Rev Final Phase III RI Sampling Plan for Follow-up RISBON-59 Soil Sampling

March 27, 2007

CASMALIA SITE REMEDIATION PROJECT

March 27, 2007

Corey Bertelsen
Project Manager

To: Russell Mechem – EPA
Lynda Deschambault – EPA
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Subject: **Rev Final** Phase III RI Sampling Plan for Follow-up RISBON-59 Soil Sampling

The Casmalia Steering Committee (CSC) is submitting this revised final *Phase III RI Sampling Plan for Follow-up RISBON-59 Soil Sampling* to summarize the Phase III RI soil sampling work that we anticipate completing in the Spring of 2007. The final *Phase III RI Sampling Plan for Follow-up RISBON-59 Soil Sampling* addresses the three comments EPA recently provided us on our previous February 28, 2007 submittal of the same title and incorporates EPA's request to substitute a hydropunch for TP-3 for ground water sampling.

This memorandum discusses the additional soil borings (or Phase III RI sampling) and the ground water sampling that we have proposed to complete characterization of the soil contamination around RISBON-59 that were originally identified in the Phase I RI sampling and were further evaluated in the Phase II RI sampling effort.

This memorandum is formatted to include the same information that we had provided EPA in the three previously approved Phase II RI sampling memorandums which were in turn intended to be consistent with the June 3, 2004 Final RI/FS Work Plan that was approved by EPA. The memorandum summarizes the sampling program, sampling locations, expected analytical program for all samples, and refers back to the applicable SOPs, SAP, and QAPP of the revised Final RI/FS Work Plan.

The schedule for the proposed Phase III RI sampling work is tentatively set for April. We expect to complete a sample location walk with EPA prior to that time to confirm all sample locations.

Soil Samples

The CSC will collect soil borings and samples at the locations listed below. The number and location of these borings were first proposed by the CSC in the RISBON-59 Data Package that was sent to EPA on December 11, 2006. EPA responded to that package in a letter dated January 26, 2007 that was subsequently discussed and agreed to via email exchanges.

The CSC will complete four additional Type 6 boring samples in the vicinity of RISBON-59.

The preliminary locations of all of these samples are shown on Figure 4.1-P3 which is attached to this memorandum. The sampling locations were chosen so that they would be located outside the boundary of a former waste pond that was located in this area of the site. The outline of this former pond was estimated from aerial photographs of the site and is shown on Figure 4.1-P3.

The northern and southern sampling locations are located to be as close to the historic natural drainage as possible. The CSC and representatives for EPA will walk the proposed locations for the sampling prior to completing the sampling to agree on these final locations.

The soil data we are planning to collect will be used to complement existing soil data. The Phase III soil samples will be analyzed for the suite of chemicals listed in revised Table A.2-P3 and revised Table 4.4-P3 attached to this memorandum. All of this analytical work will adhere to the same laboratory requirements for the respective analytical work that was required by the June 3, 2004 revised Final RI/FS Work Plan for this type of soil sampling (these requirements can be found in Appendix B or QAPP of the RI/FS Work Plan). The CSC expects to send the soil samples to the same laboratories that performed the equivalent Phase I RI work. In the event that we must change laboratories, we will notify EPA in advance and provide the agency appropriate lab qualifications, MDL studies, and QA/QC information so EPA may approve the laboratory change.

The CSC will analyze three depths of the Type 6 borings. The CSC will complete a soil boring adjacent to each of the proposed locations as a first step of the sampling process that will be logged continuously but not sampled. The three depths of the samples for each of the four Type 6 borings will be selected in the field based on the visual information provided by the first boring. The intent will be to collect a sample that is 5 feet above the potential contamination, a sample in the center of the most contaminated depth, and a sample 5 feet below the potential contamination (or at the HSU contact if that is shallower). The surface, 5 foot, and 10 foot depths of a Type 6 boring will not be collected as we have already collected sufficient surface soil data for this area as part of previous RI sampling programs and the available data indicate that maximum contaminant concentrations in this area are present at depths of between approximately 27 to 36 feet bgs and diminish vertically away from this depth.

The CSC has included a North-South cross section of the proposed sampling area attached to this memorandum that shows to the best of our knowledge:

i) The horizontal extent of the former waste pond noted above.
ii) The proposed northern and southern step-out borings, RISBON-59/RIPZ-37, and RISBON-85.
iii) The extent of contamination visually or organoleptically identified during Phase I and Phase II RI field work.
iv) The upper and lower HSU contacts encountered during Phase I and Phase II RI field work.
v) The estimated ground water table surface.

