SEMS-RM DOCID # 100023289

FEBRUARY 26, 2021

TECHNICAL MEMORANDUM: EVALUATION OF REMEDY REFINEMENTS FOR YOSEMITE SLOUGH SAN FRANCISCO, CA

Re-evaluation of the cleanup approach based on additional data and consideration of ambient levels

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1 Introduction and Background

This Technical Memorandum assesses refinements being considered for the remedy at Yosemite Slough. The remedy refinements incorporate additional data that has been gathered through pre-remedial design investigations and through regional watershed (San Francisco Bay) monitoring. The feasibility of implementing a new remedial goal for Yosemite Slough, consistent with a calculated nearshore ambient concentration of 148 µg/kg, is also evaluated.

The United States Environmental Protection Agency (EPA) requested EA Engineering, Science and Technology, Inc. (EA) review the work completed by the Private Parties per the scope of work (SOW), "Yosemite Slough Evaluation of Proposed Total PCBs AWA Remedial Goal" (The Intelligence Group Environmental /Integral Consulting Inc. [TIG/Integral], 2019). The Private Parties performed quantitative evaluations and provided the key data products as agreed upon by TIG/Integral, EPA, and EA; and EA summarized the evaluations and results in this Technical Memorandum.

The Yosemite Slough Site is a shallow marine channel or "slough" connected to San Francisco Bay (Figure 1). Previous and on-going investigations of the site indicate Yosemite Slough sediments are primarily contaminated with polychlorinated biphenyls (PCBs) and lead. Based on the risks identified during quantitative human health and ecological risk assessments conducted by the Navy for the adjacent Parcel F at Hunters Point Naval Shipyard, EPA established remedial goals for Yosemite Slough in the 2014 Action Memorandum (EPA, 2014). For PCBs, 1,240 micrograms per kilogram (µg/kg) PCBs or less at a given location and an overall area weighted average (AWA) of 386 µg/kg or less were adopted as the sediment cleanup goals. For lead, the National Oceanic and Atmospheric Administration (NOAA) effects range median (ERM) of 218 milligrams per kilogram (mg/kg) is being applied on an AWA basis for the protection of the benthic community and the EPA selected a not-to-exceed threshold for lead of 436 mg/kg, which is twice the NOAA ERM value (EPA and Ecology and Environment, Inc. 2013).

The Engineering Evaluation/Cost Analysis (EE/CA) (EPA and Ecology and Environment, Inc. 2013) recommended selection of Alternative 5 to achieve the AWA through a combination of dredging with capping and enhanced monitored natural recovery/monitored natural recovery (EMNR/MNR). MNR includes the naturally occurring processes that can reduce the bioavailability and toxicity of contamination in sediment through physical, biological, and chemical mechanisms over time. Whereas, EMNR includes placement of a clean, thin sand layer to advance the natural sedimentation process and shorten the time to achieve site cleanup goals. EMNR/MNR was included as an optional component to Alternative 5 and was subject to EPA pre-approval and to be used only in locations where technical design evaluations indicate EMNR/MNR will be effective. The cost estimate for Alternative 5 completed during the EE/CA included costing for MNR but not EMNR (EPA and Ecology and Environment, Inc. 2013).

Regulatory agencies have recently suggested that the remedial approach for Yosemite Slough may need to achieve a lower nearshore ambient total PCB AWA concentration. Based on an evaluation of regional watershed data, the Regional Water Quality Control Board considers 148

µg/kg to be representative of ambient PCB levels and consistent with other nearby sediment sites. Additional data gathered during pre-remedial design investigations has also been used to make refinements to the remedial approach.

Per the SOW (TIG/Integral 2019), the Private Parties were to complete the following evaluations:

- Estimate the additional cost and time to achieve cleanup to an AWA concentration of approximately 148 µg/kg for total PCBs (presumed nearshore ambient), if EMNR/MNR is implemented across some or all of the current volume/footprint planned for remediation.

- Identify additional volume/areas to be included in the removal action to achieve an AWA of 148 µg/kg for total PCBs.

- Calculate whether an AWA of 148 µg/kg for total PCBs can be more readily achieved by implementing EMNR/MNR in additional remediation areas and identify the additional volume/cost and duration (years) associated with these options.

In order to perform the evaluations per the SOW, the Private Parties completed three main tasks: data preparation, evaluation of remedial alternatives to achieve a total PCB AWA of 148 µg/kg via AWA and SEDCAM evaluation, and cost evaluation. These are documented in the sections below.

2 Evaluation Approach

The Private Parties were scoped to evaluate the effect of dredging additional high concentration sediments as well as EMNR, to achieve an AWA of 148 µg/kg total PCBs. Lead achieves the EE/CA AWA target under the selected alternative (Alternative 5 from the EE/CA), so the evaluations were focused on total PCBs. The evaluations covered the top 2 feet below the sediment water interface to be consistent with the selected alternative which similarly focused on the top 2 feet of sediment in the slough. The Private Parties included a calculation of the AWA for each of the alternatives and also utilized SEDCAM to model how concentrations would change over time after the alternatives were implemented. Three alternatives were evaluated by the Private Parties and each is described below.

Alternative 0

Alternative 0 is an update of the selected alternative from the EE/CA (Alternative 5) to include new sediment data collected during the technical design studies (TDS). This alternative includes 2009 sediment data from the EE/CA and new 2017 sediment data from the TDS. Alternative 0 entails removal of the top foot of sediment from areas where the 0 to 1-foot interval exceeds the not-to-exceed remedial goal of 1,240 µg/kg and removal of the top 2 feet of sediment from areas where the 0 to 1-foot and 1 to 2-foot intervals exceed this remedial goal. After dredging, these areas would be capped. The EE/CA assumed the dredge and cap volumes required would be equal. Until design of the engineered cap is finalized, the updated cost

estimate assumes 30% additional capping material is required in order to compensate for potential compaction of capping material and/or existing sediment as capping material is placed in the slough. Therefore, the capping volume is assumed to be 1.3 times the volume of sediment removed. Alternative 0 also includes costing for MNR.

Alternative 0 with EMNR

Alternative 0 with EMNR includes all components of Alternative 0. The remedial design will address practical and environmental considerations associated with the implementation of the remedy and available technologies required to achieve an AWA remedial goal of 148 µg/kg. In accordance with the EE/CA, "EMNR may be best suited for locations where sediment concentrations are marginally above RGs and the short-term impacts associated with dredging are not warranted based on the risks posed by those portions of the Site."

Dredge and Cap Only Alternative

The Dredge and Cap Only Alternative includes all components of Alternative 0. Under this alternative analysis more surface area in Yosemite Slough required active remedial approaches to achieve an AWA of 148 µg/kg. As a result, additional polygons with elevated concentrations were included in the remedial approach. The not-to-exceed goal of 1240 µg/kg remained intact.

2.1 AWA Calculation

In the EE/CA, the EPA adopted an approach to determine removal areas at Yosemite Slough. The Thiessen polygon method (Thiessen and Alter 1911) was used to define polygons using sampling locations and 2009 analytical results. Polygon boundaries are defined around individual sampling locations so that the sides are equidistant from adjacent sampling locations and the detected sediment concentrations from the individual sampling locations are assumed to represent the sediment within the polygon. Thiessen polygons were segmented into 1-foot depth intervals for the 0 to 1-foot interval and the 1 to 2-foot interval, consistent with the sampled depth intervals associated with the 2009 samples (EPA and Ecology and Environment, Inc. 2013).

PCB surface weighted average concentrations (SWACs) or the AWA of the top foot (0-1 feet) were calculated to be compared to the remedial goals for each alternative. Calculation of AWAs for the site requires horizontally and vertically georeferenced chemistry data for sediment. The AWA calculation in the EE/CA relied on data available through 2009. More recently, the Private Parties compiled a database of chemical analytical results that includes more recent data collected in 2017. Sample data included 2009 (0-1 feet and 1-2 feet) and 2017 (0-2 feet) sampling events for parent samples only. Field duplicates were not provided in the database for the 2009 samples and were therefore not included in the calculations. Where 2009 and 2017 samples were co-located, data were reduced to a single value, the maximum value from the 2009 and 2017 co-located samples. For 2009, the 0-1 feet concentration was compared to the 0-2 feet concentration in the 2017 samples and the maximum value was used. Similarly, for the 2009 1-2 feet depth interval, the 1-2 feet concentration was compared to the 0-2 feet concentration in the 2017 samples and the maximum value was used.

The data available from the Private Parties also includes geographic information system (GIS) shapefiles for the Thiessen polygons and updated site boundary and spreadsheets with embedded equations that calculate the AWA for each alternative. Thiessen polygons were calculated in ArcGIS version 10.5 and clipped to the 2012 study boundary. The original polygons developed for the EE/CA largely remained intact and polygons that exceeded the not-to-exceed criteria in 2009 also exceeded not-to-exceed criteria in 2017. The new data did not modify the size or location of the polygons with the exception of three additional polygons in previously unsampled areas that require remediation per the not-to-exceed criteria (PD-SED-12, PD-SED-13, PD-SED-15). As a result, the boundaries of adjacent polygons were modified slightly. The additional polygons are located near the site boundary to the San Francisco Bay (Figure 2) and increases the remedial footprint of the site by 0.72 acres. Appendix A includes the data used in the AWA calculation.

For each of the alternatives evaluated, it was determined for each polygon if the surface area associated with each sediment sample would be dredged and capped, include EMNR, or if no remedy would apply. For areas that would be dredged and capped, a backfill concentration of 29.5 µg/kg total PCBs replaced the sample concentration for the AWA calculation. EMNR polygons are replaced with the geomean of the pre-remedy concentration and the backfill concentration.

2.2 SEDCAM Evaluation

SEDCAM (Jacobs et al. 1988) is a mass balance equation that predicts sediment concentrations given source loading and rates of sedimentation, sediment mixing, chemical transformation, and dispersion and diffusion. The SEDCAM is used to determine the probabilities and rates changes of chemical concentrations in surface sediments due to some fate and transport processes relevant to sediments.

For each of three alternatives evaluated (Alternative 0, Alternative 0 with EMNR, and Dredge and Cap Only), the initial concentrations for total PCBs are based on the AWA calculations (Appendix A). Yosemite Slough sediment is characterized by low deposition, low mixing, and low porosity. These sediment characteristics informed the parameters selected by the Private Parties for input into the model. A sensitivity analysis was performed to determine how dependent the final sediment concentrations are on several of the parameters including the mixing layer, density, and accumulation rate. Table 1 provides the SEDCAM parameter inputs including values used for the sensitivity analysis. Additional data and calculations are included in Appendix B.

The ongoing government party study investigating potential upland sources and potential groundwater sources are not currently included in the SEDCAM evaluation as those studies have yet to be completed. Results from these two studies are required in order to fully understand conditions within Yosemite Slough. Additional sources may be identified as a result of the upland source study and there may be potential groundwater impacts to the slough identified in the groundwater study which would need to be incorporated into the SEDCAM model.

Table 1 SEDCAM Parameters

Parameter	Value	Reference	Sensitivity Analysis Range	
			Low	High
Porosity, *p* (cm^3/cm^3)	0.64	Based on available subsurface data/literature (Freeze and Cherry 1979) for Young Bay Mud (fat clay, trace fine sand and shell fragments, very soft, dark gray, wet)	--	--
Mixing Layer, *ML* (cm)	10.0	Y3 Study Results (TIG/Integral 2018) State upper BAZ = 5 cm and lower BAZ = 22 cm.	10	22
Density, *d* (g/cm^3)	0.500	Based on available subsurface data/literature for Young Bay Mud (fat clay, trace fine sand and shell fragments, very soft, dark gray, wet)	0.5	1.28
Rate Constant for PCBs, *k* (yr^{-1})	0.003	Literature ranges from 0.0014 to 5 (Sinkkonen et al. 2000)	--	--
Rate Constant for metals, *k* (yr^{-1})	0	No decay for metals	--	--
Surface Area for Yosemite Slough (acres)	10.4	Areas of MNR, EMNR, and capping from AWA Analysis by Private Parties and GIS based polygons	--	--
Sedimentation Rate, *M* (cm/yr)	0.150	Y5 Data suggests rate is low. Used range of 0.1 cm/yr to 1.0 cm/yr, with a focus on low end, <0.5 cm/yr.	0.1	0.5
PCBs and Lead Initial Concentrations	See Appendix A	Initial PCB and lead concentrations based on AWA analysis by Private Parties.	--	--
Stormwater Loading Data	See Appendix B	Current loading of contaminants to Yosemite Slough only via the CSO discharge pathway, as of 2/18/2020 additional pre-design studies have yet to be completed documenting possible upland sources, other direct discharge sources, or potential groundwater flux contributions (NewFields 2019)	--	--

NOTES:
cm – centimeters
cm^3/cm^3 – cubic centimeters per cubic centimeters
cm/yr – centimeters per year
g/cm^3 – grams per cubic centimeters

3 Evaluation Outcomes

The results of the AWA calculation and SEDCAM evaluation are discussed in the subsections below.

3.1 AWA Calculation

Without remediation, the baseline AWA is 6,212 µg/kg. For each of the alternatives evaluated, Table 2 presents the dredge and cap surface area, dredge volume, cap volume, and EMNR surface area and volume required to meet the PCB SWACs.

Alternative 0

As discussed above, Alternative 0 is an update of the selected alternative from the EE/CA (Alternative 5) to include new 2017 sediment data from the TDS. The total volume of excavated sediment and the capping volume from Alternative 5 were each 9,900 cubic yards since the EE/CA assumed the dredge and cap volumes required would be equal. Figure 2 shows the remedial approach for Alternative 0 which includes dredging and capping 3.8 acres for a removal volume of approximately 11,200 cubic yards. Per the updated cost estimate, the capping volume is assumed to be 1.3 times the volume of sediment removed, so the cap volume for Alternative 0 is approximately 14,600 cubic yards. The percent difference in the excavated sediment volume estimate between Alternative 5 and Alternative 0 is approximately 12 percent and the percent difference in the capping volume estimate between Alternative 5 and Alternative 0 is approximately 38 percent. The post-remedy SWAC for Alternative 0 is 310 µg/kg PCBs, which does not meet the proposed total PCB AWA remedial goal of 148 µg/kg.

Alternative 0 with EMNR

Figure 3 shows the remedial approach for Alternative 0 with EMNR. Alternative 0 with MNR includes the same dredge and cap footprint (and volumes) from Alternative 0 with the addition of 2.6 acres of EMNR. The EMNR component of the remedy would include placement of 2,100 cubic yards of clean sand. The post-remedy SWAC for Alternative 0 with EMNR is 140 µg/kg PCBs, which meets the proposed total PCB AWA remedial goal of 148 µg/kg.

Dredge and Cap Only Alternative

Figure 4 shows the remedial approach for the Dredge and Cap Only Alternative, which includes an expanded remedial footprint that is nearly double the footprint for Alternative 0. The Dredge and Cap Only Alternative requires dredging and capping of approximately 7 acres for a removal volume of approximately 20,500 cubic yards and a cap volume of approximately 26,700 cubic yards. The post-remedy SWAC for the Dredge and Cap Only Alternative is 143 µg/kg PCBs, which meets the proposed total PCB AWA remedial goal of 148 µg/kg.

Table 2 AWA Calculation Results by Alternative

Alternative	Alternative 0		Alternative 0 with EMNR		Dredge and Cap Only Alternative	
Depth Interval	**Surface Only (0-1 feet)**	**Both Depths (0-2 feet)**	**Surface Only (0-1 feet)**	**Both Depths (0-2 feet)**	**Surface Only (0-1 feet)**	**Both Depths (0-2 feet)**
Surface area to dredge/cap (acre) per depth interval	0.72	3.12	0.72	3.12	1.19	5.77
Total surface area to dredge/cap (acre) for Alternative	3.84		3.84		6.96	
Dredge volume (cubic yards) per depth interval	6,196	5,038	6,196	5,038	11,234	9,311
Total dredge volume for Alternative (cubic yards)	11,234		11,234		20,545	
Total Cap Volume (cubic yards)	14,604		14,604		26,709	
EMNR surface area (acres)	--		2.55		--	
Total EMNR Volume (cubic yards)	--		2,059		--	
SWAC (µg/kg PCBs)	310		140		143	

3.2 SEDCAM Evaluation

Ten-year post-remedy PCB concentrations were modelled using SEDCAM for each of the three alternatives evaluated (Alternative 0, Alternative 0 with EMNR, and Dredge and Cap Only Alternative). The SEDCAM results found that sediment concentrations post-remediation will decrease to some extent over the following 10 years. Figure 5 shows the post-remedy PCB concentrations for each of three scenarios plus an approximate +/-20 percent uncertainty bound (shaded polygon) given potential variability in slough sediments.

Alternative 0

The post-remedy SWAC for Alternative 0 is 310 µg/kg PCBs, which does not meet the proposed total PCB AWA remedial goal of 148 µg/kg. The SEDCAM model found Alternative 0 is not likely to achieve the proposed AWA remedial goal of 148 µg/kg within 10 years (Figure 5).

Alternative 0 with EMNR

The post-remedy SWAC for Alternative 0 with EMNR is 140 µg/kg PCBs, which meets the proposed total PCB AWA remedial goal of 148 µg/kg. In the 10 years following the remedy, the SEDCAM model found the PCB concentrations are likely to decrease to approximately 100 µg/kg PCBs (Figure 5).

Dredge and Cap Only Alternative

The post-remedy SWAC for the Dredge and Cap Only Alternative is 143 µg/kg PCBs, which meets the proposed total PCB AWA remedial goal of 148 µg/kg. In the 10 years following the remedy, the SEDCAM model found the PCB concentrations are likely to decrease to approximately 100 µg/kg within 10 years (Figure 5).

A sensitivity analysis was performed to determine how dependent the final sediment concentrations are on several of the parameters including the mixing layer (10 cm, 15 cm, and 22 cm), density (0.5 and 1.28 based on material types likely present in slough sediments), and accumulation rate (0.1 cm/yr, 0.15 cm/yr, and 0.5 cm/yr). The sensitivity analysis charts in Appendix C depict PCB concentrations over time using Alternative 0 plus EMNR as the starting scenario with varied mixing layers, densities, and sediment accumulation rates. The sensitivity analysis performed for the SEDCAM model shows range of densities included in the sensitivity analysis had no effect on the PCB concentrations over time and that the mixing layer and deposition rate have most significant influence. The sensitivity analysis found that the parameters selected will not change the effectiveness for Alternative 0 with EMNR or the Dredge and Cap Only Alternative to achieve the proposed AWA of 148 mg/kg PCBs post-remedy.

4 Cost Estimates

The Private Parties were also scoped to develop cost estimates for each remedial alternative that could reasonably be considered for remediation. The cost estimate of $15.5 million, as presented in the EE/CA for Alternative 5, was updated as appropriate for each of the alternatives with updates including rationale and specific assumptions indicated on the costing spreadsheets. The detailed unit pricing and cost build-up spreadsheets are included in Appendix C and a summary of the cost estimates with the percent and dollar amount differences is included in Table 3.

Alternative 0

As discussed above, Alternative 0 is an update of the selected alternative from the EE/CA (Alternative 5) and includes dredging and capping 3.8 acres. As discussed above, the EE/CA assumed the dredge and cap volumes required would be equal, but per the updated cost estimate, the capping volume is assumed to be 1.3 times the volume of sediment removed. Alternative 0 also includes costing for MNR. Alternative 0 requires a removal volume of approximately 11,200 cubic yards and a cap volume of approximately 14,600 cubic yards. The total cost estimate for Alternative 0 is approximately $17 million.

Alternative 0 with EMNR

As discussed above, Alternative 0 with MNR includes the same dredge and cap footprint (and volumes) from Alternative 0 with the addition of a 6-inch layer of clean sand over 2.6 acres for EMNR. The EMNR component of the remedy would include placement of 2,100 cubic yards of clean sand. The total cost estimate for Alternative 0 with EMNR is $17.4 million.

Dredge and Cap Only Alternative

The Dredge/Cap Only Alternative includes all components of Alternative 0 with an expanded remedial footprint that is nearly double the footprint for Alternative 0. The Dredge and Cap Only Alternative requires dredging and capping of approximately 7 acres for a removal volume of approximately 20,500 cubic yards and a cap volume of approximately 26,700 cubic yards. The total cost estimate for the Dredge and Cap Only Alternative approximately is $24.5 million.

Table 3 Cost Estimate Summary

Alternative	2013 Present Worth Cost	Difference from EE/CA 2013 Estimate (%)	Difference from EE/CA 2013 Estimate ($)
EE/CA 2013 Estimate for Alternative 5	$15,477,000	--	--
Alternative 0	$17,020,000	10%	$1,543,000
Alternative 0 with EMNR	$17,400,000	12%	$1,923,000
Dredging and Capping Only	$24,491,000	58%	$9,014,000

5 Conclusions

The Private Parties were scoped to evaluate the effect of dredging additional high concentration sediments as well as EMNR, to achieve a proposed AWA of 148 µg/kg total PCBs. Newly available data was incorporated into AWA calculations using the same polygons used in the EE/CA AWA calculations to examine three alternatives: Alternative 0, Alternative 0 with EMNR, and the Dredge and Cap Only Alternative. The Private Parties utilized SEDCAM to model how concentrations would change over time due to natural processes after the alternatives were implemented. Finally, the cost estimate for the selected alternative from the EE/CA (Alternative 5), was updated as appropriate for each of the alternatives. The evaluations are summarized for each alternative below and in Table 4.

Alternative 0

Alternative 0 is an update of the selected alternative from the EE/CA (Alternative 5). Alternative 0 entails removal of sediment from areas that exceed the not-to-exceed remedial goal of 1,240 µg/kg in the top foot or top 2 feet below the sediment surface. After dredging, these areas would be capped. The EE/CA assumed the dredge and cap volumes required would be equal, but per the updated cost estimate, the capping volume is assumed to be 1.3 times the volume of sediment removed. Alternative 0 includes dredging and capping 3.8 acres for a removal volume of approximately 11,200 cubic yards and a cap volume of approximately 14,600 cubic yards. Alternative 0 also includes costing for MNR. The total cost estimate for Alternative 0 is approximately $17 million.

The post-remedy SWAC for Alternative 0 is 310 µg/kg PCBs, which does not meet the proposed total PCB AWA remedial goal of 148 µg/kg. The SEDCAM model found Alternative 0 is not likely to achieve the proposed AWA remedial goal of 148 µg/kg within 10 years (Figure 5).

Alternative 0 with EMNR

Alternative 0 with EMNR includes all components of Alternative 0 including the same dredge and cap footprint (and volumes) from Alternative 0 and MNR. The EMNR component of the remedy would include placement of a 6-inch layer of clean sand over 2.6 acres for an EMNR volume of 2,100 cubic yards. The total cost estimate for Alternative 0 with EMNR is $17.4 million.

The post-remedy SWAC for Alternative 0 with EMNR is 140 µg/kg PCBs, which meets the proposed total PCB AWA remedial goal of 148 µg/kg. In the 10 years following the remedy, the SEDCAM model found the PCB concentrations are likely to decrease to approximately 100 µg/kg PCBs.

Dredge and Cap Only Alternative

The Dredge and Cap Only Alternative includes all components of Alternative 0. Under this alternative analysis more surface area in Yosemite Slough required active remedial approaches to achieve an AWA of 148 µg/kg. As a result, additional polygons with elevated concentrations were included in the remedial approach, which nearly doubles the footprint for Alternative 0. The Dredge and Cap Only Alternative requires dredging and capping of approximately 7 acres for a removal volume of approximately 20,500 cubic yards and a cap volume of approximately 26,700 cubic yards. The total cost estimate for the Dredge and Cap Only Alternative approximately is $24.5 million.

The post-remedy SWAC for the Dredge and Cap Only Alternative is 143 µg/kg PCBs, which meets the proposed total PCB AWA remedial goal of 148 µg/kg. In the 10 years following the remedy, the SEDCAM model found the PCB concentrations are likely to decrease to approximately 100 µg/kg within 10 years.

Table 4 Summary of Alternatives

Alternative	Components	PCB SWAC Achieved	Dredge Volume/Acres	EE/CA AWA PCB Cleanup Goal (386 µg/kg) Achieved upon Construction Completion?	Proposed AWA PCB Cleanup Goal (148 µg/kg) Achieved upon Construction Completion?	Expected PCB SWAC in Ten Years (per SEDCAM)	Cost
Alternative 0	Dredging/Capping + MNR (Alternative 5 from EE/CA)	310 µg/kg	11,234 cubic yards/3.84 acres	yes	no	Approximately 200 µg/kg	$17.0M
Alternative 0 with EMNR	Dredging/Capping + MNR/EMNR	140 µg/kg	11,234 cubic yards/3.84 acres + 2.55 acres EMNR	yes	yes	Approximately 100 µg/kg	$17.4M
Dredge and Cap Only Alternative	Dredging/Capping + MNR – Expanded Footprint	143 µg/kg	20,545 cubic yards/6.96 acres	yes	yes	Approximately 100 µg/kg	$24.5M

6 Recommendation

Based on the forgoing discussion, Alternative 0 with EMNR is a beneficial refinement to the Yosemite Slough remedy. Through the placement of a 6-inch layer of clean sand (a volume of 2,100 cubic yards) over approximately 2.6 acres, the site would achieve a SWAC of 140 µg/kg PCBs upon remedy implementation and a likely SWAC of 100 µg/kg PCBs after an additional 10 years. When compared to the updated cost estimate of approximately $17 million for the existing remedy, the total cost estimate for Alternative 0 with EMNR is marginally greater at $17.4 million. The application of EMNR is supported as a feasible and cost-effective means of achieving a remedial goal consistent with a calculated nearshore ambient concentration of 148 µg/kg. It is recommended that EPA update the 2014 Action Memorandum to incorporate this non-significant change in scope.

7 Citations

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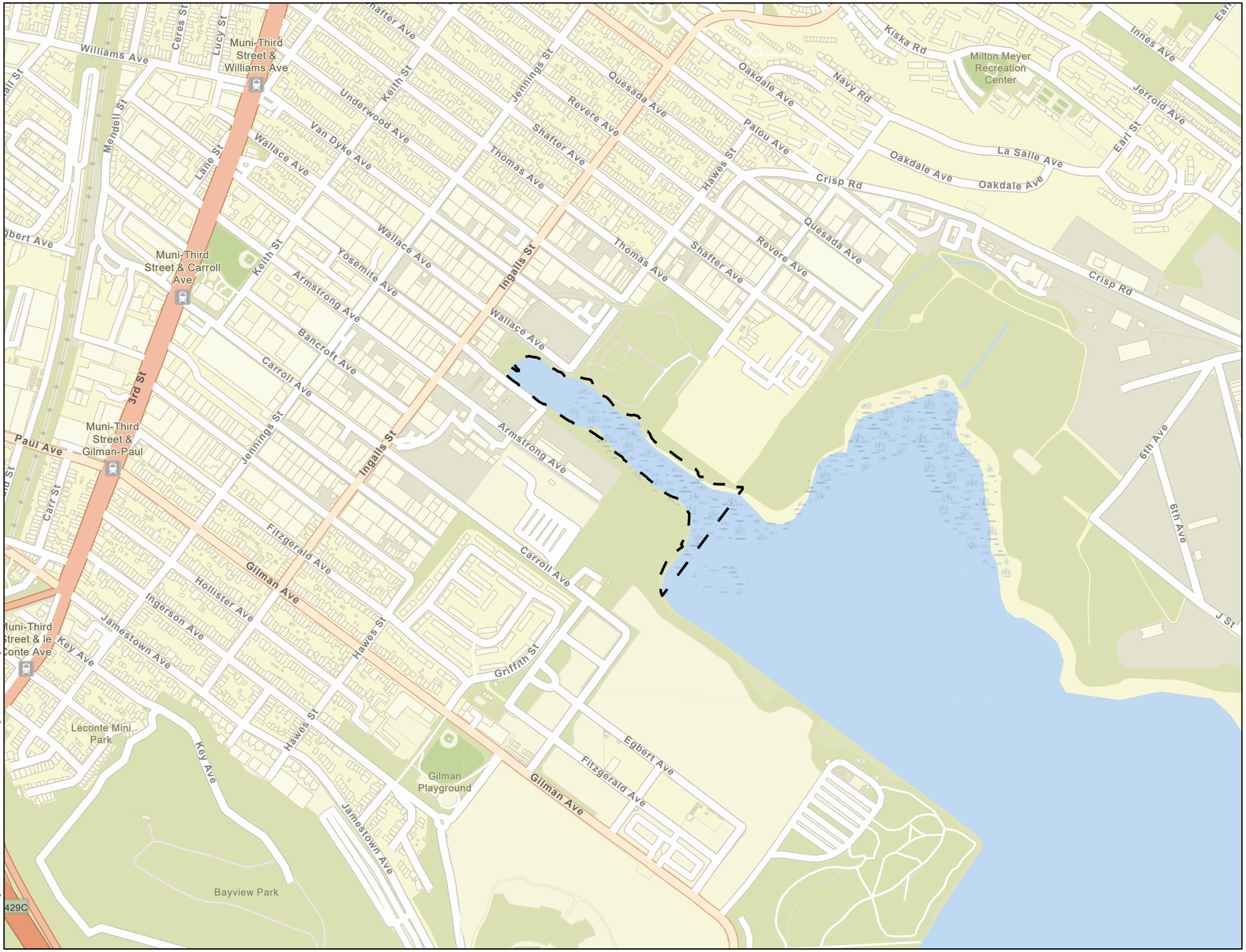
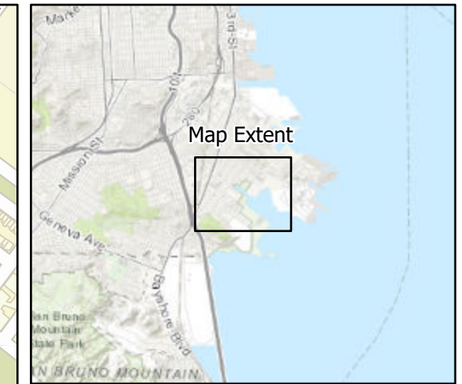
Figures





Legend

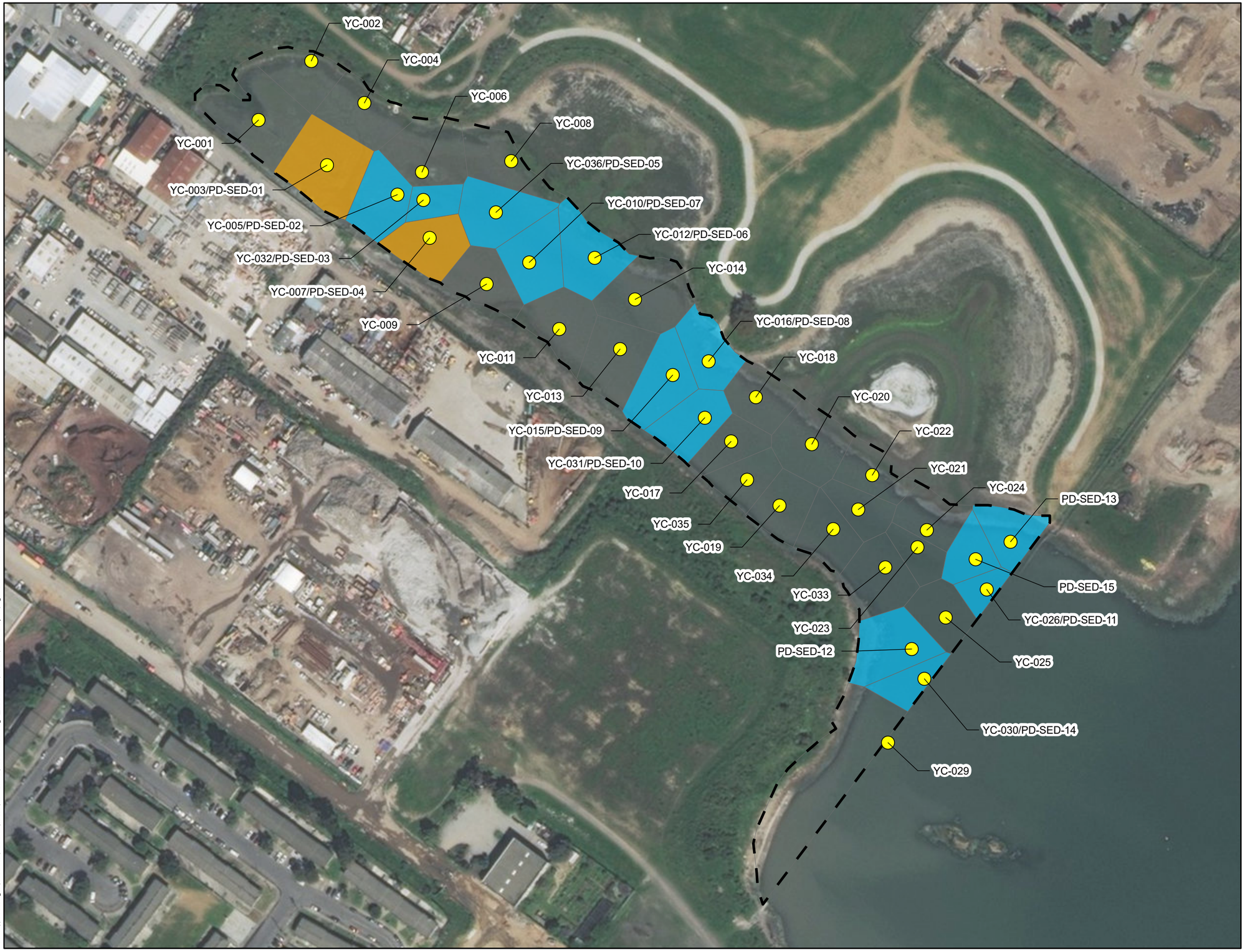
Site Boundary

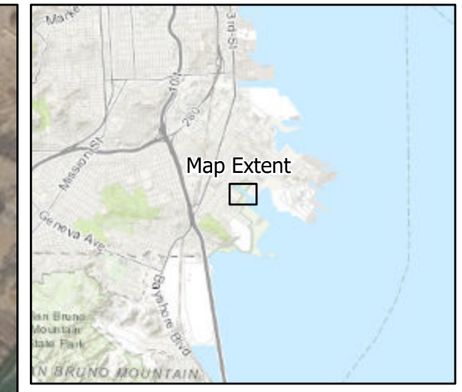
Map Date: 4/22/2020
Source: ESRI
Projection: NAD 1927 State Plane California III FIPS 0403

0 500 1,000
Feet

Figure 1
Site Area
Yosemite Slough
San Francisco, California

Path: \\lovetongis\GISdata\Federal\West\California\YosemiteSlough_1518915\PDF\Figure 1 - Site Area





Legend

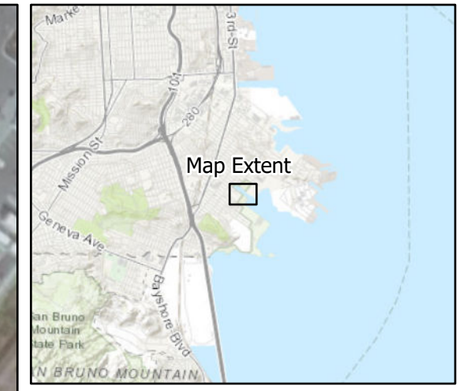
- Sediment Sample Locations
- Site Boundary
- Thiessen Polygons
- Dredge and Cap Surface Only (0-1 ft)
- Dredge and Cap Both Depths (0-2 ft)

Map Date: 4/21/2020
Source: ESRI
Projection: NAD 1927 State Plane California III FIPS 0403

0 100 200
Feet

Figure 2
Alternative 0
Yosemite Slough
San Francisco, California

Path: \\lovetongis\GISdata\Federal\West\California\YosemiteSlough_1518915\YSCPG\YSCPG.aprx\Figure 2 - Alternative 0



