

Boundary Operable Unit(BOU)

OU6

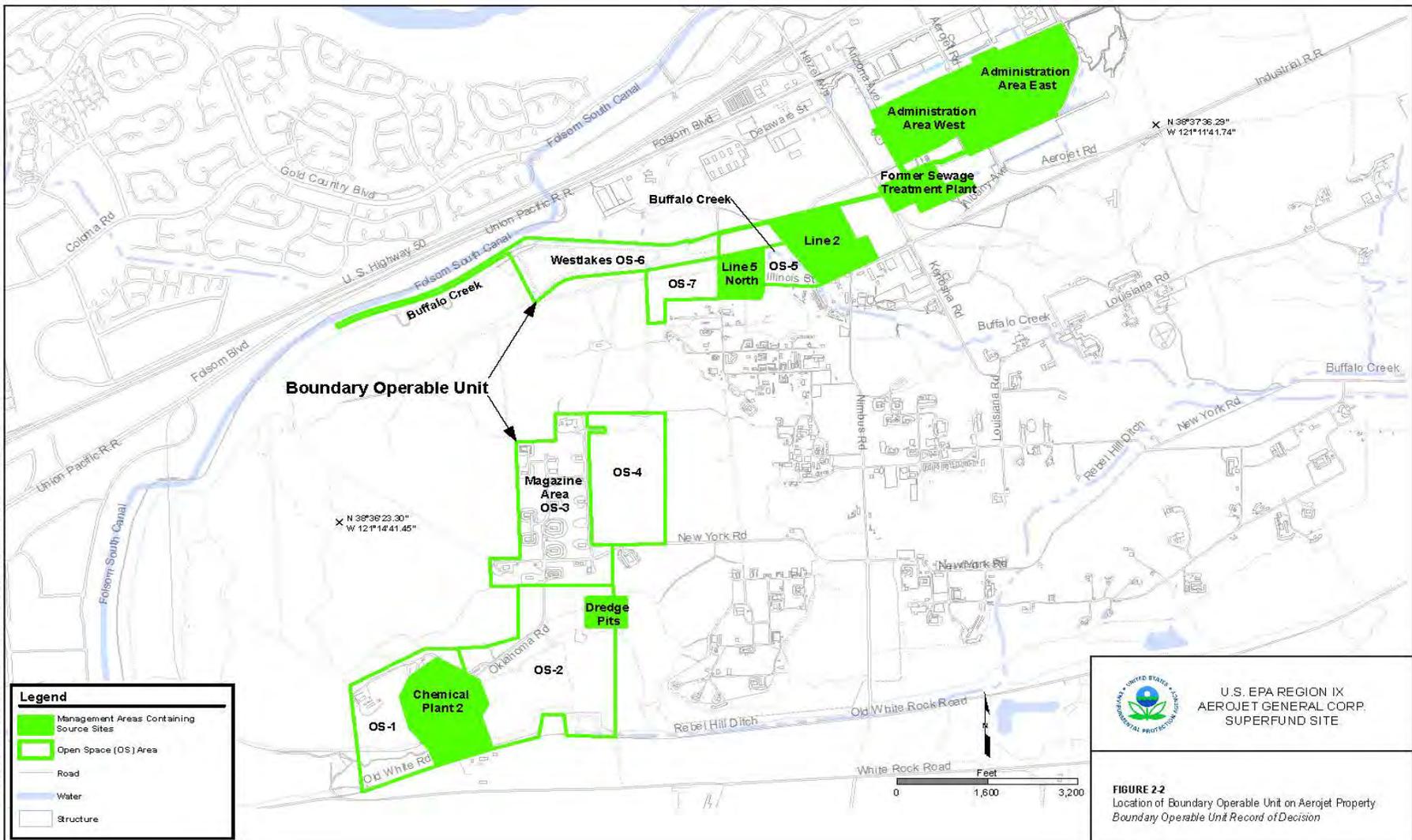
Draft ROD

Status Update

BOU OU6 Draft ROD STATUS

- BOU OU6 Draft ROD is currently undergoing internal PEER review.
- ROD is on schedule for public release September 2014.
- Background Summary
 - BOU OU6 is divided into seven Management Areas
 - Administrative Area (East and West)
 - Line 2 / Open Space 5
 - Line 5 / Open Space 7
 - Buffalo Creek
 - Westlakes / Open Space 6
 - Magazine Area / Open Space 3
 - Chemical Plant 2 / Open Spaces 1, 2 and 4
- Sources
 - Potential sources were identified within each Management Area

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Sources in BOU OU6

(table example)

