern Portion of North Fire Training Area
- LF-03: Outboard Runway Landfill
- LF-14: Old Salvage Yard Burial Site
- LF-25: Northwest Landfill
- RW-02: Wastewater Treatment Annex Landfill
- SD-20: Oil/Water Separator Canal and Earth Fissure (added after First Five-Year Review)
- SD-38: Oil/Water Separator at Auto Body Shop
- SS-42: Bulk Fuels Storage Area

Eight sites where only petroleum-related wastes were disposed were evaluated during the RI/FS of OU-2. The results of the OU-2 RI and Basewide risk assessment indicated that the petroleum-impacted soils at six of the eight PSCs evaluated did not represent conditions that would pose an imminent and substantial endangerment to public health, welfare, or the environment. Remedial alternatives were developed for the remaining two OU-2 sites: DP-23: Old Surface Impoundment West of Facility 993, and ST-18: Former Liquid Waste Storage Facility (Facility 993).

This section contains site chronology tables that summarize the investigative activities and other actions for each of the sites that required a remedy in the OU-1 ROD signed in 1999 and the OU-2 ROD signed in 1994. OU-1 site SD-20 also is included in this review as it is in the Luke AFB groundwater monitoring program. The tables are presented alphabetically by operable unit.

Table 2.1
Chronology of Events
DP-13: Drainage Ditch Disposal Area
Operable Unit 1 – Luke AFB, Arizona

Date	Event
Past Activities/Investigations	
1940s	The site was the location of a drainage ditch reportedly used for refuse disposal. No reported disposal of hazardous or industrial-type wastes. Site was filled and covered in 1946.
July 14, 1989	Site was proposed to the NPL (Basewide proposal)
August 30, 1990	Site was added to the NPL (Basewide addition)
September 1990	Federal Facilities Agreement signed
1992/1994	An RI was conducted to determine boundaries of the former landfill and characterize its contents. The RI included the following: geophysical survey, soil-gas sampling, and excavation of 15 test pits. Ten soil borings also were advanced. Chromium and lead were detected at depth.
August 1996	Three additional soil borings were advanced to collect supplemental volatile organic compound and semivolatile organic compound data for risk assessment purposes.
August 1997	Luke AFB conducted a final inspection of the potential sources of contamination areas.
September 7, 1999	OU-1 ROD signed. The selected remedy for DP-13 was ICs, based on risk assessment determination that wastes were buried and there was no exposure threat based on current land use scenarios.
January 5, 2000	BGP revised to reflect land use restrictions placed on the site. Institutional control plan was prepared to facilitate enforcement of institutional controls and incorporated into base general plan. BGP is reviewed and updated as needed.
April 2000	The USEPA and ADEQ conducted a final site inspection and determined that the Air Force has constructed the remedy in accordance with the requirements of the ROD and remedial action work plan.
June 15, 2000	VEMUR filed with ADEQ to restrict future development of the site.
April 26, 2001	The USEPA concurred with the Final Close Out Report for the Base.
January 2002	First Five-Year Review completed.
April 22, 2002	Site delisted from the NPL (Basewide delisting)
October 5, 2005	Site Inspection Completed
Ongoing Activities	
Five Year Review	Required at 5-year intervals after final closeout process. Site inspection conducted to determine adequacy of surface controls and current land use.

Table 2.2
Chronology of Events
FT-07E: Eastern Portion of North Fire Training Area
Operable Unit 1 – Luke AFB, Arizona