Please note that Table 4.4-P3 accompanying this memorandum does not yet include the survey coordinates for all of the sample locations as they have not been finalized. The CSC will survey the locations after the final locations are agreed on and will provide all of those coordinates as part of our final reporting of the data.

Additional details on soil sampling such as sampling procedures (SOPs), etc can be found in Section A6.5.2 of the SAP (Appendix A) of the June 3, 2004 revised Final RI/FS Work Plan.

Groundwater Sample

The CSC will also collect a groundwater sample from a hydropunch (temporary piezometer) that will be installed at a location that is down gradient from the identified contamination. The hydropunch will be installed according to SOP 1-1 (dated December 5, 2006) from the RI/FS Work Plan. The CSC and EPA will agree to the location prior to installation during the site walk. The CSC will analyze the water for a modified Appendix IX suite of chemicals.

Documentation

The CSC will document the Phase III RI data collected using the same procedures and requirements as were required by the June 3, 2004 revised Final RI/FS Work Plan and the previous Phase II RI Sampling memorandums.

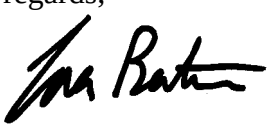
The project documentation requirements of the RI/FS Work Plan are specifically discussed in Section 11.2 of the Work Plan. All data collected during the Phase III RI sampling will be added to the electronic database and copies of that database will be provided to EPA as part of the RI Report.

Field Supervision and Coordination with EPA

The CSC expects that the Phase III RI soil sampling will be performed by URS (using the same staff as we used to complete the previous soil sampling). At this time we hope to have the same URS supervisor (David Myers) that we had used for the Phase I soil sampling on site acting as field manager for the Phase III RI sampling. As required, the CSC's Project Coordinator will also provide supervision of URS while they are in the field.

In all cases we will notify EPA's on site representative of our plans to conduct the sampling at least 48 hours in advance of beginning the work. The CSC will coordinate any field work with EPA using the same guidelines that are discussed in Section 11 of the June RI/FS Work Plan that we had established for the Phase I RI work. That coordination specifically includes the requirements to coordinate with EPA as discussed in Section 11.3 of the Work Plan (and in Section A6.1 of the Sampling Analysis Plan or Appendix A of the Work Plan) and to hold daily status meetings as discussed in Section 11.5 of the Work Plan. In addition, the CSC will continue to use the management of change procedures that we had agreed with EPA prior to beginning the Phase I RI work (please see Section 11.7 of the Work Plan). Any change in sampling procedures or analytical reporting that were documented in an approved RICH form for Phase I or Phase II RI sampling will also apply to the Phase III RI sampling.

regards,



Corey Bertelsen
Casmalia Project Coordinator

Attachments

Table 4.4-P3
Table A.2-P3
Figure 4.1-P3
Figure 1 – Cross Section

cc Jim Dragna – BM
Glenn Anderson – Chevron
Dave Roberson - ExxonMobil
Paul Taylor - ConocoPhillips
Dan Niles – RWQCB
Caroline Rudolph – DTSC
Mark Wuttig – CH2MHill

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TABLE 4-4-PHASE 3 2007 Final
Soil Sampling ProgramSummary

Area	Approximate # Samples: # Loc'ns	# per Loc'n	Total	Type	Approx. Boring Depth	VOC	Poor Purging Organics	Pest/ PCB	Herb	PCB Congeners	AVS/SEM	TOC/FOC	Mod Appx IX*	Dioxin/ Furans(2)	Hydraulic Conductivity	Comments
Remaining Onsite Area																
Soil Sampling	4	3	12	6	50											
Sample ID	*Northing*	*Easting*	*Type*													
RISBON-86	*TBD*	*TBD*	*TYPE6*										X			Boring to extend to Upper HSU / Lower HSU contact, which is estimated at 50 feet depth.
RISBON-87	*TBD*	*TBD*	*TYPE6*										X			Boring to extend to Upper HSU / Lower HSU contact, which is estimated at 50 feet depth.
RISBON-88	*TBD*	*TBD*	*TYPE6*										X			Boring to extend to Upper HSU / Lower HSU contact, which is estimated at 50 feet depth.
RISBON-89	*TBD*	*TBD*	*TYPE6*										X			Boring to extend to Upper HSU / Lower HSU contact, which is estimated at 50 feet depth.