Management Area		Original Source Area Designation	Description	Remedial Action Area Designation
Admin Area	Admin Area East	3D	Liquid rocket engine manufacturing – sumps in Building 20002 and 20004, former 5,000-gallon fuel oil tank southwest of Building 20002.	AE-R-1 to AE-R-9
		4D	Area 20 surface water drainage system – ditch system south of Building 20004 and east of Building 20024. Source Area 4D also include septic tanks A20-ST05-1 and A20-ST05-2.	--
		11D	Area 20 surface water drainage system – ditch system and former 5,000-gallon acid holding tank associated with Building 20022. Source 11D also includes septic tank A20-ST22.	--
		50D	Boiler fuel oil storage – former 4,000-gallon underground fuel oil tank west of Building 20001. Source Area 50D also includes septic tanks A20-ST01-1; A20-ST01-2; A20-ST01-3; A20-ST01-4; and A20ST01-5.	--
		51D	Former 3,000-gallon waste tank north of Building 20002.	--
		Building 20034	X-ray facility.	--
		RCRA Unit B (20037 Container Storage)	The closure and monitoring of the RCRA units themselves (i.e., storage containers, storage tanks, etc.) is conducted by DTSC. Any contamination in the environment as a result of releases from the units is addressed under this ROD.	--
		RCRA Unit C (20029 Treatment Unit)		
RCRA Unit X (20073 Storage Tanks)				

Sources in BOU OU6

- All potential sources were investigated during the remedial investigation.
- Based on the results of the remedial investigation and risk assessment, **areas of contamination** were identified that pose an **unacceptable risk** to human health, ecological receptors, and/or groundwater.

Sources in BOU OU6

- COCs at Sources identified in BOU OU6 include:

Contaminants of Concern in Soil and Soil Vapor

Soil			
1,1,2,2-PCA	Benzo(b)fluoranthene	Endrin	PCE
4,4'-DDD	Benzo(k)fluoranthene	Endrin aldehyde	Perchlorate
4,4'-DDE	Boron	Hexavalent chromium	Phenanthrene
4,4'-DDT	Cadmium	Ideno(1,2,3-c,d)pyrene	Phenol
Aluminum	Chromium	Iron	Prowl
Antimony	Chrysene	Lead	Selenium
Aroclor-1248	Copper	Manganese	Silver
Aroclor-1254	d-BHC	Mercury	TCE
Aroclor-1260	Dibenz(a,h)anthracene	Molybdenum	Thallium
Barium	Dieldrin	Naphthalene	Toluene
BEHP	Dimethyl phthalate	NDMA	TPH-D
Benzo(a)anthracene	Di-n-octyl phthalate	Nickel	TPH-Mo
Benzo(a)pyrene	DnBP	PCBs	Zinc
Soil Vapor			
1,1-DCE	Chloroform	PCE	Toluene
1,2-DCA	cis-1,2-DCE	TCE	Vinyl chloride
Benzene			

Remedial Areas

- These areas of contamination are referred to as Remedial Action Areas that require an action be taken and were assigned a retained area number, such as AE-R-1 and AE-SV-R-1, to track remediation. Generally, the areas are labeled with a management area (e.g. Administration Area East) identifier followed by “R-[number]” [e.g., AE-R-1] are areas with soil contamination; and areas labeled “SV-R-[number]” are areas with soil vapor contamination.

Remedial Action Areas Summary Table

- The RA summary table will include the following:
 - Retained Area name
 - Description of area
 - Contamination status
 - Planned use
 - Contaminants of Concern (Human Health, ECO, Protection of GW)
 - Risk summary
 - Selected alternative
 - Rationale for selected remedy

Source Containment and Engineering example

Retained Area	Description of Remedial Action Area	Status of Contamination	Planned Use	Contaminants of Concern			Human Health Risk Summary				Selected Alternative	Rationale for Selected Remedy
				HH COCs	Ecological COPECs	Protection of Ground Water COCs	Unrestricted Use		Industrial Use ^c			
							Soil Vapor	Soil	Soil Vapor	Soil		
Administration Area West AE-R-2	This retained area is located between Bldg 20002 and 20004, which are rocket engine manufacturing facilities.	Soil contamination may extend beneath both buildings. Volume of contamination is not well defined.	Commercial	1,1,2,2-PCA Arochlor-1254 Iron			NA	ILCR = 5E-04 Hi= 42	NA	ILCR = 2E-04 Hi= 4	Alternative 3 Source Containment and Engineering (Capping)	Due to the complexity of the Area (multiple underground utility lines and bldgs), capping is the selected remedy, which will protect human health and the environment by provide a protective barrier that, along with ICs, will mitigate unacceptable exposures

