



**DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 62D AIRLIFT WING (AMC)**

MAY 4 2009

**MEMORANDUM FOR WASHINGTON DEPARTMENT OF ECOLOGY**

Toxics Cleanup Program  
ATTN: Mr. Chuck Hinds  
P.O. Box 47600  
Olympia, WA 98504-7600

FROM: 62 CES/CEV  
555 Barnes Boulevard Suite 1  
McChord AFB, WA 98438-1325

SUBJECT: Request for Removal of McChord AFB Sites 232 Land Fill (LF)-01 and LF-02, 235 Waste Pit (WP)-61, and 236 WP-64 from the Washington Model Toxics Control Act (MTCA) Hazardous Sites List (HSL).

1. Background: Site LF-01 and Site LF-02 (one state site), WP-61 and WP-64 are three of six state managed sites from McChord AFB on the HSL. These sites were added to the HSL following site investigations in 1993. The attached Washington State Department of Ecology (Ecology) letter dated 28 June 1995 (Attachment 1) outlines the status of the long term monitoring requirement. Additional monitoring and/or cleanup activity has been conducted for these sites over the past 15 years. These sites are shown on the attached map (Attachment 2). Current monitoring information shows that these sites no longer present a threat to human health and the environment.

2. Site Summaries:

a. Site 232, LF-01 and LF-02 are historic closed landfills. They received various kinds of waste but mostly boiler ash. They were closed over thirty years ago. Some solvent contamination was reported at three monitoring wells during site investigation activities. No other contamination was observed and conformational monitoring was started in 1993. No solvent contamination has been observed at this site since 1993. This site remains on the HSL with a ranking of 3 (medium level of concern on scale of 1 to 5, 5 being the worst) and the status is listed as "remedial action completed, confirmational monitoring underway." Attachment three is a closure summary for LF-01 and LF-02.


b. Site 235, WP-61 is a closed acid dry well (metals). The site was examined as part of the 1993 Site Hazard Assessment (SHA). Additional work was done to close and abandon WP-61 in 2003. Current sampling shows no mobile contamination associated with this site. Only one contaminant of concern, cadmium, was found at less than one part per million above the MTCA Method A (residential) cleanup standard in one sample. The Ecology site rank is 5 and it's status is listed as remedial action conducted, some residual contamination left, institutional controls in place. A closure summary for this site is included as attachment four.

**AMC-GLOBAL REACH FOR AMERICA**

c. Site 236, WP-64 is a closed pesticide contaminated dry well. WP-64 was examined in 1993. The drywell and associated soil was removed to a depth of about seven feet during the SHA. Additional soil removal to the water table (about 16 feet) was completed in 2007. The nearby down gradient monitoring well, CW-13, has been pesticide free since 2007. The Ecology site rank is 5 and it's status is listed as remedial action conducted, some residual contamination left, institutional controls in place. Attachment four contains a closure summary for WP-64.

4. Recommendation: The Air Force recommends Ecology Sites 232, 235 and 236 be removed from the HSL. These sites no longer need to be listed or monitored because they no longer present a threat to human health or the environment.

5. If further information is required, please contact Mr. Bill Myers at (253) 982-6202/3913.

  
MICHAEL J. GRENKO, DAFC  
Chief, Environmental Management Flight

Attachments:

1. Letter Dated 28 June 1995
2. Site Map
3. Closure Summary Site 232
4. Closure Summary Site 235
5. Closure Summary Site 236



STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

P.O. Box 47600 • Olympia, Washington 98504-7600  
(206) 407-6000 • TDD Only (Hearing Impaired) (206) 407-6006

June 28, 1995

Michael J. Grenko, Chief  
Environmental Management Flight  
62 CES/CEVR  
555 A Street, Suite 1  
McChord AFB, WA 98438-1325

Dear Mr. Grenko

Re: Model Toxics Control Act (MTCA) Sites Status

This is to inform you of the latest Ecology decisions regarding the final status of the 29 MTCA-Consent Decree and 4 Independent sites.