Sample Depth / Sample Collection Notes:

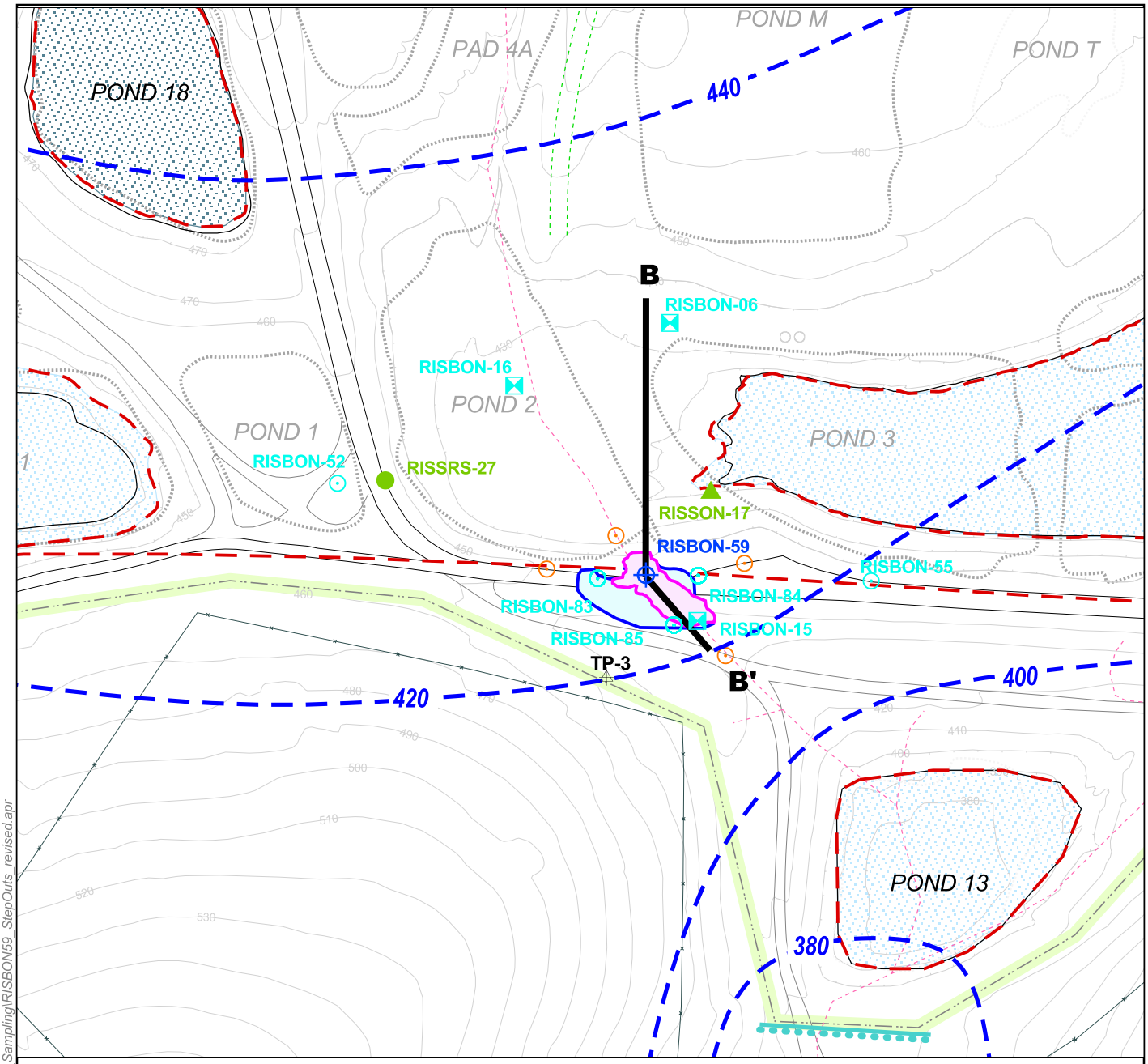
Anticipated sampling methods -

Type 6 Samples: Direct Push Rig (default) or Hollow Stem Auger Rig (if necessary)

Table A-2-Phase 3
Proposed Sampling and Analytical Program
Phase II Remedial Investigation
Appendix A SAP/FSP Addenda