Source Removal / Reduction (SVE) example

Retained Area	Description of Remedial Action Area	Status of Contamination	Planned Use	Contaminants of Concern			Human Health Risk Summary				Selected Alternative	Rationale for Selected Remedy
				HH COCs	Ecological COPECs	Protection of Ground Water COCs	Unrestricted Use		Industrial Use ^c			
							Soil Vapor	Soil	Soil Vapor	Soil		
Administration Area West												
AE-SV-R-2	This remedial area is located at the NW corner of Bldg 20002.	The lateral and vertical extent of the soil vapor contamination has not been defined. This soil vapor contamination likely overlaps with AE-SV-R-1 and extends beneath Building 20002.	Commercial	PCE Vinyl Chloride TCE Benzene			ILCR = 2E-03 HI= 3	NA	ILCR = 5E-04	NA	Alternative 4 Source Removal / Reduction (SVE)	SVE is the selected remedy for VOCs in soil vapor that are present at concentrations that pose an unacceptable risk from soil vapor migration into indoor air under an unrestricted use scenario or present a threat to groundwater quality.



Source Removal/Reduction (Excavation) example

Retained Area	Description of Remedial Action Area	Status of Contamination	Planned Use	Contaminants of Concern			Human Health Risk Summary				Selected Alternative	Rationale for Selected Remedy
				HH COCs	Ecological COPECs	Protection of Ground Water COCs	Unrestricted Use		Industrial Use ^c			
							Soil Vapor	Soil	Soil Vapor	Soil		
Administration Area West AW-R-5	Located near the southwest corner of Building 20009 and is collocated with AW-R-4. AW-R-5 is located just outside the culvert located along the southern edge of Building 20009.	The lateral and vertical extent of contamination has not been defined.	Mixed use	--	Cadmium Zinc Aroclor-1260	TPH-D TPH-Mo	NA	NA	NA	NA	Alternative 4 Source Removal/Reduction (Excavation)	This area is relatively accessible for excavation. If contamination remains in place after excavation, ICs will be required to prevent unacceptable exposures.



Source Removal/Reduction (Excavation) example

Retained Area	Description of Remedial Action Area	Status of Contamination	Planned Use	Contaminants of Concern			Human Health Risk Summary				Selected Alternative	Rationale for Selected Remedy
				HH COCs	Ecological COPECs	Protection of Ground Water COCs	Unrestricted Use		Industrial Use ^c			
							Soil Vapor	Soil	Soil Vapor	Soil		
Administration Area West												
L2-R-2	This area is on the southeast side of Building 02024 (Crawford Bomb Station), which handled propellants and discharged wastewater potential containing solvents, perchlorate, and beryllium to the pond through a concrete lined trough.	The lateral and vertical extent of contamination has not been defined. Contamination may extend beneath the building.	Mixed use	Benzo(a) pyrene Benzo(b&k)fluoranthene	TCE PCE Toluene	--	NA	ILCR = 1E-05 HI = 0.3	NA	ILCR = 4E-06 HI = 0.8 (CW)	Alternative 4 Source Removal/Reduction (Excavation with Soil flushing and air Stripping)	Due to the complexity of these overlapping sites (L2-R-4, L2-R-5, L2-R-9, L2-SV-R-2) and the variety of COCs present, a combination of excavation with soil flushing and air stripping is the selected remedy.



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**Figure 2-25
Remedial Action Areas for
Line 2 Region
Boundary Operable Unit
Record of Decision**



BOU OU6 Alternatives

All Remedial Action Areas were evaluated for remedial alternatives.

The selected remedy for each Remedial Action Area was documented in the Proposed Plan and will be included in the BOU OU6 ROD.

The selected remedies include:

Alternative 2: Institutional Controls for 8 areas

Alternative 3: Containment and Engineering Controls for 8 areas

Alternative 4: Source Removal Reduction for 61 areas (15 for SVE and 46 for excavation)

Note: Alternative 1: No Action was not selected because it is not protective of human health or the environment.

BOU OU6 Remedial Action Areas Include:

Administration Area East

- 9 soil areas, 8 soil vapor areas

Administration Area West

- 15 soil areas, 1 soil vapor area

Line 2 Region/Open Space 5

- 11 soil areas, 3 soil vapor areas

Line 5 North/Open Space 7

- 4 soil areas, 3 soil vapor areas

Buffalo Creek

- 1 soil area, 1 soil vapor area

Westlakes/Open Space 6

- 1 soil area

Magazine Area/Open Space 3

- 1 soil vapor area

Chemical Plant 2/ Open Spaces 1, 2, and 4

- 11 soil areas, 6 soil vapor areas

Dredge Pit/Eastern Basin

- 1 soil area, 1 soil vapor area