On June 22 I requested that Sherrie Minnick, who manages the State Hazardous Sites List (HSL) at the Toxics Cleanup Program, place all McChord sites onto the August edition of that list. Ecology publishes the HSL twice a year and it is received by more than 1800 recipients state-wide. These sites fall into the following categories:

- A) 25 consent decree sites identified as no further action/no further remedial action planned (NFA/NFRAP) and published on the HSL to inform the public that McChord has remediated these sites (consistent with MTCA) and that in their current setting they no longer present a danger to public health and which are being monitored for environmental compliance. These sites include: LF-01, LF-02, LF-10, LF-12, LF-13, FT-27, FT-28, FT-32, FT-33, SS-37, SS-38, SS-40, SS-41, SS-42, SS-46, ST-47, SS-49, SS-50, SS-51, SS-52, SD-53, SS-55, WP-57, WP-58 and WP-62.
- B) 4 Independent Remedial Action Program sites where McChord voluntarily completed remedial activities consistent with MTCA and which also resulted in an NFA/NFRAP determination. These sites include: FT-30, FT-31, DP-36 and ST-48.
- C) 2 Consent Decree hazardous sites formally placed on the HSL for the first time. These sites will remain on the list in that category until they are cleaned up or there is reasonable evidence that this position is no longer necessary or warranted. Continued long-term groundwater monitoring, sampling and data review may, in the long-run, allow such a decision. Also for those sites, a Cleanup Action Plan (CAP) is currently being prepared by me, and land use restrictions will be in effect (which will be identified in the McChord Land Use Management Plan). Those sites include: WP-61 and WP-64.

Michael Grenko  
June 28, 1995  
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- D) Two sites continue the same as before. One site (WP44) currently undergoes a formal RI/FS and subsequent activities. The other (WP34) will have to be reassessed to determine whether any remedial or similar action would be necessary and feasible in order to control contaminant plume movement.

All of the sites have Site Hazard Assessments, Decision Documents and other documentation provided by McChord; they are included in the state Site Information System.

The 25 sites listed under category A were reviewed under the Washington Ranking Method and all were rated NFA's. They will be identified in the "construction complete" category, which are sites "where all major cleanup construction has been completed but various levels of operation/maintenance/monitoring may continue to be performed at the site.

At the sites listed under category C hazardous constituents above MTCA action levels remain below ground in spite of a NFRAP decision. They both ranked #3 under WARM and I placed them on the HSL.

Dawne Chapman from Ecology will be working with Odette Hugues to complete all necessary public involvement elements required under MTCA. She can be reached at (360) 407-7233.

In the near future, this will complete most of my and Ecology's involvement at the current facilities on base, except for the continuing review of monitoring data on sites 34 and 44, and to complete the delisting of the Washrack. EPA has started this process.

If you have any questions, please call me at (360) 407-7248.