Date	Event
Past Activities/Investigations	
1973 to 1989	Site was used by the base for fire training. Sprinkler systems were in place to dispense petroleum, oil, and lubricant waste onto mock aircraft carcasses for fire training purposes. FT-07E consisted of 5 fire training pits. Pits #3, #4, and #6 were the largest.
1984 to 1988	Soil and groundwater sampling was conducted at pits #3 and #4 under the Installation Restoration Program investigation. Four soil borings were advanced and 3 monitoring wells were installed. No data available.
July 14, 1989	Site was proposed to the NPL (Basewide proposal)
August 30, 1990	Site was added to the NPL (Basewide addition)
September 1990	Federal Facilities Agreement signed
1992	After the Installation Restoration Program study was completed the United States Air Force retained EA Engineering Science and Technology to conduct additional soil sampling at pits #3, #4, and #6. Three additional borings were emplaced at each of the 3 pits.
January 1992	Luke AFB decided to address soil contamination at FT-07E under a removal action. A pilot study was conducted to test the effectiveness of soil vapor extraction in mitigating the soil source at FT-07E and support the design of a full scale system.
March 1992	A soil vapor extraction system was installed at pits #3 and #4 and brought online.
March 1992 to December 1992	A soil vapor extraction system with thermal oxidizer off-gas treatment operated for 10 months, removing over 14,000 pounds of total petroleum hydrocarbons and BTEX constituents.
1992/1994	Multi-phase RI was conducted throughout OU-1, including FT-07E. The remedial investigation focused on evaluating the effectiveness of the soil vapor extraction treatment and assessing groundwater quality. Two monitoring wells were installed to supplement those installed during the Installation Restoration Program investigation.
August 1996	Two additional soil borings were advanced to 150 feet below ground surface at pit #3 and one boring was advanced to the same depth at pit #4. Contamination was negligible: concentrations were at the laboratory reporting limit at 140 feet below ground surface.
August 1997	Luke AFB conducted a final inspection of the potential sources of contamination areas.
September 7, 1999	OU-1 ROD signed. Selected remedy for FT-07E was ICs, based on risk assessment model indicating that soil contamination was not present at high enough levels to present an unacceptable risk, and would not migrate to groundwater.
January 5, 2000	The BGP was revised to reflect land use restrictions placed on the site. Institutional control plan was prepared to facilitate enforcement of ICs and

Table 2.2 (continued)
Chronology of Events
FT-07E: Eastern Portion of North Fire Training Area
Operable Unit 1 – Luke AFB, Arizona

Date	Event
Past Activities/Investigations	
	incorporated into BGP. BGP is reviewed and updated as needed.
April 2000	The USEPA and ADEQ conducted a final site inspection and determined that the Air Force has constructed the remedy in accordance with the requirements of the ROD and remedial action work plan.
May 12, 2000	Groundwater LTM plan for FT-07E submitted.
June 15, 2000	VEMUR filed with ADEQ to restrict future development of the site.
April 26, 2001	The USEPA concurred with the Final Close Out Report for the Base.
January 2002	First Five-Year Review conducted.
January 2002	Based on the recommendation of ADEQ in the First Five-Year Review, wells 118 and 123 will be sampled at every 5-year review cycle. Site was subsequently added to Luke AFB LTM program.
April 22, 2002	Site delisted from the NPL (Basewide delisting)
August 2006	Groundwater samples collected from monitoring well 118 under LTM program. Monitoring well MW-123 was documented to be collapsed.
August 21, 2006	Site Inspection Completed
Ongoing Activities	
Five Year Review	Required at 5-year intervals after final closeout process. Site inspection conducted to determine adequacy of ICs and document current land use and condition. Groundwater monitoring of wells MW-118 and MW-123 under Luke AFB LTM program.

Table 2.3
Chronology of Events
LF-03: Outboard Runway Landfill
Operable Unit 1 – Luke AFB, Arizona

Date	Event
Past Activities/Investigations	
1951 to 1953	Site was used by the base for limited disposal of general refuse. No known or suspected industrial type or hazardous wastes were disposed at LF-03.
July 14, 1989	Site was proposed to the NPL (Basewide proposal)
August 30, 1990	Site was added to the NPL (Basewide addition)
September 1990	Federal Facilities Agreement signed
1992/1994	RI conducted to determine boundaries of the former landfill and characterize its contents. RI included geophysical survey, soil-gas sampling, and excavation of 67 test pits. Soil borings also were advanced.
August 1996	Additional soil sampling conducted to support risk assessment.
August 1997	Luke AFB conducted a final inspection of the potential sources of contamination areas.
September 7, 1999	OU-1 ROD signed. Selected remedy for LF-03 was ICs, based on risk assessment model indicating that soil contamination was not present at high enough levels to present an unacceptable risk, and would not migrate to groundwater. Over 60% of the site is covered by the outboard runway.
January 5, 2000	BGP revised to reflect land use restrictions placed on the site. Institutional control plan prepared to facilitate enforcement of institutional controls and incorporated into base general plan. BGP is reviewed and updated as needed.
April 2000	The USEPA and ADEQ conducted a final site inspection and determined that the Air Force has constructed the remedy in accordance with the requirements of the ROD and remedial action work plan.
June 15, 2000	Voluntary Environmental Mitigation Use Restrictions filed with ADEQ to restrict future development of the site.
April 26, 2001	The USEPA concurred with the Final Close Out Report for the Base.
January 2002	First Five-Year Review conducted.
April 22, 2002	Site delisted from the NPL (Basewide delisting)
October 5, 2005	Site Inspection Completed
Ongoing Activities	
Five Year Review	Required at 5-year intervals after final closeout process. Site inspection conducted to determine adequacy of surface controls and current land use.