Legend

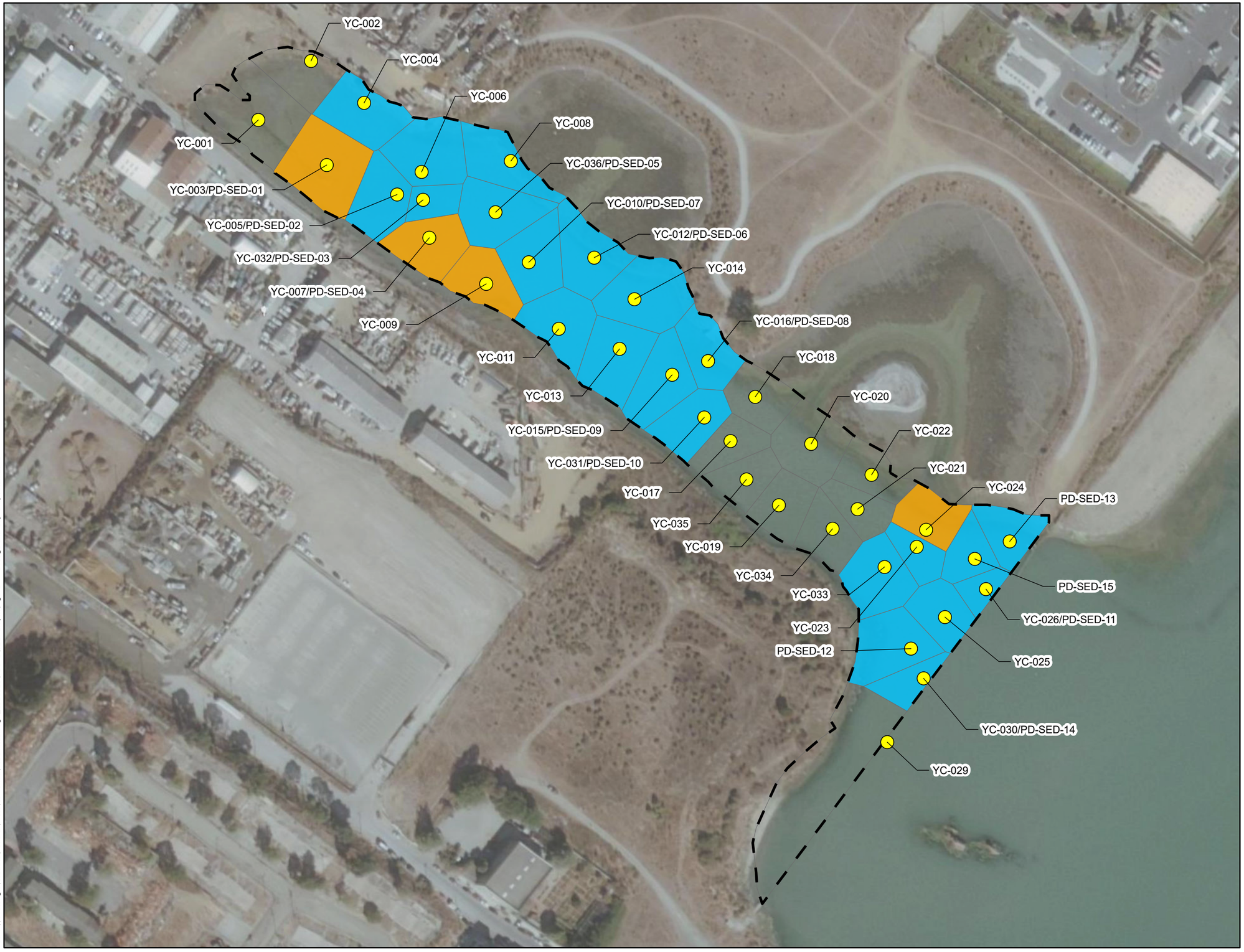
- Sediment Sample Locations
- Site Boundary
- Thiessen Polygons
- Dredge and Cap Surface Only (0-1 ft)
- Dredge and Cap Both Depths (0-2 ft)
- Enhanced Monitored Natural Recovery

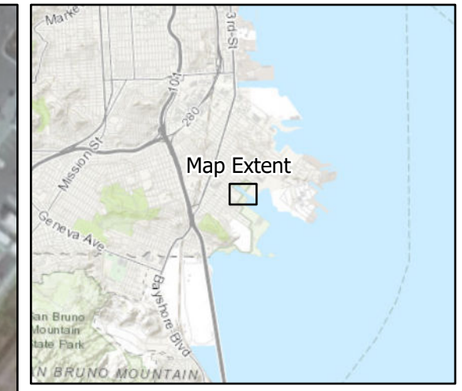
Map Date: 12/10/2020
Source: ESRI
Projection: NAD 1927 State Plane California III FIPS 0403

0 100 200
Feet

Figure 3
Alternative 0 with Enhanced Monitored Natural Recovery
Yosemite Slough
San Francisco, California

Path: \\lovetongis\GISdata\Federal\West\California\YosemiteSlough_1518915\YSCPG\YSCPG.aprx\Figure 3 - Alternative 0 with EMNR





Legend

- Sediment Sample Locations
- Site Boundary
- Thiessen Polygons
- Dredge and Cap Surface Only (0-1 ft)
- Dredge and Cap Both Depths (0-2 ft)

Map Date: 12/11/2020
Source: ESRI
Projection: NAD 1927 State Plane California III FIPS 0403

0 100 200
Feet

Figure 4
Dredge and Cap Only Alternative
Yosemite Slough
San Francisco, California

Path: \\lovetongis\GISdata\Federal\West\California\YosemiteSlough_1518915\YSCPG\YSCPG.aprx\Figure 4 - Dredge and Cap Only Alternative

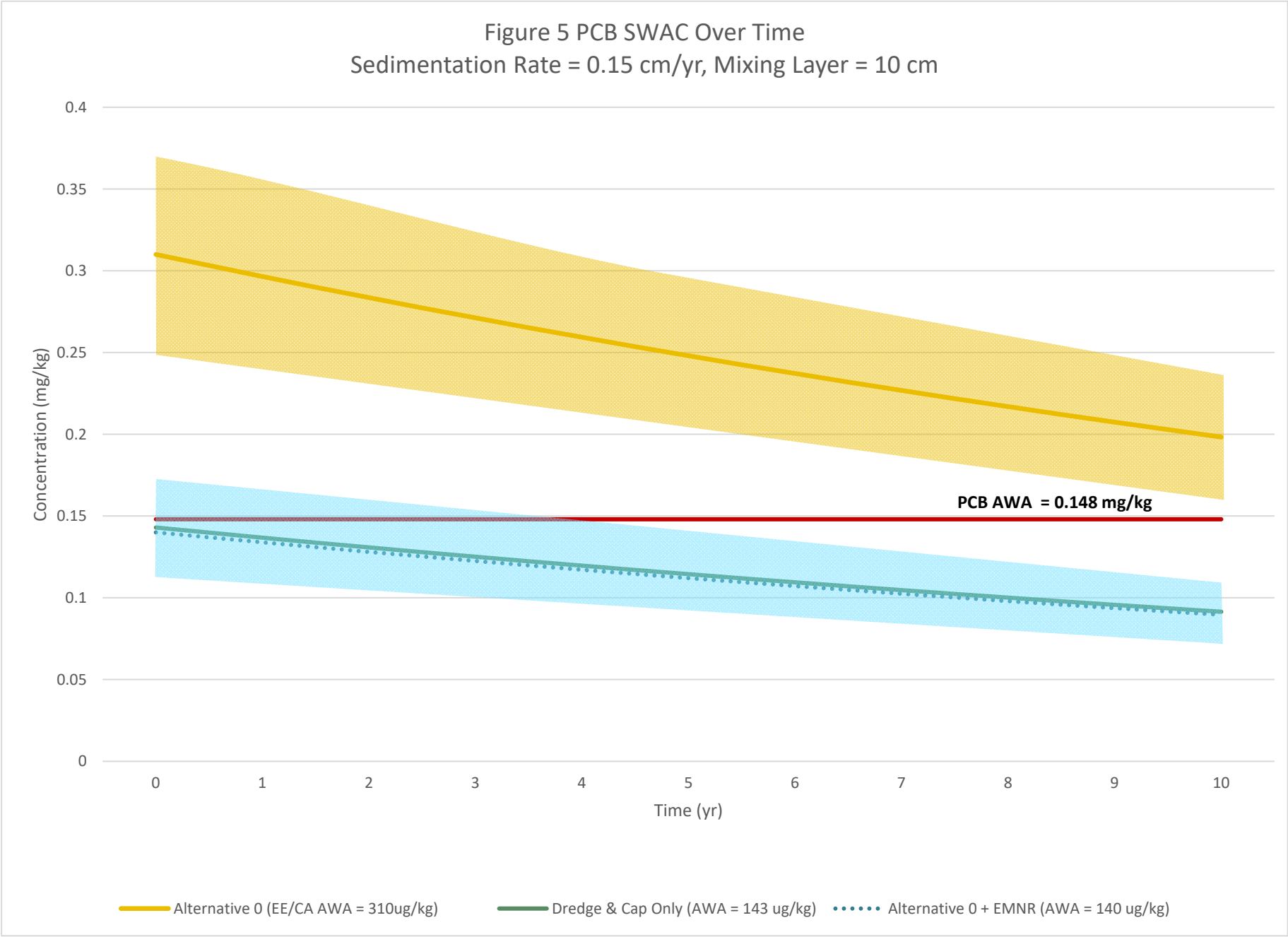


Figure 5 PCB SWAC Over Time
Sedimentation Rate = 0.15 cm/yr, Mixing Layer = 10 cm
Concentration (mg/kg)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
1
2
3
4
5
6
7
8
9
10
Time (yr)
PCB AWA = 0.148 mg/kg
Alternative 0 (EE/CA AWA = 310ug/kg)
Dredge & Cap Only (AWA = 143 ug/kg)
Alternative 0 + EMNR (AWA = 140 ug/kg)

Appendix A
AWA Evaluation

Notes:
1. This tab uses the max concentration of the 2009 and 2017 data for AWA calculations.
2. User input areas are highlighted in yellow. If column F is "EMNR", column G must be blank. Column G will turn bright red indicating wrong input values.
3. Red values are polygons exceeding the NTE RG.

Scenario: MAXIMUM of co-located 2009/2017 samples by depth.

Enter Total PCB AWA Remedial goal (ug/kg):	148	Proposed value
Enter Total PCB NTE goal (ug/kg):	1240	EECA value
Enter Backfill PCB concentration (ug/kg):	29.5	

	AWA (ug/kg)
Total PCBs (ug/kg) at 0-1 ft:	6,212
Total PCBs (ug/kg) at 1-2 ft:	11,368

			Total PCBs							
			Pre-remediation Total PCB Concentration (ug/kg)		Enter "x" to Dredge/cap the Polygon or "EMNR" to apply EMNR	Enter "x" to Dredge/cap the Polygon	Post-remediation Total PCB Concentration (ug/kg)			
Location ID	Surface Area (Acre)	Weighting Factor	0-1 ft	1-2 ft	Surface Only (0-1 ft)	Both Depths (0-2 ft)	0-1 ft	1-2 ft	0-1 ft Area Weighted concentration (ug/kg)	1-2 ft Area Weighted concentration (ug/kg)
PD-SED-12	0.33313	0.03201057	2,338.2	7,851.3			2,338.2	7,851.3	74.84647441	251.3239475
PD-SED-13	0.213713	0.020535752	2,717.2	5,080.5			2,717.2	5,080.5	55.80015496	104.33127
PD-SED-15	0.176581	0.016967726	8,238.1	14,117.4			8,238.1	14,117.4	139.7824995	239.5401703
YC-001	0.471724	0.045328112	39.8	0.2			39.8	0.2	1.803605593	0.008340373
YC-002	0.255169	0.024519272	124.7	15,789.5			124.7	15,789.5	3.056572462	387.1470471
YC-003/PD-SED-01	0.437543	0.042043649	4,268.3	347.3			4,268.3	347.3	179.4565889	14.60175931
YC-004	0.309572	0.029746874	642.4	15,196.1			642.4	15,196.1	19.10909443	452.0364729
YC-005/PD-SED-02	0.273109	0.026243133	46,917.7	46,917.7			46,917.7	46,917.7	1231.26742	1231.26742
YC-006	0.3393	0.032603447	233.0	4,036.5			233.0	4,036.5	7.596277173	131.6038148
YC-007/PD-SED-04	0.280644	0.026967173	20,435.5	929.2			20,435.5	929.2	551.0876668	25.05789728
YC-008	0.280833	0.026985334	471.5	29,589.5			471.5	29,589.5	12.72358508	798.4825467
YC-009	0.250162	0.024038148	59.2	370.3			59.2	370.3	1.424212184	8.901326152
YC-010/PD-SED-07	0.297793	0.028615026	61,414.6	25,534.6			61,414.6	25,534.6	1757.380383	730.6732461
YC-011	0.297359	0.028573323	372.6	1,575.7			372.6	1,575.7	10.64642012	45.02384213
YC-012/PD-SED-06	0.320114	0.030759858	5,478.6	14,575.1			5,478.6	14,575.1	168.5209595	448.3280102
YC-013	0.338938	0.032568663	924.6	9,241.4			924.6	9,241.4	30.11298539	300.980038
YC-014	0.396015	0.03805321	208.6	5,563.0			208.6	5,563.0	7.938280142	211.6903879
YC-015/PD-SED-09	0.302935	0.029109123	9,188.5	79,046.4			9,188.5	79,046.4	267.4691728	2300.971347
YC-016/PD-SED-08	0.251024	0.024120978	5,903.0	6,026.5			5,903.0	6,026.5	142.3849254	145.3641074
YC-017	0.195788	0.018813333	328.7	641.0			328.7	641.0	6.183378003	12.05953429
YC-018	0.246467	0.023683094	527.6	12,964.9			527.6	12,964.9	12.49567411	307.0482363
YC-019	0.232846	0.022374248	407.1	2,719.8			407.1	2,719.8	9.108556276	60.85236043
YC-020	0.333841	0.03207889	98.7	409.4			98.7	409.4	3.165224092	13.13309763
YC-021	0.178569	0.017158753	141.3	1,154.6			141.3	1,154.6	2.425132387	19.81149648
YC-022	0.213983	0.020561696	96.6	152.1			96.6	152.1	1.986259833	3.128359237
YC-023	0.146126	0.014041295	460.0	2,522.9			460.0	2,522.9	6.458995616	35.42436146
YC-024	0.223185	0.021445919	1,064.2	1,128.4			1,064.2	1,128.4	22.82296163	24.19914627
YC-025	0.226787	0.021792037	1,184.7	2,702.0			1,184.7	2,702.0	25.81767942	58.88295434
YC-026/PD-SED-11	0.104107	0.010003675	1,976.2	8,166.8			1,976.2	8,166.8	19.76886329	81.69841684
YC-029	0.893162	0.085824227	789.8	3,979.0			789.8	3,979.0	67.78569079	341.4945983
YC-030/PD-SED-14	0.145814	0.014011315	1,665.9	8,921.5			1,665.9	8,921.5	23.34130894	125.0015232
YC-031/PD-SED-10	0.257834	0.024775353	2,283.9	16,698.0			2,283.9	16,698.0	56.58442833	413.6988416
YC-032/PD-SED-03	0.124422	0.01195575	42,071.6	54,717.0			42,071.6	54,717.0	502.9975488	654.1827949
YC-033	0.313774	0.030150646	1,002.6	1,822.8			1,002.6	1,822.8	30.22813277	54.95708928
YC-034	0.228358	0.021942994	409.4	4,149.2			409.4	4,149.2	8.983461913	91.04587243
YC-035	0.194477	0.018687358	361.1	5,308.4			361.1	5,308.4	6.748005016	99.19997183
YC-036/PD-SED-05	0.321677	0.030910047	24,029.3	37,039.2			24,029.3	37,039.2	742.7452576	1144.883429

Enter Lead AWA Remedial goal (mg/kg):	218	EECA value = 218 mg/kg
Enter Lead NTE goal (mg/kg):	436	EECA value = 436 mg/kg
Enter Backfill Lead concentration (mg/kg):	43.2	

	AWA (mg/kg)
Lead (mg/kg) at 0-1 ft:	338
Lead (mg/kg) at 1-2 ft:	499

	Lead							
	Pre-remediation Lead Concentration (mg/kg)		"X" or "EMNR" to Remediate Polygon based on PCB cells		Post-remediation Lead Concentration (mg/kg)			
Location ID	0-1 ft	1 -2 ft	Surface Only (0-1 ft)	Both Depths (0-2 ft)	0-1 ft	1-2 ft	0-1 ft Area Weighted concentration (mg/kg)	1-2 ft Area Weighted concentration (mg/kg)
PD-SED-12	170.0	460.0	0	0	170.0	460.0	5.441796889	14.72486217
PD-SED-13	130.0	490.0	0	0	130.0	490.0	2.669647709	10.06251829
PD-SED-15	350.0	480.0	0	0	350.0	480.0	5.938703982	8.144508318
YC-001	20.5	15.9	0	0	20.5	15.9	0.929226305	0.720716988
YC-002	269.0	746.0	0	0	269.0	746.0	6.595684199	18.291377
YC-003/PD-SED-01	891.0	156.0	0	0	891.0	156.0	37.46089129	6.558809249
YC-004	203.0	584.0	0	0	203.0	584.0	6.038615435	17.37217445
YC-005/PD-SED-02	670.0	670.0	0	0	670.0	670.0	17.5828988	17.5828988
YC-006	161.0	175.0	0	0	161.0	175.0	5.249155006	5.705603267
YC-007/PD-SED-04	724.0	102.0	0	0	724.0	102.0	19.52423336	2.750651661
YC-008	139.0	702.0	0	0	139.0	702.0	3.750961456	18.94370462
YC-009	137.0	191.0	0	0	137.0	191.0	3.293226257	4.591286241
YC-010/PD-SED-07	1,000.0	750.0	0	0	1,000.0	750.0	28.61502612	21.46126959
YC-011	178.0	814.0	0	0	178.0	814.0	5.08605148	23.25868486
YC-012/PD-SED-06	1,130.0	400.0	0	0	1,130.0	400.0	34.75863984	12.30394331
YC-013	267.0	619.0	0	0	267.0	619.0	8.695832899	20.16000211
YC-014	213.0	455.0	0	0	213.0	455.0	8.105333734	17.31421056
YC-015/PD-SED-09	640.0	937.0	0	0	640.0	937.0	18.62983845	27.27524785
YC-016/PD-SED-08	290.0	697.0	0	0	290.0	697.0	6.995083539	16.81232147
YC-017	258.0	449.0	0	0	258.0	449.0	4.853839793	8.447186307
YC-018	262.0	722.0	0	0	262.0	722.0	6.204970656	17.09919395
YC-019	254.0	809.0	0	0	254.0	809.0	5.683058939	18.10076646
YC-020	106.0	271.0	0	0	106.0	271.0	3.400362357	8.693379232
YC-021	154.0	320.0	0	0	154.0	320.0	2.642447997	5.490801033
YC-022	70.1	137.0	0	0	70.1	137.0	1.441374889	2.816952351
YC-023	156.0	561.0	0	0	156.0	561.0	2.190441991	7.877166392
YC-024	280.0	509.0	0	0	280.0	509.0	6.004857366	10.91597285
YC-025	204.0	439.0	0	0	204.0	439.0	4.445575449	9.56670403
YC-026/PD-SED-11	1,210.0	495.0	0	0	1,210.0	495.0	12.1044473	4.95181935
YC-029	141.0	451.0	0	0	141.0	451.0	12.10121598	38.70672627
YC-030/PD-SED-14	164.0	682.0	0	0	164.0	682.0	2.2978556	9.555716582
YC-031/PD-SED-10	249.0	567.0	0	0	249.0	567.0	6.169062855	14.04762506
YC-032/PD-SED-03	978.0	900.0	0	0	978.0	900.0	11.6927239	10.76017536
YC-033	179.0	912.0	0	0	179.0	912.0	5.396965564	27.49738879
YC-034	221.0	625.0	0	0	221.0	625.0	4.849401766	13.71437151
YC-035	225.0	484.0	0	0	225.0	484.0	4.204655576	9.044681328
YC-036/PD-SED-05	560.0	560.0	0	0	560.0	560.0	17.30962657	17.30962657

Alternatives Removal Areas

		Baseline (No removal)		Alternative 0: Removal of NTE exceedances in 1' or both 1' and 2'		Dredge/Cap Only Alternative: Alternative 0 + dredge/cap additional polygons to achieve proposed AWA		EMNR Alternative: Alternative 0 with addition of EMNR	
Surface area to dredge (acre)		0	0	3.84044	3.122253	6.962491	5.770957	3.84044	3.122253
Dredge volume (cu yd)		0	0	6196.405539	5037.637819	11233.71744	9311.222132	6196.40554	5037.638
Location ID	Max polygon surface area	Surface Only (0-1 ft)	Both Depths (0-2 ft)	Surface Only (0-1 ft)	Both Depths (0-2 ft)	Surface Only (0-1 ft)	Both Depths (0-2 ft)	Surface Only (0-1 ft)	Both Depths (0-2 ft)
PD-SED-12	0.33313			X	X	X	X	X	X
PD-SED-13	0.213713			X	X	X	X	X	X
PD-SED-15	0.176581			X	X	X	X	X	X
YC-001	0.471724								
YC-002	0.255169								
YC-003/PD-SED-01	0.437543			X		X		X	
YC-004	0.309572					X	X	EMNR	
YC-005/PD-SED-02	0.273109			X	X	X	X	X	X
YC-006	0.3393					X	X		
YC-007/PD-SED-04	0.280644			X		X		X	
YC-008	0.280833					X	X		
YC-009	0.250162					X			
YC-010/PD-SED-07	0.297793			X	X	X	X	X	X
YC-011	0.297359					X	X		
YC-012/PD-SED-06	0.320114			X	X	X	X	X	X
YC-013	0.338938					X	X	EMNR	
YC-014	0.396015					X	X		
YC-015/PD-SED-09	0.302935			X	X	X	X	X	X
YC-016/PD-SED-08	0.251024			X	X	X	X	X	X
YC-017	0.195788								
YC-018	0.246467							EMNR	
YC-019	0.232846								
YC-020	0.333841								
YC-021	0.178569								
YC-022	0.213983								
YC-023	0.146126					X	X		
YC-024	0.223185					X		EMNR	
YC-025	0.226787					X	X	EMNR	
YC-026/PD-SED-11	0.104107			X	X	X	X	X	X
YC-029	0.893162							EMNR	
YC-030/PD-SED-14	0.145814			X	X	X	X	X	X
YC-031/PD-SED-10	0.257834			X	X	X	X	X	X
YC-032/PD-SED-03	0.124422			X	X	X	X	X	X
YC-033	0.313774					X	X	EMNR	
YC-034	0.228358								
YC-035	0.194477								
YC-036/PD-SED-05	0.321677			X	X	X	X	X	X
Total dredge volume for Alternative (CY)=		-		11,234		20,545		11,234	
Achieves SWAC of (µg/kg PCBs)=		6212		310		143		140	

Thiessen polygon areas calcualted in ArcGIS

SampID_2	Acreage	Area_SQFT	Weights
PD-SED-12	0.33313	14511.10299	0.03201057
PD-SED-13	0.213713	9309.319646	0.020535752
PD-SED-15	0.176581	7691.826496	0.016967726
YC-001	0.471724	20548.22165	0.045328112
YC-002	0.255169	11115.11992	0.024519272
YC-003/PD-SED-01	0.437543	19059.29881	0.042043649
YC-004	0.309572	13484.90538	0.029746874
YC-005/PD-SED-02	0.273109	11896.59711	0.026243133
YC-006	0.3393	14779.83348	0.032603447
YC-007/PD-SED-04	0.280644	12224.81931	0.026967173
YC-008	0.280833	12233.05361	0.026985334
YC-009	0.250162	10897.02283	0.024038148
YC-010/PD-SED-07	0.297793	12971.82225	0.028615026
YC-011	0.297359	12952.91313	0.028573323
YC-012/PD-SED-06	0.320114	13944.10619	0.030759858
YC-013	0.338938	14764.07404	0.032568663
YC-014	0.396015	17250.34285	0.03805321
YC-015/PD-SED-09	0.302935	13195.81637	0.029109123
YC-016/PD-SED-08	0.251024	10934.56972	0.024120978
YC-017	0.195788	8528.483926	0.018813333
YC-018	0.246467	10736.07266	0.023683094
YC-019	0.232846	10142.71869	0.022374248
YC-020	0.333841	14542.07686	0.03207889
YC-021	0.178569	7778.455962	0.017158753
YC-022	0.213983	9321.081095	0.020561696
YC-023	0.146126	6365.244413	0.014041295
YC-024	0.223185	9721.891193	0.021445919
YC-025	0.226787	9878.812988	0.021792037
YC-026/PD-SED-11	0.104107	4534.896338	0.010003675
YC-029	0.893162	38905.98402	0.085824227
YC-030/PD-SED-14	0.145814	6351.627275	0.014011315
YC-031/PD-SED-10	0.257834	11231.21934	0.024775353
YC-032/PD-SED-03	0.124422	5419.818016	0.01195575
YC-033	0.313774	13667.93244	0.030150646
YC-034	0.228358	9947.23817	0.021942994
YC-035	0.194477	8471.398074	0.018687358
YC-036/PD-SED-05	0.321677	14012.2075	0.030910047

Sampling Data (Parent Samples Only)