Sincerely,

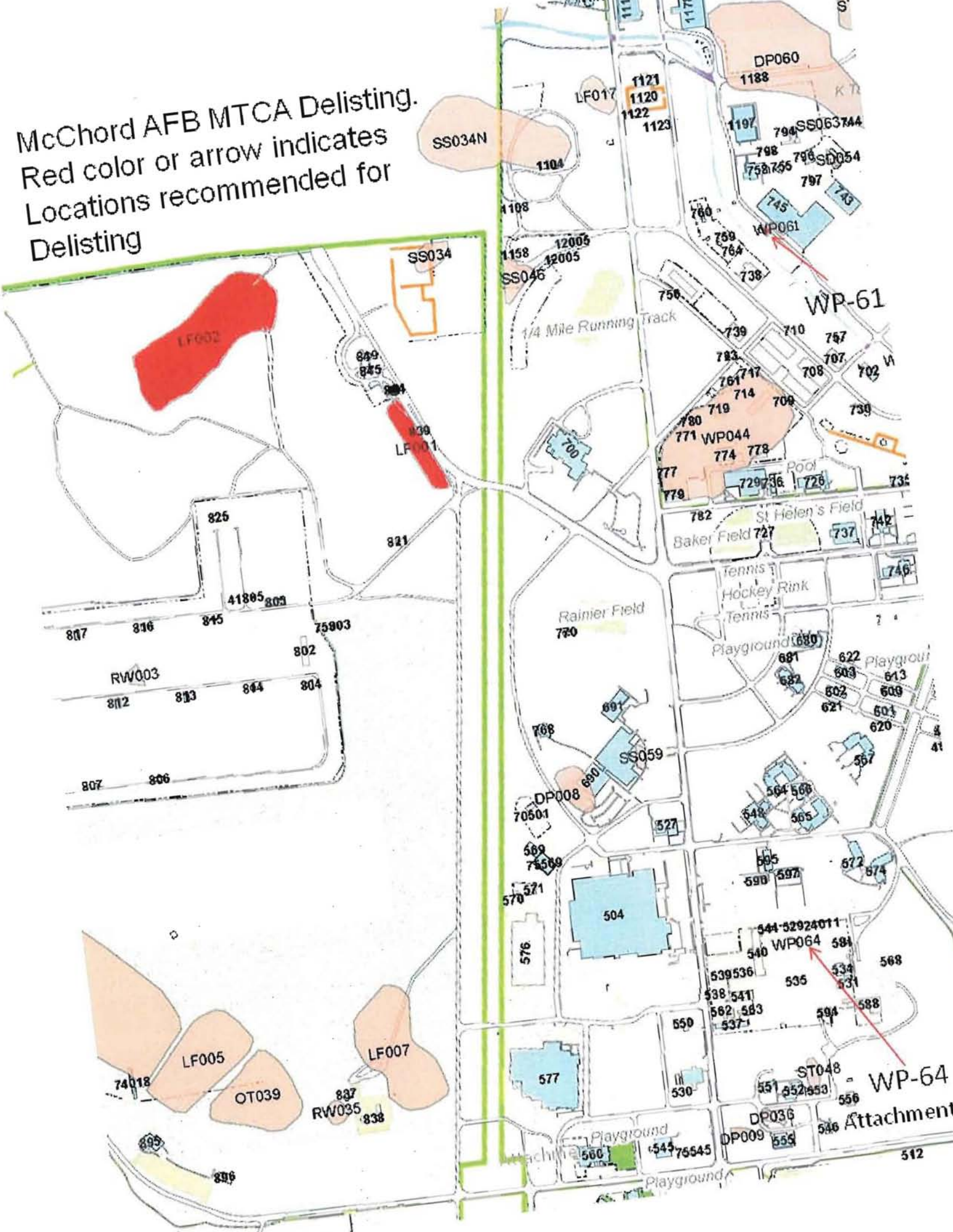


Michael Ruef  
Toxics Cleanup Program

MHR:gj

cc: Dawne Chapman, Ecology  
Curtis Dahlgren, Ecology  
Gail Jaskar, Ecology  
Sherrie Minnick, Ecology  
Michael Spencer, Ecology

McChord AFB MTCA Delisting.  
Red color or arrow indicates  
Locations recommended for  
Delisting