Table 2.4
Chronology of Events
LF-14: Old Salvage Yard Burial Site
Operable Unit 1 – Luke AFB, Arizona

Date	Event
Past Activities/Investigations	
1950s to 1962	In the 1940s, the site was part of main drainage canal for the northeastern corner of the base. The canal was abandoned when the path of the drainage was changed in the 1950s. According to base personnel, the abandoned canal may have been used as a disposal site for spent transformer fluids containing polychlorinated biphenyls.
July 14, 1989	Site was proposed to the NPL (Basewide proposal)
August 30, 1990	Site was added to the NPL (Basewide addition)
September 1990	Federal Facilities Agreement signed
1992/1994	RI conducted to determine boundaries of the former landfill and characterize its contents. RI included geophysical survey, soil-gas sampling, and excavation of 10 test pits. Twelve soil borings also were advanced.
August 1996	Additional soil sampling conducted to support risk assessment.
August 1997	Luke AFB conducted a final inspection of the potential sources of contamination areas.
September 7, 1999	OU-1 ROD signed. Selected remedy for LF-14 was ICs, based on risk assessment model indicating that soil contamination was not present at high enough levels to present an unacceptable risk, and would not migrate to groundwater.
January 5, 2000	BGP revised to reflect land use restrictions placed on the site. Institutional control plan prepared to facilitate enforcement of ICs and incorporated into base general plan. BGP is reviewed and updated as needed.
April 2000	The USEPA and ADEQ conducted a final site inspection and determined that the Air Force has constructed the remedy in accordance with the requirements of the ROD and remedial action work plan.
June 15, 2000	VEMUR filed with ADEQ to restrict future development of the site.
April 26, 2001	The USEPA concurred with the Final Close Out Report for the Base.
January 2002	First Five-Year Review conducted.
April 22, 2002	Site delisted from the NPL (Basewide delisting)
October 5, 2005	Site Inspection Completed
Ongoing Activities	
Five Year Review	Required at 5-year intervals after final closeout process. Site inspection conducted to determine adequacy of surface controls and current land use.

Table 2.5
Chronology of Events
LF-25: Northwest Landfill
Operable Unit 1 – Luke AFB, Arizona

Date	Event
Past Activities/Investigations	
Pre 1989	Site was used by the base as a landfill. Small portions were used for disposing of construction debris. All disposal ceased in 1989. Portions of LF-25 are immediately downrange of the base skeet shooting range (OT-41).
July 14, 1989	Site was proposed to the NPL (Basewide proposal)
January 1990	Geophysical and organic vapor survey conducted in the southern portion of the site. In this area 80 subsurface metallic objects were identified using geophysics and catalogued. U.S. Air Force subsequently removed the construction debris in preparation for the OU-1 RI. Contents were sifted as they were excavated and the majority of waste was determined to be concrete rubble. Site is currently a grassy swale.
August 30, 1990	Site was added to the NPL (Basewide addition)
September 1990	Federal Facilities Agreement signed
1992/1994	Multi-phased RI conducted throughout OU-1, including LF-25. RI focused on determining the boundaries of the former landfill and characterizing its contents. RI included geophysical survey, soil-gas sampling, and excavation of 15 test pits. No monitoring wells were installed.
August 1996	Soil borings were advanced to support the risk assessment.
August 1997	Luke AFB conducted a final inspection of the potential sources of contamination areas.
September 7, 1999	OU-1 ROD signed. Selected remedy for LF-25 was ex situ mechanical removal of lead shot from soils adjacent to the skeet range and institutional controls. Based on risk assessment model the low levels of total recoverable petroleum hydrocarbons and xylenes, soil contamination in other areas of the site was not present at high enough levels to present an unacceptable risk, and would not migrate to groundwater.
December 16 to 19, 1999	Surficial soils were removed from an area 375 feet square. Excavated soil was fed into a metals recovery unit, where about 2,800 pound of lead shot was removed. Confirmation sampling was conducted of remaining soil and lead and antimony levels were below the Soil Remediation Levels. Treated soils were returned to the excavated area.
January 5, 2000	BGP revised to reflect land use restrictions placed on the site. Institutional control plan prepared to facilitate enforcement of institutional controls and incorporated into base general plan. BGP is reviewed and updated as needed.
April 2000	The USEPA and ADEQ conducted a final site inspection and determined that the Air Force has constructed the remedy in accordance with the requirements of the ROD and remedial action work plan.

