

ATTACHMENT 1 – HSI WORK PLAN TASK 1

	ACTIVITY 1	ACTIVITY 2	ACTIVITY 3	ACTIVITY 4
	Site Screening & Data Collection	Imagery Analysis & Reporting	Follow-on Results Verification	Present Findings
Description	<ul style="list-style-type: none"> * Obtain spectral signatures of mine waste in Aurora, MO. Conduct field screening for Lead and Zinc levels in surface soils. * Conduct field screening for Lead and Zinc levels in vegetation in impacted and non-impacted areas. 	<ul style="list-style-type: none"> * Re-analyze Pilot Project HSI of Aurora with Activity 1 data. * Develop chart of Aurora with color-coded levels of contamination. * Develop file with locations of contamination. * Develop chart of vegetation-based contamination levels. 	<ul style="list-style-type: none"> * Verify HSI findings and provide results. 	<ul style="list-style-type: none"> * Conduct internal review of findings. * Publish report.
Tasks	<p>MoRAP</p> <ul style="list-style-type: none"> - Participate in site visit planning meeting(s). - Re-analyze Aurora HSI, obtained during the 2005 OSWER Pilot Project, showing contamination in three color variations depicting three degrees of association with the signature used for the original analysis. - Provide data file of Aurora contamination locations identified in re-analysis broken down by degree of signature association. - Participate in site visit to Aurora and collect handheld spectrometer data of varying degrees of soil contamination identified by MDNR. - Collect handheld spectrometer data of varying degrees of vegetation contamination, if feasible, identified by MDNR. 	<p>MoRAP</p> <ul style="list-style-type: none"> - Apply Activity 1 spectral data to Pilot Project imagery and develop chart of surface conditions with varying levels of contamination. - Apply Activity 1 vegetation stress data to Pilot Project imagery and develop chart of vegetation conditions that may indicate extent of contamination. - Check geo-reference data from original Pilot Project with field data, and adjust if appropriate. - Develop file of contamination locations. 	<p>MoRAP</p> <ul style="list-style-type: none"> - Participate in planning and review meetings as requested. - Provide inputs to reports as requested. 	<p>MoRAP</p> <ul style="list-style-type: none"> - Participate in review and briefings as requested.
	<p>MDNR</p> <ul style="list-style-type: none"> - Conduct site visit planning meeting. - Develop field screening plan for Aurora. - Collect GPS readings of all field screening locations. - Collect GPS readings of points used by MoRAP for original imagery geo-referencing. Points will be used to check MoRAP data. - Collect XRF surface soil readings. - Collect XRF vegetation readings in known contaminated and non-contaminated areas. 	<p>MDNR</p> <ul style="list-style-type: none"> - Participate in meetings and re-analysis as appropriate. - Plot Activity 1 soils, vegetation and geo-reference data. 	<p>MDNR</p> <ul style="list-style-type: none"> - Conduct follow-up site visit. - Collect XRF data of areas representing levels of contamination of surface soils. - Collect XRF data of vegetation representing levels of stress. Collect XRF data of surface soils in areas of stressed vegetation. - Compile graphics and data in report. 	<p>MDNR</p> <ul style="list-style-type: none"> - Coordinate reviews and briefings as appropriate. - Publish report.

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Outputs	MoRAP - Spectral signatures for high and low lead and zinc contamination. - Spectral signatures, if feasible, of vegetation in lead and zinc contaminated and non-contaminated areas.	MoRAP - Graphics of potential mine waste & positional information. - Graphics of potential contamination induced vegetation stress & positional information.	MoRAP - Graphics of soil contamination & vegetation stress for report. - Comments/recommendations on the applicability of HSI to SW MO mining inventory. - Comments/recommendations on times of the year, spectral bands, soil types and other variables that would enhance collection and analysis for future mine inventory initiatives.	MoRAP - Materials for briefings as requested.
	MDNR - Surface metals data for designated areas and for non-contaminated areas. - Metals levels, if feasible, of vegetation in lead and zinc contaminated and non-contaminated areas. - GPS coordinates for designated geo-reference points.	MDNR - Plot of Activity 1 XRF and GPS data.	MDNR - Field analysis data with coordinates & readings. - Report of evaluation.	MDNR - Report. - Recommendations for follow-on analysis and applications.
Outcomes	* Develop accurate signature and positional information for follow-on analysis.	* Generate graphics and positional data to support follow-on Activity 3 analysis verification.	* Evaluation of HSI analysis.	* Confidence in HSI for field screening in SW MO, and mine waste inventory applications in general. * Report provided for follow-on analysis and collection as appropriate.