WP-64  
Attachment

### **Attachment 3: Closure Summary for MTCA HSL Site 232 (LF-01 and LF-02)**

**Installation: McChord Air Force Base Washington**

**MTCA Site: 232**

**IRP Site: LF-01 and LF-02**

**Location: State Plane:**

**Acres: <08.5**

**Type: Trichloroethylene (TCE) Contamination**

**Restrictions: No public access.**

**1. Site History:** This site is composed of two closed landfills LF-01 and LF-02. These closed landfills are immediately west (LF-01) and northwest (LF-02) of the McChord AFB main gate. LF-01 received waste from 1946 to the mid 1950s and LF-02 received waste from the mid 1950s to 1976. These landfills were discussed in The Installation Restoration Records Search dated August 1982 and are part of the Consent Decree with the Washington State Department of Ecology dated February 1992. No hazardous materials were encountered during subsequent investigations at these sites. Results from confirmatory groundwater monitoring showed three suspicious exceedances of the regulatory limit for Trichloroethylene (a volatile organic compound) during the March 1993 sampling event. Wells CW-01 upgradient of LF-01, CW-02 down gradient of LF-01 and CW-03 which is up gradient of LF-02 and down gradient of LF-01 showed levels of TCE almost ten times the regulatory limit of 5 µg/l. Follow-on sampling has failed to confirm the March 1993 results.

**2. Current situation:** Monitoring locations for these landfills are periodically sampled for volatile organic compounds under the McChord AFB Long Term Monitoring Program. No subsequent sampling through 2009 has shown regulatory exceedances of any volatile organic compounds. A summary of sampling for this site is attached. Over fifteen years of sampling has occurred without exceeding the regulatory limits for TCE. These landfills are permanently included in the McChord AFB Graphic Information Office Database mapping which must be reviewed before installation-managed digging permits are issued.

**3. Recommendation:** These closed landfills (LF-01 and LF-02) are currently on the Ecology managed HSL. The site remediation goal has been met in that no contamination is migrating from the site. The Air Force recommends that Ecology remove Site 232 from the HSL. The Air Force will continue to protect the site and the public through institutional controls. These landfills have been closed for over 30 years. The Air Force recommends discontinuing groundwater monitoring for this site.

Attachments:

Analytical Results

Attachment 3: Closure Summary for MTCA HSL Site 232 (LF-01 and LF-02)

Attachment 3. Summary of MTCA Sites LF-01 and LF-02 Monitoring

Well ID	Date	Vinyl Chloride (µg/L)	1,1-DCE (µg/L)	cis-1,2-DCE (µg/L)	TCE (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)
CW-1	Mar-93	<5	3 J	36	36	2 J	<5	<5	<5
	Dec-93	<0.2	<0.2	<0.2	<0.2	--	--	--	--
	Feb-94	<1.0	<1.0	<1.0	<1.2	--	--	--	--
	Mar-94	<1.0	<1.0	<1.0	<1.2	--	--	--	--
	Oct-94	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
CW-2	Mar-93	<5	1 J	87	40	<5	<5	<5	<5
	Dec-93	<0.2	<0.2	<0.2	<0.2	--	--	--	--
	Feb-94	<1.0	<1.0	<1.0	<1.2	--	--	--	--
	Mar-94	<1.0	<1.0	<1.0	<1.2	--	--	--	--
	Oct-94	<1.0	<1.0	<1.0	<1.2	<1.0	<1.0	<1.0	<1.0
	Mar-99	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.5
	Mar-08	<0.5	<0.5	<0.5	<0.5				
CW-3	Mar-93	<5	<5	18	17	<5	<5	<5	<5
	Dec-93	<0.2	<0.2	<0.2	0.7	--	--	--	--
	Feb-94	<1.0	<1.0	<1.0	0.91 J	--	--	--	--
	Mar-94	<1.0	<1.0	<1.0	0.24 J	--	--	--	--
	Oct-94	<1.0	<1.0	<1.0	1.1	--	--	--	--
	Dec-07	<1.0	<1.0	<1.0	0.57	<0.5	<0.5	<0.5	<0.5
CW-4	Mar-93	<5	<5	<5	<5	<5	<5	<5	<5
	Sep-94	<1.8	<1.3	<1	<1.2	<1	<1	<1	<1
	Apr-95	<1	<1	<1	<1	<1	0.39 J	<1	<1
	Sep-95	<0.5	<0.5	NR	<0.5	<1	<1	<1	<1
	Mar-96	<1.8	<1.3	<1.0	<1.2	<2	<2	<2	<2
	Mar-97	<1.0	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.5
	Mar-98	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.5
	Mar-99	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.5
	Mar-01	<0.5	<0.5	<0.5	<0.5	--	--	--	--
	Mar-03	<0.5	<0.5	<0.5	<0.5	--	--	--	--
	Mar-05	<0.5	<0.5	<0.5	<0.5	--	--	--	--
	Mar-06	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Sep-07	<0.5	<0.5	<0.5	<0.5				
Mar-08	<0.5	<0.5	<0.5	<0.5					
CW-35	Sep-98	<0.2	<0.2	<0.2	0.72	<0.5	<0.5	<0.5	<0.5
	Sep-07	<0.2	<0.2	<0.2	0.79	<0.5	<0.5	<0.5	<0.5
CW-36	Sep-98	<0.2	<0.2	<0.2	0.62	<0.5	<0.5	<0.5	<0.5
	Sep-07	<0.2	<0.2	<0.2	1.1	<0.5	<0.5	<0.5	<0.5