Table 2.5 (continued)
Chronology of Events
LF-25: Northwest Landfill
Operable Unit 1 – Luke AFB, Arizona

Date	Event
Past Activities/Investigations	
June 15, 2000	VEMUR filed with ADEQ to restrict future development of the site.
April 26, 2001	The USEPA concurred with the Final Close Out Report for the Base.
January 2002	First Five-Year Review conducted.
April 22, 2002	Site delisted from the NPL (Basewide delisting)
October 5, 2005	Site Inspection Completed
Ongoing Activities	
Five Year Review	Required at 5-year intervals after final closeout process. Site inspection conducted to determine adequacy of institutional controls and current land use.

Table 2.6
Chronology of Events
RW-02: Wastewater Treatment Annex Landfill
Operable Unit 1 – Luke AFB, Arizona

Date	Event
Past Activities/Investigations	
1953 to 1970	Site served as the primary base landfill, accepting general refuse
1956	Small quantity of low-level radioactive tubes and dials was buried at the landfill. The waste was encased in a concrete coffin, buried in a 12-foot deep pit, covered with 6 feet of concrete, then topped with 4 feet of soil cover. The entire site area is topped with concrete and is within the maintenance yard.
July 14, 1989	Site was proposed to the NPL (Basewide proposal)
August 30, 1990	Site was added to the NPL (Basewide addition)
September 1990	Federal Facilities Agreement signed
1991	Two soil borings were advanced near the radiological waste contaminant structure. Soil samples were collected from 10 to 12 feet below ground surface and from 15 to 17 feet below ground surface. Samples were analyzed for total alpha and beta radiation. No contamination was detected.
1992	Background soil boring installed and sampled during the remedial investigation. Samples were analyzed for total alpha and beta radiation. No contamination was detected. Soil samples also were collected from a nearby monitoring well boring (MW-115). The borehole was logged for natural gamma radiation and found to be within the range of naturally occurring levels.
August 1997	Luke AFB conducted a final inspection of the potential sources of contamination areas.
September 7, 1999	OU-1 ROD signed. Remedy for RW-02 was ICs in the form of a VEMUR to restrict land use/development, annual downhole radiological monitoring, and perimeter fencing.
December 1999	Radiological monitoring points (dry wells) installed to depth of 20 feet below ground surface. Four monitoring point intended to evaluate whether radiation is emanating from the source; one is background location.
January 5, 2000	Base general plan revised to reflect land use restrictions placed on the site. Institutional control plan prepared to facilitate enforcement of ICs and incorporated into BGP. BGP is reviewed and updated as needed.
April 2000	The USEPA and ADEQ conducted a final site inspection and determined that the Air Force has constructed the remedy in accordance with the requirements of the ROD and remedial action work plan.
June 15, 2000	VEMUR filed with ADEQ to restrict future development of the site.
November 14, 2000	Long Term Radiological Monitoring Plan developed.
April 26, 2001	The USEPA concurred with the Final Close Out Report for the Base.
August 8, 2002	Radiological monitoring event conducted.