Sampling Event	Location Name	Location (combined)	x_coord	y_coord	coord_sys	Sample ID	Sample Date	Upper Depth	Lower Depth	Depth Units	Matrix	lab	Parameter Group	Analyte	Analyte Full Name	meas_basis	Result	Result Units	Qualifiers	sig_figs	qa_level	data_quality	undetected	Detect Flag	estimated	rejected	greater_than	SigFig1	SigFig2	SigFig3	SigFig4	SigFig5	SigFig6	SigFig7	Result(1-5)	Result(6-7)	Text_Result	reportable	detection_limit	reporting_limit	quantification_limit
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-01	YC-003/PD-SED-01	-122.3861728	37.72392665	CA_SPzone3_NAD83_ftUS	PD-SED-01A-0-1	10/9/2017	0	1	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	330	mg/kg	J	3	Stage 3	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	300	330	330	330	330	330	330	330	330	330 J	TRUE	0.25999999	1	1
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-01	YC-003/PD-SED-01	-122.3861728	37.72392665	CA_SPzone3_NAD83_ftUS	PD-SED-01A-0-1	10/9/2017	0	1	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	4268.339999	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	4000	4300	4270	4268	4268.3	4268.34	4268.34	4270	4268.34	4270 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-02	YC-005/PD-SED-02	-122.3857307	37.72378808	CA_SPzone3_NAD83_ftUS	PD-SED-02A-0-2	10/10/2017	0	2	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	670	mg/kg	J	3	Stage 3	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	700	670	670	670	670	670	670	670	670	670 J	TRUE	0.219999999	0.889999986	0.889999986
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-02	YC-005/PD-SED-02	-122.3857307	37.72378808	CA_SPzone3_NAD83_ftUS	PD-SED-02A-0-2	10/10/2017	0	2	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	46917.7	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	50000	47000	46900	46920	46918	46917.7	46917.7	46900	46917.7	46900 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-03	YC-032/PD-SED-03	-122.3855685	37.72376428	CA_SPzone3_NAD83_ftUS	PD-SED-03A-0-2	10/11/2017	0	2	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	900	mg/kg		3	Stage 2B	Cat 1	FALSE	Yes	FALSE	FALSE	FALSE	900	900	900	900	900	900	900	900	900	900	TRUE	0.280000001	1.100000024	1.100000024
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-03	YC-032/PD-SED-03	-122.3855685	37.72376428	CA_SPzone3_NAD83_ftUS	PD-SED-03A-0-2	10/11/2017	0	2	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	42071.6	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	40000	42000	42100	42070	42072	42071.6	42071.6	42100	42071.6	42100 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-04	YC-007/PD-SED-04	-122.3855247	37.72357733	CA_SPzone3_NAD83_ftUS	PD-SED-04A-0-1	10/12/2017	0	1	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	550	mg/kg		3	Stage 2B	Cat 1	FALSE	Yes	FALSE	FALSE	FALSE	600	550	550	550	550	550	550	550	550	550	TRUE	0.239999995	0.949999988	0.949999988
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-04	YC-007/PD-SED-04	-122.3855247	37.72357733	CA_SPzone3_NAD83_ftUS	PD-SED-04A-0-1	10/12/2017	0	1	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	20435.5	ug/kg	JA	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	20000	20000	20400	20440	20436	20435.5	20435.5	20400	20435.5	20400 JA	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-04	YC-007/PD-SED-04	-122.3855247	37.72357733	CA_SPzone3_NAD83_ftUS	PD-SED-04A-1-3	10/12/2017	1	3	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	73	mg/kg		3	Stage 2B	Cat 1	FALSE	Yes	FALSE	FALSE	FALSE	70	73	73	73	73	73	73	73	73	73	TRUE	0.159999996	0.649999976	0.649999976
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-04	YC-007/PD-SED-04	-122.3855247	37.72357733	CA_SPzone3_NAD83_ftUS	PD-SED-04A-1-3	10/12/2017	1	3	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	7406.69	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	7000	7400	7410	7407	7406.7	7406.69	7406.69	7410	7406.69	7410 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-05	YC-036/PD-SED-05	-122.3851156	37.72371019	CA_SPzone3_NAD83_ftUS	PD-SED-05A-0-2	10/11/2017	0	2	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	560	mg/kg		3	Stage 2B	Cat 1	FALSE	Yes	FALSE	FALSE	FALSE	600	560	560	560	560	560	560	560	560	560	TRUE	0.25	1	1
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-05	YC-036/PD-SED-05	-122.3851156	37.72371019	CA_SPzone3_NAD83_ftUS	PD-SED-05A-0-2	10/11/2017	0	2	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	16601.4	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	20000	17000	16600	16600	16601	16601.4	16601.4	16600	16601.4	16600 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-05	YC-036/PD-SED-05	-122.3851156	37.72371019	CA_SPzone3_NAD83_ftUS	PD-SED-05A-2-4	10/11/2017	2	4	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	11	mg/kg		3	Stage 2B	Cat 1	FALSE	Yes	FALSE	FALSE	FALSE	10	11	11	11	11	11	11	11	11	11	TRUE	0.159999996	0.629999995	0.629999995
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-05	YC-036/PD-SED-05	-122.3851156	37.72371019	CA_SPzone3_NAD83_ftUS	PD-SED-05A-2-4	10/11/2017	2	4	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	86.71000011	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	90	87	86.7	86.71	86.71	86.71	86.71	86.7	86.71	86.7 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-06	YC-012/PD-SED-06	-122.3844948	37.72349512	CA_SPzone3_NAD83_ftUS	PD-SED-06A-0-1	10/12/2017	0	1	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	400	mg/kg		3	Stage 2B	Cat 1	FALSE	Yes	FALSE	FALSE	FALSE	400	400	400	400	400	400	400	400	400	400	TRUE	0.25999999	1.100000024	1.100000024
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-06	YC-012/PD-SED-06	-122.3844948	37.72349512	CA_SPzone3_NAD83_ftUS	PD-SED-06A-0-1	10/12/2017	0	1	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	5478.6	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	5000	5500	5480	5479	5478.6	5478.6	5478.6	5480	5478.6	5480 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-06	YC-012/PD-SED-06	-122.3844948	37.72349512	CA_SPzone3_NAD83_ftUS	PD-SED-06A-1-2	10/12/2017	1	2	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	400	mg/kg		3	Stage 2B	Cat 1	FALSE	Yes	FALSE	FALSE	FALSE	400	400	400	400	400	400	400	400	400	400	TRUE	0.200000003	0.819999993	0.819999993
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-06	YC-012/PD-SED-06	-122.3844948	37.72349512	CA_SPzone3_NAD83_ftUS	PD-SED-06A-1-2	10/12/2017	1	2	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	14575.1	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	10000	15000	14600	14580	14575	14575.1	14575.1	14600	14575.1	14600 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-07	YC-010/PD-SED-07	-122.3849019	37.72346599	CA_SPzone3_NAD83_ftUS	PD-SED-07A-0-2	10/10/2017	0	2	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	750	mg/kg	J	3	Stage 3	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	800	750	750	750	750	750	750	750	750	750 J	TRUE	0.239999995	0.980000019	0.980000019
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-07	YC-010/PD-SED-07	-122.3849019	37.72346599	CA_SPzone3_NAD83_ftUS	PD-SED-07A-0-2	10/10/2017	0	2	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	25534.6	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	30000	26000	25500	25530	25535	25534.6	25534.6	25500	25534.6	25500 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-08	YC-016/PD-SED-08	-122.3837726	37.72299484	CA_SPzone3_NAD83_ftUS	PD-SED-08A-0-1	10/12/2017	0	1	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	290	mg/kg		3	Stage 2B	Cat 1	FALSE	Yes	FALSE	FALSE	FALSE	300	290	290	290	290	290	290	290	290	290	TRUE	0.170000002	0.680000007	0.680000007
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-08	YC-016/PD-SED-08	-122.3837726	37.72299484	CA_SPzone3_NAD83_ftUS	PD-SED-08A-0-1	10/12/2017	0	1	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	5902.95	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	6000	5900	5900	5903	5903	5902.95	5902.95	5900	5902.95	5900 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-08	YC-016/PD-SED-08	-122.3837726	37.72299484	CA_SPzone3_NAD83_ftUS	PD-SED-08A-1-2	10/12/2017	1	2	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	500	mg/kg		3	Stage 2B	Cat 1	FALSE	Yes	FALSE	FALSE	FALSE	500	500	500	500	500	500	500	500	500	500	TRUE	0.170000002	0.699999988	0.699999988
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-08	YC-016/PD-SED-08	-122.3837726	37.72299484	CA_SPzone3_NAD83_ftUS	PD-SED-08A-1-2	10/12/2017	1	2	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1948.1	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	2000	1900	1950	1948	1948.1	1948.1	1948.1	1950	1948.1	1950 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-09	YC-015/PD-SED-09	-122.3839945	37.72292347	CA_SPzone3_NAD83_ftUS	PD-SED-09A-0-2	10/9/2017	0	2	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	640	mg/kg	J	3	Stage 3	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	600	640	640	640	640	640	640	640	640	640 J	TRUE	0.230000004	0.930000007	0.930000007
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-09	YC-015/PD-SED-09	-122.3839945	37.72292347	CA_SPzone3_NAD83_ftUS	PD-SED-09A-0-2	10/9/2017	0	2	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	7638.76	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	8000	7600	7640	7639	7638.8	7638.76	7638.76	7640	7638.76	7640 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-09	YC-015/PD-SED-09	-122.3839945	37.72292347	CA_SPzone3_NAD83_ftUS	PD-SED-09A-2-4	10/9/2017	2	4	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	110	mg/kg	J	3	Stage 3	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	100	110	110	110	110	110	110	110	110	110 J	TRUE	0.159999996	0.660000026	0.660000026
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-09	YC-015/PD-SED-09	-122.3839945	37.72292347	CA_SPzone3_NAD83_ftUS	PD-SED-09A-2-4	10/9/2017	2	4	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	817.1899993	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	800	820	817	817.2	817.19	817.19	817.19	817	817.19	817 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-10	YC-031/PD-SED-10	-122.3837893	37.72271533	CA_SPzone3_NAD83_ftUS	PD-SED-10A-0-1	10/10/2017	0	1	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	110	mg/kg	J	3	Stage 3	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	100	110	110	110	110	110	110	110	110	110 J	TRUE	0.25999999	1	1
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-10	YC-031/PD-SED-10	-122.3837893	37.72271533	CA_SPzone3_NAD83_ftUS	PD-SED-10A-0-1	10/10/2017	0	1	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1353.319999	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	1000	1400	1350	1353	1353.3	1353.32	1353.32	1350	1353.32	1350 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-10	YC-031/PD-SED-10	-122.3837893	37.72271533	CA_SPzone3_NAD83_ftUS	PD-SED-10A-1-2	10/10/2017	1	2	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	220	mg/kg	J	3	Stage 3	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	200	220	220	220	220	220	220	220	220	220 J	TRUE	0.219999999	0.889999986	0.889999986
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-10	YC-031/PD-SED-10	-122.3837893	37.72271533	CA_SPzone3_NAD83_ftUS	PD-SED-10A-1-2	10/10/2017	1	2	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1906.239998	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	2000	1900	1910	1906	1906.2	1906.24	1906.24	1910	1906.24	1910 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-10	YC-031/PD-SED-10	-122.3837893	37.72271533	CA_SPzone3_NAD83_ftUS	PD-SED-10A-2-4	10/10/2017	2	4	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	230	mg/kg	J	3	Stage 3	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	200	230	230	230	230	230	230	230	230	230 J	TRUE	0.189999998	0.75999999	0.75999999
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-10	YC-031/PD-SED-10	-122.3837893	37.72271533	CA_SPzone3_NAD83_ftUS	PD-SED-10A-2-4	10/10/2017	2	4	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	2596.93	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	3000	2600	2600	2597	2596.9	2596.93	2596.93	2600	2596.93	2600 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-11	YC-026/PD-SED-11	-122.3820128	37.72189416	CA_SPzone3_NAD83_ftUS	PD-SED-11A-0-1	10/11/2017	0	1	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	180	mg/kg		3	Stage 2B	Cat 1	FALSE	Yes	FALSE	FALSE	FALSE	200	180	180	180	180	180	180	180	180	180	TRUE	0.230000004	0.939999998	0.939999998
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-11	YC-026/PD-SED-11	-122.3820128	37.72189416	CA_SPzone3_NAD83_ftUS	PD-SED-11A-0-1	10/11/2017	0	1	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1365.280001	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	1000	1400	1370	1365	1365.3	1365.28	1365.28	1370	1365.28	1370 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-11	YC-026/PD-SED-11	-122.3820128	37.72189416	CA_SPzone3_NAD83_ftUS	PD-SED-11A-1-2	10/11/2017	1	2	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	490	mg/kg		3	Stage 2B	Cat 1	FALSE	Yes	FALSE	FALSE	FALSE	500	490	490	490	490	490	490	490	490	490	TRUE	0.239999995	0.959999979	0.959999979
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-11	YC-026/PD-SED-11	-122.3820128	37.72189416	CA_SPzone3_NAD83_ftUS	PD-SED-11A-1-2	10/11/2017	1	2	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	8166.839999	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	8000	8200	8170	8167	8166.8	8166.84	8166.84	8170	8166.84	8170 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-12	PD-SED-12	-122.382479	37.72159477	CA_SPzone3_NAD83_ftUS	PD-SED-12A-0-1	10/11/2017	0	1	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	170	mg/kg		3	Stage 2B	Cat 1	FALSE	Yes	FALSE	FALSE	FALSE	200	170	170	170	170	170	170	170	170	170	TRUE	0.239999995	0.949999988	0.949999988
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-12	PD-SED-12	-122.382479	37.72159477	CA_SPzone3_NAD83_ftUS	PD-SED-12A-0-1	10/11/2017	0	1	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	2338.18	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	2000	2300	2340	2338	2338.2	2338.18	2338.18	2340	2338.18	2340 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-12	PD-SED-12	-122.382479	37.72159477	CA_SPzone3_NAD83_ftUS	PD-SED-12A-1-2	10/11/2017	1	2	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	460	mg/kg		3	Stage 2B	Cat 1	FALSE	Yes	FALSE	FALSE	FALSE	500	460	460	460	460	460	460	460	460	460	TRUE	0.219999999	0.910000026	0.910000026
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-12	PD-SED-12	-122.382479	37.72159477	CA_SPzone3_NAD83_ftUS	PD-SED-12A-1-2	10/11/2017	1	2	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	7851.28	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	8000	7900	7850	7851	7851.3	7851.28	7851.28	7850	7851.28	7850 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-13	PD-SED-13	-122.3818773	37.72213493	CA_SPzone3_NAD83_ftUS	PD-SED-13A-0-1	10/10/2017	0	1	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	130	mg/kg	J	3	Stage 3	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	100	130	130	130	130	130	130	130	130	130 J	TRUE	0.219999999	0.879999995	0.879999995
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-13	PD-SED-13	-122.3818773	37.72213493	CA_SPzone3_NAD83_ftUS	PD-SED-13A-0-1	10/10/2017	0	1	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	2717.219999	ug/kg	JA	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	3000	2700	2720	2717	2717.2	2717.22	2717.22	2720	2717.22	2720 JA	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-13	PD-SED-13	-122.3818773	37.72213493	CA_SPzone3_NAD83_ftUS	PD-SED-13A-1-2	10/10/2017	1	2	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	490	mg/kg	J	3	Stage 3	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	500	490	490	490	490	490	490	490	490	490 J	TRUE	0.209999993	0.870000005	0.870000005
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-13	PD-SED-13	-122.3818773	37.72213493	CA_SPzone3_NAD83_ftUS	PD-SED-13A-1-2	10/10/2017	1	2	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	5080.47	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	5000	5100	5080	5080	5080.5	5080.47	5080.47	5080	5080.47	5080 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-14	YC-030/PD-SED-14	-122.3823899	37.72144648	CA_SPzone3_NAD83_ftUS	PD-SED-14A-0-1	10/10/2017	0	1	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	130	mg/kg	J	3	Stage 3	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	100	130	130	130	130	130	130	130	130	130 J	TRUE	0.25	1	1
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-14	YC-030/PD-SED-14	-122.3823899	37.72144648	CA_SPzone3_NAD83_ftUS	PD-SED-14A-0-1	10/10/2017	0	1	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1559.169999	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	2000	1600	1560	1559	1559.2	1559.17	1559.17	1560	1559.17	1560 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-14	YC-030/PD-SED-14	-122.3823899	37.72144648	CA_SPzone3_NAD83_ftUS	PD-SED-14A-1-2	10/10/2017	1	2	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	640	mg/kg	J	3	Stage 3	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	600	640	640	640	640	640	640	640	640	640 J	TRUE	0.239999995	0.970000029	0.970000029
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-14	YC-030/PD-SED-14	-122.3823899	37.72144648	CA_SPzone3_NAD83_ftUS	PD-SED-14A-1-2	10/10/2017	1	2	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	8921.469999	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	9000	8900	8920	8921	8921.5	8921.47	8921.47	8920	8921.47	8920 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-15	PD-SED-15	-122.3820926	37.72204505	CA_SPzone3_NAD83_ftUS	PD-SED-15A-0-1	10/9/2017	0	1	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	350	mg/kg	J	3	Stage 3	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	400	350	350	350	350	350	350	350	350	350 J	TRUE	0.239999995	0.959999979	0.959999979
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-15	PD-SED-15	-122.3820926	37.72204505	CA_SPzone3_NAD83_ftUS	PD-SED-15A-0-1	10/9/2017	0	1	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	8238.14	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	8000	8200	8240	8238	8238.1	8238.14	8238.14	8240	8238.14	8240 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-15	PD-SED-15	-122.3820926	37.72204505	CA_SPzone3_NAD83_ftUS	PD-SED-15A-1-2	10/9/2017	1	2	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	480	mg/kg	J	3	Stage 3	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	500	480	480	480	480	480	480	480	480	480 J	TRUE	0.270000011	1.100000024	1.100000024
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-15	PD-SED-15	-122.3820926	37.72204505	CA_SPzone3_NAD83_ftUS	PD-SED-15A-1-2	10/9/2017	1	2	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	14117.4	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	10000	14000	14100	14120	14117	14117.4	14117.4	14100	14117.4	14100 J	TRUE			
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-15	PD-SED-15	-122.3820926	37.72204505	CA_SPzone3_NAD83_ftUS	PD-SED-15A-2-4	10/9/2017	2	4	ft	Sediment	TAL-PIT	Metal/oids	Lead	Lead	DryWt	250	mg/kg	J	3	Stage 3	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	300	250	250	250	250	250	250	250	250	250 J	TRUE	0.280000001	1.100000024	1.100000024
2017 Technical Pre-Design Phase II - Sediment Sampling	PD-SED-15	PD-SED-15	-122.3820926	37.72204505	CA_SPzone3_NAD83_ftUS	PD-SED-15A-2-4	10/9/2017	2	4	ft	Sediment	TAL-PIT	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1993.87	ug/kg	J	3	Validated	Cat 1	FALSE	Yes	TRUE	FALSE	FALSE	2000	2000	1990	1994	1993.9	1993.87	1993.87	1990	1993.87	1990 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-001	YC-001	-122.3866114	37.7241455		YC-001-1	7/1/2009	0	1	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	20.5	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	20	21	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-001	YC-001	-122.3866114	37.7241455		YC-001-1	7/1/2009	0	1	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	39.79	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	40	40	39.8	39.79	39.79	39.79	39.79	39.8	39.79	39.8	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-001	YC-001	-122.3866114	37.7241455		YC-001-2	7/1/2009	1	2	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	15.9	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	20	16	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-001	YC-001	-122.3866114	37.7241455		YC-001-2	7/1/2009	1	2	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	0.184	ug/kg	U	3	Validated		TRUE	No	FALSE	FALSE	FALSE	0.2	0.18	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184 U	TRUE	0.183999996	0.183999996	
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-001	YC-001	-122.3866114	37.7241455		YC-001-3	7/1/2009	2	3	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	24	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	20	24	24	24	24	24	24	24	24	24 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-001	YC-001	-122.3866114	37.7241455		YC-001-3	7/1/2009	2	3	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	9.2	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	9	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-001	YC-001	-122.3866114	37.7241455		YC-001-4	7/1/2009	3	4	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	124	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	100	120	124	124	124	124	124	124	124	124 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-001	YC-001	-122.3866114	37.7241455		YC-001-4	7/1/2009	3	4	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	230.92	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	200	230	231	230.9	230.92	230.92	230.92	231	230.92	231	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-002	YC-002	-122.3862902	37.72444251		YC-002-1	7/1/2009	0	1	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	269	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	300	270	269	269	269	269	269	269	269	269 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-002	YC-002	-122.3862902	37.72444251		YC-002-1	7/1/2009	0	1	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	124.66	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	100	120	125	124.7	124.66	124.66	124.66	125	124.66	125	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-002	YC-002	-122.3862902	37.72444251		YC-002-2	7/1/2009	1	2	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	746	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	700	750	746	746	746	746	746	746	746	746 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-002	YC-002	-122.3862902	37.72444251		YC-002-2	7/1/2009	1	2	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	15789.5	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	20000	16000	15800	15790	15790	15789.5	15789.5	15800	15789.5	15800	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-002	YC-002	-122.3862902	37.72444251		YC-002-3	7/1/2009	2	3	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	36.9	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	40	37	36.9	36.9	36.9	36.9	36.9	36.9	36.9	36.9 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-002	YC-002	-122.3862902	37.72444251		YC-002-3	7/1/2009	2	3	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	341.251	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	300	340	341	341.3	341.25	341.251	341.251	341	341.251	341	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-002	YC-002	-122.3862902	37.72444251		YC-002-4	7/1/2009	3	4	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	26.7	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	30	27	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-002	YC-002	-122.3862902	37.72444251		YC-002-4	7/1/2009	3	4	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	44.85	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	40	45	44.9	44.85	44.85	44.85	44.85	44.9	44.85	44.9	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-002	YC-002	-122.3862902	37.72444251		YC-002-5	7/1/2009	4	5	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	8	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	8	8	8	8	8	8	8	8	8	8.0 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-002	YC-002	-122.3862902	37.72444251		YC-002-5	7/1/2009	4	5	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	0.207	ug/kg	U	3	Validated		TRUE	No	FALSE	FALSE	FALSE	0.2	0.21	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207 U	TRUE	0.207000008	0.207000008	
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-003	YC-003/PD-SED-01	-122.386186	37.72393159		YC-003-1	6/29/2009	0	1	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	891	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	900	890	891	891	891	891	891	891	891	891 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-003	YC-003/PD-SED-01	-122.386186	37.72393159		YC-003-1	6/29/2009	0	1	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	3790.4	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	4000	3800	3790	3790	3790.4	3790.4	3790.4	3790	3790.4	3790	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-003	YC-003/PD-SED-01	-122.386186	37.72393159		YC-003-2	6/29/2009	1	2	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	156	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	200	160	156	156	156	156	156	156	156	156 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-003	YC-003/PD-SED-01	-122.386186	37.72393159		YC-003-2	6/29/2009	1	2	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	347.3	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	300	350	347	347.3	347.3	347.3	347.3	347	347.3	347	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-003	YC-003/PD-SED-01	-122.386186	37.72393159		YC-003-3	6/29/2009	2	3	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	26	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	30	26	26	26	26	26	26	26	26	26 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-003	YC-003/PD-SED-01	-122.386186	37.72393159		YC-003-3	6/29/2009	2	3	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	5.658	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	6	5.7	5.66	5.658	5.658	5.658	5.658	5.66	5.658	5.66	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-003	YC-003/PD-SED-01	-122.386186	37.72393159		YC-003-4	6/29/2009	3	4	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	8.2	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	8	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.20 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-003	YC-003/PD-SED-01	-122.386186	37.72393159		YC-003-4	6/29/2009	3	4	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	0.184	ug/kg	U	3	Validated		TRUE	No	FALSE	FALSE	FALSE	0.2	0.18	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184 U	TRUE	0.183999996	0.183999996	
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-003	YC-003/PD-SED-01	-122.386186	37.72393159		YC-003-5	6/29/2009	4	5	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	8.3	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	8	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.30 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-003	YC-003/PD-SED-01	-122.386186	37.72393159		YC-003-5	6/29/2009	4	5	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	0.253	ug/kg	U	3	Validated		TRUE	No	FALSE	FALSE	FALSE	0.3	0.25	0.253	0.253	0.253	0.253	0.253	0.253	0.253	0.253 U	TRUE	0.252999999	0.252999999	
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-004	YC-004	-122.3859545	37.72424045		YC-004-1	7/2/2009	0	1	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	203	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	200	200	203	203	203	203	203	203	203	203 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-004	YC-004	-122.3859545	37.72424045		YC-004-1	7/2/2009	0	1	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	642.39	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	600	640	642	642.4	642.39	642.39	642.39	642	642.39	642	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-004	YC-004	-122.3859545	37.72424045		YC-004-2	7/2/2009	1	2	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	584	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	600	580	584	584	584	584	584	584	584	584 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-004	YC-004	-122.3859545	37.72424045		YC-004-2	7/2/2009	1	2	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	15196.1	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	20000	15000	15200	15200	15196	15196.1	15196.1	15200	15196.1	15200	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-004	YC-004	-122.3859545	37.72424045		YC-004-3	7/2/2009	2	3	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	14.7	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	10	15	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-004	YC-004	-122.3859545	37.72424045		YC-004-3	7/2/2009	2	3	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	64.63	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	60	65	64.6	64.63	64.63	64.63	64.63	64.6	64.63	64.6	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-005	YC-005/PD-SED-02	-122.3857439	37.72379303		YC-005-1	7/7/2009	0	1	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	439	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	400	440	439	439	439	439	439	439	439	439 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-005	YC-005/PD-SED-02	-122.3857439	37.72379303		YC-005-1	7/7/2009	0	1	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	9604.8	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	10000	9600	9600	9605	9604.8	9604.8	9604.8	9600	9604.8	9600	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-005	YC-005/PD-SED-02	-122.3857439	37.72379303		YC-005-2	7/7/2009	1	2	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	563	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	600	560	563	563	563	563	563	563	563	563 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-005	YC-005/PD-SED-02	-122.3857439	37.72379303		YC-005-2	7/7/2009	1	2	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	21061.1	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	20000	21000	21100	21060	21061	21061.1	21061.1	21100	21061.1	21100	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-005	YC-005/PD-SED-02	-122.3857439	37.72379303		YC-005-3	7/7/2009	2	3	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	28.6	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	30	29	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-005	YC-005/PD-SED-02	-122.3857439	37.72379303		YC-005-3	7/7/2009	2	3	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	561.66	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	600	560	562	561.7	561.66	561.66	561.66	562	561.66	562	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-005	YC-005/PD-SED-02	-122.3857439	37.72379303		YC-005-4	7/7/2009	3	4	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	8.5	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	8	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.50 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-005	YC-005/PD-SED-02	-122.3857439	37.72379303		YC-005-4	7/7/2009	3	4	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	4.6	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	5	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-005	YC-005/PD-SED-02	-122.3857439	37.72379303		YC-005-5	7/7/2009	4	5	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	5.4	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	5	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.40 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-005	YC-005/PD-SED-02	-122.3857439	37.72379303		YC-005-5	7/7/2009	4	5	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	0.23	ug/kg	U	3	Validated		TRUE	No	FALSE	FALSE	FALSE	0.2	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.230 U	TRUE	0.230000003	0.230000003	
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-006	YC-006	-122.3855875	37.72390469		YC-006-1	6/29/2009	0	1	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	161	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	200	160	161	161	161	161	161	161	161	161 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-006	YC-006	-122.3855875	37.72390469		YC-006-1	6/29/2009	0	1	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	232.99	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	200	230	233	233	232.99	232.99	232.99	233	232.99	233	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-006	YC-006	-122.3855875	37.72390469		YC-006-2	6/29/2009	1	2	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	175	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	200	180	175	175	175	175	175	175	175	175 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-006	YC-006	-122.3855875	37.72390469		YC-006-2	6/29/2009	1	2	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	4036.5	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	4000	4000	4040	4037	4036.5	4036.5	4036.5	4040	4036.5	4040	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-006	YC-006	-122.3855875	37.72390469		YC-006-3	6/29/2009	2	3	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	67.1	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	70	67	67.1	67.1	67.1	67.1	67.1	67.1	67.1	67.1 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-006	YC-006	-122.3855875	37.72390469		YC-006-3	6/29/2009	2	3	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	268.18	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	300	270	268	268.2	268.18	268.18	268.18	268	268.18	268	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-006	YC-006	-122.3855875	37.72390469		YC-006-4	6/29/2009	3	4	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	16.2	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	20	16	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-006	YC-006	-122.3855875	37.72390469		YC-006-4	6/29/2009	3	4	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	173.926	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	200	170	174	173.9	173.93	173.926	173.926	174	173.926	174	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-006	YC-006	-122.3855875	37.72390469		YC-006-5	6/29/2009	4	5	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	4.1	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	4	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.10 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-006	YC-006	-122.3855875	37.72390469		YC-006-5	6/29/2009	4	5	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	18.768	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	20	19	18.8	18.77	18.768	18.768	18.768	18.8	18.768	18.8	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-007	YC-007/PD-SED-04	-122.3855379	37.72358227		YC-007-1	7/7/2009	0	1	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	724	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	700	720	724	724	724	724	724	724	724	724 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-007	YC-007/PD-SED-04	-122.3855379	37.72358227		YC-007-1	7/7/2009	0	1	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	18673.7	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	20000	19000	18700	18670	18674	18673.7	18673.7	18700	18673.7	18700	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-007	YC-007/PD-SED-04	-122.3855379	37.72358227		YC-007-2	7/7/2009	1	2	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	102	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	100	100	102	102	102	102	102	102	102	102 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-007	YC-007/PD-SED-04	-122.3855379	37.72358227		YC-007-2	7/7/2009	1	2	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	929.2	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	900	930	929	929.2	929.2	929.2	929.2	929	929.2	929	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-007	YC-007/PD-SED-04	-122.3855379	37.72358227		YC-007-3	7/7/2009	2	3	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	21.7	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	20	22	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-007	YC-007/PD-SED-04	-122.3855379	37.72358227		YC-007-3	7/7/2009	2	3	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	60.03	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	60	60	60	60.03	60.03	60.03	60.03	60	60.03	60	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-007	YC-007/PD-SED-04	-122.3855379	37.72358227		YC-007-4	7/7/2009	3	4	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	5.5	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.50 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-007	YC-007/PD-SED-04	-122.3855379	37.72358227		YC-007-4	7/7/2009	3	4	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	5.037	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	5	5	5.04	5.037	5.037	5.037	5.037	5.04	5.037	5.04	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-007	YC-007/PD-SED-04	-122.3855379	37.72358227		YC-007-5	7/7/2009	4	5	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	3.2	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	3	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.20 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-007	YC-007/PD-SED-04	-122.3855379	37.72358227		YC-007-5	7/7/2009	4	5	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	6.67	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	7	6.7	6.67	6.67	6.67	6.67	6.67	6.67	6.67	6.67	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-008	YC-008	-122.3850332	37.7239673		YC-008-1	7/2/2009	0	1	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	139	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	100	140	139	139	139	139	139	139	139	139 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-008	YC-008	-122.3850332	37.7239673		YC-008-1	7/2/2009	0	1	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	471.5	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	500	470	472	471.5	471.5	471.5	471.5	472	471.5	472	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-008	YC-008	-122.3850332	37.7239673		YC-008-2	7/2/2009	1	2	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	702	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	700	700	702	702	702	702	702	702	702	702 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-008	YC-008	-122.3850332	37.7239673		YC-008-2	7/2/2009	1	2	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	29589.5	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	30000	30000	29600	29590	29590	29589.5	29589.5	29600	29589.5	29600	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-008	YC-008	-122.3850332	37.7239673		YC-008-3	7/2/2009	2	3	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	587	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	600	590	587	587	587	587	587	587	587	587 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-008	YC-008	-122.3850332	37.7239673		YC-008-3	7/2/2009	2	3	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	10815.06	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	10000	11000	10800	10820	10815	10815.1	10815.06	10800	10815.06	10800	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-008	YC-008	-122.3850332	37.7239673		YC-008-4	7/2/2009	3	4	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	658	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	700	660	658	658	658	658	658	658	658	658 J	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-008	YC-008	-122.3850332	37.7239673		YC-008-4	7/2/2009	3	4	ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	560.05	ug/kg		3	Validated		FALSE	Yes	FALSE	FALSE	FALSE	600	560	560	560.1	560.05	560.05	560.05	560	560.05	560	TRUE			
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-008	YC-008	-122.3850332	37.7239673		YC-008-5	7/2/2009	4	5	ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	309	mg/kg	J	3	Validated		FALSE	Yes	TRUE	FALSE	FALSE	300	310	309	309	309	309	309	309	309	309 J	TRUE			

2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-008	YC-008	-122.3850332	37.7239673	YC-008-5	7/2/2009	4	5 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	227.7 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	200	230	228	227.7	227.7	227.7	227.7	228	227.7		228	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-009	YC-009	-122.3851712	37.72335717	YC-009-1	6/25/2009	0	1 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	137 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	100	140	137	137	137	137	137	137	137	137 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-009	YC-009	-122.3851712	37.72335717	YC-009-1	6/25/2009	0	1 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	59.248 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	60	59	59.2	59.25	59.248	59.248	59.248	59.2	59.248		59.2	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-009	YC-009	-122.3851712	37.72335717	YC-009-2	6/25/2009	1	2 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	191 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	190	191	191	191	191	191	191	191	191 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-009	YC-009	-122.3851712	37.72335717	YC-009-2	6/25/2009	1	2 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	370.3 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	400	370	370	370.3	370.3	370.3	370.3	370	370.3		370	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-009	YC-009	-122.3851712	37.72335717	YC-009-3	6/25/2009	2	3 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	36.9 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	40	37	36.9	36.9	36.9	36.9	36.9	36.9	36.9	36.9 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-009	YC-009	-122.3851712	37.72335717	YC-009-3	6/25/2009	2	3 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	9027.5 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	9000	9000	9030	9028	9027.5	9027.5	9027.5	9030	9027.5		9030	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-009	YC-009	-122.3851712	37.72335717	YC-009-4	6/25/2009	3	4 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	9.2 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	9	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.20 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-009	YC-009	-122.3851712	37.72335717	YC-009-4	6/25/2009	3	4 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	2.76 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	3	2.8	2.76	2.76	2.76	2.76	2.76	2.76	2.76		2.76	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-009	YC-009	-122.3851712	37.72335717	YC-009-5	6/25/2009	4	5 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	77 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	80	77	77	77	77	77	77	77	77	77 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-009	YC-009	-122.3851712	37.72335717	YC-009-5	6/25/2009	4	5 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	97.52 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	100	98	97.5	97.52	97.52	97.52	97.52	97.5	97.52		97.5	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-010	YC-010/PD-SED-07	-122.3849151	37.72347094	YC-010-1	7/9/2009	0	1 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	1000 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-010	YC-010/PD-SED-07	-122.3849151	37.72347094	YC-010-1	7/9/2009	0	1 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	61414.6 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	60000	61000	61400	61410	61415	61414.6	61414.6	61400	61414.6		61400	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-010	YC-010/PD-SED-07	-122.3849151	37.72347094	YC-010-2	7/9/2009	1	2 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	191 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	190	191	191	191	191	191	191	191	191 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-010	YC-010/PD-SED-07	-122.3849151	37.72347094	YC-010-2	7/9/2009	1	2 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	2036.65 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	2000	2000	2040	2037	2036.7	2036.65	2036.65	2040	2036.65		2040	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-010	YC-010/PD-SED-07	-122.3849151	37.72347094	YC-010-3	7/9/2009	2	3 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	20.8 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	20	21	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-010	YC-010/PD-SED-07	-122.3849151	37.72347094	YC-010-3	7/9/2009	2	3 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	40.02 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	40	40	40	40.02	40.02	40.02	40.02	40	40.02		40	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-010	YC-010/PD-SED-07	-122.3849151	37.72347094	YC-010-4	7/9/2009	3	4 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	1.6 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	2	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.60 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-010	YC-010/PD-SED-07	-122.3849151	37.72347094	YC-010-4	7/9/2009	3	4 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	0.161 ug/kg	U	3 Validated	TRUE	No	FALSE	FALSE	FALSE	0.2	0.16	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161 U		TRUE	0.161000001	0.161000001
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-011	YC-011	-122.3847134	37.72314193	YC-011-1	6/25/2009	0	1 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	178 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	180	178	178	178	178	178	178	178	178 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-011	YC-011	-122.3847134	37.72314193	YC-011-1	6/25/2009	0	1 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	372.6 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	400	370	373	372.6	372.6	372.6	372.6	373	372.6		373	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-011	YC-011	-122.3847134	37.72314193	YC-011-2	6/25/2009	1	2 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	814 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	800	810	814	814	814	814	814	814	814	814 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-011	YC-011	-122.3847134	37.72314193	YC-011-2	6/25/2009	1	2 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1575.73 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	2000	1600	1580	1576	1575.7	1575.73	1575.73	1580	1575.73		1580	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-011	YC-011	-122.3847134	37.72314193	YC-011-3	6/25/2009	2	3 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	915 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	900	920	915	915	915	915	915	915	915	915 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-011	YC-011	-122.3847134	37.72314193	YC-011-3	6/25/2009	2	3 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	15961.54 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	20000	16000	16000	15960	15962	15961.5	15961.54	16000	15961.54		16000	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-011	YC-011	-122.3847134	37.72314193	YC-011-4	6/25/2009	3	4 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	54.9 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	50	55	54.9	54.9	54.9	54.9	54.9	54.9	54.9	54.9 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-011	YC-011	-122.3847134	37.72314193	YC-011-4	6/25/2009	3	4 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	176.824 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	200	180	177	176.8	176.82	176.824	176.824	177	176.824		177	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-011	YC-011	-122.3847134	37.72314193	YC-011-5	6/25/2009	4	5 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	8.4 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	8	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.40 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-011	YC-011	-122.3847134	37.72314193	YC-011-5	6/25/2009	4	5 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	22.816 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	20	23	22.8	22.82	22.816	22.816	22.816	22.8	22.816		22.8	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-012	YC-012/PD-SED-06	-122.384508	37.72350006	YC-012-1	6/25/2009	0	1 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	1130 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	1000	1100	1130	1130	1130	1130	1130	1130	1130	1130 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-012	YC-012/PD-SED-06	-122.384508	37.72350006	YC-012-1	6/25/2009	0	1 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1450.15 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	1000	1500	1450	1450	1450.2	1450.15	1450.15	1450	1450.15		1450	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-012	YC-012/PD-SED-06	-122.384508	37.72350006	YC-012-2	6/25/2009	1	2 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	290 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	300	290	290	290	290	290	290	290	290	290 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-012	YC-012/PD-SED-06	-122.384508	37.72350006	YC-012-2	6/25/2009	1	2 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	6992.92 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	7000	7000	6990	6993	6992.9	6992.92	6992.92	6990	6992.92		6990	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-012	YC-012/PD-SED-06	-122.384508	37.72350006	YC-012-3	6/25/2009	2	3 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	440 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	400	440	440	440	440	440	440	440	440	440 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-012	YC-012/PD-SED-06	-122.384508	37.72350006	YC-012-3	6/25/2009	2	3 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	347.3 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	300	350	347	347.3	347.3	347.3	347.3	347	347.3		347	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-012	YC-012/PD-SED-06	-122.384508	37.72350006	YC-012-4	6/25/2009	3	4 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	23.2 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	20	23	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-012	YC-012/PD-SED-06	-122.384508	37.72350006	YC-012-4	6/25/2009	3	4 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	35.88 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	40	36	35.9	35.88	35.88	35.88	35.88	35.9	35.88		35.9	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-012	YC-012/PD-SED-06	-122.384508	37.72350006	YC-012-5	6/25/2009	4	5 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	3.4 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.40 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-012	YC-012/PD-SED-06	-122.384508	37.72350006	YC-012-5	6/25/2009	4	5 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	0.161 ug/kg	U	3 Validated	TRUE	No	FALSE	FALSE	FALSE	0.2	0.16	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161 U		TRUE	0.161000001	0.161000001
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-013	YC-013	-122.3843319	37.72304875	YC-013-1	6/24/2009	0	1 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	267 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	300	270	267	267	267	267	267	267	267	267 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-013	YC-013	-122.3843319	37.72304875	YC-013-1	6/24/2009	0	1 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	924.6 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	900	920	925	924.6	924.6	924.6	924.6	925	924.6		925	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-013	YC-013	-122.3843319	37.72304875	YC-013-2	6/24/2009	1	2 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	619 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	600	620	619	619	619	619	619	619	619	619 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-013	YC-013	-122.3843319	37.72304875	YC-013-2	6/24/2009	1	2 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	9241.4 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	9000	9200	9240	9241	9241.4	9241.4	9241.4	9240	9241.4		9240	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-013	YC-013	-122.3843319	37.72304875	YC-013-3	6/24/2009	2	3 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	195 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	200	195	195	195	195	195	195	195	195 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-013	YC-013	-122.3843319	37.72304875	YC-013-3	6/24/2009	2	3 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	4464.3 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	4000	4500	4460	4464	4464.3	4464.3	4464.3	4460	4464.3		4460	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-013	YC-013	-122.3843319	37.72304875	YC-013-4	6/24/2009	3	4 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	26.2 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	30	26	26.2	26.2	26.2	26.2	26.2	26.2	26.2	26.2 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-013	YC-013	-122.3843319	37.72304875	YC-013-4	6/24/2009	3	4 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	105.938 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	100	110	106	105.9	105.94	105.938	105.938	106	105.938		106	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-013	YC-013	-122.3843319	37.72304875	YC-013-5	6/24/2009	4	5 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	5.2 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	5	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.20 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-013	YC-013	-122.3843319	37.72304875	YC-013-5	6/24/2009	4	5 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	44.39 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	40	44	44.4	44.39	44.39	44.39	44.39	44.4	44.39		44.4	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-014	YC-014	-122.3842455	37.72329608	YC-014-1	6/25/2009	0	1 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	213 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	210	213	213	213	213	213	213	213	213 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-014	YC-014	-122.3842455	37.72329608	YC-014-1	6/25/2009	0	1 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	208.61 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	200	210	209	208.6	208.61	208.61	208.61	209	208.61		209	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-014	YC-014	-122.3842455	37.72329608	YC-014-2	6/25/2009	1	2 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	455 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	500	460	455	455	455	455	455	455	455	455 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-014	YC-014	-122.3842455	37.72329608	YC-014-2	6/25/2009	1	2 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	5563.01 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	6000	5600	5560	5563	5563	5563.01	5563.01	5560	5563.01		5560	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-014	YC-014	-122.3842455	37.72329608	YC-014-3	6/25/2009	2	3 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	458 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	500	460	458	458	458	458	458	458	458	458 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-014	YC-014	-122.3842455	37.72329608	YC-014-3	6/25/2009	2	3 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	511.98 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	500	510	512	512	511.98	511.98	511.98	512	511.98		512	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-014	YC-014	-122.3842455	37.72329608	YC-014-4	6/25/2009	3	4 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	27.4 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	30	27	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-014	YC-014	-122.3842455	37.72329608	YC-014-4	6/25/2009	3	4 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	73.669 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	70	74	73.7	73.67	73.669	73.669	73.669	73.7	73.669		73.7	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-014	YC-014	-122.3842455	37.72329608	YC-014-5	6/25/2009	4	5 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	4.3 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.30 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-014	YC-014	-122.3842455	37.72329608	YC-014-5	6/25/2009	4	5 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	0.184 ug/kg	U	3 Validated	TRUE	No	FALSE	FALSE	FALSE	0.2	0.18	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184 U		TRUE	0.183999996	0.183999996
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-015	YC-015/PD-SED-09	-122.3840077	37.72292841	YC-015-1	7/7/2009	0	1 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	619 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	600	620	619	619	619	619	619	619	619	619 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-015	YC-015/PD-SED-09	-122.3840077	37.72292841	YC-015-1	7/7/2009	0	1 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	9188.5 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	9000	9200	9190	9189	9188.5	9188.5	9188.5	9190	9188.5		9190	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-015	YC-015/PD-SED-09	-122.3840077	37.72292841	YC-015-2	7/7/2009	1	2 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	937 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	900	940	937	937	937	937	937	937	937	937 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-015	YC-015/PD-SED-09	-122.3840077	37.72292841	YC-015-2	7/7/2009	1	2 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	79046.4 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	80000	79000	79000	79050	79046	79046.4	79046.4	79000	79046.4		79000	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-015	YC-015/PD-SED-09	-122.3840077	37.72292841	YC-015-3	7/7/2009	2	3 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	129 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	100	130	129	129	129	129	129	129	129	129 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-015	YC-015/PD-SED-09	-122.3840077	37.72292841	YC-015-3	7/7/2009	2	3 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	5352.1 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	5000	5400	5350	5352	5352.1	5352.1	5352.1	5350	5352.1		5350	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-015	YC-015/PD-SED-09	-122.3840077	37.72292841	YC-015-4	7/7/2009	3	4 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	8.3 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	8	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.30 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-015	YC-015/PD-SED-09	-122.3840077	37.72292841	YC-015-4	7/7/2009	3	4 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	103.96 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	100	100	104	104	103.96	103.96	103.96	104	103.96		104	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-015	YC-015/PD-SED-09	-122.3840077	37.72292841	YC-015-5	7/7/2009	4	5 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	7.3 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	7	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.30 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-015	YC-015/PD-SED-09	-122.3840077	37.72292841	YC-015-5	7/7/2009	4	5 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	58.19 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	60	58	58.2	58.19	58.19	58.19	58.19	58.2	58.19		58.2	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-016	YC-016/PD-SED-08	-122.3837858	37.72299978	YC-016-1	7/1/2009	0	1 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	288 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	300	290	288	288	288	288	288	288	288	288 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-016	YC-016/PD-SED-08	-122.3837858	37.72299978	YC-016-1	7/1/2009	0	1 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	2240.2 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	2000	2200	2240	2240	2240.2	2240.2	2240.2	2240	2240.2		2240	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-016	YC-016/PD-SED-08	-122.3837858	37.72299978	YC-016-2	7/1/2009	1	2 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	697 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	700	700	697	697	697	697	697	697	697	697 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-016	YC-016/PD-SED-08	-122.3837858	37.72299978	YC-016-2	7/1/2009	1	2 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	6026.46 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	6000	6000	6030	6026	6026.5	6026.46	6026.46	6030	6026.46		6030	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-016	YC-016/PD-SED-08	-122.3837858	37.72299978	YC-016-3	7/1/2009	2	3 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	193 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	190	193	193	193	193	193	193	193	193 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-016	YC-016/PD-SED-08	-122.3837858	37.72299978	YC-016-3	7/1/2009	2	3 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	278.001 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	300	280	278	278	278	278.001	278.001	278	278.001		278	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-017	YC-017	-122.3836294	37.72260359	YC-017-1	6/23/2009	0	1 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	258 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	300	260	258	258	258	258	258	258	258	258 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-017	YC-017	-122.3836294	37.72260359	YC-017-1	6/23/2009	0	1 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	328.67 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	300	330	329	328.7	328.67	328.67	328.67	329	328.67		329	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-017	YC-017	-122.3836294	37.72260359	YC-017-2	6/23/2009	1	2 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	449 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	400	450	449	449	449	449	449	449	449	449 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-017	YC-017	-122.3836294	37.72260359	YC-017-2	6/23/2009	1	2 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	641.01 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	600	640	641	641	641.01	641.01	641.01	641	641.01		641	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-017	YC-017	-122.3836294	37.72260359	YC-017-3	6/23/2009	2	3 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	427 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	400	430	427	427	427	427	427	427	427	427 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-017	YC-017	-122.3836294	37.72260359	YC-017-3	6/23/2009	2	3 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	922.3 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	900	920	922	922.3	922.3	922.3	922.3	922	922.3		922	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-017	YC-017	-122.3836294	37.72260359	YC-017-4	6/23/2009	3	4 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	38.1 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	40	38	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-017	YC-017	-122.3836294	37.72260359	YC-017-4	6/23/2009	3	4 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	54.97 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	50	55	55	54.97	54.97	54.97	54.97	55	54.97		55	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-017	YC-017	-122.3836294	37.72260359	YC-017-5	6/23/2009	4	5 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	6.3 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	6	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.30 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-017	YC-017	-122.3836294	37.72260359	YC-017-5	6/23/2009	4	5 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	0.184 ug/kg	U	3 Validated	TRUE	No	FALSE	FALSE	FALSE	0.2	0.18	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184 U		TRUE	0.183999996	0.183999996
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-018	YC-018	-122.3834809	37.72282468	YC-018-1	6/23/2009	0	1 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	262 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	300	260	262	262	262	262	262	262	262	262 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-018	YC-018	-122.3834809	37.72282468	YC-018-1	6/23/2009	0	1 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	527.62 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	500	530	528	527.6	527.62	527.62	527.62	528	527.62		528	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-018	YC-018	-122.3834809	37.72282468	YC-018-2	6/23/2009	1	2 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	722 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	700	720	722	722	722	722	722	722	722	722 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-018	YC-018	-122.3834809	37.72282468	YC-018-2	6/23/2009	1	2 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	12964.87 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	10000	13000	13000	12960	12965	12964.9	12964.87	13000	12964.87		13000	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-018	YC-018	-122.3834809	37.72282468	YC-018-3	6/23/2009	2	3 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	394 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	400	390	394	394	394	394	394	394	394	394 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-018	YC-018	-122.3834809	37.72282468	YC-018-3	6/23/2009	2	3 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	8868.8 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	9000	8900	8870	8869	8868.8	8868.8	8868.8	8870	8868.8		8870	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-018	YC-018	-122.3834809	37.72282468	YC-018-4	6/23/2009	3	4 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	448 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	400	450	448	448	448	448	448	448	448	448 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-018	YC-018	-122.3834809	37.72282468	YC-018-4	6/23/2009	3	4 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	2801.63 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	3000	2800	2800	2802	2801.6	2801.63	2801.63	2800	2801.63		2800	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-018	YC-018	-122.3834809	37.72282468	YC-018-5	6/23/2009	4	5 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	428 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	400	430	428	428	428	428	428	428	428	428 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-018	YC-018	-122.3834809	37.72282468	YC-018-5	6/23/2009	4	5 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	446.2 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	400	450	446	446.2	446.2	446.2	446.2	446	446.2		446	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-019	YC-019	-122.3833201	37.72229089	YC-019-1	6/22/2009	0	1 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	254 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	300	250	254	254	254	254	254	254	254	254 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-019	YC-019	-122.3833201	37.72229089	YC-019-1	6/22/2009	0	1 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	407.1 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	400	410	407	407.1	407.1	407.1	407.1	407	407.1		407	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-019	YC-019	-122.3833201	37.72229089	YC-019-2	6/22/2009	1	2 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	809 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	800	810	809	809	809	809	809	809	809	809 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-019	YC-019	-122.3833201	37.72229089	YC-019-2	6/22/2009	1	2 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	2719.75 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	3000	2700	2720	2720	2719.8	2719.75	2719.75	2720	2719.75		2720	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-019	YC-019	-122.3833201	37.72229089	YC-019-3	6/22/2009	2	3 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	409 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	400	410	409	409	409	409	409	409	409	409 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-019	YC-019	-122.3833201	37.72229089	YC-019-3	6/22/2009	2	3 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	425.5 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	400	430	426	425.5	425.5	425.5	425.5	426	425.5		426	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-019	YC-019	-122.3833201	37.72229089	YC-019-4	6/22/2009	3	4 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	86.2 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	90	86	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-019	YC-019	-122.3833201	37.72229089	YC-019-4	6/22/2009	3	4 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	67.643 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	70	68	67.6	67.64	67.643	67.643	67.643	67.6	67.643		67.6	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-019	YC-019	-122.3833201	37.72229089	YC-019-5	6/22/2009	4	5 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	11.7 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	10	12	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-019	YC-019	-122.3833201	37.72229089	YC-019-5	6/22/2009	4	5 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	0.207 ug/kg	U	3 Validated	TRUE	No	FALSE	FALSE	FALSE	0.2	0.21	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207 U		TRUE	0.207000008	0.207000008
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-020	YC-020	-122.3831266	37.72259773	YC-020-1	6/22/2009	0	1 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	106 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	100	110	106	106	106	106	106	106	106	106 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-020	YC-020	-122.3831266	37.72259773	YC-020-1	6/22/2009	0	1 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	98.67 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	100	99	98.7	98.67	98.67	98.67	98.67	98.7	98.67		98.7	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-020	YC-020	-122.3831266	37.72259773	YC-020-2	6/22/2009	1	2 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	271 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	300	270	271	271	271	271	271	271	271	271 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-020	YC-020	-122.3831266	37.72259773	YC-020-2	6/22/2009	1	2 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	409.4 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	400	410	409	409.4	409.4	409.4	409.4	409	409.4		409	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-020	YC-020	-122.3831266	37.72259773	YC-020-3	6/22/2009	2	3 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	483 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	500	480	483	483	483	483	483	483	483	483 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-020	YC-020	-122.3831266	37.72259773	YC-020-3	6/22/2009	2	3 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1499.37 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	1000	1500	1500	1499	1499.4	1499.37	1499.37	1500	1499.37		1500	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-020	YC-020	-122.3831266	37.72259773	YC-020-4	6/22/2009	3	4 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	453 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	500	450	453	453	453	453	453	453	453	453 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-020	YC-020	-122.3831266	37.72259773	YC-020-4	6/22/2009	3	4 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	165.83 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	200	170	166	165.8	165.83	165.83	165.83	166	165.83		166	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-020	YC-020	-122.3831266	37.72259773	YC-020-5	6/22/2009	4	5 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	426 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	400	430	426	426	426	426	426	426	426	426 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-020	YC-020	-122.3831266	37.72259773	YC-020-5	6/22/2009	4	5 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	136.758 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	100	140	137	136.8	136.76	136.758	136.758	137	136.758		137	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-021	YC-021	-122.3828296	37.7222794	YC-021-1	6/22/2009	0	1 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	154 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	150	154	154	154	154	154	154	154	154 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-021	YC-021	-122.3828296	37.7222794	YC-021-1	6/22/2009	0	1 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	141.335 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	100	140	141	141.3	141.34	141.335	141.335	141	141.335		141	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-021	YC-021	-122.3828296	37.7222794	YC-021-2	6/22/2009	1	2 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	320 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	300	320	320	320	320	320	320	320	320	320 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-021	YC-021	-122.3828296	37.7222794	YC-021-2	6/22/2009	1	2 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1154.6 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	1000	1200	1150	1155	1154.6	1154.6	1154.6	1150	1154.6		1150	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-021	YC-021	-122.3828296	37.7222794	YC-021-3	6/22/2009	2	3 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	530 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	500	530	530	530	530	530	530	530	530	530 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-021	YC-021	-122.3828296	37.7222794	YC-021-3	6/22/2009	2	3 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	2457.09 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	2000	2500	2460	2457	2457.1	2457.09	2457.09	2460	2457.09		2460	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-021	YC-021	-122.3828296	37.7222794	YC-021-4	6/22/2009	3	4 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	525 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	500	530	525	525	525	525	525	525	525	525 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-021	YC-021	-122.3828296	37.7222794	YC-021-4	6/22/2009	3	4 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1972.71 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	2000	2000	1970	1973	1972.7	1972.71	1972.71	1970	1972.71		1970	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-021	YC-021	-122.3828296	37.7222794	YC-021-5	6/22/2009	4	5 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	248 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	250	248	248	248	248	248	248	248	248 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-021	YC-021	-122.3828296	37.7222794	YC-021-5	6/22/2009	4	5 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	383.64 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	400	380	384	383.6	383.64	383.64	383.64	384	383.64		384	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-022	YC-022	-122.3827466	37.72245078	YC-022-1	6/22/2009	0	1 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	70.1 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	70	70	70.1	70.1	70.1	70.1	70.1	70.1	70.1	70.1 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-022	YC-022	-122.3827466	37.72245078	YC-022-1	6/22/2009	0	1 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	96.6 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	100	97	96.6	96.6	96.6	96.6	96.6	96.6	96.6		96.6	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-022	YC-022	-122.3827466	37.72245078	YC-022-2	6/22/2009	1	2 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	137 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	100	140	137	137	137	137	137	137	137	137 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-022	YC-022	-122.3827466	37.72245078	YC-022-2	6/22/2009	1	2 ft	Sediment	ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	152.145 ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	200	150	152	152.1	152.15	152.145	152.145	152	152.145		152	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-022	YC-022	-122.3827466	37.72245078	YC-022-3	6/22/2009	2	3 ft	Sediment	ENE	Metal/oids	Lead	Lead	DryWt	178 mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	180	178	178	178	178	178	178	178	178 J		TRUE		