## Attachment 4: Closure Summary for MTCA HSL Site 236 (WP-61)

**Installation:** McChord Air Force Base Washington

**MTCA Site:** 235

**IRP Site:** WP-61

**Location:** State Plane:

**Acres:** <0.1

**Type:** Metals contaminated dry well

**Restrictions:** No public access.

**1. Site History:** Site WP-61 is a closed leach pit/acid disposal well located between Clover Creek and Building 745. Prior to remediation, it was estimated to be about 13 feet deep and had an inlet pipe from Building 745. The period of use reportedly dates from 1953 through 1960. Small amounts of plating waste were disposed of in the site. This site is mentioned in the August 1982 Installation Restoration Program Records Search for McChord Air Force Base. During this 1982 period, a bioassay showed sediment from the bottom of the well was not toxic. Sampling WP-61 in March of 1993 and December of 1996 showed elevated levels of Cadmium, Chromium, and Lead (Attachment 3). WP-61 was placed on the HSL June 28, 1995 for elevated concentrations of chromium and lead. This site was listed with a caveat that it could be removed from the HSL when evidence showed it was cleaned up. A partial removal action occurred in 2003 and resulted in removal of waste and parts of the dry well structure to a depth of 7 feet; the overall depth of the structure measured 11 feet. The remaining 4 feet of depth was filled with controlled density fill. Soil was used to fill the zone between 7 feet and the surface. Sampling at the time of the removal action, showed only Cadmium (2 mg/kg) and Chromium (24.9 mg/kg) to be slightly above background for McChord AFB. The WP-61 site vicinity was resampled in August 2007, when locations on Clover Creek and the stream bank (adjacent to the site) were sampled for metals (Attachment).

**2. Current situation:** The 2007 sampling included adjacent soil samples from the creek bank and sediments from the creek bottom adjacent to the site, and up and down gradient from the site. Surface water from Clover Creek adjacent and up and down gradient from WP-61 was also analyzed. None of the target metals cadmium, chromium or lead were detected in the water samples. There were creek sediment detections of target metals about 100 feet down gradient from WP-61 and some lead (0.1 mg/Kg) was leached (using the TCLP method) from the creek sediment adjacent to WP-61. All the total metals results, except cadmium, were about an order of magnitude under the MTCA Method A residential cleanup standards. Cadmium on the creek bank was found at 2.6 mg/Kg which is 0.6 mg/Kg above the Method A cleanup level. The TCLP test indicates this cadmium is not mobile. All the other analyses are below the cleanup level. There is no indication that contamination is currently migrating from the site. Site WP-61 is permanently included in the McChord AFB Graphic Information Office Database mapping which must be reviewed before installation-managed digging permits are issued.

**3. Recommendation:** Site WP-61 is currently on the Ecology managed HSL. The site remediation goal has been met in that no contamination is migrating from the site. The Air Force recommends that Ecology remove Site 235 (WP-61) from the HSL. The Air Force will continue to protect the site and the public through institutional controls.