Table 2.6 (continued)
Chronology of Events
RW-02: Wastewater Treatment Annex Landfill
Operable Unit 1 – Luke AFB, Arizona

Date	Event
Past Activities/Investigations	
January 2002	First Five-Year Review conducted.
January 2002	Based on the recommendation of ADEQ in the First Five-Year Review, MW-124 will be sampled at every 5-year review cycle. Site was subsequently added to Luke AFB LTM program.
April 22, 2002	Site delisted from the NPL (Basewide delisting)
August 26, 2003	Radiological monitoring event conducted.
July 12, 2004	Radiological monitoring event conducted.
July 21, 2005	Radiological monitoring event conducted.
August 2006	Radiological monitoring event conducted. Attempted to collect groundwater samples from MW-124 under long-term monitoring program; however, it was collapsed.
August 21, 2006	Site Inspection Completed
Ongoing Activities	
Annually	Radiological monitoring is conducted each year at established monitoring points. During the monitoring, the security fencing is inspected to assure that it is in good condition and that placarding is in place.
Five year review	Required at 5-year intervals after final closeout process. Site inspection conducted to determine adequacy of surface controls and current land use. Groundwater samples are scheduled to be collected from monitoring well 124 under Luke AFB LTM program.

Table 2.7
Chronology of Events
SD-20: Oil/Water Separator Canal and Earth Fissure
Operable Unit 1 – Luke AFB, Arizona

Date	Event
Past Activities/Investigations	
1988	Site investigated during Phase II Installation Restoration Program investigation. Soil-gas samples were collected from regular interval along the canal from its origin to where it crossed the Base boundary. Sediment and surface water samples were collected. Soil borings were advanced and two monitoring wells were installed. Three rounds of groundwater sampling was conducted.
July 14, 1989	Site was proposed to the NPL (Basewide proposal)
August 30, 1990	Site was added to the NPL (Basewide addition)
September 1990	Federal Facilities Agreement signed
1992/1994	Multi-phased RI conducted at OU-1, including SD-20. During the RI, soil borings were advanced and soil, sediment, and groundwater samples were collected. Three new monitoring wells were installed to augment the two existing wells. Studies also targeted the earth fissures and the effect of the nearby Luke Salt Body on contaminant migration and transport. Based on the results of the RI, soil contamination was not present at high enough levels to present an unacceptable risk, and would not migrate to groundwater. Based on this conclusion, no remedial alternatives for SD-20 were developed in the OU-1 FS
August 1997	Luke AFB conducted a final inspection of the potential sources of contamination areas.
September 7, 1999	OU-1 ROD signed.
April 2000	The USEPA and ADEQ conducted a final site inspection and determined that the Air Force remedy was in accordance with the requirements of the ROD.
April 26, 2001	The USEPA concurred with the Final Close Out Report for the Base.
January 2002	First Five-Year Review conducted.
January 2002	Based on the recommendation of ADEQ in the First Five-Year Review, wells 112S, 112D, and 113 will be sampled at every 5-year review cycle. Site was subsequently added to Luke AFB LTM program.
April 22, 2002	Site delisted from the NPL (Basewide delisting)
August 2006	Groundwater samples collected from wells 112S, 112D, and 113 under long-term monitoring program.
August 26, 2006	Site Inspection Completed
Ongoing Activities	
Five Year Review	Required at 5-year review cycle.

Table 2.8
Chronology of Events
SD-38: Oil/Water Separator at Auto Body Shop
Operable Unit 1 – Luke AFB, Arizona

Past Activities/Investigations	
Date	**Event**
July 14, 1989	Site was proposed to the NPL (Basewide proposal)
August 30, 1990	Site was added to the NPL (Basewide addition)
September 1990	Federal Facilities Agreement signed
March 1991	Site was inspected as part of RCRA Facilities Assessment. It was discovered that the oil/water separator did not have a concrete bottom. Sludge samples were collected for analysis. No results available.
1992	Site was originally classified as an OU-2 PSC. The results of two soil borings indicated deep soil impacts (and thus a potential threat to groundwater); therefore, the site was reclassified as an OU-1 PSC.
1992/1994	A multi-phase RI was conducted for OU-1, including Site SD-38. Total recoverable petroleum hydrocarbons and VOCs were reported in at-depth soil samples. The highest total recoverable petroleum hydrocarbons contamination was reported in the sample collected from 8 feet below ground surface directly below the former separator. Though volatile organic compounds were detected at depth up to 200 feet below ground surface and semivolatile organic compounds were detected at 100 feet below ground surface, these data were not used as they did not meet QC requirements. The separator was removed.
August 1996	Additional soil sampling was conducted because of concerns about the data quality of the first sampling event. Two soil borings were advanced (depth unknown) and no VOCs or semivolatile organic compounds were reported. It was assumed at this time that the impacted soils had been excavated when the separator was removed. One monitoring well was installed and it was dry. The Basewide risk assessment determined that the detected contaminants were not present at levels high enough to cause adverse health effects under current land use scenarios. Modeling indicated that soil contamination posed no threat to groundwater.
August 1997	Luke AFB conducted a final inspection of the PSC.
September 7, 1999	OU-1 ROD signed. Selected remedy for SD-38 was ICs.
January 5, 2000	BGP revised to reflect land use restrictions placed on the site. Institutional Control Plan prepared to facilitate enforcement of institutional controls and incorporated into base general plan. BGP reviewed and updated as needed.
April 2000	The USEPA and ADEQ conducted a final site inspection and determined that the Air Force remedy was in accordance with the requirements of the ROD.
April 26, 2001	The USEPA concurred with the Final Close Out Report for the Base.
June 15, 2002	VEMUR filed with ADEQ to restrict future development of the site.
January 2002	First Five-Year Review conducted.
April 22, 2002	Site delisted from the NPL (Basewide delisting)
August 2005	Site Inspection Completed
Ongoing Activities	
Five Year Review	Required at 5-year intervals after final closeout process. Site inspection conducted to determine adequacy of surface controls and current land use.