2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-022	YC-022	-122.3827466	37.72245078	YC-022-3	6/22/2009	2	3 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	194.12	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	200	190	194	194.1	194.12	194.12	194.12	194	194.12		194	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-022	YC-022	-122.3827466	37.72245078	YC-022-4	6/22/2009	3	4 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	333	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	300	330	333	333	333	333	333	333	333	333 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-022	YC-022	-122.3827466	37.72245078	YC-022-4	6/22/2009	3	4 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1156.44	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	1000	1200	1160	1156	1156.4	1156.44	1156.44	1160	1156.44		1160	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-022	YC-022	-122.3827466	37.72245078	YC-022-5	6/22/2009	4	5 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	307	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	300	310	307	307	307	307	307	307	307	307 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-022	YC-022	-122.3827466	37.72245078	YC-022-5	6/22/2009	4	5 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	963.7	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	1000	960	964	963.7	963.7	963.7	963.7	964	963.7		964	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-023	YC-023	-122.382456	37.72209859	YC-023-1	6/18/2009	0	1 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	156	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	160	156	156	156	156	156	156	156	156 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-023	YC-023	-122.382456	37.72209859	YC-023-1	6/18/2009	0	1 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	460	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	500	460	460	460	460	460	460	460	460		460	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-023	YC-023	-122.382456	37.72209859	YC-023-2	6/18/2009	1	2 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	561	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	600	560	561	561	561	561	561	561	561	561 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-023	YC-023	-122.382456	37.72209859	YC-023-2	6/18/2009	1	2 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	2522.87	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	3000	2500	2520	2523	2522.9	2522.87	2522.87	2520	2522.87		2520	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-023	YC-023	-122.382456	37.72209859	YC-023-3	6/18/2009	2	3 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	288	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	300	290	288	288	288	288	288	288	288	288 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-023	YC-023	-122.382456	37.72209859	YC-023-3	6/18/2009	2	3 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	299	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	300	300	299	299	299	299	299	299	299		299	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-023	YC-023	-122.382456	37.72209859	YC-023-4	6/18/2009	3	4 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	8.3	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	8	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.30 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-023	YC-023	-122.382456	37.72209859	YC-023-4	6/18/2009	3	4 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	2.047	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	2	2	2.05	2.047	2.047	2.047	2.047	2.05	2.047		2.05	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-023	YC-023	-122.382456	37.72209859	YC-023-5	6/18/2009	4	5 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	4.4	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.40 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-023	YC-023	-122.382456	37.72209859	YC-023-5	6/18/2009	4	5 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	0.23	ug/kg	U	3 Validated	TRUE	No	FALSE	FALSE	FALSE	0.2	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.230 U		TRUE	0.230000003	0.230000003
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-024	YC-024	-122.3823997	37.72218432	YC-024-1	6/22/2009	0	1 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	280	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	300	280	280	280	280	280	280	280	280	280 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-024	YC-024	-122.3823997	37.72218432	YC-024-1	6/22/2009	0	1 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1064.21	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	1000	1100	1060	1064	1064.2	1064.21	1064.21	1060	1064.21		1060	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-024	YC-024	-122.3823997	37.72218432	YC-024-2	6/22/2009	1	2 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	509	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	500	510	509	509	509	509	509	509	509	509 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-024	YC-024	-122.3823997	37.72218432	YC-024-2	6/22/2009	1	2 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1128.38	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	1000	1100	1130	1128	1128.4	1128.38	1128.38	1130	1128.38		1130	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-024	YC-024	-122.3823997	37.72218432	YC-024-3	6/22/2009	2	3 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	457	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	500	460	457	457	457	457	457	457	457	457 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-024	YC-024	-122.3823997	37.72218432	YC-024-3	6/22/2009	2	3 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	453.1	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	500	450	453	453.1	453.1	453.1	453.1	453	453.1		453	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-024	YC-024	-122.3823997	37.72218432	YC-024-4	6/22/2009	3	4 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	218	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	220	218	218	218	218	218	218	218	218 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-024	YC-024	-122.3823997	37.72218432	YC-024-4	6/22/2009	3	4 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	59.409	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	60	59	59.4	59.41	59.409	59.409	59.409	59.4	59.409		59.4	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-024	YC-024	-122.3823997	37.72218432	YC-024-5	6/22/2009	4	5 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	49.2	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	50	49	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-024	YC-024	-122.3823997	37.72218432	YC-024-5	6/22/2009	4	5 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	16.123	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	20	16	16.1	16.12	16.123	16.123	16.123	16.1	16.123		16.1	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-025	YC-025	-122.3822714	37.72175409	YC-025-1	6/18/2009	0	1 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	204	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	200	204	204	204	204	204	204	204	204 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-025	YC-025	-122.3822714	37.72175409	YC-025-1	6/18/2009	0	1 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1184.73	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	1000	1200	1180	1185	1184.7	1184.73	1184.73	1180	1184.73		1180	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-025	YC-025	-122.3822714	37.72175409	YC-025-2	6/18/2009	1	2 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	439	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	400	440	439	439	439	439	439	439	439	439 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-025	YC-025	-122.3822714	37.72175409	YC-025-2	6/18/2009	1	2 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	2702.04	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	3000	2700	2700	2702	2702	2702.04	2702.04	2700	2702.04		2700	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-025	YC-025	-122.3822714	37.72175409	YC-025-3	6/18/2009	2	3 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	363	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	400	360	363	363	363	363	363	363	363	363 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-025	YC-025	-122.3822714	37.72175409	YC-025-3	6/18/2009	2	3 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1210.26	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	1000	1200	1210	1210	1210.3	1210.26	1210.26	1210	1210.26		1210	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-025	YC-025	-122.3822714	37.72175409	YC-025-4	6/18/2009	3	4 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	103	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	100	100	103	103	103	103	103	103	103	103 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-025	YC-025	-122.3822714	37.72175409	YC-025-4	6/18/2009	3	4 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	110.331	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	100	110	110	110.3	110.33	110.331	110.331	110	110.331		110	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-025	YC-025	-122.3822714	37.72175409	YC-025-5	6/18/2009	4	5 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	12.9	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	10	13	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-025	YC-025	-122.3822714	37.72175409	YC-025-5	6/18/2009	4	5 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	17.986	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	20	18	18	17.99	17.986	17.986	17.986	18	17.986		18	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-026	YC-026/PD-SED-11	-122.382026	37.7218991	YC-026-1	6/18/2009	0	1 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	1210	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	1000	1200	1210	1210	1210	1210	1210	1210	1210	1210 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-026	YC-026/PD-SED-11	-122.382026	37.7218991	YC-026-1	6/18/2009	0	1 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1976.16	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	2000	2000	1980	1976	1976.2	1976.16	1976.16	1980	1976.16		1980	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-026	YC-026/PD-SED-11	-122.382026	37.7218991	YC-026-2	6/18/2009	1	2 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	495	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	500	500	495	495	495	495	495	495	495	495 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-026	YC-026/PD-SED-11	-122.382026	37.7218991	YC-026-2	6/18/2009	1	2 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1530.19	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	2000	1500	1530	1530	1530.2	1530.19	1530.19	1530	1530.19		1530	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-026	YC-026/PD-SED-11	-122.382026	37.7218991	YC-026-3	6/18/2009	2	3 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	108	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	100	110	108	108	108	108	108	108	108	108 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-026	YC-026/PD-SED-11	-122.382026	37.7218991	YC-026-3	6/18/2009	2	3 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	92.92	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	90	93	92.9	92.92	92.92	92.92	92.92	92.9	92.92		92.9	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-026	YC-026/PD-SED-11	-122.382026	37.7218991	YC-026-4	6/18/2009	3	4 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	99.8	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	100	100	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-026	YC-026/PD-SED-11	-122.382026	37.7218991	YC-026-4	6/18/2009	3	4 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	132.503	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	100	130	133	132.5	132.5	132.503	132.503	133	132.503		133	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-026	YC-026/PD-SED-11	-122.382026	37.7218991	YC-026-5	6/18/2009	4	5 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	21.6	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	20	22	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-026	YC-026/PD-SED-11	-122.382026	37.7218991	YC-026-5	6/18/2009	4	5 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	13.225	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	10	13	13.2	13.23	13.225	13.225	13.225	13.2	13.225		13.2	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-029	YC-029	-122.3826152	37.72112972	YC-029-1	7/6/2009	0	1 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	141	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	100	140	141	141	141	141	141	141	141	141 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-029	YC-029	-122.3826152	37.72112972	YC-029-1	7/6/2009	0	1 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	789.82	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	800	790	790	789.8	789.82	789.82	789.82	790	789.82		790	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-029	YC-029	-122.3826152	37.72112972	YC-029-2	7/6/2009	1	2 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	451	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	500	450	451	451	451	451	451	451	451	451 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-029	YC-029	-122.3826152	37.72112972	YC-029-2	7/6/2009	1	2 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	3979	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	4000	4000	3980	3979	3979	3979	3979	3980	3979		3980	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-029	YC-029	-122.3826152	37.72112972	YC-029-3	7/6/2009	2	3 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	709	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	700	710	709	709	709	709	709	709	709	709 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-029	YC-029	-122.3826152	37.72112972	YC-029-3	7/6/2009	2	3 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	12916.8	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	10000	13000	12900	12920	12917	12916.8	12916.8	12900	12916.8		12900	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-029	YC-029	-122.3826152	37.72112972	YC-029-4	7/6/2009	3	4 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	289	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	300	290	289	289	289	289	289	289	289	289 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-029	YC-029	-122.3826152	37.72112972	YC-029-4	7/6/2009	3	4 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	8733.1	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	9000	8700	8730	8733	8733.1	8733.1	8733.1	8730	8733.1		8730	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-029	YC-029	-122.3826152	37.72112972	YC-029-5	7/6/2009	4	5 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	35.9	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	40	36	35.9	35.9	35.9	35.9	35.9	35.9	35.9	35.9 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-029	YC-029	-122.3826152	37.72112972	YC-029-5	7/6/2009	4	5 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	330.05	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	300	330	330	330.1	330.05	330.05	330.05	330	330.05		330	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-030	YC-030/PD-SED-14	-122.3824031	37.72145143	YC-030-1	7/6/2009	0	1 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	164	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	160	164	164	164	164	164	164	164	164 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-030	YC-030/PD-SED-14	-122.3824031	37.72145143	YC-030-1	7/6/2009	0	1 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1665.89	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	2000	1700	1670	1666	1665.9	1665.89	1665.89	1670	1665.89		1670	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-030	YC-030/PD-SED-14	-122.3824031	37.72145143	YC-030-2	7/6/2009	1	2 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	682	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	700	680	682	682	682	682	682	682	682	682 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-030	YC-030/PD-SED-14	-122.3824031	37.72145143	YC-030-2	7/6/2009	1	2 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	4807	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	5000	4800	4810	4807	4807	4807	4807	4810	4807		4810	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-030	YC-030/PD-SED-14	-122.3824031	37.72145143	YC-030-3	7/6/2009	2	3 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	453	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	500	450	453	453	453	453	453	453	453	453 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-030	YC-030/PD-SED-14	-122.3824031	37.72145143	YC-030-3	7/6/2009	2	3 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	30576.2	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	30000	31000	30600	30580	30576	30576.2	30576.2	30600	30576.2		30600	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-030	YC-030/PD-SED-14	-122.3824031	37.72145143	YC-030-4	7/6/2009	3	4 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	201	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	200	201	201	201	201	201	201	201	201 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-030	YC-030/PD-SED-14	-122.3824031	37.72145143	YC-030-4	7/6/2009	3	4 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	4018.1	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	4000	4000	4020	4018	4018.1	4018.1	4018.1	4020	4018.1		4020	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-030	YC-030/PD-SED-14	-122.3824031	37.72145143	YC-030-5	7/6/2009	4	5 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	34.8	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	30	35	34.8	34.8	34.8	34.8	34.8	34.8	34.8	34.8 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-030	YC-030/PD-SED-14	-122.3824031	37.72145143	YC-030-5	7/6/2009	4	5 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	146.51	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	100	150	147	146.5	146.51	146.51	146.51	147	146.51		147	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-031	YC-031/PD-SED-10	-122.3838025	37.72272028	YC-031-1	7/7/2009	0	1 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	249	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	250	249	249	249	249	249	249	249	249 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-031	YC-031/PD-SED-10	-122.3838025	37.72272028	YC-031-1	7/7/2009	0	1 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	2283.9	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	2000	2300	2280	2284	2283.9	2283.9	2283.9	2280	2283.9		2280	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-031	YC-031/PD-SED-10	-122.3838025	37.72272028	YC-031-2	7/7/2009	1	2 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	567	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	600	570	567	567	567	567	567	567	567	567 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-031	YC-031/PD-SED-10	-122.3838025	37.72272028	YC-031-2	7/7/2009	1	2 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	16698	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	20000	17000	16700	16700	16698	16698	16698	16700	16698		16700	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-031	YC-031/PD-SED-10	-122.3838025	37.72272028	YC-031-3	7/7/2009	2	3 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	102	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	100	100	102	102	102	102	102	102	102	102 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-031	YC-031/PD-SED-10	-122.3838025	37.72272028	YC-031-3	7/7/2009	2	3 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	4510.3	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	5000	4500	4510	4510	4510.3	4510.3	4510.3	4510	4510.3		4510	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-031	YC-031/PD-SED-10	-122.3838025	37.72272028	YC-031-4	7/7/2009	3	4 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	16.7	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	20	17	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-031	YC-031/PD-SED-10	-122.3838025	37.72272028	YC-031-4	7/7/2009	3	4 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	130.41	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	100	130	130	130.4	130.41	130.41	130.41	130	130.41		130	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-031	YC-031/PD-SED-10	-122.3838025	37.72272028	YC-031-5	7/7/2009	4	5 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	5.7	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	6	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.70 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-031	YC-031/PD-SED-10	-122.3838025	37.72272028	YC-031-5	7/7/2009	4	5 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	19.596	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	20	20	19.6	19.6	19.596	19.596	19.596	19.6	19.596		19.6	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-032	YC-032/PD-SED-03	-122.3855817	37.72376922	YC-032-1	7/7/2009	0	1 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	978	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	1000	980	978	978	978	978	978	978	978	978 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-032	YC-032/PD-SED-03	-122.3855817	37.72376922	YC-032-1	7/7/2009	0	1 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	27096.3	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	30000	27000	27100	27100	27096	27096.3	27096.3	27100	27096.3		27100	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-032	YC-032/PD-SED-03	-122.3855817	37.72376922	YC-032-2	7/7/2009	1	2 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	882	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	900	880	882	882	882	882	882	882	882	882 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-032	YC-032/PD-SED-03	-122.3855817	37.72376922	YC-032-2	7/7/2009	1	2 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	54717	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	50000	55000	54700	54720	54717	54717	54717	54700	54717		54700	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-032	YC-032/PD-SED-03	-122.3855817	37.72376922	YC-032-3	7/7/2009	2	3 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	56.6	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	60	57	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-032	YC-032/PD-SED-03	-122.3855817	37.72376922	YC-032-3	7/7/2009	2	3 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	994.98	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	1000	990	995	995	994.98	994.98	994.98	995	994.98		995	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-032	YC-032/PD-SED-03	-122.3855817	37.72376922	YC-032-4	7/7/2009	3	4 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	4.4	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.40 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-032	YC-032/PD-SED-03	-122.3855817	37.72376922	YC-032-4	7/7/2009	3	4 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	105.8	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	100	110	106	105.8	105.8	105.8	105.8	106	105.8		106	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-032	YC-032/PD-SED-03	-122.3855817	37.72376922	YC-032-5	7/7/2009	4	5 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	3.5	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.50 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-032	YC-032/PD-SED-03	-122.3855817	37.72376922	YC-032-5	7/7/2009	4	5 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	0.184	ug/kg	U	3 Validated	TRUE	No	FALSE	FALSE	FALSE	0.2	0.18	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184 U		TRUE	0.183999996	0.183999996
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-033	YC-033	-122.3826538	37.72199593	YC-033-1	7/8/2009	0	1 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	179	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	180	179	179	179	179	179	179	179	179 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-033	YC-033	-122.3826538	37.72199593	YC-033-1	7/8/2009	0	1 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1002.57	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	1000	1000	1000	1003	1002.6	1002.57	1002.57	1000	1002.57		1000	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-033	YC-033	-122.3826538	37.72199593	YC-033-2	7/8/2009	1	2 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	912	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	900	910	912	912	912	912	912	912	912	912 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-033	YC-033	-122.3826538	37.72199593	YC-033-2	7/8/2009	1	2 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1822.75	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	2000	1800	1820	1823	1822.8	1822.75	1822.75	1820	1822.75		1820	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-033	YC-033	-122.3826538	37.72199593	YC-033-3	7/8/2009	2	3 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	532	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	500	530	532	532	532	532	532	532	532	532 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-033	YC-033	-122.3826538	37.72199593	YC-033-3	7/8/2009	2	3 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	1229.81	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	1000	1200	1230	1230	1229.8	1229.81	1229.81	1230	1229.81		1230	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-033	YC-033	-122.3826538	37.72199593	YC-033-4	7/8/2009	3	4 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	343	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	300	340	343	343	343	343	343	343	343	343 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-033	YC-033	-122.3826538	37.72199593	YC-033-4	7/8/2009	3	4 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	2316.56	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	2000	2300	2320	2317	2316.6	2316.56	2316.56	2320	2316.56		2320	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-033	YC-033	-122.3826538	37.72199593	YC-033-5	7/8/2009	4	5 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	58.5	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	60	59	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-033	YC-033	-122.3826538	37.72199593	YC-033-5	7/8/2009	4	5 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	20.148	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	20	20	20.1	20.15	20.148	20.148	20.148	20.1	20.148		20.1	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-034	YC-034	-122.3829827	37.72217999	YC-034-1	7/8/2009	0	1 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	221	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	220	221	221	221	221	221	221	221	221 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-034	YC-034	-122.3829827	37.72217999	YC-034-1	7/8/2009	0	1 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	409.4	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	400	410	409	409.4	409.4	409.4	409.4	409	409.4		409	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-034	YC-034	-122.3829827	37.72217999	YC-034-2	7/8/2009	1	2 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	625	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	600	630	625	625	625	625	625	625	625	625 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-034	YC-034	-122.3829827	37.72217999	YC-034-2	7/8/2009	1	2 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	4149.2	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	4000	4100	4150	4149	4149.2	4149.2	4149.2	4150	4149.2		4150	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-034	YC-034	-122.3829827	37.72217999	YC-034-3	7/8/2009	2	3 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	578	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	600	580	578	578	578	578	578	578	578	578 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-034	YC-034	-122.3829827	37.72217999	YC-034-3	7/8/2009	2	3 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	18678.3	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	20000	19000	18700	18680	18678	18678.3	18678.3	18700	18678.3		18700	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-034	YC-034	-122.3829827	37.72217999	YC-034-4	7/8/2009	3	4 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	104	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	100	100	104	104	104	104	104	104	104	104 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-034	YC-034	-122.3829827	37.72217999	YC-034-4	7/8/2009	3	4 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	496.8	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	500	500	497	496.8	496.8	496.8	496.8	497	496.8		497	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-034	YC-034	-122.3829827	37.72217999	YC-034-5	7/8/2009	4	5 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	7.9	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.90 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-034	YC-034	-122.3829827	37.72217999	YC-034-5	7/8/2009	4	5 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	0.23	ug/kg	U	3 Validated	TRUE	No	FALSE	FALSE	FALSE	0.2	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.230 U		TRUE	0.230000003	0.230000003
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-035	YC-035	-122.3835252	37.72241548	YC-035-1	7/8/2009	0	1 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	225	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	230	225	225	225	225	225	225	225	225 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-035	YC-035	-122.3835252	37.72241548	YC-035-1	7/8/2009	0	1 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	361.1	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	400	360	361	361.1	361.1	361.1	361.1	361	361.1		361	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-035	YC-035	-122.3835252	37.72241548	YC-035-2	7/8/2009	1	2 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	484	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	500	480	484	484	484	484	484	484	484	484 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-035	YC-035	-122.3835252	37.72241548	YC-035-2	7/8/2009	1	2 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	5308.4	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	5000	5300	5310	5308	5308.4	5308.4	5308.4	5310	5308.4		5310	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-035	YC-035	-122.3835252	37.72241548	YC-035-3	7/8/2009	2	3 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	482	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	500	480	482	482	482	482	482	482	482	482 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-035	YC-035	-122.3835252	37.72241548	YC-035-3	7/8/2009	2	3 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	39691.1	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	40000	40000	39700	39690	39691	39691.1	39691.1	39700	39691.1		39700	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-035	YC-035	-122.3835252	37.72241548	YC-035-4	7/8/2009	3	4 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	243	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	200	240	243	243	243	243	243	243	243	243 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-035	YC-035	-122.3835252	37.72241548	YC-035-4	7/8/2009	3	4 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	5121.64	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	5000	5100	5120	5122	5121.6	5121.64	5121.64	5120	5121.64		5120	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-035	YC-035	-122.3835252	37.72241548	YC-035-5	7/8/2009	4	5 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	22.7	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	20	23	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-035	YC-035	-122.3835252	37.72241548	YC-035-5	7/8/2009	4	5 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	169.28	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	200	170	169	169.3	169.28	169.28	169.28	169	169.28		169	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-036	YC-036/PD-SED-05	-122.3851288	37.72371514	YC-036-1	7/9/2009	0	1 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	396	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	400	400	396	396	396	396	396	396	396	396 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-036	YC-036/PD-SED-05	-122.3851288	37.72371514	YC-036-1	7/9/2009	0	1 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	24029.25	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	20000	24000	24000	24030	24029	24029.3	24029.25	24000	24029.25		24000	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-036	YC-036/PD-SED-05	-122.3851288	37.72371514	YC-036-2	7/9/2009	1	2 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	370	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	400	370	370	370	370	370	370	370	370	370 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-036	YC-036/PD-SED-05	-122.3851288	37.72371514	YC-036-2	7/9/2009	1	2 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	37039.2	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	40000	37000	37000	37040	37039	37039.2	37039.2	37000	37039.2		37000	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-036	YC-036/PD-SED-05	-122.3851288	37.72371514	YC-036-3	7/9/2009	2	3 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	382	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	400	380	382	382	382	382	382	382	382	382 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-036	YC-036/PD-SED-05	-122.3851288	37.72371514	YC-036-3	7/9/2009	2	3 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	3046.81	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	3000	3000	3050	3047	3046.8	3046.81	3046.81	3050	3046.81		3050	TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-036	YC-036/PD-SED-05	-122.3851288	37.72371514	YC-036-4	7/9/2009	3	4 ft	Sediment ENE	Metal/oids	Lead	Lead	DryWt	5.7	mg/kg	J	3 Validated	FALSE	Yes	TRUE	FALSE	FALSE	6	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.70 J		TRUE		
2009 Yosemite Creek Sediment Removal Assessment Report Final May 2011	YC-036	YC-036/PD-SED-05	-122.3851288	37.72371514	YC-036-4	7/9/2009	3	4 ft	Sediment ENE	PCB	TotPCBs_28ArEqu	Total PCB congeners Aroclor equivalent (Sum(28 congeners)*2.3)	DryWt	61.065	ug/kg		3 Validated	FALSE	Yes	FALSE	FALSE	FALSE	60	61	61.1	61.07	61.065	61.065	61.065	61.1	61.065		61.1	TRUE		

Appendix B
SEDCAM Data

Initial Concentrations

Surface Area (sq ft to sq m conversion factor)	0.09290304
density (kg/m3)	500
ML (m)	0.1

	Area (sq ft)		AWA (mg/kg)	Conversion Factor	mg
Alternative 0					
Dredge & Cap (EE/CA AWA = 310ug/kg)	453322	PCBs	0.310	2105749.245	652782.2661
		Lead	127.105	2105749.245	267651257.8
Dredge & Cap Only Alternative					
Dredge & Cap (AWA = 143 ug/kg)	453322	PCBs	0.143	2105749.245	301122.1421
		Lead	73.000	2105749.245	153719694.9
Alternative 0+EMNR					
Dredge & Cap + EMNR (AWA = 140 ug/kg)	453322	PCBs	0.140	2105749.245	294804.8944
		Lead	100.774	2105749.245	212204774.5

2018 Data
G4 Validated Chemistry Data, Table 8

				Total PCBs (pg/L)	Total 28 PCBs (pg/L)	Total 28 PCBs (mg/L)	Lead (µg/L)	Lead (mg/L)
Event 1	**YSB-1801080845-000**	**1/8/2018**	**8:45**	4250	1800	0.0000018	8.61	0.00861
Event 2	**YSB-1801082324-000**	**1/8/2018**	**23:24**	6890	3250	0.00000325	11.6	0.0116
Event 2 Duplicate	**YSB-1801082324-500**	**1/8/2018**	**23:24**	4410	2290	0.00000229	12	0.012
Event 3	**YSB-1803010412-000**	**3/1/2018**	**4:12**	3750	1790	0.00000179	7.18	0.00718
Event 4	**YSB-1804062030-000**	**4/6/2018**	**20:30**	3760	1520	0.00000152	5.59	0.00559

Denotes overflow event

G4: Table 3. Frequency, Duration, and Volume by Individual Outfall

Date	Time Started [hh:mm]	Event Duration [minutes]	Flow Volume [MG]
CSD 40: Griffith Street			
1/10/2017	19:05	35	0.9
1/20/2017	4:35	10	0.3
1/8/2018	22:36	70	1.2
4/6/2018	19:08	81	1
CSD 41: Yosemite Street			
1/10/2017	19:20	5	0.1
1/20/2017	4:35	10	0.1
1/8/2018	22:37	58	1.1
4/6/2018	19:10	60	0.399
CSD 42: Fitch Street			
1/10/2017	19:20	5	0.02
1/20/2017	4:35	10	0.02
1/8/2018	10:37	58	0.26
4/6/2018	19:10	60	0.1

During Overflow Event on 1/8/2018:

	Total Event Discharge (gallons)	Total Event Discharge (liters)	Total PCB Conc. (mg/L)	Lead Conc. (mg/L)	Total PCB Load (mg)	Lead Load (mg)
OF 40	1,200,000	4,542,494	--	--		
OF 41	1,100,000	4,163,953	--	--		
OF 42	260,000	984,207	--	--		
Total	2,560,000	9,690,655	0.000003	0.012	26.8	114,350

During Overflow Event on 4/6/2018:

	Total Event Discharge (gallons)	Total Event Discharge (liters)	Total PCB Conc. (mg/L)	Lead Conc. (mg/L)	Total PCB Load (mg)	Lead Load (mg)
OF 40	1,000,000	3,785,412	--	--		
OF 41	399,000	1,510,379	--	--		
OF 42	100,000	378,541	--	--		
Total	1,499,000	5,674,333	0.000002	0.0056	8.62	31,720

Total PCB Load (mg)	Total Lead Load (mg)
35.5	146,069.2

SEDCAM MODEL (Jacobs et al., 1988; Ecology 1991):

$$C(t) = \frac{M}{(M + kS)} C_p \left[1 - e^{\frac{-(kS + M)t}{S}} \right] + C_o e^{\frac{-(kS + M)t}{S}}$$

C(t) = mass in surface sediment at time t (mg or µg)
M = sedimentation rate (g/cm^2-yr)
k = combined first order rate constant for contaminant loss through decay and diffusion processes (yr^{-1})
C_p = mass in particles being deposited on the sediment (mg or µg)
t = time (yr)
C_o = initial mass in surface sediment (mg or µg)

$$S = MLd(1 - p)$$

S = accumulation of sediment in the mixed layer (g)
ML = thickness of mixed layer (cm)
d = density of sediment (g/cm^3)
p = porosity of sediment (cm^3/cm^3)

$$M = d \frac{\Delta}{n}$$

Δ = change in bathymetric elevation (cm)
n = time between bathymetric surveys (yr)

Porosity, *p* (cm^3/cm^3)	0.64	based on available subsurface data
Mixing Layer, *ML* (cm)	10.0	surface sediment
Density, *d* (g/cm^3)	0.500	based on available subsurface data
Rate Constant - PCBs, *k* (yr^{-1})	0.003	
Rate Constant - metals, *k* (yr^{-1})	0.0	

Conversions	Alternative 0 Dredge & Cap (EE/CA AWA = 310ug/kg)	Dredge & Cap Only Alternative Dredge & Cap (AWA = 143 ug/kg)	Alternative 0+EMNR redge & Cap + EMNR (AWA = 140 ug/k
Surface Area (sq ft)	453,332	453,332	453,332
Surface Area (sq m)	42,116	42,116	42,116
density (kg/m3)	500	500	500
ML (m)	0.100	0.100	0.100
Sediment Mass (kg)	2,105,796	2,105,796	2,105,796