Study Area	Station Number	Matrix	Sample Number	Station Description	Sample Depth (ft)	Sample Type	VOC (TO-15)	Phor parging organic compounds (EPA 8015 Direct Inject)	Organochlorine Pesticides/PCBs (EPA 8081A/8082)	PCB Congeners (EPA Metod 1668)	Chlorinated Herbicides (EPA 8151a)	Modified Appendix IX* (Appendix IX with additional COPCs less dioxins and furans) (e)	Appendix IX plus (Mod Appendix IX plus additional COPCs and dioxins and furans) (e)	Dioxins and Furans (EPA 8290)	Acid Volatile Sulfides/SEM (EPA Method 821/R-91-100)	Hydraulic Conductivity (EPA 5084)	TOC/FOC (Walkley/Black-ASTM D2974)	Comments
						Soil		2 oz jar	1-16oz.jar or ss-sleeve							Shelbt tube	NA	
						Sediment		NA	16 oz G	16 oz G	16 oz G	16 oz G	16 oz G	NA	16 oz G	NA	NA	
						Air		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
						Aqueous		3 x 40 mL VOA HCl	2 x 1L G	2 x 1L G	2 x 1L G	See bottle list in Appendix B, Table B-1	See bottle list in Appendix B, Table B-1	2 x 1L G	2 x 1L G	NA	2x1L G	
Remaining Onsite Area	**Soil Sampling**																	
	RISBON-86	soil		soil boring (T6)	5 ft above contamination	primary						x						
	RISBON-86	soil		soil boring (T6)	center contamination	primary						x						
	RISBON-86	soil		soil boring (T6)	center contamination	duplicate						x						
	RISBON-86	soil		soil boring (T6)	5 ft below contamination	primary						x						
	RISBON-87	soil		soil boring (T6)	5 ft above contamination	primary						x						
	RISBON-87	soil		soil boring (T6)	center contamination	primary						x						
	RISBON-87	soil		soil boring (T6)	5 ft below contamination	primary						x						
	RISBON-88	soil		soil boring (T6)	5 ft above contamination	primary						x						
	RISBON-88	soil		soil boring (T6)	center contamination	primary						x						
	RISBON-88	soil		soil boring (T6)	5 ft below contamination	primary						x						
	RISBON-89	soil		soil boring (T6)	5 ft above contamination	primary						x						
	RISBON-89	soil		soil boring (T6)	center contamination	primary						x						
	RISBON-89	soil		soil boring (T6)	5 ft below contamination	primary						x						
	Groundwater Sampling																	
	Hydropunch	GW		groundwater		primary						x						

G	Glass.
oz	Ounce.
L	Liter.
Pl	Plastic.
mL	Milliliter.
HCL	Hydrochloric acid.
TOC	Total organic carbon
FOC	Free organic carbon
AVS	Acid volatile sulfides
SEM	Selective extraction method



Explanation

Soil Sample Locations

- Surface Soil (Type 2)
- Surface and Medium Soil (Type 4)
- Deep Soil (Type 6)
- NAPL (Type 7)
- Proposed Deep Soil (Type 6)

Other Site Features

- Casmalia Site Boundary
- Study Area Boundary
- Piezometer
- Monitoring Well

Other Site Features (Cont'd)

- Fence
- Historical Natural Drainage (Based on 1956 Photo, 1974 and 1974 Topographic Maps, and Figures 21-2 and 21-3 Woodward-Clyde, 1988)
- Road Remnants
- Perimeter Control Trench (Brierly & Lyman, 1989)
- Clay Barrier/Extraction Trench (Figure 21-1 Woodward-Clyde, 1988)
- Stormwater Pond
- Treated Liquid Impoundment

- 420 Groundwater elevation contour - Upper HSU (feet above mean sea level) (Feb. 2005 IPR, Appendix F, Figure F-1)
- Cross Section Line
- Former pond feature as interpreted from 1975 aerial photograph
- Former pond feature as interpreted from 1974 aerial photograph

0 60 120 180 Feet

Scale in Feet

Source: Topographic base map provided by Pacific Engineering, Inc. from aerial survey dated March 4, 2004.