Table 2.9
Chronology of Events
SS-42: Bulk Fuels Storage Area
Operable Unit 1 – Luke AFB, Arizona

Past Activities/Investigations	
Date	**Event**
July 14, 1989	Site was proposed to the NPL (Basewide proposal)
August 30, 1990	Site was added to the NPL (Basewide addition)
September 1990	Federal Facilities Agreement signed
March 1993	A leak occurred from subsurface piping when settlement of the underground storage tank caused the fill line to dislodge from the tank. The underground storage tank was part of an oil/water separator system.
March through July 1993	Investigation commenced to determine extent of contamination: 7 soil borings were advanced from 70 feet to 160 feet below ground surface. BTEX (benzene, toluene, ethylbenzene, and total xylenes) constituents were detected in the deepest samples at 160 feet below ground surface, so the vertical extent was not defined. The site was subsequently added to the Federal Facilities Agreement as a potential source of contamination.
1992/1994	A multi-phase remedial investigation/feasibility study was conducted for OU-1, including Site SS-42. Total petroleum hydrocarbons and BTEX constituents were reported in at-depth soil samples collected from as deep as 160 feet below ground surface. The highest total petroleum hydrocarbon contamination was reported in the sample collected from 70 feet below ground surface. The Basewide risk assessment determined that the detected contaminants were not present at levels high enough to cause adverse health effects under current land use scenarios. However, because of the depth of soil contamination, remedial alternatives were developed for the site.
May 1995	Luke AFB initiated a source removal by implementing a bioventing treatability study to reduce the contaminant mass and concentrations of contaminants in subsurface soils.
August 6, 1996	Operation of the full scale soil vapor extraction system commenced. The extracted vapors were reused to fuel a modified internal combustion engine that vented the wells. Thus the extracted soil vapors were treated.
June 1997	Soil boring CB-1 was advanced to monitor the effectiveness of the soil vapor extraction system in mitigating the soil source.
August 1997	Luke AFB conducted a final inspection of the PSC.
November 2, 1998	The soil vapor extraction system was shutdown.
January 7, 1999	Second boring advanced to determine effectiveness of soil vapor extraction. Based on analytical results, the soil vapor extraction system removed nearly 400,000 pounds of volatile hydrocarbons from the soil. Though total petroleum hydrocarbons and BTEX were detected in at-depth soil samples, levels were substantially reduced. Results of modeling indicated that residual total petroleum hydrocarbons and BTEX would not impact groundwater at concentrations above Arizona Water Quality Standards.

Table 2.9 (continued)
Chronology of Events
SS-42: Bulk Fuels Storage Area
Operable Unit 1 – Luke AFB, Arizona