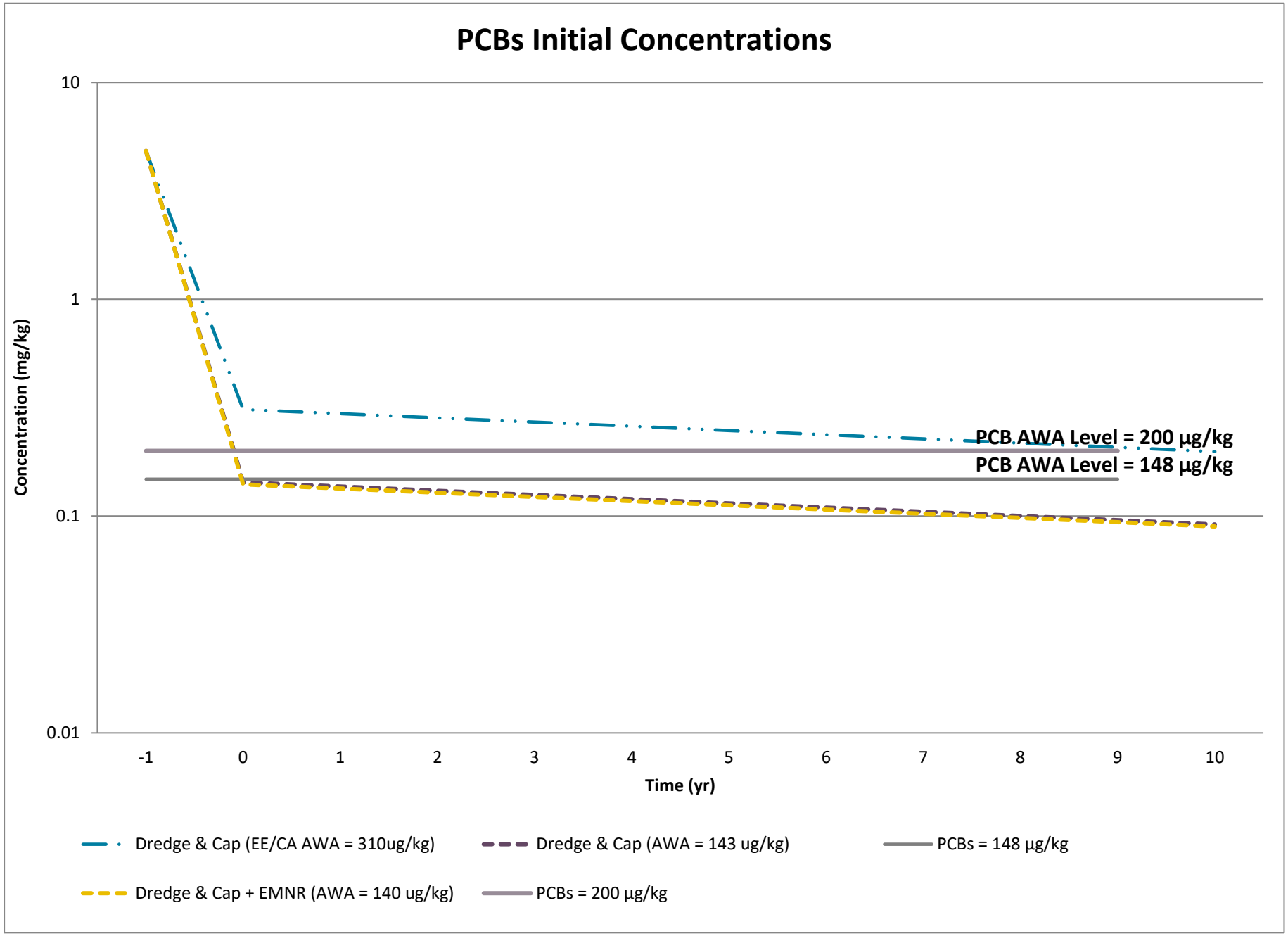
Area	**Change in Elevation, Δ (cm)**	**Time, *n* (years)**	**Sedimentation Rate, *M* (g/cm^{2}yr)**	**Sediment Accumulation, *S* (g)**
	0.1500	1	0.075	1.800

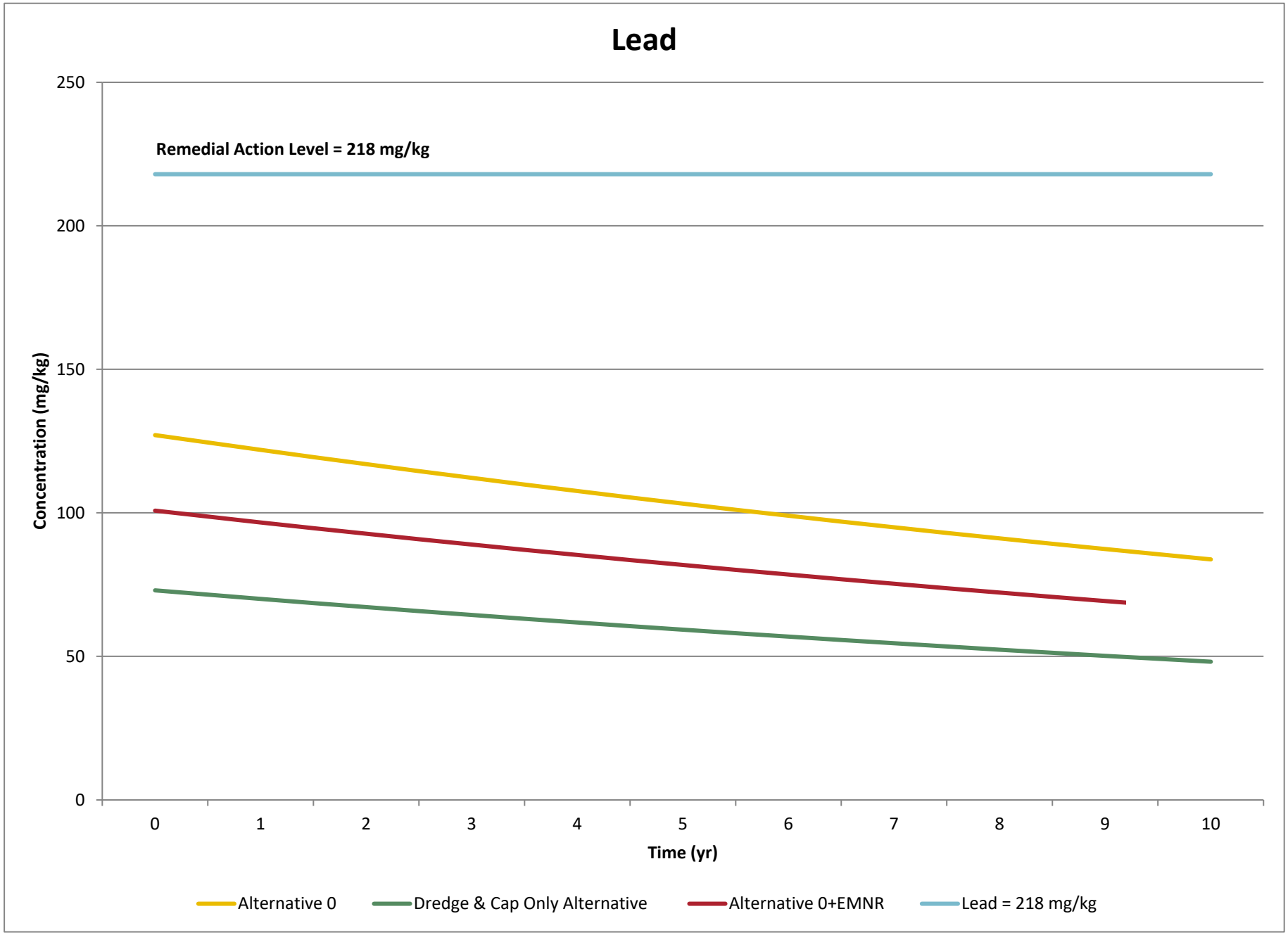
Calculations

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA = 310ug/kg)		Dredge & Cap (AWA = 143 ug/kg)		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	652782	267651258	301122	153719695	294805	212204774
Cp	mg	35	146069	35	146069	35	146069
t=	C(t)						
0	mg	652782.2661	267651257.8	301122.1421	153719694.9	294804.8944	212204774.5
1	mg	624267.702	256734225.9	287969.4282	147452271.9	281928.1419	203550543.6
2	mg	596998.7623	246262723.9	275391.2749	141440625.8	269613.8948	195249496.6
3	mg	570921.0336	236218569.6	263362.583	135674318.2	257837.5809	187287219.8
4	mg	545982.4791	226584322.7	251859.3501	130143336.8	246575.7011	179649887.8
5	mg	522133.3354	217343254.6	240858.6222	124838077.7	235805.783	172324239.5
6	mg	499326.0129	208479319.6	230338.4478	119749329.2	225506.3358	165297554.9
7	mg	477515.001	199977126.5	220277.8346	114868255.2	215656.8077	158557633.1
8	mg	456656.7768	191821912.6	210656.7072	110186380.5	206237.5443	152092771.2
9	mg	436709.7192	183999517.4	201455.8672	105695575.7	197229.7501	145891743.8
10	mg	417634.0248	176496358.4	192656.9549	101388043	188615.4506	139943783.7

Proposed AWA Concentrations
PCBs = 148 µg/kg Lead = 218 mg/kg PCBs = 200 µg/kg

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR			Proposed PCB AWA	Proposed Lead AWA	Navy Proposed AWA
		Dredge & Cap (EE/CA AWA = 310ug/kg)		Dredge & Cap (AWA = 143 ug/kg)		Dredge & Cap + EMNR (AWA = 140 ug/kg)					
		PCBs	Lead	PCBs	Lead	PCBs	Lead				
	Units										
t=	C(t)										
-1	mg/kg	4.827	296	4.827	296	4.827	296	Pre-remedy AWA	0.148	218	0.2
0	mg/kg	0.30999311	127.1021751	0.142996822	72.99837758	0.139996889	100.7717603		0.148	218	0.2
1	mg/kg	0.29645212	121.9178972	0.136750864	70.022105	0.133881979	96.6620409		0.148	218	0.2
2	mg/kg	0.283502651	116.9451924	0.130777753	67.16729572	0.128034192	92.72004137		0.148	218	0.2
3	mg/kg	0.271118865	112.1754265	0.12506557	64.42899275	0.122441858	88.93891698		0.148	218	0.2
4	mg/kg	0.259276049	107.6003173	0.119602917	61.80244142	0.117093819	85.31210234		0.148	218	0.2
5	mg/kg	0.247950573	103.2119207	0.114378894	59.28308107	0.111979402	81.83329996		0.148	218	0.2
6	mg/kg	0.237119836	99.00261706	0.109383075	56.86653718	0.107088403	78.4964694		0.148	218	0.2
7	mg/kg	0.226762227	94.96509735	0.104605493	54.54861377	0.102411061	75.29581671		0.148	218	0.2
8	mg/kg	0.216857078	91.09235101	0.100036614	52.32528606	0.097938043	72.22578439		0.148	218	0.2
9	mg/kg	0.207384623	87.37765355	0.095667321	50.19269357	0.093660424	69.28104175		0.148	218	0.2
10	mg/kg	0.198325961	83.81455491	0.091488896	48.14713333	0.089569667	66.45647566		0.148	218	0.2


PCBs Initial Concentrations
10
1
0.1
0.01
Concentration (mg/kg)
-1
0
1
2
3
4
5
6
7
8
9
10
Time (yr)
PCB AWA Level = 200 µg/kg
PCB AWA Level = 148 µg/kg
Dredge & Cap (EE/CA AWA = 310ug/kg)
Dredge & Cap (AWA = 143 ug/kg)
PCBs = 148 µg/kg
Dredge & Cap + EMNR (AWA = 140 ug/kg)
PCBs = 200 µg/kg


Lead
Remedial Action Level = 218 mg/kg
Concentration (mg/kg)
250
200
150
100
50
0
0
1
2
3
4
5
6
7
8
9
10
Time (yr)
Alternative 0
Dredge & Cap Only Alternative
Alternative 0+EMNR
Lead = 218 mg/kg

SEDCAM MODEL (Jacobs et al., 1988; Ecology 1991):

$$C(t) = \frac{M}{(M + kS)} C_p \left[1 - e^{\frac{-(kS + M)t}{S}} \right] + C_o e^{\frac{-(kS + M)t}{S}}$$

C(t) = mass in surface sediment at time t (mg or µg)
M = sedimentation rate (g/cm^2-yr)
k = combined first order rate constant for contaminant loss through decay and diffusion processes (yr^{-1})
C_p = mass in particles being deposited on the sediment (mg or µg)
t = time (yr)
C_o = initial mass in surface sediment (mg or µg)

$$S = MLd(1 - p)$$

S = accumulation of sediment in the mixed layer (g)
ML = thickness of mixed layer (cm)
d = density of sediment (g/cm^3)
p = porosity of sediment (cm^3/cm^3)

$$M = d \frac{\Delta}{n}$$

Δ = change in bathymetric elevation (cm)
n = time between bathymetric surveys (yr)

Inputs

Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	15.0
Density, *d* (g/cm^3)	0.500
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.50

Conversions	Alternative 0 Dredge & Cap (EE/CA AWA = 310ug/kg)	Dredge & Cap Only Alternative Dredge & Cap (AWA = 143 ug/kg)	Alternative 0+EMNR Dredge & Cap + EMNR (AWA = 140 ug/kg)
Surface Area (sq ft)	453,332	453,332	453,332
Surface Area (sq m)	42,116	42,116	42,116
density (kg/m3)	500	500	500
ML (m)	0.150	0.150	0.150
Sediment Mass (kg)	3,158,694	3,158,694	3,158,694

Area	**Change in Elevation, Δ (cm)**	**Time, *n* (years)**	**Sedimentation Rate, *M* (g/cm^{2}yr)**	**Sediment Accumulation, *S* (g)**
	0.5000	1	0.250	2.700

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA = 310ug/kg)		Dredge & Cap (AWA = 143 ug/kg)		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	652782	267651258	301122	153719695	294805	212204774
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	652782.2661	267651257.8	301122.1421	153719694.9	294804.8944	212204774.5
1	mg	593273.9848	243994383.8	273673.2351	140138381.1	267931.9042	193451321.1
2	mg	539190.8232	222429610	248726.7294	127758133.4	243508.8116	176356333
3	mg	490038.1959	202771921.3	226054.4917	116472735.3	221312.2695	160773143.6
4	mg	445366.6069	184852664.1	205449.1866	106185363.7	201139.2928	146568056.6
5	mg	404767.5387	168518100	186722.3805	96807757.79	182805.4016	133619199.3
6	mg	367869.7169	153628086.3	169702.8185	88259462.31	166142.9341	121815476.8
7	mg	334335.7142	140054873.8	154234.8584	80467137.03	150999.5137	111055618.7
8	mg	303858.8655	127682011.1	140177.0471	73363927.57	137236.6552	101247310.9
9	mg	276160.4629	116403345	127400.8274	66888891.84	124728.4986	92306402.63
10	mg	250987.2072	106122109.9	115789.3619	60986477.17	113360.658	84156185.38

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA = 310ug/kg)		Dredge & Cap (AWA = 143 ug/kg)		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.206662074	84.73478341	0.095331215	48.66558506	0.093331259	67.18117354
1	mg/kg	0.187822553	77.24533569	0.08664126	44.36592401	0.084823632	61.24408278
2	mg/kg	0.170700553	70.41821876	0.078743533	40.44650433	0.07709161	55.8320398
3	mg/kg	0.155139493	64.19485927	0.071565807	36.87369931	0.070064484	50.89861192
4	mg/kg	0.140997069	58.52186379	0.065042445	33.616856	0.063677991	46.4014727
5	mg/kg	0.128143951	53.35056079	0.059113791	30.64803227	0.057873728	42.30203887
6	mg/kg	0.116462598	48.63658299	0.053725627	27.94175706	0.052598615	38.56513929
7	mg/kg	0.105846184	44.33948675	0.048828679	25.47481182	0.047804412	35.15871315
8	mg/kg	0.096197624	40.42240506	0.044378165	23.22603138	0.043447277	32.05353498
9	mg/kg	0.087428683	36.85173126	0.040333386	21.17612227	0.039487363	29.22296386
10	mg/kg	0.079459169	33.5968307	0.036657352	19.30749728	0.035888458	26.64271485

Static results below for sensitivity analysis:
Mixing Layer set at 22 cm, density and sedimentation rate varied

Inputs (ML=22, D=0.5, Sed Rate = 0.1)	
Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	22.0
Density, *d* (g/cm^3)	0.500
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.10

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA = 310ug/kg)		Dredge & Cap (AWA = 143 ug/kg)		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	1436121	588832767	662469	338183329	648571	466850504
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	1436120.985	588832767.2	662468.7126	338183328.8	648570.7676	466850503.8
1	mg	1413854.652	581446582.5	652197.7081	333942013.9	638515.248	460994816.6
2	mg	1391933.555	574153071.3	642085.9534	329753914.3	628615.6373	455212600
3	mg	1370352.339	566951071	632130.9796	325618362.3	618869.5181	449502932.2
4	mg	1349105.736	559839433.4	622330.3557	321534698.6	609274.5106	443864902.9
5	mg	1328188.558	552817024.7	612681.6886	317502272.2	599828.2718	438297613.4
6	mg	1307595.696	545882725.3	603182.6222	313520440.2	590528.4951	432800176
7	mg	1287322.123	539035429.8	593830.837	309588567.7	581372.9097	427371714.3
8	mg	1267362.887	532274046.5	584624.0494	305706028	572359.2799	422011363
9	mg	1247713.116	525597497.6	575560.0113	301872202.1	563485.4046	416718267.3
10	mg	1228368.01	519004718.5	566636.5093	298086478.8	554749.117	411491583.5

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA = 310ug/kg)		Dredge & Cap (AWA = 143 ug/kg)		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.1021751	0.142996822	72.99837758	0.139996889	100.7717603
1	mg/kg	0.305186823	125.5078342	0.14077978	72.08287088	0.13782636	99.50778414
2	mg/kg	0.300455057	123.9334974	0.138597113	71.17885093	0.135689485	98.25966694
3	mg/kg	0.295796655	122.3789135	0.136448287	70.28617361	0.133585742	97.02720972
4	mg/kg	0.291210481	120.8438349	0.134332779	69.40469662	0.131514616	95.810216
5	mg/kg	0.286695415	119.3280167	0.132250071	68.53427942	0.129475604	94.60849176
6	mg/kg	0.282250354	117.8312173	0.130199655	67.67478324	0.127468206	93.42184542
7	mg/kg	0.277874213	116.3531981	0.128181031	66.82607106	0.125491932	92.25008779
8	mg/kg	0.273565923	114.8937234	0.126193705	65.98800758	0.123546299	91.09303207
9	mg/kg	0.269324433	113.4525605	0.124237192	65.16045918	0.121630834	89.9504938
10	mg/kg	0.265148705	112.0294798	0.122311014	64.34329394	0.119745067	88.82229083

Inputs (ML=22, D=0.5, Sed Rate = 0.15)	
Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	22.0
Density, *d* (g/cm^3)	0.500
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.15

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA = 310ug/		Dredge & Cap (AWA = 143 ug/kg		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	1436121	588832767	662469	338183329	648571	466850504
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	1436120.985	588832767.2	662468.7126	338183328.8	648570.7676	466850504
1	mg	1404957.141	577788315.7	648093.4907	331841354.1	634497.1377	458094582
2	mg	1374469.567	566951071	634030.218	325618362.3	620728.9123	449502932
3	mg	1344643.588	556317145.7	620272.125	319512121.1	607259.464	441072471
4	mg	1315464.846	545882725.3	606812.5891	313520440.2	594082.3091	432800176
5	mg	1286919.298	535644066.8	593645.1316	307641170.2	581191.1047	424683079
6	mg	1258993.201	525597497.6	580763.4142	301872202.1	568579.6456	416718267
7	mg	1231673.114	515739413.7	568161.2362	296211466.7	556241.8611	408902885
8	mg	1204945.886	506066279.1	555832.5314	290656933.3	544171.8125	401234129
9	mg	1178798.651	496574623.7	543771.3654	285206609.4	532363.6896	393709247
10	mg	1153218.824	487261042.9	531971.9325	279858540	520811.8087	386325542

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA = 310ug/		Dredge & Cap (AWA = 143 ug/kg		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.1021751	0.142996822	72.99837758	0.139996889	100.77176
1	mg/kg	0.303266256	124.7181811	0.139893866	71.62943411	0.136959033	98.8817557
2	mg/kg	0.296685377	122.3789135	0.136858246	70.28617361	0.1339871	97.0272097
3	mg/kg	0.290247307	120.0835334	0.1338885	68.96811426	0.13107966	95.2074572
4	mg/kg	0.283948945	117.8312173	0.1309832	67.67478324	0.128235312	93.4218454
5	mg/kg	0.277787262	115.6211573	0.128140945	66.40571662	0.125452688	91.6697338
6	mg/kg	0.271759289	113.4525605	0.125360369	65.16045918	0.122730449	89.9504938
7	mg/kg	0.265862127	111.3246492	0.122640133	63.93856423	0.120067283	88.2635088
8	mg/kg	0.260092935	109.23666	0.119978927	62.73959346	0.117461909	86.6081736
9	mg/kg	0.254448938	107.187844	0.117375471	61.56311678	0.114913073	84.9838944
10	mg/kg	0.248927419	105.1774661	0.114828511	60.40871218	0.112419548	83.3900886

Inputs (ML=22, D=1.28, Sed Rate = 0.15)

Porosity, p (cm^3/cm^3)	0.64
Mixing Layer, ML (cm)	22.0
Density, d (g/cm^3)	1.280
Rate Constant - PCBs, k (yr^{-1})	0.003
Rate Constant - metals, k (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.15

		Alternative 0		Dredge & Cap Only Alternat		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA		Dredge & Cap (AWA = 143 u		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	3676470	1507411884	1695920	865749322	1660341	1195137290
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	3676469.723	1507411884	1695919.904	865749321.8	1660341.17	1195137290
1	mg	3596689.245	1479133813	1659118.3	849509591.5	1624311.64	1172717856
2	mg	3518640.041	1451386272	1623115.308	833574537.6	1589063.97	1150719036
3	mg	3442284.542	1424159307	1587893.597	817938444	1554581.19	1129132941
4	mg	3367585.994	1397443152	1553436.215	802595701.8	1520846.7	1107951826
5	mg	3294508.44	1371228223	1519726.575	787540807.4	1487844.27	1087168093
6	mg	3223016.703	1345505117	1486748.449	772768360.4	1455558	1066774287
7	mg	3153076.371	1320264606	1454485.965	758273061.9	1423972.36	1046763093
8	mg	3084653.778	1295497637	1422923.592	744049712.1	1393072.15	1027127333
9	mg	3017715.988	1271195326	1392046.137	730093209	1362842.49	1007859962
10	mg	2952230.779	1247348954	1361838.738	716398546.2	1333268.82	988954070

		Alternative 0		Dredge & Cap Only Alternat		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA		Dredge & Cap (AWA = 143 u		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.102175	0.142996822	72.99837758	0.13999689	100.7717603
1	mg/kg	0.303266168	124.717821	0.139893779	71.62907364	0.13695895	98.8813952
2	mg/kg	0.296685204	122.378199	0.136858073	70.28545944	0.13398693	97.02649555
3	mg/kg	0.29024705	120.082472	0.133888244	68.96705302	0.1310794	95.20639599
4	mg/kg	0.283948607	117.829815	0.130982861	67.67338145	0.12823497	93.42044362
5	mg/kg	0.277786843	115.619421	0.128140527	66.40398066	0.12545227	91.66799782
6	mg/kg	0.271758792	113.450497	0.125359873	65.15839533	0.12272995	89.94842994
7	mg/kg	0.265861553	111.322264	0.12263956	63.93617863	0.12006671	88.26112318
8	mg/kg	0.260092287	109.233959	0.119978279	62.73689214	0.11746126	86.60547226
9	mg/kg	0.254448217	107.184833	0.117374749	61.56010568	0.11491235	84.9808833
10	mg/kg	0.248926625	105.174151	0.114827717	60.40539711	0.11241875	83.38677352

Inputs (ML=22, D=1.28, Sed Rate = 0.10)

Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	22.0
Density, *d* (g/cm^3)	1.280
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.10

		Alternative 0		Dredge & Cap Only Alterr		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AW		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	3676470	1507411884	1695920	865749322	1660341	1195137290
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	3676469.72	1507411884	1695919.9	865749322	1660341.17	1195137290
1	mg	3619467.22	1488500392	1669625.44	854888697	1634598.34	1180143871
2	mg	3563348.52	1469826180	1643738.67	844164338	1609254.66	1165338574
3	mg	3508099.94	1451386272	1618253.26	833574538	1584303.92	1150719036
4	mg	3453707.98	1433177727	1593163	823117606	1559740.04	1136282929
5	mg	3400159.35	1415197642	1568461.76	812791876	1535557.02	1122027949
6	mg	3347440.98	1397443152	1544143.51	802595702	1511748.95	1107951826
7	mg	3295540	1379911425	1520202.31	792527458	1488310.02	1094052313
8	mg	3244443.74	1362599666	1496632.31	782585539	1465234.5	1080327196
9	mg	3194139.71	1345505117	1473427.76	772768360	1442516.77	1066774287
10	mg	3144615.64	1328625050	1450583	763074357	1420151.27	1053391425

		Alternative 0		Dredge & Cap Only Alterr		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AW		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.102175	0.14299682	72.9983776	0.13999689	100.77176
1	mg/kg	0.30518676	125.507593	0.14077972	72.0826298	0.1378263	99.5075431
2	mg/kg	0.30045494	123.933018	0.138597	71.1783718	0.13568937	98.2591878
3	mg/kg	0.29579648	122.378199	0.13644811	70.2854594	0.13358557	97.0264955
4	mg/kg	0.29121025	120.842889	0.13433255	69.4037503	0.13151439	95.8092697
5	mg/kg	0.28669513	119.326841	0.13224979	68.5331039	0.12947532	94.6073163
6	mg/kg	0.28225002	117.829815	0.13019932	67.6733814	0.12746787	93.4204436
7	mg/kg	0.27787382	116.351573	0.12818064	66.8244458	0.12549154	92.2484625
8	mg/kg	0.27356548	114.891877	0.12619326	65.9861616	0.12354586	91.0911861
9	mg/kg	0.26932394	113.450497	0.1242367	65.1583953	0.12163034	89.9484299
10	mg/kg	0.26514816	112.027201	0.12231047	64.3410149	0.11974452	88.8200118

Inputs (ML=22, D=1.28, Sed Rate = 0.5)	
Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	22.0
Density, *d* (g/cm^3)	1.280
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.50

		Alternative 0		Dredge & Cap Only Alteri		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AV		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	3676470	1507411884	1695920	865749322	1660341	1195137290
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	3676469.72	1507411884	1695919.9	865749322	1660341.17	1195137290
1	mg	3441207.04	1415197642	1587396.67	812791876	1554094.69	1122027949
2	mg	3220999.3	1328625050	1485818.07	763074357	1454647.15	1053391425
3	mg	3014883.11	1247348954	1390739.68	716398546	1361563.45	988954070
4	mg	2821956.71	1171045313	1301745.56	672578353	1274436.38	928458981
5	mg	2641376.07	1099409916	1218446.36	631439071	1192884.74	871664970
6	mg	2472351.16	1032157158	1140477.64	592816683	1116551.77	818345605
7	mg	2314142.5	969018912	1067498.3	556557205	1045103.49	768288310
8	mg	2166057.93	909743452	999189.056	522516075	978227.34	721293511
9	mg	2027449.6	854094453	935251.063	490557576	915630.73	677173845
10	mg	1897711.11	801850050	875404.593	460554291	857039.805	635753411

		Alternative 0		Dredge & Cap Only Alteri		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AV		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.102175	0.14299682	72.9983776	0.13999689	100.77176
1	mg/kg	0.2901562	119.326841	0.13384634	68.5331039	0.13103838	94.6073163
2	mg/kg	0.27158869	112.027201	0.12528142	64.3410149	0.12265315	88.8200118
3	mg/kg	0.25420935	105.174151	0.11726459	60.4053971	0.11480451	83.3867735
4	mg/kg	0.23794216	98.7403695	0.10976077	56.7105597	0.10745811	78.2859397
5	mg/kg	0.22271593	92.7002056	0.10273714	53.2417717	0.10058183	73.497174
6	mg/kg	0.20846407	87.0295778	0.09616296	49.9852035	0.09414557	69.0013841
7	mg/kg	0.1951242	81.7058779	0.09000948	46.9278716	0.08812119	64.7806458
8	mg/kg	0.18263799	76.7078811	0.08424977	44.0575866	0.08248232	60.8181315
9	mg/kg	0.17095079	72.0156607	0.07885864	41.3629052	0.07720429	57.098043
10	mg/kg	0.16001148	67.6105095	0.07381249	38.8330839	0.07226401	53.6055489

Inputs (ML=22, D=0.5, Sed Rate = 0.5)

Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	22.0
Density, *d* (g/cm^3)	0.500
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.50

		Alternative 0		Dredge & Cap Only Alterr		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AW		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	1436121	588832767	662469	338183329	648571	466850504
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	1436120.99	588832767	662468.713	338183329	648570.768	466850504
1	mg	1344222.82	552817025	620078.146	317502272	607069.559	438297613
2	mg	1258205.41	519004719	580400.238	298086479	568224.098	411491583
3	mg	1177692.43	487261043	543261.402	279858540	531864.437	386325542
4	mg	1102331.64	457459440	508499.156	262745783	497831.506	362699153
5	mg	1031793.34	429481093	475961.417	246679982	465976.412	340518223
6	mg	965768.929	403214456	445505.835	231597083	436159.791	319694318
7	mg	903969.558	378554807	416999.168	217436953	408251.197	300144416
8	mg	846124.856	355403831	390316.702	204143137	382128.531	281790573
9	mg	791981.756	333669227	365341.701	191662634	357677.508	264559614
10	mg	741303.383	313264342	341964.902	179945687	334791.157	248382843

		Alternative 0		Dredge & Cap Only Alterr		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AW		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.102175	0.14299682	72.9983776	0.13999689	100.77176
1	mg/kg	0.29015648	119.328017	0.13384663	68.5342794	0.13103867	94.6084918
2	mg/kg	0.27158924	112.02948	0.12528198	64.3432939	0.1226537	88.8222908
3	mg/kg	0.25421015	105.177466	0.11726539	60.4087122	0.11480531	83.3900886
4	mg/kg	0.23794319	98.7446573	0.10976181	56.7148474	0.10745915	78.2902275
5	mg/kg	0.22271719	92.7054065	0.10273839	53.2469726	0.10058308	73.5023749
6	mg/kg	0.20846552	87.035636	0.09616442	49.9912617	0.09414703	69.0074423
7	mg/kg	0.19512585	81.7127409	0.09001113	46.9347346	0.08812284	64.7875088
8	mg/kg	0.18263982	76.7154997	0.0842516	44.0652052	0.08248415	60.82575
9	mg/kg	0.17095279	72.0239886	0.07886063	41.3712332	0.07720628	57.106371
10	mg/kg	0.16001364	67.6195034	0.07381465	38.8420778	0.07226616	53.6145428

Static results below for sensitivity analysis:
Mixing Layer set at 10 cm, density and sedimentation rate varied

Inputs (ML=10, D=0.5, Sed Rate = 0.1)	
Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	10.0
Density, *d* (g/cm^3)	0.500
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.10

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA = 310ug/kg)		Dredge & Cap (AWA = 143 ug/kg)		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	652782	267651258	301122	153719695	294805	212204774
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	652782.2661	267651257.8	301122.1421	153719694.9	294804.8944	212204774.5
1	mg	632998.0821	260322813.3	291996.4122	149512465.1	285870.6337	206395315.3
2	mg	613813.5363	253195135.4	283147.2736	145420494.6	277207.1611	200745009.4
3	mg	595210.4541	246262723.9	274566.3433	141440625.8	268806.2695	195249496.6
4	mg	577171.2121	239520229.5	266245.4922	137569787.5	260660.0002	189904536.1
5	mg	559678.7209	232962449.2	258176.8373	133804992.9	252760.6358	184706003.7
6	mg	542716.4089	226584322.7	250352.7351	130143336.8	245100.6931	179649887.8
7	mg	526268.2071	220380928.4	242765.7733	126581993.7	237672.9152	174732286.8
8	mg	510318.5332	214347479.2	235408.7644	123118215.4	230470.2656	169949406.1
9	mg	494852.2773	208479319.6	228274.7389	119749329.2	223485.9208	165297554.9
10	mg	479854.7877	202771921.3	221356.9383	116472735.3	216713.2643	160773143.6

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA = 310ug/kg)		Dredge & Cap (AWA = 143 ug/kg)		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.1021751	0.142996822	72.99837758	0.139996889	100.7717603
1	mg/kg	0.300598001	123.6220449	0.138663197	71.00044916	0.135754189	98.01296555
2	mg/kg	0.291487648	120.2372546	0.13446092	69.05725503	0.131640081	95.3297494
3	mg/kg	0.28265342	116.9451924	0.13038601	67.16729572	0.127650667	92.72004137
4	mg/kg	0.274086948	113.743318	0.126434605	65.32911283	0.123782168	90.18182766
5	mg/kg	0.265780118	110.6291607	0.122602964	63.54128793	0.12003092	87.71314963
6	mg/kg	0.257725058	107.6003173	0.118887456	61.80244142	0.116393367	85.31210234
7	mg/kg	0.24991414	104.6544506	0.115284561	60.11123152	0.112866066	82.97683298
8	mg/kg	0.242339962	101.7892875	0.111790866	58.4663532	0.109445673	80.70553956
9	mg/kg	0.234995349	99.00261706	0.108403062	56.86653718	0.106128949	78.4964694
10	mg/kg	0.227873344	96.2922889	0.105117938	55.31054896	0.102912751	76.34791788

Inputs (ML=10, D=0.5, Sed Rate = 0.15)	
Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	10.0
Density, *d* (g/cm^3)	0.500
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.15

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA = 310ug/		Dredge & Cap (AWA = 143 ug/kg		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	652782	267651258	301122	153719695	294805	212204774
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	652782.2661	267651257.8	301122.1421	153719694.9	294804.8944	212204774
1	mg	624267.702	256734225.9	287969.4282	147452271.9	281928.1419	203550544
2	mg	596998.7623	246262723.9	275391.2749	141440625.8	269613.8948	195249497
3	mg	570921.0336	236218569.6	263362.583	135674318.2	257837.5809	187287220
4	mg	545982.4791	226584322.7	251859.3501	130143336.8	246575.7011	179649888
5	mg	522133.3354	217343254.6	240858.6222	124838077.7	235805.783	172324240
6	mg	499326.0129	208479319.6	230338.4478	119749329.2	225506.3358	165297555
7	mg	477515.001	199977126.5	220277.8346	114868255.2	215656.8077	158557633
8	mg	456656.7768	191821912.6	210656.7072	110186380.5	206237.5443	152092771
9	mg	436709.7192	183999517.4	201455.8672	105695575.7	197229.7501	145891744
10	mg	417634.0248	176496358.4	192656.9549	101388043	188615.4506	139943784

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA = 310ug/		Dredge & Cap (AWA = 143 ug/kg		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.1021751	0.142996822	72.99837758	0.139996889	100.77176
1	mg/kg	0.29645212	121.9178972	0.136750864	70.022105	0.133881979	96.6620409
2	mg/kg	0.283502651	116.9451924	0.130777753	67.16729572	0.128034192	92.7200414
3	mg/kg	0.271118865	112.1754265	0.12506557	64.42899275	0.122441858	88.938917
4	mg/kg	0.259276049	107.6003173	0.119602917	61.80244142	0.117093819	85.3121023
5	mg/kg	0.247950573	103.2119207	0.114378894	59.28308107	0.111979402	81.8333
6	mg/kg	0.237119836	99.00261706	0.109383075	56.86653718	0.107088403	78.4964694
7	mg/kg	0.226762227	94.96509735	0.104605493	54.54861377	0.102411061	75.2958167
8	mg/kg	0.216857078	91.09235101	0.100036614	52.32528606	0.097938043	72.2257844
9	mg/kg	0.207384623	87.37765355	0.095667321	50.19269357	0.093660424	69.2810418
10	mg/kg	0.198325961	83.81455491	0.091488896	48.14713333	0.089569667	66.4564757

