



ENVIRONMENTAL GROUP
WASTE IS A TERRIBLE THING TO MIND.

CASE HISTORY/REFERENCES METALS TREATMENT

#1 Client: USCG Astoria, Oregon

Engineer: Tetra Tech, Inc.
Contact: Carlotta Cellucci

Project was located at the Tongue Point facility in Astoria, Oregon. Sandblast materials containing lead, arsenic and chrome had been deposited on an adjacent property. A pilot study was conducted on a heavy metal contaminated sandblast grit waste pile on US fish and Wildlife site in Astoria, Oregon. A chemical mix design was developed and applied this in an in situ process bringing leachable lead to below LDR for off site shipment as a non-RCRA waste stream.

Raw Sample for Total Metals

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	
				3,320*					

* Estimated TCLP value @ 15-50 ppm

Treated Materials for TCLP Metals

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	Nickel
				ND					

All Test Results in PPM

#2 Client: USMC Air Base

Engineer: BEM Systems, Inc.
Contact: Greg Butler
Prime Contractor: ERI, Inc.
Contact: Greg Laney

Project was located in Yuma, AZ. at a former firing range site. An application of a stabilization mix was applied, utilizing ex-situ pugmill blending to render the soils non hazardous and suitable for non hazardous landfill disposal. Materials met LDR standards.

Raw Sample for TCLP Metals

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	
				15 to 30*					

*higher value

Treated Materials for TCLP Metals

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	Nickel
				0.3 to ND					

All Test Results in PPM

#3 Client: National Park Service

Contractor: Americon, Inc.
Contact: Bruce Bennett
Phone: 303-443-9503

Project was located near Hot Springs, SD at a former firing range site. A chemical stabilization mix was provided, utilizing ex-situ pugmill blending to render the soils non hazardous and suitable for non hazardous landfill disposal. Materials met LDR standards.

Raw Sample for TCLP Metals

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	
				56.3*					

*higher value

Raw Sample for TOTAL Metals

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	
				197,000*					

*higher value

Treated Materials for TCLP Metals

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	Nickel
				0.3 to 0.13					

All Test Results in PPM

#4 Client: Undisclosed

Engineer: GeoTrans, Inc.
Contact: Todd Hagemeyer

Project was located near Tampa, FL. A proprietary stabilization mix was provided, utilizing heavy equipment blending to render the soils non hazardous and suitable for non hazardous landfill disposal. Materials met LDR standards.

Raw Sample for TCLP Metals

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	
		27 to 30							

*higher value

Treated Materials for TCLP Metals

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	Nickel
		ND to .05							

All Test Results in PPM

#5 Client: Undisclosed

Sample represented composite of secondary oxidation scrubber ash generated from a county owned solid waste incineration unit. A chemical mix design was developed to meet LDR for lead rendering the materials acceptable to non hazardous landfill.

Raw Sample for TCLP Lead

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	
				52.9					

Treated Sample for TCLP Lead

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	Nickel
				0.14					

All Results in PPM

#6 Client: City of Dallas, TX

Engineer: LCA, Inc.
Contact: Charles Baugh

Project consisted of soils with lead, arsenic and chrome. A mix design was developed to reduce leachability of target metals to a non hazardous waste status and oversee the remedial activities. The mix design was developed to meet LDR for the target metals rendering the materials acceptable to non hazardous landfill. The confirmation testing identified that all metals had been treated not only to non hazardous status but were acceptable for Class 2 disposal in TX saving the client additional funds.

Raw Sample for TCLP Metals

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	
.1		0.044		60.4					

Raw Sample for Total Metals

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	
n/a		n/a		*20,000					

*higher value

Treated Sample for TCLP Metals

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	
0.304		0.028		0.472					

All Results in PPM

#7 Client: Metals Recycling Facility

Prime Contractor: Confidential
Contact: Confidential

Project was located in Towanda, PA. at an operational salvage yard site. An application of a chemical stabilization mix was provided, utilizing standard heavy equipment to blend soils rendering the soils non hazardous and suitable for non hazardous landfill disposal. Materials met LDR standards.

Raw Sample for TCLP Metals

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	
				241					

Treated Materials for TCLP Metals

Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Zinc	Nickel
				ND					

All Test Results in PPM