Past Activities/Investigations	
Date	**Event**
September 7, 1999	OU-1 ROD signed. Selected remedy for SS-42 was soil vapor extraction, and LTM to monitor the groundwater quality. Because the soil vapor extraction component of the remedy had already been conducted under a removal action before the ROD was signed, this component of the remedy was not implemented under the ROD.
April 2000	The USEPA and ADEQ conducted a final site inspection and determined that the Air Force has constructed the remedy in accordance with the requirements of the ROD and remedial action work plan.
May 12, 2000	Groundwater LTM plan for SS-42 submitted.
May 16, 2000	First groundwater sampling event of five-year monitoring completed.
May 22, 2000	Soil vapor extraction and confirmation sampling summary report submitted.
April 26, 2001	The USEPA concurred with the Final Close Out Report for the Base.
January 2002	First Five-Year Review conducted.
April 22, 2002	Site delisted from the NPL (Basewide delisting)
August 2003	Completed annual LTM groundwater sampling.
June 2004	Completed annual LTM groundwater sampling.
April 2005	Completed annual LTM groundwater sampling.
August 2006	Completed annual LTM groundwater sampling.
August 23, 2006	Site Inspection Completed
Ongoing Activities	
Five Year Review	Required at 5-year intervals after final closeout process. Site inspection conducted to determine adequacy of surface controls and current land use. Groundwater monitoring of wells 121 and 125R under Luke AFB LTM program.

Table 2.10
Chronology of Events
DP-23: Old Surface Impoundment West of Facility 993
Operable Unit 2 – Luke AFB, Arizona

Date	Event
Past Activities/Investigations	
July 14, 1989	Site was proposed to the NPL (Basewide proposal)
August 30, 1990	Site was added to the NPL (Basewide addition)
September 1990	Federal Facilities Agreement signed
December 1991 to June 1992	OU-2 RI conducted to characterize soil contamination and determine threat to groundwater.
May 12, 1993	Proposed Plan presented to the public and accepted.
January 28, 1994	OU-2 ROD signed. DP-23 was divided into the southern portion and the northern portion. The remedy for the southern portion was excavation, ex situ soil treatment via composting, on-site disposal of treated soils, then subsequent monitoring. Based on the findings of the risk assessment, the remedy for the northern portion of DP-23 was ICs.
May 1994	Remedial design report was prepared and approved for composting operation to be conducted in on-site treatment cell. Report included recommendations for soil amendments to be added to form compost as determined from computer modeling.
April 11, 1995	Preliminary soil sampling conducted to further characterize the extent of soil contamination at the site. Contaminants of concern in excess of Preliminary Remediation Goals were determined to be four polynuclear aromatic hydrocarbon constituents. Based on preliminary results, the site was recommended for more extensive investigation.
July 1995	On-site treatment cell was constructed by emplacing berms and lining the bermed area with 40-milliliter high density polyethylene liner, topped with 6 inches of native fill. In all 625 cubic yards of soil contaminated with benzo(a)pyrene at levels above the Preliminary Remediation Goal were excavated and placed in the treatment cell for composting. Baseline samples were collected for later comparison to post-treatment samples. Soils were tilled and watered daily and monitored for temperature, oxygen, and moisture levels.
October 1995	After 120 days, interim samples were collected at baseline locations to determine the effectiveness of the composting: 25% remained above the Preliminary Remediation Goal for benzo(a)pyrene.
April 3, 1997	An optimized soil amendment mix was added to the compost and soil composting continued for an additional 60 days.
June to August 1997	Final sampling was conducted. All samples were stated to be below the Preliminary Remediation Goal for benzo(a)pyrene. The treated soils were used as fill to restore the site to its original grade and the site was hydro-seeded. The high density polyethylene liner was disposed at a local landfill.
August 1997	Final site inspection conducted.

Table 2.10 (continued)
Chronology of Events
DP-23: Old Surface Impoundment West of Facility 993
Operable Unit 2 – Luke AFB, Arizona

Date	Event
Past Activities/Investigations	
August 27, 1997	Final closure report submitted based on remediation complete status.
April 2000	The USEPA and ADEQ conducted a final site inspection and determined that the Air Force has constructed the remedy in accordance with the requirements of the ROD and remedial action work plan.
2001	Filed internal land use restriction.
April 26, 2001	The USEPA concurred with the Final Close Out Report for the Base.
January 2002	First Five-Year Review conducted.
April 22, 2002	Site delisted from the NPL (Basewide delisting)
August 22, 2006	Site Inspection Completed
Ongoing Activities	
N/A	ICs in place as site is located within confines of fenced AFB with controlled access. No groundwater monitoring required.
Five Year Review	Required at 5-year intervals after final closeout process. Site inspection conducted to determine adequacy of surface controls and current land use.