Inputs (ML=10, D=1.28, Sed Rate = 0.15)	
Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	10.0
Density, *d* (g/cm^3)	1.280
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.15

		Alternative 0		Dredge & Cap Only Alternat		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA		Dredge & Cap (AWA = 143 u		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	1671123	685187220	770873	393522419	754701	543244223
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	1671122.601	685187220	770872.6838	393522419	754700.53	543244222.6
1	mg	1598123.062	657230319	737199.4815	377468516.6	721733.788	521080092.1
2	mg	1528312.421	630414354	704997.2527	362069782.7	690207.16	499820491.8
3	mg	1461551.373	604692763	674201.7396	347299479.4	660057.734	479428507.4
4	mg	1397706.702	580020884	644751.4915	333131960.3	631225.35	459868730.9
5	mg	1336651.008	556355878	616587.7421	319542625.3	603652.474	441107199.5
6	mg	1278262.459	533656654	589654.2923	306507878.5	577284.086	423111336.4
7	mg	1222424.544	511883797	563897.3979	294005086.7	552067.569	405849894.2
8	mg	1169025.841	490999503	539265.6625	282012540.7	527952.605	389292900.8
9	mg	1117959.796	470967508	515709.9349	270509417	504891.075	373411607.4
10	mg	1069124.51	451753029	493183.211	259475742	482836.96	358178438.1

		Alternative 0		Dredge & Cap Only Alternat		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA		Dredge & Cap (AWA = 143 u		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.102175	0.142996822	72.99837758	0.13999689	100.7717603
1	mg/kg	0.296451702	121.916172	0.136750445	70.02037996	0.13388156	96.66031586
2	mg/kg	0.283501833	116.941813	0.130776935	67.16391604	0.12803337	92.71666169
3	mg/kg	0.271117664	112.17046	0.125064369	64.42402596	0.12244066	88.93395019
4	mg/kg	0.259274483	107.593828	0.119601351	61.79595228	0.11709225	85.30561319
5	mg/kg	0.247948656	103.203971	0.114376977	59.27513171	0.11197749	81.8253506
6	mg/kg	0.237117585	98.9932671	0.109380825	56.8571872	0.10708615	78.48711942
7	mg/kg	0.226759656	94.9544039	0.104602923	54.53792032	0.10240849	75.28512326
8	mg/kg	0.216854201	91.0803689	0.100033738	52.31330398	0.09793517	72.21380231
9	mg/kg	0.207381454	87.3644354	0.095664152	50.17947544	0.09365725	69.26782362
10	mg/kg	0.198322512	83.8001512	0.091485447	48.1327296	0.08956622	66.44207193

Inputs (ML=10, D=1.28, Sed Rate = 0.10)	
Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	10.0
Density, *d* (g/cm^3)	1.280
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.10

		Alternative 0		Dredge & Cap Only Alterr		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AW		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	1671123	685187220	770873	393522419	754701	543244223
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	1671122.6	685187220	770872.684	393522419	754700.53	543244223
1	mg	1620473.58	666420160	747509.302	382745668	731827.309	528365765
2	mg	1571359.67	648167232	724854.039	372264152	709647.351	513894910
3	mg	1523734.36	630414354	702885.435	362069783	688139.646	499820492
4	mg	1477552.52	613147825	681582.675	352154693	667283.816	486131650
5	mg	1432770.4	596354321	660925.581	342511233	647060.105	472817821
6	mg	1389345.59	580020884	640894.582	333131960	627449.354	459868731
7	mg	1347236.93	564134910	621470.701	324009638	608432.984	447274388
8	mg	1306404.55	548684141	602635.538	315137226	589992.981	435025074
9	mg	1266809.75	533656654	584371.25	306507878	572111.875	423111336
10	mg	1228415.03	519040853	566660.533	298114937	554772.727	411523982

		Alternative 0		Dredge & Cap Only Alterr		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AW		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.102175	0.14299682	72.9983776	0.13999689	100.77176
1	mg/kg	0.30059772	123.620887	0.13866292	70.9992912	0.13575391	98.0118076
2	mg/kg	0.29148709	120.23497	0.13446037	69.0549708	0.13163953	95.3274651
3	mg/kg	0.2826526	116.941813	0.13038519	67.163916	0.12764985	92.7166617
4	mg/kg	0.27408588	113.738873	0.12643353	65.3246677	0.1237811	90.1773826
5	mg/kg	0.2657788	110.623679	0.12260164	63.5358066	0.1200296	87.7076683
6	mg/kg	0.2577235	107.593828	0.11888589	61.7959523	0.11639181	85.3056132
7	mg/kg	0.24991234	104.646981	0.11528277	60.1037622	0.11286427	82.9693636
8	mg/kg	0.24233794	101.780865	0.11178884	58.4579305	0.10944365	80.6971168
9	mg/kg	0.23499311	98.9932671	0.10840082	56.8571872	0.10612671	78.4871194
10	mg/kg	0.22787089	96.2820371	0.10511548	55.3002971	0.1029103	76.337666

Inputs (ML=10, D=1.28, Sed Rate = 0.5)	
Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	10.0
Density, *d* (g/cm^3)	1.280
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.50

		Alternative 0		Dredge & Cap Only Alteri		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AV		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	1671123	685187220	770873	393522419	754701	543244223
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	1671122.6	685187220	770872.684	393522419	754700.53	543244223
1	mg	1450067.19	596354321	668904.437	342511233	654871.573	472817821
2	mg	1258253.51	519040853	580424.788	298114937	568248.225	411523982
3	mg	1091813.39	451753029	503649.434	259475742	493083.615	358178438
4	mg	947390.356	393190773	437030.103	225847096	427861.955	311750493
5	mg	822071.94	342222593	379223.333	196579253	371267.969	271343104
6	mg	713330.936	297863726	329063.377	171106726	322160.367	236175554
7	mg	618974.446	259257107	285538.698	148937356	279548.834	205568366
8	mg	537099.653	225656812	247771.564	129642805	242574.054	178930173
9	mg	466055.449	196413645	215000.356	112850280	210490.384	155746295
10	mg	404409.138	170962593	186564.199	98235330.9	182650.817	135568793

		Alternative 0		Dredge & Cap Only Alteri		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AV		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.102175	0.14299682	72.9983776	0.13999689	100.77176
1	mg/kg	0.26898735	110.623679	0.12408172	63.5358066	0.12147863	87.7076683
2	mg/kg	0.23340593	96.2820371	0.10766875	55.3002971	0.10541	76.337666
3	mg/kg	0.2025313	83.8001512	0.09342693	48.1327296	0.09146697	66.4420719
4	mg/kg	0.17574084	72.9368573	0.08106905	41.8946184	0.07936836	57.8296917
5	mg/kg	0.15249428	63.482264	0.0703459	36.4654359	0.06887018	50.3341242
6	mg/kg	0.13232283	55.2536976	0.06104123	31.7402842	0.05976072	43.8105465
7	mg/kg	0.11481971	48.0921729	0.05296741	27.6278678	0.05185629	38.1329156
8	mg/kg	0.09963194	41.8593209	0.04596161	24.0487301	0.04499747	33.1915329
9	mg/kg	0.08645325	36.4347156	0.03988255	20.9337181	0.03904595	28.8909255
10	mg/kg	0.07501786	31.7135475	0.03460764	18.2226461	0.03388171	25.1480004

Inputs (ML=10, D=0.5, Sed Rate = 0.5)	
Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	10.0
Density, *d* (g/cm^3)	0.500
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.50

		Alternative 0		Dredge & Cap Only Alterr		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AW		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	652782	267651258	301122	153719695	294805	212204774
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	652782.266	267651258	301122.142	153719695	294804.894	212204774
1	mg	566435.296	232962449	261293.594	133804993	255812.007	184706004
2	mg	491510.504	202771921	226733.66	116472735	221977.19	160773144
3	mg	426496.939	176496358	196745.394	101388043	192618.121	139943784
4	mg	370083.521	153628086	170724.047	88259462.3	167142.739	121815477
5	mg	321132.601	133725264	148144.864	76833333.9	145037.3	106037963
6	mg	278657.023	116403345	128552.508	66888891.8	125856.019	92306402.6
7	mg	241800.214	101327651	111551.874	58233998	109212.084	80355486.1
8	mg	209818.909	88206901.5	96800.1244	50701429.9	94769.8468	69954308
9	mg	182068.166	76787589	83999.7704	44145649.7	82238.0627	60901905.5
10	mg	157988.357	66849078.9	72892.6772	38439992	71364.0123	53023375.8

		Alternative 0		Dredge & Cap Only Alterr		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AW		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.102175	0.14299682	72.9983776	0.13999689	100.77176
1	mg/kg	0.26898868	110.629161	0.12408305	63.5412879	0.12147995	87.7131496
2	mg/kg	0.23340841	96.2922889	0.10767123	55.310549	0.10541248	76.3479179
3	mg/kg	0.20253478	83.8145549	0.09343041	48.1471333	0.09147045	66.4564757
4	mg/kg	0.17574519	72.9548745	0.0810734	41.9126356	0.07937271	57.8477089
5	mg/kg	0.15249938	63.5034261	0.070351	36.486598	0.06887528	50.3552864
6	mg/kg	0.13232859	55.2775969	0.06104699	31.7641834	0.05976648	43.8344458
7	mg/kg	0.11482604	48.1184543	0.05297373	27.6541492	0.05186261	38.159197
8	mg/kg	0.09963876	41.8876755	0.04596842	24.0770848	0.04500429	33.2198876
9	mg/kg	0.08646049	36.4648747	0.03988979	20.9638772	0.03905319	28.9210845
10	mg/kg	0.07502548	31.745277	0.03461526	18.2543756	0.03388933	25.17973

Static results below for sensitivity analysis:
Mixing Layer set at 15 cm, density and sedimentation rate varied

Inputs (ML=15, D=0.5, Sed Rate = 0.1)	
Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	15.0
Density, *d* (g/cm^3)	0.500
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.10

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA = 310ug/kg)		Dredge & Cap (AWA = 143 ug/kg)		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	979173	401476887	451683	230579542	442207	318307162
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	979173.3991	401476886.8	451683.2131	230579542.4	442207.3415	318307161.7
1	mg	958328.7721	394113227.1	442068.1385	226351525	432793.9954	312469508.8
2	mg	937927.899	386884676.5	432657.7557	222201083.7	423581.0466	306738965.7
3	mg	917961.3328	379788756.2	423447.7073	218126795.1	414564.229	301113567.3
4	mg	898419.8279	372823032.6	414433.7283	214127262	405739.3673	295591384.2
5	mg	879294.3351	365985116.8	405611.6448	210201112.8	397102.3749	290170522.8
6	mg	860575.9982	359272663.8	396977.3715	206347000.9	388649.2524	284849123.8
7	mg	842256.1494	352683371.6	388526.9102	202563604.7	380376.0855	279625362.5
8	mg	824326.3054	346214980.4	380256.3477	198849626.7	372279.0431	274497447.3
9	mg	806778.1635	339865271.9	372161.8544	195203793.1	364354.3758	269463619.6
10	mg	789603.5977	333632068.5	364239.6818	191624853.6	356598.4139	264522153.1

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA = 310ug/kg)		Dredge & Cap (AWA = 143 ug/kg)		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.1021751	0.142996822	72.99837758	0.139996889	100.7717603
1	mg/kg	0.303393982	124.7709396	0.139952819	71.65984422	0.13701675	98.92363802
2	mg/kg	0.29693534	122.4824779	0.136973618	70.3458704	0.134100054	97.10942527
3	mg/kg	0.290614195	120.2360051	0.134057841	69.05600552	0.131245451	95.32849989
4	mg/kg	0.284427617	118.0307508	0.131204137	67.78980721	0.128451619	93.58025111
5	mg/kg	0.278372744	115.8659588	0.128411184	66.54684123	0.125717264	91.86407939
6	mg/kg	0.27244677	113.7408865	0.125677689	65.32668133	0.123041119	90.17939616
7	mg/kg	0.266646953	111.6548054	0.123002387	64.12890905	0.120421946	88.52562367
8	mg/kg	0.260970606	109.6069998	0.120384038	62.95311362	0.117858531	86.90219477
9	mg/kg	0.255415101	107.5967677	0.117821431	61.7988918	0.115349688	85.30855272
10	mg/kg	0.249977864	105.6234194	0.115313378	60.66584777	0.112894255	83.74415098

Inputs (ML=15, D=0.5, Sed Rate = 0.15)	
Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	15.0
Density, *d* (g/cm^3)	0.500
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.15

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA = 310ug/		Dredge & Cap (AWA = 143 ug/kg		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	979173	401476887	451683	230579542	442207	318307162
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	979173.3991	401476886.8	451683.2131	230579542.4	442207.3415	318307162
1	mg	949496.6381	390482219.2	437994.1331	224266696.9	428805.4654	309590972
2	mg	920719.3489	379788756.2	424719.9549	218126795.1	415809.7862	301113567
3	mg	892814.2695	369388246.3	411848.1034	212155099.1	403207.9926	292868405
4	mg	865754.9642	359272663.8	399366.3842	206347000.9	390988.1463	284849124
5	mg	839515.7984	349434203	387262.9731	200698018.6	379138.6709	277049535
6	mg	814071.9146	339865271.9	375526.4038	195203793.1	367648.3408	269463620
7	mg	789399.2085	330558486.7	364145.5578	189860084.7	356506.2707	262085524
8	mg	765474.3065	321506665.8	353109.6534	184662770.1	345701.9052	254909556
9	mg	742274.5436	312702824.2	342408.2359	179607838.6	335225.0088	247930177
10	mg	719777.9414	304140168.5	332031.1672	174691389.6	325065.6563	241142002

		Alternative 0		Dredge & Cap Only Alternative		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA = 310ug/		Dredge & Cap (AWA = 143 ug/kg		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.1021751	0.142996822	72.99837758	0.139996889	100.77176
1	mg/kg	0.300597847	123.6214114	0.138663043	70.99981573	0.135754035	98.0123321
2	mg/kg	0.291487345	120.2360051	0.134460617	69.05600552	0.131639778	95.3284999
3	mg/kg	0.282652973	116.9433437	0.130385563	67.165447	0.12765022	92.7181927
4	mg/kg	0.274086361	113.7408865	0.126434018	65.32668133	0.123781581	90.1793962
5	mg/kg	0.265779395	110.6261624	0.122602241	63.5382896	0.120030197	87.7101513
6	mg/kg	0.257724204	107.5967677	0.118886602	61.7988918	0.116392513	85.3085527
7	mg/kg	0.249913157	104.6503648	0.115283579	60.10714572	0.112865084	82.9727472
8	mg/kg	0.242338856	101.7846802	0.11178976	58.4617459	0.109444567	80.7009323
9	mg/kg	0.234994123	98.99750254	0.108401836	56.86142266	0.106127723	78.4913549
10	mg/kg	0.227872002	96.28668106	0.105116596	55.30494112	0.102911409	76.34231

Inputs (ML=15, D=1.28, Sed Rate = 0.15)	
Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	15.0
Density, *d* (g/cm^3)	1.280
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.15

		Alternative 0		Dredge & Cap Only Alternat		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA		Dredge & Cap (AWA = 143 u		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	2506684	1027780830	1156309	590283628	1132051	814866334
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	2506683.902	1027780830	1156309.026	590283628.5	1132050.79	814866333.9
1	mg	2430709.88	999628239	1121263.467	574116501.5	1097740.48	792546646.3
2	mg	2357038.552	972246902	1087280.103	558392281.4	1064470.07	770838418.1
3	mg	2285600.126	945615691	1054326.74	543098834.5	1032208.06	749724898.2
4	mg	2216326.924	919714057	1022372.159	528224359.6	1000923.87	729189794.3
5	mg	2149153.321	894522011	991386.0885	513757378.7	970587.875	709217260.2
6	mg	2084015.681	870020114	961339.1735	499686728.3	941171.332	689791884.2
7	mg	2020852.295	846189460	932202.9494	486001550.8	912646.374	670898676.5
8	mg	1959603.326	823011659	903949.814	472691285.8	884985.978	652523058.1
9	mg	1900210.749	800468826	876553.0018	459745662.5	858163.941	634650849.4
10	mg	1842618.301	778543565	849986.5587	447154691.3	832154.851	617268259.1

		Alternative 0		Dredge & Cap Only Alternat		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AWA		Dredge & Cap (AWA = 143 u		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.102175	0.142996822	72.99837758	0.13999689	100.7717603
1	mg/kg	0.30059766	123.620639	0.138662856	70.99904373	0.13575385	98.01156012
2	mg/kg	0.291486977	120.234482	0.134460249	69.05448267	0.13163941	95.32697705
3	mg/kg	0.282652428	116.941091	0.130385018	67.16319388	0.12764968	92.71593954
4	mg/kg	0.274085646	113.737923	0.126433303	65.32371794	0.12378087	90.17643276
5	mg/kg	0.265778514	110.622508	0.122601361	63.5346354	0.12002932	87.7064971
6	mg/kg	0.257723163	107.592442	0.11888556	61.79456571	0.11639147	85.30422663
7	mg/kg	0.249911961	104.645385	0.115282382	60.10216614	0.11286389	82.9677676
8	mg/kg	0.242337508	101.779065	0.111788413	58.45613074	0.10944322	80.6953171
9	mg/kg	0.234992629	98.9912692	0.108400342	56.85518934	0.10612623	78.48512156
10	mg/kg	0.227870366	96.2798465	0.10511496	55.29810657	0.10290977	76.33547549

Inputs (ML=15, D=1.28, Sed Rate = 0.10)

Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	15.0
Density, *d* (g/cm^3)	1.280
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.10

		Alternative 0		Dredge & Cap Only Alterr		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AW		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	2506684	1027780830	1156309	590283628	1132051	814866334
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	2506683.9	1027780830	1156309.03	590283628	1132050.79	814866334
1	mg	2453320.64	1008925680	1131693.42	579455723	1107951.61	799917762
2	mg	2401093.42	990416487	1107601.85	568826489	1084365.47	785243467
3	mg	2349978.04	972246902	1084023.15	558392281	1061281.45	770838418
4	mg	2299950.83	954410694	1060946.42	548149522	1038688.85	756697675
5	mg	2250988.64	936901747	1038360.95	538094697	1016577.22	742816387
6	mg	2203068.79	919714057	1016256.3	528224360	994936.319	729189794
7	mg	2156169.08	902841727	994622.232	518535124	973756.121	715813224
8	mg	2110267.81	886278973	973448.72	509023668	953026.82	702682088
9	mg	2065343.71	870020114	952725.964	499686728	932738.818	689791884
10	mg	2021375.99	854059574	932444.367	490521104	912882.721	677138191

		Alternative 0		Dredge & Cap Only Alterr		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AW		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.102175	0.14299682	72.9983776	0.13999689	100.77176
1	mg/kg	0.30339386	124.770423	0.13995269	71.6593272	0.13701662	98.923121
2	mg/kg	0.29693509	122.481453	0.13697337	70.3448458	0.13409981	97.1084007
3	mg/kg	0.29061383	120.234482	0.13405747	69.0544827	0.13124508	95.326977
4	mg/kg	0.28442713	118.028739	0.13120365	67.7877953	0.12845113	93.5782392
5	mg/kg	0.27837214	115.863467	0.12841058	66.5443492	0.12571666	91.8615873
6	mg/kg	0.27244606	113.737923	0.12567698	65.3237179	0.12304041	90.1764328
7	mg/kg	0.26664613	111.651379	0.12300156	64.125483	0.12042112	88.5221976
8	mg/kg	0.26096967	109.60312	0.12038311	62.9492334	0.1178576	86.8983145
9	mg/kg	0.25541406	107.592442	0.11782039	61.7945657	0.11534865	85.3042266
10	mg/kg	0.24997672	105.618656	0.11531224	60.661084	0.11289311	83.7393872

Inputs (ML=15, D=1.28, Sed Rate = 0.5)	
Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	15.0
Density, *d* (g/cm^3)	1.280
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.50

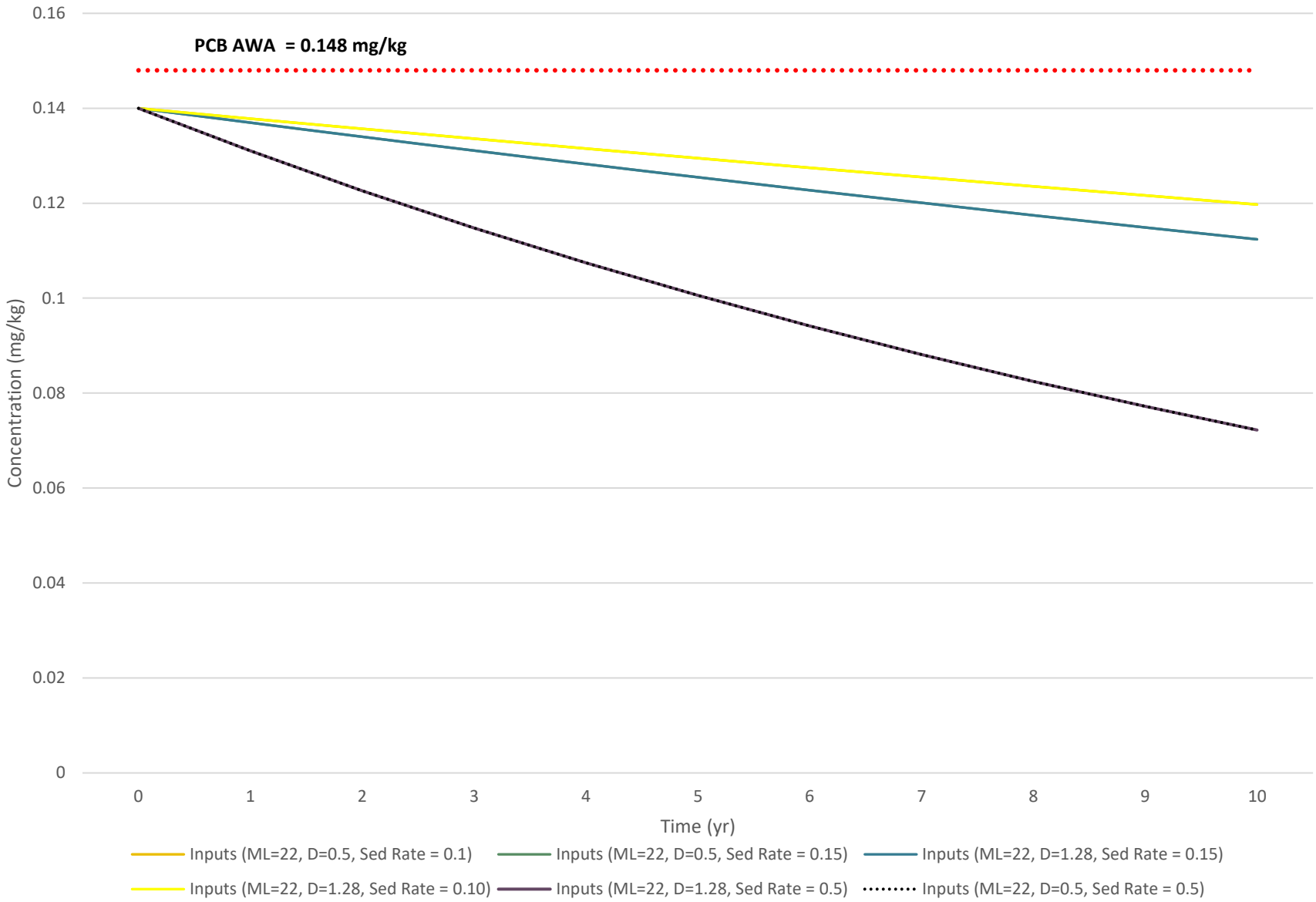
		Alternative 0		Dredge & Cap Only Alteri		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AV		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	2506684	1027780830	1156309	590283628	1132051	814866334
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	2506683.9	1027780830	1156309.03	590283628	1132050.79	814866334
1	mg	2278163.21	936901747	1050896.33	538094697	1028849.62	742816387
2	mg	2070475.78	854059574	955093.662	490521104	935056.858	677138191
3	mg	1881722.35	778543565	868024.922	447154691	849814.789	617268259
4	mg	1710176.77	709705829	788893.874	407623396	772343.881	562692937
5	mg	1554270.28	646955772	716976.87	371588058	701935.671	512943994
6	mg	1412577.13	589755029	651616.236	338739513	637946.28	467594608
7	mg	1283801.54	537612844	592214.257	308795935	579790.533	426255704
8	mg	1166765.89	490081864	538227.706	281500423	526936.601	388572615
9	mg	1060399.88	446754295	489162.882	256618795	478901.14	354222037
10	mg	963730.818	407258409	444571.092	233937579	435244.869	322909259

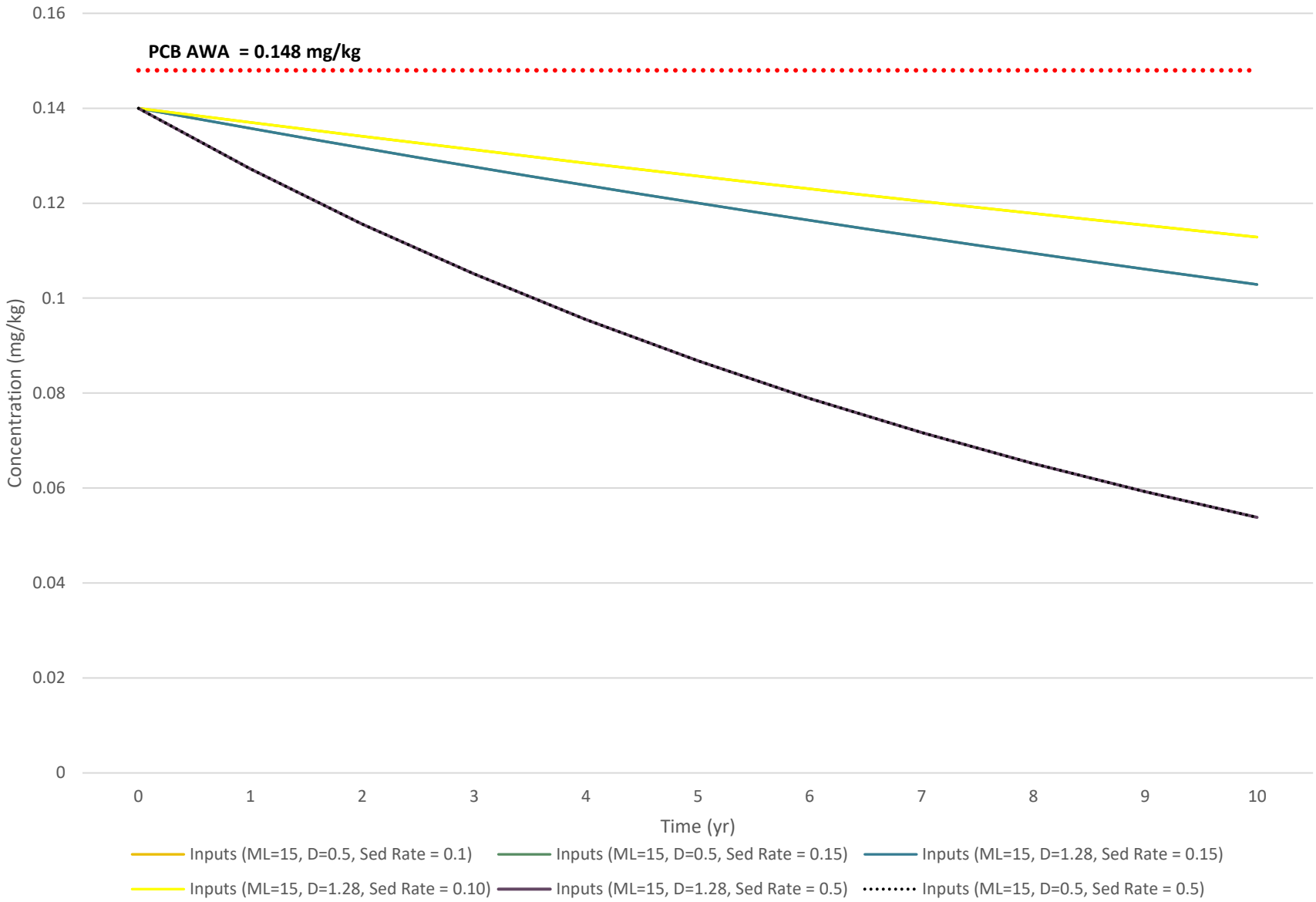
		Alternative 0		Dredge & Cap Only Alteri		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AV		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.102175	0.14299682	72.9983776	0.13999689	100.77176
1	mg/kg	0.28173273	115.863467	0.12996079	66.5443492	0.12723435	91.8615873
2	mg/kg	0.25604873	105.618656	0.1181132	60.661084	0.11563532	83.7393872
3	mg/kg	0.23270623	96.2798465	0.1073457	55.2981066	0.10509372	76.3354755
4	mg/kg	0.21149177	87.7669168	0.09755983	50.4094051	0.09551315	69.5863302
5	mg/kg	0.19221134	80.0068297	0.0886661	45.9530369	0.08680601	63.4340468
6	mg/kg	0.17468863	72.9330074	0.08058317	41.8907685	0.07889266	57.8258419
7	mg/kg	0.15876339	66.48476	0.07323713	38.1877476	0.07170073	52.7135996
8	mg/kg	0.14428999	60.6067646	0.0665608	34.8122041	0.06516447	48.0534595
9	mg/kg	0.13113606	55.248591	0.06049312	31.7351775	0.05922408	43.8054399
10	mg/kg	0.11918133	50.3642684	0.0549786	28.9302683	0.05382526	39.9330946

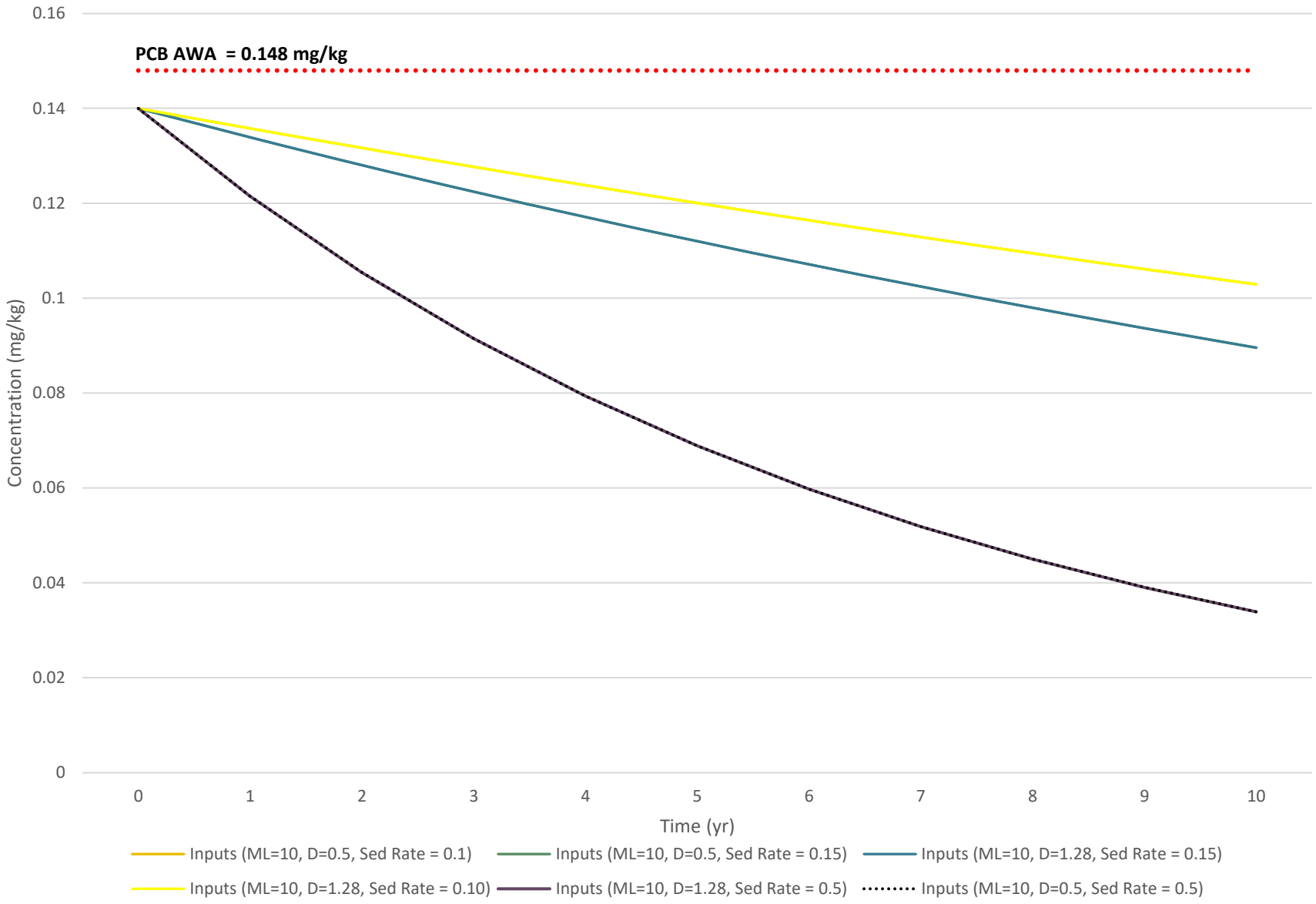
Inputs (ML=15, D=0.5, Sed Rate = 0.5)	
Porosity, *p* (cm^3/cm^3)	0.64
Mixing Layer, *ML* (cm)	15.0
Density, *d* (g/cm^3)	0.500
Rate Constant - PCBs, *k* (yr^{-1})	0.003
Rate Constant - metals, *k* (yr^{-1})	0.0
sedimentation rate (cm/yr)	0.50

		Alternative 0		Dredge & Cap Only Alterr		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AW		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
Co	mg	979173	401476887	451683	230579542	442207	318307162
Cp	mg	35	146069	35	146069	35	146069
t=	**C(t)**						
0	mg	979173.399	401476887	451683.213	230579542	442207.342	318307162
1	mg	889909.411	365985117	410508.287	210201113	401896.29	290170523
2	mg	808783.246	333632069	373087.105	191624854	365260.228	264522153
3	mg	735053.011	304140168	339077.455	174691390	331964.122	241142002
4	mg	668044.452	277256390	308168.322	159255440	301703.481	219829479
5	mg	607144.781	252750085	280077.044	145184571	274201.576	200401734
6	mg	551797.078	230410999	254546.73	132358063	249206.903	182692084
7	mg	501495.191	210047474	231343.907	120665869	226490.89	166548592
8	mg	455779.116	191484802	210256.389	110007677	205845.801	151832752
9	mg	414230.783	174563724	191091.33	100292044	187082.837	138418310
10	mg	376470.237	159139064	173673.469	91435614.8	170030.414	126190177

		Alternative 0		Dredge & Cap Only Alterr		Alternative 0+EMNR	
		Dredge & Cap (EE/CA AW		Dredge & Cap (AWA = 14		Dredge & Cap + EMNR (AWA = 140 ug/kg)	
		PCBs	Lead	PCBs	Lead	PCBs	Lead
	Units						
t=	**C(t)**						
0	mg/kg	0.30999311	127.102175	0.14299682	72.9983776	0.13999689	100.77176
1	mg/kg	0.28173333	115.865959	0.12996139	66.5468412	0.12723495	91.8640794
2	mg/kg	0.25604988	105.623419	0.11811435	60.6658478	0.11563647	83.744151
3	mg/kg	0.23270788	96.2866811	0.10734736	55.3049411	0.10509537	76.34231
4	mg/kg	0.21149388	87.775639	0.09756194	50.4181273	0.09551526	69.5950524
5	mg/kg	0.19221386	80.0172726	0.08866862	45.9634798	0.08680853	63.4444897
6	mg/kg	0.17469152	72.9450189	0.08058607	41.90278	0.07889555	57.8378533
7	mg/kg	0.15876662	66.4982013	0.07324037	38.201189	0.07170397	52.7270409
8	mg/kg	0.14429353	60.6215094	0.06656434	34.8269488	0.06516801	48.0682042
9	mg/kg	0.13113989	55.2645238	0.06049694	31.7511103	0.05922791	43.8213727
10	mg/kg	0.11918541	50.3812843	0.05498268	28.9472842	0.05382934	39.9501105


PCB AWA = 0.148 mg/kg
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Concentration (mg/kg)
0
1
2
3
4
5
6
7
8
9
10
Time (yr)
Inputs (ML=22, D=0.5, Sed Rate = 0.1)
Inputs (ML=22, D=0.5, Sed Rate = 0.15)
Inputs (ML=22, D=1.28, Sed Rate = 0.15)
Inputs (ML=22, D=1.28, Sed Rate = 0.10)
Inputs (ML=22, D=1.28, Sed Rate = 0.5)
Inputs (ML=22, D=0.5, Sed Rate = 0.5)