Figure 4.1 - P3

Proposed Phase III Soil Sampling Locations Vicinity of RISBON-59

Casmalia Site Remedial Investigation

March 21, 2007

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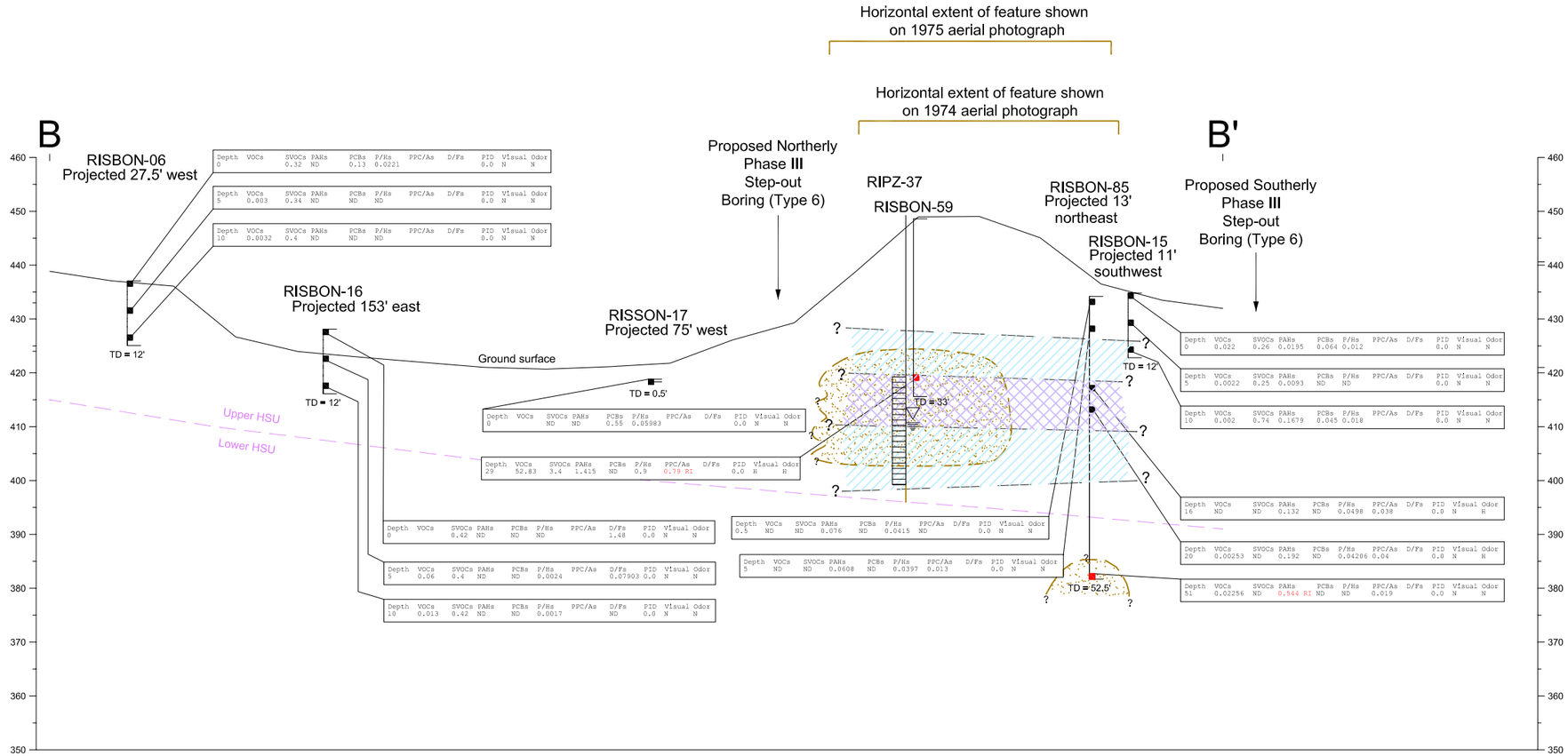

Legend

RISSRS-27 Boring location and ID

Sample location

TD = 6.5' Total boring depth (feet below ground surface)

Estimated extent of soil impact in exceedance of one or more soil screening level criteria

Contact between upper and lower HSUs (Source: Casmalia Interim Progress Report, Appendix E, Figure E-2. February 2005)

Piezometer screened interval

Estimated groundwater elevation (as encountered during piezometer installation)

Laboratory Analytical Results

ND = None detected
x.xx = Reported concentration
- D/F in ng/kg
- all others in mg/kg

Blank space = no test conducted at particular depth

Screening Level Exceedance
R = EPA Region 9 Residential PRG
r = Cal-Modified Residential PRG
I = EPA Region 9 Industrial PRG
i = Cal-Modified Industrial PRG
E = Lowest Ecological Screening Level

PID Field Observation
x.xx = Headspace reading (ppmv)

Visual and Odor Field Observations
N = none
L = light
M = moderate
H = heavy

Slight to moderate odors and/or staining observed

Moderate to high odors and/or staining observed

Analytical Categories
VOCs = Summed volatile organic compounds
SVOCs = Summed semi-volatile organic compounds
PAHs = Summed polycyclic aromatic hydrocarbons
PCBs = Summed polychlorinated biphenyls
P/Hs = Summed pesticides and herbicides
PPC/As = Summed poor-purging compounds and alcohols
D/Fs = Toxicity equivalent quotient (TEQ)

Note: Samples and analytical categories with one or more compounds exceeding screening levels are indicated in RED.

Horizontal scale 1" = 50'
Vertical exaggeration 2x

0 50 100

Horizontal scale in feet

Cross Section B-B'

URS

Summary Conditions Near Location RISBON-59
Casmalia Site Remedial Investigation
March 21, 2007

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