Attachments:  
Analytical Results

**WP-61 Sampling  
2 August 2007**

**Attachment 4**

			Site1	Site2	Site3	Site3	Site4	
			about 100	About 50	about 15	Creek	about 100	Lab Method
			feet down	feet down	feet down	Bank	feet up	
			stream	stream	stream		stream	
			<b>WP61-1-1</b>	<b>WP61-2-1</b>	<b>WP61-3-1</b>	<b>WP61-3-3</b>	<b>WP61-4-1</b>	
<b>Soil Total Metals</b>	<b>MTCA Method A Cleanup Levels</b>	<b>McChord Soil Mean Background</b>						
Total Arsenic	20	3.47	<5	<5	<5	<5	<5	SW8466010B
Total Barium		78.41	44.00	31.00	54.00	55.00	41.00 mg/Kg	SW8466010B
<b>Total Cadmium</b>	2.00	0.17	<0.3	<0.3	<0.3	<b>2.60</b>	<0.3 mg/Kg	SW8466010B
<b>Total Chromium</b>	2000.00	13.99	22.00	55.00	270.00	340.00	290.00 mg/Kg	SW8466010B
<b>Total Lead</b>	250.00	10.39	42.00	32.00	49.00	24.00	72.00 mg/Kg	SW8466010B
Total Selenium		0.56	<8	<8	<8	<8	<8 mg/Kg	SW8466010B
Total Silver		0.28	<0.7	<0.7	<0.7	<0.7	<0.7 mg/Kg	SW8466010B
Total Mercury		0.09	<0.05	<0.05	<0.05	<0.05	<0.05 mg/Kg	SW8467470A
<b>Water Samples</b>		<b>MCL Drinking Water</b>	<b>WP61-1-2</b>	<b>WP61-2-2</b>	<b>WP61-3-2</b>		<b>WP61-4-2</b>	
Arsenic		0.01	< 0.05	< 0.05	< 0.05		< 0.05 mg/L	SW8466010B
Barium		2	0.006	0.005	0.007		0.009 mg/L	SW8466010B
<b>Cadmium</b>		0.005	< 0.003	< 0.003	< 0.003		< 0.003 mg/L	SW8466010B
<b>Chromium</b>		0.1	< 0.007	< 0.007	< 0.007		< 0.007 mg/L	SW84660]0B
<b>Lead</b>		0.015	< 0.04	<0.04	< 0.04		< 0.04 mg/L	SW8466010B
Selenium		0.05	<0.08	< 0.08	<0.08		<0.08 mg/L	SW8466010B
Silver		0.1	< 0.007	< 0.007	< 0.007		< 0.007 mg/L	SW8466010B
Mercury		0.002	< 0.0002	< 0.0002	< 0.0002		< 0.0002 mg/L	SW8467470A
<b>Soil Samples TCLP</b>		<b>TCLP Regulated Level</b>	<b>WP61-1-2</b>	<b>WP61-2-2</b>	<b>WP61-3-2</b>	<b>WP61-3-3</b>	<b>WP61-4-2</b>	<b>mg/L</b>
TCLP Arsenic		5	<0.05	<0.05	<0.05	<0.05	<0.05 mg/L	SW8466010B
TCLP Barium		100	0.190	0.160	0.190	0.260	0.180 mg/L	SW8466010B
<b>TCLP Cadmium</b>		1	0.017	< 0.003	< 0.003	0.018	< 0.003 mg/L	SW8466010B
<b>TCLP Chromium</b>		5	0.013	< 0.007	< 0.007	< 0.007	< 0.007 mg/L	SW8466010B
<b>TCLP Lead</b>		5	0.070	<0.04	0.100	< 0.04	0.060 mg/L	SW8466010B
TCLP Selenium		1	<0.08	<0.08	< 0.08	<0.08	< 0.08 mg/L	SW8466010B
TCLP Silver		5	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007 mg/L	SW8466010B
TCLP Mercury		0.2	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002 mg/L	SW8467470A