PCB AWA = 0.148 mg/kg
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Concentration (mg/kg)
0
1
2
3
4
5
6
7
8
9
10
Time (yr)
Inputs (ML=15, D=0.5, Sed Rate = 0.1)
Inputs (ML=15, D=0.5, Sed Rate = 0.15)
Inputs (ML=15, D=1.28, Sed Rate = 0.15)
Inputs (ML=15, D=1.28, Sed Rate = 0.10)
Inputs (ML=15, D=1.28, Sed Rate = 0.5)
Inputs (ML=15, D=0.5, Sed Rate = 0.5)


PCB AWA = 0.148 mg/kg
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Concentration (mg/kg)
0
1
2
3
4
5
6
7
8
9
10
Time (yr)
Inputs (ML=10, D=0.5, Sed Rate = 0.1)
Inputs (ML=10, D=0.5, Sed Rate = 0.15)
Inputs (ML=10, D=1.28, Sed Rate = 0.15)
Inputs (ML=10, D=1.28, Sed Rate = 0.10)
Inputs (ML=10, D=1.28, Sed Rate = 0.5)
Inputs (ML=10, D=0.5, Sed Rate = 0.5)

Appendix C
Cost Estimates

Cost Estimate for Alternative 0

Item Description	EECA 2013 Cost Estimate (EECA App G-8) Comment	Unit	Quantity	Unit Cost	Cost	EE/CA Reference	TIG/Integral Revised Cost Estimate Change in Dredge/Cap Volume Impacts Costs (Y/N)	Comment	Unit	Quantity (Alt 0)	Unit Cost (Alt 0)	Cost (Alt 0)	TIG/Integral Reference(s)	Change / Description	Alt 0 vs EECA Costs % Difference	$ difference Red font = increased price Black font = decreased price
Capital Cost																
Institutional Controls		Each	1	$25,000.00	$25,000	Engineer's estimate	N		Each	1	$25,000.00	$25,000	same as eeca		0%	$0
Subtotal					**$25,000**							**$25,000**			0%	$0
Preconstruction/Site Preparation																
Surveying Crew	assume availability of the crew during mobilization/demobilization for pre- and post-construction surveys and during excavation/capping.	Day	42	$1,889.31	$79,351	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.Crew A-7	Y	assume availability of the crew during mobilization/demobilization for pre- and post-construction surveys and during excavation/capping.	Day	46	$2,636.51	$121,279	Total O&P, 3 person crew (A7) RS Means Line number 017123131200	Added 4 days survey crew for additional excavate/cap duration	53%	$41,928
Cut and Chip Trees	Trees to 6" dia.; assume 1 acre for haul roads and one acre for staging areas	Acre	2	$4,625.00	$9,250	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 11 10.10-0020	N	Trees to 6" dia.; assume 1 acre for haul roads and one acre for staging areas	Acre	2	$4,882.70	$9,765	2018 RS Means Line number 311110100020		6%	$515
Grub Stumps and Remove	Trees to 6" dia.; assume 1 acre for haul roads and one acre for staging areas	Acre	2	$2,050.00	$4,100	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 11 10.10-0150	N	Trees to 6" dia.; assume 1 acre for haul roads and one acre for staging areas	Acre	2	$2,009.00	$4,018	2018 RS Means Line number 311110100150		-2%	$82
Strip topsoil and Stockpile	200 HP Dozer, adverse conditions; Assume top 6" would be stripped and stockpiled for disposal	CY	1614	$0.98	$1,582	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 14 13.23 0020	N	200 HP Dozer, adverse conditions; Assume top 6" would be stripped and stockpiled for disposal	CY	1614	$0.93	$1,501	2018 RS Means Line number 311413230020		-5%	$81
Crushed Stone for establishing haul roads and staging areas	Assume 6" layer of Crushed Stone, spread with 200 HP Dozer, no compaction, 2 mi. RT haul	CY	1614	$42.00	$67,788	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 05 16.10 0300	N	Assume 6" layer of Crushed Stone, spread with 200 HP Dozer, no compaction, 2 mi. RT haul	CY	1614	$42.53	$68,643	2018 RS Means Line number 310516100300		1%	$855
Compaction	Riding, Vibrating Roller, 6" Lifts, 2 passes	CY	1614	$0.45	$726	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 23 23.23 5000	N	Riding, Vibrating Roller, 6" Lifts, 2 passes	CY	1614	$0.43	$694	2018 RS Means Line number 312323235000		-4%	$32
Grading	Grading subgrade for base course, roadways.	SY	9680	$0.20	$1,936	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 22 16.10 3300	N	Grading subgrade for base course, roadways.	SY	9680	$0.20	$1,936	2018 RS Means Line number 312216103300		0%	$0
Install Fence	Chain link industrial, 6' H, 6 gauge wire with 3 strands barb wire; around staging area	LF	3000	$30.00	$90,000	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 32 31 13.20-0500	N	Chain link industrial, 6' H, 6 gauge wire with 3 strands barb wire; around staging area	LF	3000	$36.52	$109,560	2018 RS Means Line number 323113200500		22%	$19,560
Gate	Double swing gates, includes posts with 12' opening	Each	2	$1,100.00	$2,200	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 32 31 13.20-5060	N	Double swing gates, includes posts with 12' opening	Each	2	$1,117.88	$2,236	2018 RS Means Line number 323113205060		2%	$36
Signs	Reflectorized 24"x 24" sign mounted to fence	Each	4	$130.00	$520	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.10 14 53.20-0100; increase by 50% for text customization	N	Reflectorized 24"x 24" sign mounted to fence	Each	4	$216.20	$865	2018 RS Means Line number 101453200100 (increase by 50% for custom text per EECA)		66%	$345
Office Trailer Rental	Office trailer, furnished, rent per month, 50' x 12' excl. hookups. + air conditioning. Assume 6 month rental	MO	6	$425.50	$2,553	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.01 52 13.20 0550	N	Office trailer, furnished, rent per month, 50' x 12' excl. hookups. + air conditioning. Assume 6 month rental	MO	6	$526.19	$3,157	2018 RS Means Line number 015213200550		24%	$604
Office Trailer Delivery	Office trailer, delivery and pickup, assume 40 miles/round trip	MI	40	$11.65	$466	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 01 52 13.20 0800	N	Office trailer, delivery and pickup, assume 40 miles/round trip	MI	40	$14.03	$561	2018 RS Means Line number 015213200800		20%	$95
Trailer Telephone	Field office expense - telephone bill; avg. bill/month, incl. long distance., Assume 6 month rental	MO	6	$89.00	$534	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 01 52 13.40 0140	N	Field office expense - telephone bill; avg. bill/month, incl. long distance., Assume 6 month rental	MO	6	$100.45	$603	2018 RS Means Line number 015213200800		13%	$69
Lights and HVAC	Field office expense - field office lights & HVAC., Assume 6 month rental	MO	6	$167.00	$1,002	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.01 52 13.40 0160	N	Field office expense - field office lights & HVAC., Assume 6 month rental	MO	6	$188.15	$1,129	2018 RS Means Line number 015213400160		13%	$127
Sanitary Facilities	Rent toilet, portable, chemical, Assume 6 month rental	MO	6	$183.00	$1,098	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 01 54 33.40 6410 (Construction Aids)	N	Rent toilet, portable, chemical, Assume 6 month rental	MO	6	$217.21	$1,303	2018 RS Means Line number 015433406410		19%	$205
Three Phase power supply	Assume cost for setting up electrical service to operate equipment to be around $20,000	LS	1	$20,000.00	$20,000	Engineer's Estimate	N	Assume cost for setting up electrical service to operate equipment to be around $20,000	LS	1	$20,000.00	$20,000	retained EECA estimate		0%	$0
Utility Cost during Project activities	Assume $15,000	LS	1	$15,000.00	$15,000	Engineer's Estimate	N	Assume $15,000	LS	1	$15,000.00	$15,000	retained EECA estimate		0%	$0
Bank Treatment Debris Removal	Cost for removing debris located along the Slough banks. Assume 1 Gradall, 3 ton, 1 CY, 1 Equipment Operator, 4 laborers	Day	5	$3,448.20	$17,241	2013 RSMeans Site Work and Landscape Cost Data Crew B-12 K + 3 laborers	Y	Cost for removing debris located along the Slough banks. Assume 1 Gradall, 3 ton, 1 CY, 1 Equipment Operator, 4 laborers	Day	6	$3,269.00	$19,614	Excavator (1cy) RS Means 2018 Line item 312316130600, B-12K crew (6.38 per CY, assumes 400 CY per line item below) plus 3x Gen purpose laborer = 2018 RS Means Line item 013113200160 ($1,195/wk)	Add 1 day for Alt 0	14%	$2,373
Bank Treatment Transport Debris to Staging Area	Assume 50 truck loads of debris will be removed from banks. 8 C.Y. truck, 15 MPH ave, cycle 1 mile, 30 min wait/Ld./ Uld.	CY	400	$7.55	$3,020	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 23 23.20-0414	Y	Assume 50 truck loads of debris will be removed from banks. 8 C.Y. truck, 15 MPH ave, cycle 1 mile, 30 min wait/Ld./ Uld.	CY	400	$7.61	$3,044	2018 RS Means Line number 312323200414		1%	$24
Transportation of Collected Debris	Debris removed for staging area/access road construction and other Debris. Dump truck transport from Yosemite Slough to Landfill; incl taxes and fees	Ton	3,021	$50.00	$151,050	Engineer's Estimate	Y	Debris removed for staging area/access road construction and other Debris. Dump truck transport from Yosemite Slough to Landfill; incl taxes and fees	Ton	3323	$63.82	$212,080	Low ($55) from T-117 EECA (includes T&D) ($63.82) from Potrero FS (includes T&D) High ($99.90) from UG FFS (includes T&D)	Increase by 10% due to additional Bank for Alt 0	40%	$61,030
Disposal of Collected Debris	Debris removed for staging area/access road construction and other Debris. Disposal at Landfill; incl taxes and fees	Ton	3,021	$50.00	$151,050	Engineer's Estimate	Y	Debris removed for staging area/access road construction and other Debris. Disposal at Landfill; incl taxes and fees	Ton	3323			Separate costs for transport and disposal as outlined in original EECA cost estimate not supported, combined T&D into single line item.	Increase by 10% due to additional Bank for Alt 0	-100%	$151,050
Bank Treatment Backfill	Assume 1-1/2" crushed stone will be used to fill in depressions that could potentially could form during excavation activities. Assume 500 CY of fill, includes cost for spreading, 2 mi RT Haul	LCY	500	$42.00	$21,000	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 05 16.10 0300	Y	Assume 1-1/2" crushed stone will be used to fill in depressions that could potentially form during excavation activities. Assume 500 CY of fill, includes cost for spreading, 2 mi RT Haul	LCY	550	$42.53	$23,392	2018 RS Means Line number 31051610300	Increase by 10% due to additional Bank for Alt 0	11%	$2,392
Erosion and Sediment Controls - Jute Mesh	Includes Jute Mesh 100 SY per roll, 4' wide, stapled	SY	9,680	$2.06	$19,941	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 25 14.16 0020	Y	Includes Jute Mesh 100 SY per roll, 4' wide, stapled	SY	10648	$1.70	$18,102	2018 RS Means Line number 312514160020	Increase by 10% due to additional Bank for Alt 0	-9%	$1,839
Erosion and Sediment Control - Silt Fence & Hay Bales	Includes Silt Fence, polypropylene, 3' high, adverse conditions & Hay Bales, staked	LF	3,000	$11.75	$35,250	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 25 14.16 1100 + 1250	Y	Includes Silt Fence, polypropylene, 3' high, adverse conditions & Hay Bales, staked	LF	3300	$7.84	$25,872	2018 RS Means Line numbers 312514161000+1250	Increase by 10% due to additional Bank for Alt 0	-27%	$9,378
Subtotal					**$696,700**							**$664,400**			-5%	$32,300

Cost Estimate for Alternative 0

Item Description	EECA 2013 Cost Estimate (EECA App G-8) Comment	Unit	Quantity	Unit Cost	Cost	EE/CA Reference	TIG/Integral Revised Cost Estimate Change in Dredge/Cap Volume Impacts Costs (Y/N)	Comment	Unit	Quantity (Alt 0)	Unit Cost (Alt 0)	Cost (Alt 0)	TIG/Integral Reference(s)	Change / Description	Alt 0 vs EECA Costs % Difference	$ difference Red font = increased price Black font = decreased price
Health and Safety																
Health and Safety Plan	Prepare Site-specific health and safety plan as well as prepare community notification documents	Each	1	$10,000.00	$10,000	Engineer's Estimate	N	Prepare Site-specific health and safety plan as well as prepare community notification documents	Each	1	$10,000.00	$10,000	retained EECA estimate		0%	$0
Construct Decontamination Pad & Containment	For equipment and personnel, Assume 4 setups will be needed.	Setups	5	$5,000.00	$25,000	Engineer's Estimate	N	For equipment and personnel, Assume 4 setups will be needed.	Setups	5	$5,000.00	$25,000	retained EECA estimate		0%	$0
Water Supply for Decontamination	Assume daily water need for decontamination process is 5,000 gallons/setup.	100 CF	1,390	$5.10	$7,091	2012 costs from the San Francisco Public Utilities Commission. Water price of $5.10 per 100 CF.	N	Assume daily water need for decontamination process is 5,000 gallons/setup.	100 CF	1390	$9.17	$12,746	2017 costs from SFPUC. Water price of $9.17 per Ccf, builders and contractors		80%	$5,655
Community/Exclusion Zone Air Monitoring	Particulate meter purchase (Qty 4)	Each	4	$7,200.00	$28,800	Industrial Environmental Monitoring Instruments, http://www.ierents.com/ as of January 2012	N	Particulate meter rental (Qty 4)	2 months	4	$2,570.00	$10,280	Met One E-Sampler plus tripod rental for 2 month period.		-64%	$18,520
Site Safety Officer	10 hrs./day, 5days/wk., $100/hr.; 100% of project duration	man weeks	11	$5,000.00	$55,000	Engineer's Estimate	N	10 hrs./day, 5days/wk., $100/hr.; 100% of project duration	man weeks	11	$5,000.00	$55,000	retained EECA estimate		0%	$0
Subtotal					**$125,900**							**$113,100**			-10%	$12,800
Construction Mob/Demob																
Construction Oversight	10 hrs./day, 5days/wk., $100/hr.; 100% of project duration	man weeks	11	$5,000.00	$55,000	Engineer's Estimate	Y	10 hrs./day, 5days/wk., $100/hr.; 100% of project duration	man weeks	12	$5,000.00	$60,000	retained EECA estimate	Increase based on duration	9%	$5,000
Pre-Construction Safety Meeting	Pre-Construction safety meeting for all equipment operators and other personnel on the job. Assume 20 people will attend for 8 hours at $125/hour	Each	20	$1,000.00	$20,000	Engineer's Estimate	N	Pre-Construction safety meeting for all equipment operators and other personnel on the job. Assume 20 people will attend for 8 hours at $125/hour	Each	20	$1,000.00	$20,000	(Same as eeca) Pre-Construction safety meeting for all equipment operators and other personnel on the job. Assume 20 people will attend for 8 hours at $125/hour		0%	$0
Mobilization for Dry Excavation Equipment	Up to 25 mile haul distance; 3 loader, 1 forklift, 2 excav., 1 grader, 1 paver, and 2 Trucks above 150 H.P.,	Each	10	$505.00	$5,050	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 01 54 36.50-0100	N	Up to 25 mile haul distance; 3 loader, 1 forklift, 2 excav., 1 grader, 1 paver, and 2 Trucks above 150 H.P.,	Each	10	$369.71	$3,697	2018 RS Means Line number 015436501300		-27%	$1,353
Demobilization for Dry Excavation Equipment	Up to 25 mile haul distance; 3 loader, 1 forklift, 2 excav., 1 grader, 1 paver, and 2 Trucks above 150 H.P.,	Each	10	$505.00	$5,050	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 01 54 36.50-0100	N	Up to 25 mile haul distance; 3 loader, 1 forklift, 2 excav., 1 grader, 1 paver, and 2 Trucks above 150 H.P.,	Each	10	$369.71	$3,697	2018 RS Means Line number 015436501300		-27%	$1,353
Mob/dmob for Overwater Equipment	--	--	--	$0.00	$0	--	N	Mob/Demob of overwater equipment	LS	1	$300,000	$300,000	Not included in EECA, but based on PGE Potrero and UH FFS cost estimates mob/demob of overwater related equipment is not insignificant. Possible range of $265k (UH) to $400K (Potrero)		100%	
Subtotal					**$85,100**							**$387,400**			355%	$302,300
Hydraulic/Turbidity Controls																
Hydraulic/Turbidity Controls	Assume uniform $1,000,000 placeholder for all alternatives	LS	1	$1,000,000	$1,000,000	Engineer's Estimate	Y	$1,000,000 placeholder should be bumped to $1,200,000 for size and duration	LS	1	$1,200,000	$1,200,000	Engineer's Estimate, based on Potrero FS PortoDam ($635/LF) and silt curtain ($870,000 LS) cost data, with reasonable upper and lower factor. The length of the PortoDam would be approximately 300 LF (lengthwise at mouth of slough) or a high of 1,600 LF (from head of the slough to mouth). Rounded to $1.2M		20%	$200,000
Water Quality Monitoring	--	--	--	$0.00	$0	--	N	Water Quality Monitoring for turbidity, PCBs and lead	LS	1	$200,000	$200,000	Engineer's Estimate based on BPJ and UH FFS detailed estimate ($170,000)	Line item added	100%	$200,000
Subtotal					**$1,000,000**							**$1,400,000**			40%	$400,000
Contaminated Sediment Removal (Sediment Excavation, Transport, and Stockpiling)																
Timber Crane Mats for Slough Access	Cost for timber mat material. Assume the Yosemite Slough width is 300 ft., the number of pieces of Mat needed to cross the Slough is: 300 ft./4ft =75. Assume 200 mats needed for the entire project.	Each	200	$785.00	$157,000	The Mat Source: http://www.thematsource.com/mat-inventory/timber-mats.html. Douglas Fir Crane Mats (12 in *4 ft. * 20 ft.), each mat consists of 4 timbers. Accessed in June 2012	Y	Cost for timber mat material. Assume the Yosemite Slough width is 300 ft., the number of pieces of Mat needed to cross the Slough is: 300 ft./4ft =75. Assume 200 mats needed for the entire project.	Each	200	$871.35	$174,270	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		11%	$17,270
Timber Crane Mats Relocation	Backhoe Loader, 80 HP, 1 equipment operator and 2 laborers. For adjusting and relocating timber mats as needed during the project duration	Day	37	$1,888.04	$69,857	2013 RSMeans Site Work and Landscape Cost Data Crew B-11 M plus one additional laborer	Y	Backhoe Loader, 80 HP, 1 equipment operator and 2 laborers. For adjusting and relocating timber mats as needed during the project duration	Day	41	$1,717.00	$70,397	Backhoe (48HP with operator) 2018 RSMeans line item 024210209030 ($1,239/day) plus 2x Gen purpose laborer = 2018 RS Means Line item 013113200160 ($1,195/wk)	Increase duration of moving mats due to additional acreage for alternative	1%	$540
Excavation of Sediment	Excavator, hydraulic, 2 CY bucket = 165 CY/hr. Assume 5 % of the volume removed would be debris.	BCY	9,939	$45.00	$447,255	Engineer's Estimate	Y	Excavator, hydraulic, 2 CY bucket = 165 CY/hr. Assume 5 % of the volume removed would be debris.	BCY	11234	$70	$786,380	Engineer's Estimate. Comparing to LPR at $58/yd (2010) and Boeing Plant 2 at $67/cy (2013-2015) the assumed unit rate of $70 is reasonable. With reasonable upper and lower factor	Increase vol per SWAC est for Alt	76%	$339,125
Loading sediment onto trucks	add 15% to excavation costs	BCY	9,939	$6.75	$67,088	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 23 16.42-0020	Y	Transfer DM from barge to truck, including overwater transfer.	BCY	11234	$25	$280,850	Based on Potrero FS, transport, offload, and dewater to berth from barge was estimated at $25/CY. With reasonable upper and lower factor	Increase vol per SWAC est for Alt	319%	$213,762
Add long reach boom/arm for excavator	add 50% of the excavator costs	BCY	9,939	$22.50	$223,628	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 23 16.42-4250	--	add 50% of the excavator costs (Remove Line Item.)	BCY	0	$0.00	$0	Line Item to be removed /excluded		-100%	$223,628
Transport Sediment to Stockpile (staging area)	8 C.Y. truck, 15 MPH ave, cycle 1 mile, 30 min wait/Ld./ Uld.	LCY	11,430	$7.55	$86,295	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 23 23.20-0414	Y	8 C.Y. truck, 15 MPH ave, cycle 1 mile, 30 min wait/Ld./ Uld.	LCY	12919	$7.61	$98,314	2018 RS means Line number 312323200414	Based on 15% expansion factor for BCY to LCY	14%	$12,019
Stockpiling of Dredged Sediment	1 F.E. Loaders, Wheel Mounted, 2.5 CY capacity, 1 operator and laborer, available onsite full time during excavation, capping, restoration and demobilization activities.	Day	42	$1,371.22	$57,591	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.Crew B-10T	Y	1 F.E. Loaders, Wheel Mounted, 2.5 CY capacity, 1 operator and laborer, available onsite full time during excavation, capping, restoration and demobilization activities.	Day	46	$1,010.00	$46,460	F.E. Loader, 2.5CY = 2018 RS Means Line item 015433204710 ($4,772/mn plus $1,591/wk; 532/day) Gen purpose laborer = 2018 RS Means Line item 013113200160 ($1,195/wk)	additional active duration (4 additional days vs EECA	-19%	$11,131
Line Item - Sediment Dewatering	including debris removal, generator, shakers, belt press, and polymer dosage. Assumed Dewatering for mechanical and hydraulic dredging activities are equal.	LCY	11,430	$63.00	$720,081	2012 Vendor quote provided by JND Thomas Co., Inc. provided for Hydraulic dredging.	Y	Including equipment and operations for debris removal, barge dewatering, and upland dewatering/polymer dosage.	LCY	12919	$78.00	$1,007,690	Engineer's Estimate (TBD)	Based on 15% expansion factor for BCY to LCY	40%	$287,609
Subtotal					**$1,828,800**							**$2,464,400**			35%	$635,600

Cost Estimate for Alternative 0

Item Description	EECA 2013 Cost Estimate (EECA App G-8) Comment	Unit	Quantity	Unit Cost	Cost	EE/CA Reference	TIG/Integral Revised Cost Estimate Change in Dredge/Cap Volume Impacts Costs (Y/N)	Comment	Unit	Quantity (Alt 0)	Unit Cost (Alt 0)	Cost (Alt 0)	TIG/Integral Reference(s)	Change / Description	Alt 0 vs EECA Costs % Difference	$ difference Red font = increased price Black font = decreased price
Sediment Stabilization for Lead																
Sediment Stabilization	EnviroBlend CS, 1-3% wt./wt. dosage, 2000 # Supersacks, material only	Ton	135	$285.00	$38,475	2012 Vendor Quote from Premier Chemicals LLC.	Y	EnviroBlend CS, 1-3% wt./wt. dosage, 2000 # Supersacks, material only	Ton	153	$316.35	$48,259	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA	13% increase based on additional volume	25%	$9,784
Transportation Costs	Freight Costs, $1,300/22 sacks	Ton	135	$59.09	$7,977	2012 Vendor Quote from Premier Chemicals LLC.	Y	Freight Costs, $1,300/22 sacks	Ton	153	$65.59	$10,006	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		25%	$2,029
ForkLift Rental	Assume Forklift rental for one day when the material would be delivered onsite	Day	1	$1,117.24	$1,117	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.Crew A-3P	N	Assume Forklift rental for one day when the material would be delivered onsite	Day	1	$1,387.32	$1,387	2018 RS Means Line item number 015416500100 (weekly use divided by 5)		24%	$270
Mixing Sediment with the product	Front End Loader, 5 CY bucket	LCY	3,450	$1.94	$6,693	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.312316.42-1350	Y	Front End Loader, 5 CY bucket	LCY	4485	$1.83	$8,208	2018 RS Means Line number 312316421350	Increase of 13% based on additional sediment volume	23%	$1,515
Characterization Sampling of Treated Sediment	Assume 1 sample required per 100 LCY. Includes TCLP, STLC, TTLC tests metals and PCBs	Each	35	$1,000.00	$35,000	Engineer's Estimate	Y	Assume 1 sample required per 100 LCY. Includes TCLP, STLC, TTLC tests metals and PCBs	Each	45	$775.00	$34,759	Assumes 1 sampler per 100 LCY, includes typical IDW and disposal tests at current rates from Test America		-1%	$241
Subtotal					**$89,300**							**$102,700**			15%	$13,400
Transportation and Disposal of sediment																
Characterization Sampling of Dewatered Sediment	Assume 1 sample required per 500 LCY. Includes analysis for metals and PCBs	Each	23	$1,000.00	$23,000	Engineer's Estimate	Y	Assume 1 sample required per 500 LCY. Includes analysis for metals and PCBs	Each	26	$775.00	$20,025	Assumes 1 sampler reqd per 500 LCY. Includes analysis for Metals, PCBs + other typically disposal required tests	increase due to volume dredge sediment	-13%	$2,975
Loading Sediment onto Trucks	Front End Loader, 5 CY bucket, Assumed Loading will occur during the excavation and capping activities.	Day	32	$1,954.00	$62,528	2012 RSMeans Site Work and Landscape Cost Data 31st Ed. Crew B-10U	Y	Front End Loader, 5 CY bucket, Assumed Loading will occur during the excavation and capping activities.	Day	36	$1,800.21	$64,808	RSMeans Line item number 015433204760 (5cy front end loader [$1020/day)) plus 2 laborer crew Gen purpose laborer = 2018 RS Means Line item 013113200160 ($1,1950/wk)	Increase duration of loading due to excavate/cap duration	4%	$2,280
Transportation & Disposal of Non-Hazardous Waste	Dump truck transport from Yosemite Slough to Landfill; incl taxes and fees	Ton	14,909	$50.00	$745,425	Engineer's Estimate	Y	Dump truck transport from Yosemite Slough to Landfill; incl taxes and fees	Ton	16851	$63.82	$1,075,431	Lowest comparable estimate ($55) from T-117 EECA (includes T&D) Mid-range comparable estimate ($63.82) from Potrero FS (includes T&D) High end comparable estimate ($99.90) from UG FFS (includes T&D)		44%	$330,006
Transportation and Disposal of Hazardous Waste	Disposal at Landfill; incl taxes and fees	Ton	14,909	$50.00	$745,425	Engineer's Estimate	Y	Disposal at Landfill; incl taxes and fees	Ton	1685	$166.88	$281,201	Higher T&D for Haz Waste included as line item	New line item added.	--	$464,224
Subtotal					**$1,576,400**							**$1,441,500**			-9%	$134,900
Treatment of Dewatering Process Water																
FRAC Tank Rental; for "holding tank" of water	6 x 21,000 Tank with Cleaning	Day	52	$1,200.00	$62,400	Engineer's Estimate	Y	6 x 21,000 Tank with Cleaning	Day	56	$1,332.00	$74,592	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		20%	$12,192
Rain for Rent dewatering process water treatment system mobilization	process involves a settling tank, sand filtration, bag filter, carbon filter, resins/Organoclay, holding tank for testing	Each	1	$75,000.00	$75,000	Oakley Rain for Rent Quote from Tony DeBellis (2012)	N	process involves a settling tank, sand filtration, bag filter, carbon filter, resins/Organoclay, holding tank for testing	Each	1	$83,250.00	$83,250	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		11%	$8,250
Rain for Rent dewatering process water treatment system spent media disposal and replacement	cost is 125% of cost for mobilization for each media replacement	Each	1	$93,750.00	$93,750	Oakley Rain for Rent Quote from Tony DeBellis (2012)	Y	cost is 125% of cost for mobilization for each media replacement	Each	1	$104,062.50	$104,063	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		11%	$10,313
Treatment System Operations	One operator	Day	52	$574.00	$29,848	2013 RSMeans Site Work and Landscape Cost Data One Equip. Oper. (med)	Y	One operator	Day	56	$666.00	$37,296	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		25%	$7,448
Characterization/Monitoring Sampling of Dewatering Process Water	Including pH, TDS, TSS, COD, Metals, PCBs. Assume one sample is needed every 10000 CF of processed water.	Each	63	$1,000.00	$63,000	Engineer's Estimate	N	Including pH, TDS, TSS, COD, Metals, PCBs. Assume one sample is needed every 10000 CF of processed water.	Each	71	$750.00	$53,393	Assumes 1 sampler per 10000 CF of processed water for pH, TDS, TSS, COD, metals and PCBs. Tests based on recent TA prices for project		-15%	$9,608
Combined Water Treatment and Monitoring							N		Lump	1	$398,430.09	$398,430	Lump sum based on above line items, adjusted based on additional volume.	Increase based on additional volume of sed (13%)		
Subtotal					**$324,000**							**$398,430**			23%	$74,430
Discharge of Dewatering Process Water to SFPUC																
Permit Fee		Each	1	$1,000.00	$1,000	Engineer's Estimate	N		Each	1	$1,000.00	$1,000	Assume same as EECA		0%	$0
Batch Discharge to SFPUC	Sewer service charge is per 100 cubic feet discharged	100 CF	6,238	$6.56	$40,923	2012 costs from the San Francisco Public Utilities Commission. Water price of $6.55 per 100 CF.	Y	Sewer service charge is per 100 cubic feet discharged	100 CF	7049	$7.84	$55,264	Based on SFPUC 2017 rates (base rate of $7.664 per Ccf, additional charge for COD, TSS, and O&G per lb [$0.548, $1.033, and $1.082 respectively])		35%	$14,341
Subtotal					**$42,000**							**$56,300**			34%	$14,300
Capping																
Capping Material Purchase and Transportation	Assume the amount of material needed is equal to the amount sediment removed. Assume material is 1.5 ton/CY based on data from the Geotechnical Study	Ton	14,909	$50.00	$745,425	Engineer's Estimate. Source of material has not been identified at this time.	Y	Assume the amount of material needed is 30% greater than the amount sediment removed. Assume material is 1.5 ton/CY based on data from the Geotechnical Study	CY	14604	$30	$438,126	Engineer's Estimate - Based on $45/CY West Basin 2012 (CCSF) contractor Bid Mod for Sediment Trap clamshell dredge and barge placement of 3' sand cap and Boeing Plant 2 actual cost of $80/CY; assume combined estimate is $80/CY to supply and place a 2' engineered sand cap	Increase based on excavated volume of sediment	-41%	$307,299
Excavator for Installation of Cap material	Excavator, hydraulic, 2 CY bucket	LCY	11,430	$40.00	$457,194	Engineer's Estimate.	Y	Excavator, hydraulic, 2 CY bucket	CY	14604	$50	$730,210		Increase based on excavated volume of sediment	60%	$273,016
Add long reach boom/arm for excavator	add 50% of the excavator costs	LCY	11,430	$20.00	$228,597	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 23 16.42-4250	--	Not included in updated Cost Estimate, current approach negates need for excavator long reach arm	LCY	11430	--	$0	Not included.	not included	-100%	$228,597
Subtotal					**$1,431,300**							**$1,168,400**			-18%	$262,900

Cost Estimate for Alternative 0

Item Description	EECA 2013 Cost Estimate (EECA App G-8) Comment	Unit	Quantity	Unit Cost	Cost	EE/CA Reference	TIG/Integral Revised Cost Estimate Change in Dredge/Cap Volume Impacts Costs (Y/N)	Comment	Unit	Quantity (Alt 0)	Unit Cost (Alt 0)	Cost (Alt 0)	TIG/Integral Reference(s)	Change / Description	Alt 0 vs EECA Costs % Difference	$ difference Red font = increased price Black font = decreased price
Enhanced Natural Recovery																
Material Purchase and Transportation	Not Included in EE/CA but possible in light of Pre-Design Studies completed to date.	N/A	N/A	N/A	N/A	N/A	Y	Assume material is 1.5 ton/CY based on data from the Geotechnical Study	CY	0	$30	$0	Total slough area is 414K sq ft (EECA Section 2). Capped area excluded. Remaining area may require additional treatment via EMNR. Cost items included as placeholders.		--	#VALUE!
Excavator for installation of material	Excavator, hydraulic, 2 CY bucket	NA	NA	NA	NA	NA	Y	Excavator, hydraulic, 2 CY bucket	CY	0	$50	$0			--	#VALUE!
Amend Material							Y		LCY	0	$150.00	$0			--	
Subtotal					**$0**							**$0**			--	$0
Lease Staging Area																
Lease Staging Area	Not included in EE/CA.	Month	2	$0.00	$0	N/A	Y	Staging area land lease costs need to be accounted for; required lease are is 13 acre.	Month	3.0	$ 56,625	$169,875	PGE Potrero PP FS includes line item lease cost of $22,651/month for 2 ac of land, roughly $11,325 per acre per month. EE/CA states ~13 ac available for staging, assume min cost for $11K per acre for 2 acre and max cost of $11K for 13 acres.		100%	$169,875
Subtotal					**$0**							**$169,900**			#DIV/0!	$169,900
Post Construction Costs																
Site Restoration for Staging Area/Access Roads	grading of access roads and staging area for paving	Day	2	$1,266.02	$2,532	2013 RSMeans Site Work and Landscape Cost Data Crew B-10L - 0.5 laborer	N	grading of access roads and staging area for paving	Day	2	$1,292.18	$2,584	2018 RS Means Line item 312213200210 (B11L rough grader, open site 20K-25K S.F.		2%	$52
Site Restoration for Access road/staging area	Plant-mix Asphalt Paving with binder course 2.5" thick.	SY	9680	$11.30	$109,384	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.32 12 16.13-0130	Y	Plant-mix Asphalt Paving with binder course 2.5" thick.	SY	9680	$13.88	$134,358	RSMeans Line Number 321216130130		23%	$24,974
Site Restoration for Staging Area	Plant-mix Asphalt Paving with wearing course 2.5" thick.	SY	9680	$12.55	$121,484	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 32 12 16.13-0420	Y	Plant-mix Asphalt Paving with wearing course 2.5" thick.	SY	9680	$15.36	$148,685	RSMeans Line Number 321216130420		22%	$27,201
Project Closeout	Phase II Investigation costs	Each	1	$25,000.00	$25,000	Engineer's Estimate	N	Phase II Investigation costs	Each	1	$27,750.00	$27,750	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		11%	$2,750
Subtotal					**$258,400**							**$313,400**			21%	$55,000
				Capital Costs Subtotal:	**$7,482,900**							**$8,704,930**			16%	$1,222,030
Adjusted Capital Cost Subtotal for San Francisco, CA Location Factor (123.4):					$9,233,900							$8,704,930	Delete this factor, RS means estimate updates account for fact that project to take place in SF, Engineer's Estimate also based on knowledge that the project is to take place in SF.	deleted adjustment factor	-6%	$528,970
10% Legal and Administrative Fees					$923,400							$870,500			-6%	$52,900
20% Contingencies:					$1,846,800							$1,741,000			-6%	$105,800
Predesign Investigations:					$1,000,000	Engineer's Estimate						$2,875,000	Engineer's Estimate		188%	$1,875,000
Construction Management (10% of total capital cost)					$923,400	Engineer's Estimate						$870,500	Engineer's Estimate		-6%	$52,900
Engineering Design (10 % of total capital cost)					$923,400	Engineer's Estimate						$870,500	Engineer's Estimate		-6%	$52,900
				Total Capital Costs in 2013 Dollars:	**$14,851,000**							**$15,932,000**			7%	$1,081,000
Monitored Natural Attenuation																
MNR Costs		LS	1	$236,840.00	$236,840	MNR costs provided by Arcadis (2012)			LS	1	$236,840.00	$236,840	MNR costs provided by Arcadis (2012).		0%	$0
Subtotal					$236,840							$236,840			0%	$0
Adjusted Capital Cost Subtotal for San Francisco, CA Location Factor (123.4):					$292,261							$236,840	Delete this adjustment factor per above.	deleted adjustment factor	-19%	$55,421
				10% Legal and Administrative Fees	$29,226							$23,684			-19%	$5,542
				20% Contingencies:	$58,452							$47,368			-19%	$11,084
				Total:	**$380,000**							**$308,000**			-19%	$72,000
																$0
Periodic (5-year) Monitoring for 30 years																
Institutional Controls	Easement, fencing, signs	LS	1	$25,000	$25,000	Engineer's Estimate		Easement, fencing, signs	LS	1	$25,000	$25,000	Engineer's Estimate		0%	$0
Site Monitoring		LS	1	$20,000	$20,000	Engineer's Estimate			LS	1	$20,000	$50,000	Engineer's Estimate		150%	$30,000
Reporting		LS	1	$10,000	$10,000	Engineer's Estimate			LS	1	$10,000	$25,000	Engineer's Estimate		150%	$15,000
5-Year Cost Subtotal:					$55,000							$100,000			82%	$45,000
Adjusted Capital Cost Subtotal for San Francisco, CA Location Factor (123.4):					$67,870							$100,000	Delete this adjustment factor per above	deleted adjustment factor	47%	$32,130
				10% Legal and Administrative Fees	$6,787							$10,000			47%	$3,213
				20% Contingencies:	$13,574							$20,000			47%	$6,426
				5-Year Total:	$88,231							$130,000			47%	$41,769
30-Year Present Worth of Periodic Monitoring Costs:					**$246,000**							**$780,000**			217%	$534,000
				2013 Present Worth Cost:	$15,477,000							$17,020,000			10%	$1,543,000

Cost Estimate for Alternative 0

Item Description	EECA 2013 Cost Estimate (EECA App G-8) Comment	Unit	Quantity	Unit Cost	Cost	EE/CA Reference	TIG/Integral Revised Cost Estimate Change in Dredge/Cap Volume Impacts Costs (Y/N)	Comment	Unit	Quantity (Alt 0)	Unit Cost (Alt 0)	Cost (Alt 0)	TIG/Integral Reference(s)	Change / Description	Alt 0 vs EECA Costs % Difference
EECA 2013 Assumptions								***TIG/Integral Assumptions (Red Font if Different/Updated from EECA***							
1. Volume of Contaminated Material	9,939 BCY, as estimated using the polygon method, E&E, 2013							1. Volume of Contaminated Material	11,234 BCY, as estimated using the polygon method						
2. Volume of Hazardous lead contaminated soil	3000 BCY							2. Volume of Hazardous lead contaminated soil	3900 BCY						
3. Perimeter around staging area	3000 ft							3. Perimeter around staging area	3000 ft						
4. Area available for Staging Area	13 acre							4. Area available for Staging Area	13 acre						
5. Project Duration								5. Project Duration							
Mobilization	5 days							Mobilization	5 days						
Dewatering and Treatment system set up	5 days							Dewatering and Treatment system set up	5 days						
Excavation	16 days							Excavation	18 days						
Capping	16 days							Capping	18 days						
Restoration	5 days							Restoration	5 days						
Demobilization	5 days							Demobilization	5 days						
Total Project Duration	52 days							Total Project Duration	56 days						
6. Dewatering								6. Dewatering							
Volume of water from the sediment (assume that the sediment will only have 30% water, as dewatering activities would have removed most of the water)	80505.9 CF							Volume of water from the sediment (assume that the sediment will only have 30% water, as dewatering activities would have removed most of the water)	90971.78 CF						
Total volume removed/excavation rate of 165 CY/HR. Assume 8 hours per day, 5 days per week, Assume 50% production rate.	404,278 CF							Total volume removed/excavation rate of 165 CY/HR. Assume 8 hours per day, 5 days per week, Assume 50% production rate.	404,278 CF						

Volume of water that would be pumped during dewatering (assume 50 gpm, 24 hours a day during dewatering setup, excavation, capping and restoration)
7. In-Situ Bulk Density assumed for the project is 1.5 Tons/BCY
8. Swell Factor was assumed to be 15%
9. Assume access road preparation will disturb 1 acre and the staging area will disturb 1 acre for a total of 2 acres.
10. After construction activities are completed, the disturbed two acres will require pavement restoration.
11. The surveying crew will be needed for the entire project duration to compete a pre-excavation, post-excavation, and post capping surveys and to assist the excavation crew.
12. The cofferdam needed is 1000' (length) by 36' (depth). Assume that a silt curtain will be in place during the installation and removal of the cofferdam.
13. Assume 5000 gallons of water/decon setup would be needed daily for decontamination purposes. Assume this water will be treated by the dewatering process water treatment facility.
14. Approximately 200 timber crane mats will be needed for the entire project.
15. One sample is needed every 10,000 CF of processed water.
16. The Suspended Solids, Oil/Grease and COD will be removed during the sediment dewatering process.
17. Assume that there is a manhole located onsite discharge of treated dewatering process water.
18. Assume there is a fire hydrant onsite for the supply of decontamination water.
19. Onsite material from access road creation will be used to fill in depressions created by debris removal.
20. Amount of backfill material needed for bank treatment is 1000' bank length x 50' width x 2' depth.
21. Assume 10 truck loads of debris will be removed from banks.
22. Present worth of costs assumes 5% annual interest rate.
23. Unit costs listed were obtained from 2012 RS Means Cost Data and engineering judgement.
24. Institutional Controls at the site are expected to include deed restrictions, informational signs and dissemination of information by the State Parks to the general public.