Table 2.11
Chronology of Events
ST-18: Former Liquid Waste Storage Facility (Facility 993)
Operable Unit 2 – Luke AFB, Arizona

Date	Event
Past Activities/Investigations	
1979	Site is classified as a RCRA interim status treatment, storage, and disposal facility.
1980	RCRA Part A Hazardous Waste permit submitted.
1982	RCRA closure activities commenced to allow construction of a new taxiway and U.S. Air Force reserve maintenance building.
July/August 1983	Soil borings were advanced to 50 feet below ground surface. No contamination was reported in subsurface soil samples. Based on these results, a partial closure plan was submitted to Arizona Department of Health Services.
October 4, 1983	Arizona Department of Health Services approves partial closure plan.
October 19, 1983	The three underground storage tanks in place at Facility 993 are removed. Visual evidence of contamination was evident during excavation.
November 1985 to February 1986	Site characterization activities conducted under Installation Restoration Program Phase I. Five soil borings were advanced over 100 to 145 feet below ground surface. Five monitoring wells were installed through the borings. Contaminated soil was detected in at-depth samples, with the deepest contamination occurring at 56.5 feet below ground surface.
May 1987	Site is capped with concrete runway, which satisfies part of the RCRA post-closure requirements for the site.
May 13, 1988	Letter prepared by ADEQ stated that they had conducted a final inspection of the cap and that is was adequate.
July 14, 1989	Site was proposed to the NPL (Basewide proposal)
August 30, 1990	Site was added to the NPL (Basewide addition)
September 27, 1990	The federal facilities agreement for Luke AFB was signed, transferring regulatory authority of ST-18 to CERCLA as part of RCRA/CERCLA integration efforts.
December 1991 to June 1992	Multi-phase RI/FS conducted throughout OU-2, including ST-18. Subsurface soil samples and groundwater samples were collected. Soil samples were reported to contain total recoverable petroleum hydrocarbons, VOCs, and semivolatile organic compounds. The highest levels of VOCs were reported at 20 to 22 feet below ground surface. Two VOCs were reported in groundwater in the first round of sampling in 1992, but were noted as common lab contaminants. Subsequent groundwater samples showed no contamination.
May 12, 1993	Proposed Plan presented to the public and accepted.

Table 2.11 (continued)
Chronology of Events
ST-18: Former Liquid Waste Storage Facility (Facility 993)
Operable Unit 2 – Luke AFB, Arizona

Date	Event
Past Activities/Investigations	
January 28, 1994	OU-2 ROD signed. Selected remedy for ST-18 specified as capping, surface controls, and groundwater monitoring.
August 1996	Additional sampling was conducted because of concerns about the quality/usability of data evaluated for the ROD and used to derive the relative risk posed by site conditions. Nine borings were emplaced and 36 samples collected. Total petroleum hydrocarbons were detected in several at-depth samples, with the highest concentration reported at 18,000 milligrams/kilogram in a sample collected from 18 to 20 feet below ground surface. The risk assessment was recalculated using the new data and the selected remedial alternative identified in the ROD was determined to be adequate and protective.
August 1997	Luke AFB conducted a final inspection of the PSC.
January 5, 2000	BGP revised to reflect land use restrictions placed on the site. Institutional control plan prepared to facilitate enforcement of institutional controls and incorporated into base general plan. BGP is reviewed and updated as needed.
April 2000	The USEPA and ADEQ conducted a final site inspection and determined that the Air Force has constructed the remedy in accordance with the requirements of the Record of Decision and remedial action work plan.
May 12, 2000	Groundwater LTM plan submitted for ST-18.
2001	Filed internal land use restriction.
April 26, 2001	The USEPA concurred with the Final Close Out Report for the Base.
January 2002	First Five-Year Review conducted.
April 22, 2002	Site delisted from the NPL (Basewide delisting)
August 2003	Completed annual LTM groundwater sampling.
June 2004	Completed annual LTM groundwater sampling.
April 2005	Completed annual LTM groundwater sampling.
August 2006	Completed annual LTM groundwater sampling.
August 22, 2006	Site Inspection Completed
Ongoing Activities	
Five year review	Required at 5-year intervals after final closeout process. Site inspection conducted to determine adequacy of ICs and current land use. Cap inspection and maintenance as needed. Groundwater sampling of monitoring wells 114 and 122 under the Luke AFB LTM program.