## **Attachment 5: Closure Summary for MTCA HSL Site 236 (WP-64)**

**Installation: McChord Air Force Base Washington**

**MTCA Site: 236**

**IRP Site: WP-64**

**Location: State Plane: 1144724E, 660188N**

**Acres: <0.1**

**Type: Pesticide contaminated dry well**

**Restrictions: No public access, fenced and covered with asphalt.**

**1. Site History:** WP-64 is the site of a decommissioned pesticide dry well that previously was connected to a small sink used to clean smaller pesticide equipment and for hand washing. The site, near former building 587, was first identified during a 1990 Site Hazard Assessment (SHA) conducted by the Washington State Department of Ecology (Ecology). WP-64 is also identified in a 1992 Consent Decree between Ecology and the Air Force. Initial investigation of the site and soil removal to seven feet occurred in February 1993. A down gradient monitoring well for WP-64 was established as part of the 1993 investigation at well CW-13. CW-13 was monitored as part of the McChord AFB Long Term Monitoring Program. Additional site cleanup was done in December 2007 when the 1992 excavation site was reopened and almost all the contaminated soil was removed down to the top of the water table (about sixteen feet).

**2. Current situation:** Cleanup actions at Site WP-64 have removed most of the chlordane and eliminated potential exposure routes and pollution migration pathways. About 16 cubic yards of contaminated soil was removed. Residual chlordane has been isolated to a small area over ten feet below ground surface and within the water table. Remaining chlordane, which has a tendency to bind with whatever soil it is in contact with, is essentially locked in its current location. The only potential contamination pathway for WP-64 is the groundwater. The most recent down gradient water quality monitoring sample taken in March 2009 at well CW-13 (monitored since 1995, analytical results attached) shows no detectable chlordane. The depth of potential contact with any residual chlordane is below normal construction excavation depth. The site is currently paved and incorporated into a well maintained 9.3 acre asphalt parking lot that is secured behind a gate within an industrial area identified as the civil engineer yard. Additionally, the site is permanently listed in the McChord AFB Graphic Information Office which must be consulted before installation-managed digging permits are issued.

**3. Recommendation:** Site WP-64 is currently on the Ecology managed HSL. The site remediation goal has been met by showing no contamination in the groundwater primary contact pathway. The Air Force recommends that Ecology remove Site 236 (WP-64) from the HSL. The Air Force will continue to protect the site and the public through institutional controls. Since it has demonstrated that no contamination is migrating from the site, the Air Force also recommends discontinuing pesticide monitoring at CW-13 as part of this closure/delisting action.

Attachment:  
Analytical Results

**Attachment 5: Closure Summary for MTCA HSL Site 236 (WP-64)**

**Summary of Site WP-64 Analytical Data**

Sample Location	Date	alpha-Chlordane (mg/kg)	gamma-Chlordane (mg/kg)	Total Chlordane (mg/kg)	4,4'-DDE (mg/kg)	4,4-DDT (mg/kg)
Excavation Pit—Confirmation Soil	Feb-93	90	94	--	<9.3	<9.3
Well ID		alpha-Chlordane (µg/L)	gamma-Chlordane (µg/L)	Total Chlordane (µg/L)	4,4'-DDE (µg/L)	4,4-DDT (µg/L)
CW-13	Jan-95	--	--	<0.5	0.022 J	0.072
	Jan-95	--	--	0.48 J	0.044 J	0.25
	Apr-95	--	--	1.2	0.048	0.34
	Mar-99	<0.048	<0.048	--	<0.096	<0.096
	Mar-00	<0.05	<0.05	--	<0.1	<0.1
	Mar-02	<0.047	<0.047	--	<0.093	<0.093
	Mar-06	0.17	0.15	--	<0.075	0.14
	Mar-07	<0.040	<0.040	--	<0.075	<0.075
Mar-09	<0.40	<0.40	--	<0.075	<0.075	

J = The analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.