Volume of water that would be pumped during dewatering (assume 50 gpm, 24 hours a day during dewatering setup, excavation, capping and restoration)
7. In-Situ Bulk Density assumed for the project is 1.5 Tons/BCY
8. Swell Factor was assumed to be 15%
9. Assume access road preparation will disturb 1 acre and the staging area will disturb 1 acre for a total of 2 acres.
10. After construction activities are completed, the disturbed two acres will require pavement restoration.
11. The surveying crew will be needed for the entire project duration to compete a pre-excavation, post-excavation, and post capping surveys and to assist the excavation crew.
12. The cofferdam needed is 1000' (length) by 36' (depth). Assume that a silt curtain will be in place during the installation and removal of the cofferdam.
13. Assume 5000 gallons of water/decon setup would be needed daily for decontamination purposes. Assume this water will be treated by the dewatering process water treatment facility.
14. Approximately 200 timber crane mats will be needed for the entire project.
15. One sample is needed every 10,000 CF of processed water.
16. The Suspended Solids, Oil/Grease and COD will be removed during the sediment dewatering process.
17. Assume that there is a manhole located onsite discharge of treated dewatering process water.
18. Assume there is a fire hydrant onsite for the supply of decontamination water.
19. Onsite material from access road creation will be used to fill in depressions created by debris removal.
20. Amount of backfill material needed for bank treatment is 1000' bank length x 50' width x 2' depth.
21. Assume 10 truck loads of debris will be removed from banks.
~~22. Present worth of costs assumes 5% annual interest rate.~~
23. Unit costs listed were obtained from 2018 RS Means Cost Data and engineering judgement unless otherwise noted in TIG/Integral References Column
24. Institutional Controls at the site are expected to include deed restrictions, informational signs and dissemination of information by the State Parks to the general public.

$ difference
Red font = increased price
Black font = decreased price

Key:
LF = Linear Foot SY = Square Yard
BCY = Bank Cubic Yard LCY = Loose Cubic Yard LS = Lump Sum
LCY = Loose Cubic Yard
LS = Lump Sum
SF = Square Feet CF = Cubic Feet

Cost Estimate for Dredge and Cap with EMNR Alternative

	EECA 2013 Cost Estimate (EECA App G-8)						TIG/Integral Revised Cost Estimate									
Item Description	**Comment**	**Unit**	**Quantity**	**Unit Cost**	**Cost**	**EE/CA Reference**	**Change in Dredge/Cap Volume Impacts Costs (Y/N)**	**Comment**	**Unit**	**Quantity (Alt 0)**	**Unit Cost (Alt 0)**	**Cost (Alt 0)**	**TIG/Integral Reference(s)**	**Change / Description**	**Alt 0 vs EECA Costs % Difference**	$ difference Red font = increased price Black font = decreased price
Capital Cost																
Institutional Controls		Each	1	$25,000.00	$25,000	Engineer's estimate	N		Each	1	$25,000.00	$25,000	same as eeca		0%	$0
Subtotal					**$25,000**							**$25,000**			0%	$0
Preconstruction/Site Preparation																
Surveying Crew	assume availability of the crew during mobilization/demobilization for pre- and post-construction surveys and during excavation/capping.	Day	42	$1,889.31	$79,351	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.Crew A-7	Y	assume availability of the crew during mobilization/demobilization for pre- and post-construction surveys and during excavation/capping.	Day	51	$2,636.51	$134,462	Total O&P, 3 person crew (A7) RS Means Line number 017123131200	Added 9 days survey crew for additional excavate/cap duration plus EMNR placement	69%	$55,111
Cut and Chip Trees	Trees to 6" dia.; assume 1 acre for haul roads and one acre for staging areas	Acre	2	$4,625.00	$9,250	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 11 10.10-0020	N	Trees to 6" dia.; assume 1 acre for haul roads and one acre for staging areas	Acre	2	$4,882.70	$9,765	2018 RS Means Line number 311110100020		6%	$515
Grub Stumps and Remove	Trees to 6" dia.; assume 1 acre for haul roads and one acre for staging areas	Acre	2	$2,050.00	$4,100	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 11 10.10-0150	N	Trees to 6" dia.; assume 1 acre for haul roads and one acre for staging areas	Acre	2	$2,009.00	$4,018	2018 RS Means Line number 311110100150		-2%	$82
Strip topsoil and Stockpile	200 HP Dozer, adverse conditions; Assume top 6" would be stripped and stockpiled for disposal	CY	1614	$0.98	$1,582	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 14 13.23 0020	N	200 HP Dozer, adverse conditions; Assume top 6" would be stripped and stockpiled for disposal	CY	1614	$0.93	$1,501	2018 RS Means Line number 311413230020		-5%	$81
Crushed Stone for establishing haul roads and staging areas	Assume 6" layer of Crushed Stone, spread with 200 HP Dozer, no compaction, 2 mi. RT haul	CY	1614	$42.00	$67,788	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 05 16.10 0300	N	Assume 6" layer of Crushed Stone, spread with 200 HP Dozer, no compaction, 2 mi. RT haul	CY	1614	$42.53	$68,643	2018 RS Means Line number 310516100300		1%	$855
Compaction	Riding, Vibrating Roller, 6" Lifts, 2 passes	CY	1614	$0.45	$726	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 23 23.23 5000	N	Riding, Vibrating Roller, 6" Lifts, 2 passes	CY	1614	$0.43	$694	2018 RS Means Line number 312323235000		-4%	$32
Grading	Grading subgrade for base course, roadways.	SY	9680	$0.20	$1,936	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 22 16.10 3300	N	Grading subgrade for base course, roadways.	SY	9680	$0.20	$1,936	2018 RS Means Line number 312216103300		0%	$0
Install Fence	Chain link industrial, 6' H, 6 gauge wire with 3 strands barb wire; around staging area	LF	3000	$30.00	$90,000	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 32 31 13.20-0500	N	Chain link industrial, 6' H, 6 gauge wire with 3 strands barb wire; around staging area	LF	3000	$36.52	$109,560	2018 RS Means Line number 323113200500		22%	$19,560
Gate	Double swing gates, includes posts with 12' opening	Each	2	$1,100.00	$2,200	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 32 31 13.20-5060	N	Double swing gates, includes posts with 12' opening	Each	2	$1,117.88	$2,236	2018 RS Means Line number 323113205060		2%	$36
Signs	Reflectorized 24"x 24" sign mounted to fence	Each	4	$130.00	$520	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.10 14 53.20-0100; increase by 50% for text customization	N	Reflectorized 24"x 24" sign mounted to fence	Each	4	$216.20	$865	2018 RS Means Line number 101453200100 (increase by 50% for custom text per EECA)		66%	$345
Office Trailer Rental	Office trailer, furnished, rent per month, 50' x 12' excl. hookups. + air conditioning. Assume 6 month rental	MO	6	$425.50	$2,553	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.01 52 13.20 0550	N	Office trailer, furnished, rent per month, 50' x 12' excl. hookups. + air conditioning. Assume 6 month rental	MO	6	$526.19	$3,157	2018 RS Means Line number 015213200550		24%	$604
Office Trailer Delivery	Office trailer, delivery and pickup, assume 40 miles/round trip	MI	40	$11.65	$466	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 01 52 13.20 0800	N	Office trailer, delivery and pickup, assume 40 miles/round trip	MI	40	$14.03	$561	2018 RS Means Line number 015213200800		20%	$95
Trailer Telephone	Field office expense - telephone bill; avg. bill/month, incl. long distance., Assume 6 month rental	MO	6	$89.00	$534	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 01 52 13.40 0140	N	Field office expense - telephone bill; avg. bill/month, incl. long distance., Assume 6 month rental	MO	6	$100.45	$603	2018 RS Means Line number 015213200800		13%	$69
Lights and HVAC	Field office expense - field office lights & HVAC., Assume 6 month rental	MO	6	$167.00	$1,002	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.01 52 13.40 0160	N	Field office expense - field office lights & HVAC., Assume 6 month rental	MO	6	$188.15	$1,129	2018 RS Means Line number 015213400160		13%	$127
Sanitary Facilities	Rent toilet, portable, chemical, Assume 6 month rental	MO	6	$183.00	$1,098	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 01 54 33.40 6410 (Construction Aids)	N	Rent toilet, portable, chemical, Assume 6 month rental	MO	6	$217.21	$1,303	2018 RS Means Line number 015433406410		19%	$205
Three Phase power supply	Assume cost for setting up electrical service to operate equipment to be around $20,000	LS	1	$20,000.00	$20,000	Engineer's Estimate	N	Assume cost for setting up electrical service to operate equipment to be around $20,000	LS	1	$20,000.00	$20,000	retained EECA estimate		0%	$0
Utility Cost during Project activities	Assume $15,000	LS	1	$15,000.00	$15,000	Engineer's Estimate	N	Assume $15,000	LS	1	$15,000.00	$15,000	retained EECA estimate		0%	$0
Bank Treatment Debris Removal	Cost for removing debris located along the Slough banks. Assume 1 Gradall, 3 ton, 1 CY, 1 Equipment Operator, 4 laborers	Day	5	$3,448.20	$17,241	2013 RSMeans Site Work and Landscape Cost Data Crew B-12 K + 3 laborers	Y	Cost for removing debris located along the Slough banks. Assume 1 Gradall, 3 ton, 1 CY, 1 Equipment Operator, 4 laborers	Day	6	$3,269.00	$19,614	Excavator (1cy) RS Means 2018 Line item 312316130600, B-12K crew (6.38 per CY, assumes 400 CY per line item below) plus 3x Gen purpose laborer = 2018 RS Means Line item 013113200160 ($1,195/wk)	Add 1 day for Alt 0	14%	$2,373
Bank Treatment Transport Debris to Staging Area	Assume 50 truck loads of debris will be removed from banks. 8 C.Y. truck, 15 MPH ave, cycle 1 mile, 30 min wait/Ld./ Uld.	CY	400	$7.55	$3,020	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 23 23.20-0414	Y	Assume 50 truck loads of debris will be removed from banks. 8 C.Y. truck, 15 MPH ave, cycle 1 mile, 30 min wait/Ld./ Uld.	CY	400	$7.61	$3,044	2018 RS Means Line number 312323200414		1%	$24
Transportation of Collected Debris	Debris removed for staging area/access road construction and other Debris. Dump truck transport from Yosemite Slough to Landfill; incl taxes and fees	Ton	3,021	$50.00	$151,050	Engineer's Estimate	Y	Debris removed for staging area/access road construction and other Debris. Dump truck transport from Yosemite Slough to Landfill; incl taxes and fees	Ton	3323	$63.82	$212,080	Low ($55) from T-117 EECA (includes T&D) ($63.82) from Potrero FS (includes T&D) High ($99.90) from UG FFS (includes T&D)	Increase by 10% due to additional Bank for Alt 0	40%	$61,030
Disposal of Collected Debris	Debris removed for staging area/access road construction and other Debris. Disposal at Landfill; incl taxes and fees	Ton	3,021	$50.00	$151,050	Engineer's Estimate	Y	Debris removed for staging area/access road construction and other Debris. Disposal at Landfill; incl taxes and fees	Ton	3323			Separate costs for transport and disposal as outlined in original EECA cost estimate not supported, combined T&D into single line item.	Increase by 10% due to additional Bank for Alt 0	-100%	$151,050
Bank Treatment Backfill	Assume 1-1/2" crushed stone will be used to fill in depressions that could potentially could form during excavation activities. Assume 500 CY of fill, includes cost for spreading, 2 mi RT Haul	LCY	500	$42.00	$21,000	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 05 16.10 0300	Y	Assume 1-1/2" crushed stone will be used to fill in depressions that could potentially form during excavation activities. Assume 500 CY of fill, includes cost for spreading, 2 mi RT Haul	LCY	550	$42.53	$23,392	2018 RS Means Line number 31051610300	Increase by 10% due to additional Bank for Alt 0	11%	$2,392
Erosion and Sediment Controls - Jute Mesh	Includes Jute Mesh 100 SY per roll, 4' wide, stapled	SY	9,680	$2.06	$19,941	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 25 14.16 0020	Y	Includes Jute Mesh 100 SY per roll, 4' wide, stapled	SY	10648	$1.70	$18,102	2018 RS Means Line number 312514160020	Increase by 10% due to additional Bank for Alt 0	-9%	$1,839
Erosion and Sediment Control - Silt Fence & Hay Bales	Includes Silt Fence, polypropylene, 3' high, adverse conditions & Hay Bales, staked	LF	3,000	$11.75	$35,250	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 25 14.16 1100 + 1250	Y	Includes Silt Fence, polypropylene, 3' high, adverse conditions & Hay Bales, staked	LF	3300	$7.84	$25,872	2018 RS Means Line numbers 312514161000+1250	Increase by 10% due to additional Bank for Alt 0	-27%	$9,378
Subtotal					**$696,700**							**$677,500**			-3%	$19,200
Health and Safety																
Health and Safety Plan	Prepare Site-specific health and safety plan as well as prepare community notification documents	Each	1	$10,000.00	$10,000	Engineer's Estimate	N	Prepare Site-specific health and safety plan as well as prepare community notification documents	Each	1	$10,000.00	$10,000	retained EECA estimate		0%	$0
Construct Decontamination Pad & Containment	For equipment and personnel, Assume 4 setups will be needed.	Setups	5	$5,000.00	$25,000	Engineer's Estimate	N	For equipment and personnel, Assume 4 setups will be needed.	Setups	5	$5,000.00	$25,000	retained EECA estimate		0%	$0
Water Supply for Decontamination	Assume daily water need for decontamination process is 5,000 gallons/setup.	100 CF	1,390	$5.10	$7,091	2012 costs from the San Francisco Public Utilities Commission. Water price of $5.10 per 100 CF.	N	Assume daily water need for decontamination process is 5,000 gallons/setup.	100 CF	1390	$9.17	$12,746	2017 costs from SFPUC. Water price of $9.17 per Ccf, builders and contractors		80%	$5,655

Cost Estimate for Dredge and Cap with EMNR Alternative

Item Description	EECA 2013 Cost Estimate (EECA App G-8) Comment	Unit	Quantity	Unit Cost	Cost	EE/CA Reference	TIG/Integral Revised Cost Estimate Change in Dredge/Cap Volume Impacts Costs (Y/N)	Comment	Unit	Quantity (Alt 0)	Unit Cost (Alt 0)	Cost (Alt 0)	TIG/Integral Reference(s)	Change / Description	Alt 0 vs EECA Costs % Difference	$ difference Red font = increased price Black font = decreased price
Community/Exclusion Zone Air Monitoring	Particulate meter purchase (Qty 4)	Each	4	$7,200.00	$28,800	Industrial Environmental Monitoring Instruments, http://www.ierents.com/ as of January 2012	N	Particulate meter rental (Qty 4)	2 months	4	$2,570.00	$10,280	Met One E-Sampler plus tripod rental for 2 month period.		-64%	$18,520
Site Safety Officer	10 hrs./day, 5days/wk., $100/hr.; 100% of project duration	man weeks	11	$5,000.00	$55,000	Engineer's Estimate	N	10 hrs./day, 5days/wk., $100/hr.; 100% of project duration	man weeks	11	$5,000.00	$55,000	retained EECA estimate		0%	$0
Subtotal					**$125,900**							**$113,100**			-10%	$12,800
Construction Mob/Demob																
Construction Oversight	10 hrs./day, 5days/wk., $100/hr.; 100% of project duration	man weeks	11	$5,000.00	$55,000	Engineer's Estimate	Y	10 hrs./day, 5days/wk., $100/hr.; 100% of project duration	man weeks	12	$5,000.00	$60,000	retained EECA estimate	Increase based on duration	9%	$5,000
Pre-Construction Safety Meeting	Pre-Construction safety meeting for all equipment operators and other personnel on the job. Assume 20 people will attend for 8 hours at $125/hour	Each	20	$1,000.00	$20,000	Engineer's Estimate	N	Pre-Construction safety meeting for all equipment operators and other personnel on the job. Assume 20 people will attend for 8 hours at $125/hour	Each	20	$1,000.00	$20,000	(Same as eeca) Pre-Construction safety meeting for all equipment operators and other personnel on the job. Assume 20 people will attend for 8 hours at $125/hour		0%	$0
Mobilization for Dry Excavation Equipment	Up to 25 mile haul distance; 3 loader, 1 forklift, 2 excav., 1 grader, 1 paver, and 2 Trucks above 150 H.P.,	Each	10	$505.00	$5,050	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 01 54 36.50-0100	N	Up to 25 mile haul distance; 3 loader, 1 forklift, 2 excav., 1 grader, 1 paver, and 2 Trucks above 150 H.P.,	Each	10	$369.71	$3,697	2018 RS Means Line number 015436501300		-27%	$1,353
Demobilization for Dry Excavation Equipment	Up to 25 mile haul distance; 3 loader, 1 forklift, 2 excav., 1 grader, 1 paver, and 2 Trucks above 150 H.P.,	Each	10	$505.00	$5,050	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 01 54 36.50-0100	N	Up to 25 mile haul distance; 3 loader, 1 forklift, 2 excav., 1 grader, 1 paver, and 2 Trucks above 150 H.P.,	Each	10	$369.71	$3,697	2018 RS Means Line number 015436501300		-27%	$1,353
Mob/dmob for Overwater Equipment	--	--	--	$0.00	$0	--	N	Mob/Demob of overwater equipment	LS	1	$300,000	$300,000	Not included in EECA, but based on PGE Potrero and UH FFS cost estimates mob/demob of overwater related equipment is not insignificant. Possible range of $265k (UH) to $400K (Potrero)		100%	
Subtotal					**$85,100**							**$387,400**			355%	$302,300
Hydraulic/Turbidity Controls																
Hydraulic/Turbidity Controls	Assume uniform $1,000,000 placeholder for all alternatives	LS	1	$1,000,000	$1,000,000	Engineer's Estimate	Y	$1,000,000 placeholder should be bumped to $1,200,000 for size and duration	LS	1	$1,200,000	$1,200,000	Engineer's Estimate, based on Potrero FS PortoDam ($635/LF) and silt curtain ($870,000 LS) cost data, with reasonable upper and lower factor. The length of the PortoDam would be approximately 300 LF (lengthwise at mouth of slough) or a high of 1,600 LF (from head of the slough to mouth). Rounded to $1.2M		20%	$200,000
Water Quality Monitoring	--	--	--	$0.00	$0	--	N	Water Quality Monitoring for turbidity, PCBs and lead	LS	1	$200,000	$200,000	Engineer's Estimate based on BPJ and UH FFS detailed estimate ($170,000)	Line item added	100%	$200,000
Subtotal					**$1,000,000**							**$1,400,000**			40%	$400,000
Contaminated Sediment Removal (Sediment Excavation, Transport, and Stockpiling)																
Timber Crane Mats for Slough Access	Cost for timber mat material. Assume the Yosemite Slough width is 300 ft., the number of pieces of Mat needed to cross the Slough is: 300 ft./4ft =75. Assume 200 mats needed for the entire project.	Each	200	$785.00	$157,000	The Mat Source: http://www.thematsource.com/mat-inventory/timber-mats.html. Douglas Fir Crane Mats (12 in *4 ft. * 20 ft.), each mat consists of 4 timbers. Accessed in June 2012	Y	Cost for timber mat material. Assume the Yosemite Slough width is 300 ft., the number of pieces of Mat needed to cross the Slough is: 300 ft./4ft =75. Assume 200 mats needed for the entire project.	Each	200	$871.35	$174,270	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		11%	$17,270
Timber Crane Mats Relocation	Backhoe Loader, 80 HP, 1 equipment operator and 2 laborers. For adjusting and relocating timber mats as needed during the project duration	Day	37	$1,888.04	$69,857	2013 RSMeans Site Work and Landscape Cost Data Crew B-11 M plus one additional laborer	Y	Backhoe Loader, 80 HP, 1 equipment operator and 2 laborers. For adjusting and relocating timber mats as needed during the project duration	Day	46	$1,717.00	$78,982	Backhoe (48HP with operator) 2018 RSMeans line item 024210209030 ($1,239/day) plus 2x Gen purpose laborer = 2018 RS Means Line item 013113200160 ($1,195/wk)	Increase duration of moving mats due to additional acreage for alternative (including EMNR placement)	13%	$9,125
Excavation of Sediment	Excavator, hydraulic, 2 CY bucket = 165 CY/hr. Assume 5 % of the volume removed would be debris.	BCY	9,939	$45.00	$447,255	Engineer's Estimate	Y	Excavator, hydraulic, 2 CY bucket = 165 CY/hr. Assume 5 % of the volume removed would be debris.	BCY	11234	$70	$786,380	Engineer's Estimate. Comparing to LPR at $58/yd (2010) and Boeing Plant 2 at $67/cy (2013-2015) the assumed unit rate of $70 is reasonable. With reasonable upper and lower factor	Increase vol per SWAC est for Alt 0	76%	$339,125
Loading sediment onto trucks	add 15% to excavation costs	BCY	9,939	$6.75	$67,088	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 23 16.42-0020	Y	Transfer DM from barge to truck, including overwater transfer.	BCY	11234	$25	$280,850	Based on Potrero FS, transport, offload, and dewater to berth from barge was estimated at $25/CY. With reasonable upper and lower factor	Increase vol per SWAC est for Alt 0	319%	$213,762
Add long reach boom/arm for excavator	add 50% of the excavator costs	BCY	9,939	$22.50	$223,628	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 23 16.42-4250	--	add 50% of the excavator costs (Remove Line Item.)	BCY	0	$0.00	$0	Line Item to be removed /excluded		-100%	$223,628
Transport Sediment to Stockpile (staging area)	8 C.Y. truck, 15 MPH ave, cycle 1 mile, 30 min wait/Ld./ Uld.	LCY	11,430	$7.55	$86,295	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 23 23.20-0414	Y	8 C.Y. truck, 15 MPH ave, cycle 1 mile, 30 min wait/Ld./ Uld.	LCY	12919	$7.61	$98,314	2018 RS means Line number 312323200414	Based on 15% expansion factor for BCY to LCY	14%	$12,019
Stockpiling of Dredged Sediment	1 F.E. Loaders, Wheel Mounted, 2.5 CY capacity, 1 operator and laborer, available onsite full time during excavation, capping, restoration and demobilization activities.	Day	42	$1,371.22	$57,591	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.Crew B-10T	Y	1 F.E. Loaders, Wheel Mounted, 2.5 CY capacity, 1 operator and laborer, available onsite full time during excavation, capping, restoration and demobilization activities.	Day	46	$1,010.00	$46,460	F.E. Loader, 2.5CY = 2018 RS Means Line item 015433204710 ($4,772/mn plus $1,591/wk; 532/day) Gen purpose laborer = 2018 RS Means Line item 013113200160 ($1,195/wk)	additional active duration (4 additional days vs EECA)	-19%	$11,131
Line Item - Sediment Dewatering	including debris removal, generator, shakers, belt press, and polymer dosage. Assumed Dewatering for mechanical and hydraulic dredging activities are equal.	LCY	11,430	$63.00	$720,081	2012 Vendor quote provided by JND Thomas Co., Inc. provided for Hydraulic dredging.	Y	Including equipment and operations for debris removal, barge dewatering, and upland dewatering/polymer dosage.	LCY	12919	$78.00	$1,007,690	Engineer's Estimate (TBD)	Based on 15% expansion factor for BCY to LCY	40%	$287,609
Subtotal					**$1,828,800**							**$2,473,000**			35%	$644,200

Cost Estimate for Dredge and Cap with EMNR Alternative

Item Description	EECA 2013 Cost Estimate (EECA App G-8) Comment	Unit	Quantity	Unit Cost	Cost	EE/CA Reference	TIG/Integral Revised Cost Estimate Change in Dredge/Cap Volume Impacts Costs (Y/N)	Comment	Unit	Quantity (Alt 0)	Unit Cost (Alt 0)	Cost (Alt 0)	TIG/Integral Reference(s)	Change / Description	Alt 0 vs EECA Costs % Difference	$ difference Red font = increased price Black font = decreased price
Sediment Stabilization for Lead																
Sediment Stabilization	EnviroBlend CS, 1-3% wt./wt. dosage, 2000 # Supersacks, material only	Ton	135	$285.00	$38,475	2012 Vendor Quote from Premier Chemicals LLC.	Y	EnviroBlend CS, 1-3% wt./wt. dosage, 2000 # Supersacks, material only	Ton	153	$316.35	$48,259	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA	13% increase based on additional volume for Alt 0	25%	$9,784
Transportation Costs	Freight Costs, $1,300/22 sacks	Ton	135	$59.09	$7,977	2012 Vendor Quote from Premier Chemicals LLC.	Y	Freight Costs, $1,300/22 sacks	Ton	153	$65.59	$10,006	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		25%	$2,029
ForkLift Rental	Assume Forklift rental for one day when the material would be delivered onsite	Day	1	$1,117.24	$1,117	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.Crew A-3P	N	Assume Forklift rental for one day when the material would be delivered onsite	Day	1	$1,387.32	$1,387	2018 RS Means Line item number 015416500100 (weekly use divided by 5)		24%	$270
Mixing Sediment with the product	Front End Loader, 5 CY bucket	LCY	3,450	$1.94	$6,693	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.312316.42-1350	Y	Front End Loader, 5 CY bucket	LCY	4485	$1.83	$8,208	2018 RS Means Line number 312316421350	Increase of 13% based on additional sediment volume for Alt 0	23%	$1,515
Characterization Sampling of Treated Sediment	Assume 1 sample required per 100 LCY. Includes TCLP, STLC, TTLC tests metals and PCBs	Each	35	$1,000.00	$35,000	Engineer's Estimate	Y	Assume 1 sample required per 100 LCY. Includes TCLP, STLC, TTLC tests metals and PCBs	Each	45	$775.00	$34,759	Assumes 1 sampler per 100 LCY, includes typical IDW and disposal tests at current rates from Test America		-1%	$241
Subtotal					**$89,300**							**$102,700**			15%	$13,400
Transportation and Disposal of sediment																
Characterization Sampling of Dewatered Sediment	Assume 1 sample required per 500 LCY. Includes analysis for metals and PCBs	Each	23	$1,000.00	$23,000	Engineer's Estimate	Y	Assume 1 sample required per 500 LCY. Includes analysis for metals and PCBs	Each	26	$775.00	$20,025	Assumes 1 sampler reqd per 500 LCY. Includes analysis for Metals, PCBs + other typically disposal required tests	increase due to volume dredge sediment	-13%	$2,975
Loading Sediment onto Trucks	Front End Loader, 5 CY bucket, Assumed Loading will occur during the excavation and capping activities.	Day	32	$1,954.00	$62,528	2012 RSMeans Site Work and Landscape Cost Data 31st Ed. Crew B-10U	Y	Front End Loader, 5 CY bucket, Assumed Loading will occur during the excavation and capping activities.	Day	36	$1,800.21	$64,808	RSMeans Line item number 015433204760 (5cy front end loader [$1020/day)) plus 2 laborer crew Gen purpose laborer = 2018 RS Means Line item 013113200160 ($1,1950/wk)	Increase duration of loading due to excavate/cap duration	4%	$2,280
Transportation & Disposal of Non-Hazardous Waste	Dump truck transport from Yosemite Slough to Landfill; incl taxes and fees	Ton	14,909	$50.00	$745,425	Engineer's Estimate	Y	Dump truck transport from Yosemite Slough to Landfill; incl taxes and fees	Ton	16851	$63.82	$1,075,431	Lowest comparable estimate ($55) from T-117 EECA (includes T&D) Mid-range comparable estimate ($63.82) from Potrero FS (includes T&D) High end comparable estimate ($99.90) from UG FFS (includes T&D)		44%	$330,006
Transportation and Disposal of Hazardous Waste	Disposal at Landfill; incl taxes and fees	Ton	14,909	$50.00	$745,425	Engineer's Estimate	Y	Disposal at Landfill; incl taxes and fees	Ton	1685	$166.88	$281,201	Higher T&D for Haz Waste included as line item	New line item added.	--	$464,224
Subtotal					**$1,576,400**							**$1,441,500**			-9%	$134,900
Treatment of Dewatering Process Water																
FRAC Tank Rental; for "holding tank" of water	6 x 21,000 Tank with Cleaning	Day	52	$1,200.00	$62,400	Engineer's Estimate	Y	6 x 21,000 Tank with Cleaning	Day	56	$1,332.00	$74,592	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		20%	$12,192
Rain for Rent dewatering process water treatment system mobilization	process involves a settling tank, sand filtration, bag filter, carbon filter, resins/Organoclay, holding tank for testing	Each	1	$75,000.00	$75,000	Oakley Rain for Rent Quote from Tony DeBellis (2012)	N	process involves a settling tank, sand filtration, bag filter, carbon filter, resins/Organoclay, holding tank for testing	Each	1	$83,250.00	$83,250	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		11%	$8,250
Rain for Rent dewatering process water treatment system spent media disposal and replacement	cost is 125% of cost for mobilization for each media replacement	Each	1	$93,750.00	$93,750	Oakley Rain for Rent Quote from Tony DeBellis (2012)	Y	cost is 125% of cost for mobilization for each media replacement	Each	1	$104,062.50	$104,063	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		11%	$10,313
Treatment System Operations	One operator	Day	52	$574.00	$29,848	2013 RSMeans Site Work and Landscape Cost Data One Equip. Oper. (med)	Y	One operator	Day	56	$666.00	$37,296	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		25%	$7,448
Characterization/Monitoring Sampling of Dewatering Process Water	Including pH, TDS, TSS, COD, Metals, PCBs. Assume one sample is needed every 10000 CF of processed water.	Each	63	$1,000.00	$63,000	Engineer's Estimate	N	Including pH, TDS, TSS, COD, Metals, PCBs. Assume one sample is needed every 10000 CF of processed water.	Each	71	$750.00	$53,393	Assumes 1 sampler per 10000 CF of processed water for pH, TDS, TSS, COD, metals and PCBs. Tests based on recent TA prices for project		-15%	$9,608
Combined Water Treatment and Monitoring							N		Lump	1	$398,430.09	$398,430	Lump sum based on above line items, adjusted based on additional volume.	Increase based on additional volume of sed (13%)		
Subtotal					**$324,000**							**$398,430**			23%	$74,430
Discharge of Dewatering Process Water to SFPUC																
Permit Fee		Each	1	$1,000.00	$1,000	Engineer's Estimate	N		Each	1	$1,000.00	$1,000	Assume same as EECA		0%	$0
Batch Discharge to SFPUC	Sewer service charge is per 100 cubic feet discharged	100 CF	6,238	$6.56	$40,923	2012 costs from the San Francisco Public Utilities Commission. Water price of $6.55 per 100 CF.	Y	Sewer service charge is per 100 cubic feet discharged	100 CF	7049	$7.84	$55,264	Based on SFPUC 2017 rates (base rate of $7.664 per Ccf, additional charge for COD, TSS, and O&G per lb [$0.548, $1.033, and $1.082 respectively])		35%	$14,341
Subtotal					**$42,000**							**$56,300**			34%	$14,300
Capping																
Capping Material Purchase and Transportation	Assume the amount of material needed is equal to the amount sediment removed. Assume material is 1.5 ton/CY based on data from the Geotechnical Study	Ton	14,909	$50.00	$745,425	Engineer's Estimate. Source of material has not been identified at this time.	Y	Assume the amount of material needed is 30% greater than the amount sediment removed. Assume material is 1.5 ton/CY based on data from the Geotechnical Study	CY	14604	$30	$438,126	Engineer's Estimate - Based on $45/CY West Basin 2012 (CCSF) contractor Bid Mod for Sediment Trap clamshell dredge and barge placement of 3' sand cap and Boeing Plant 2 actual cost of $80/CY; assume combined estimate is $80/CY to supply and place a 2' engineered sand cap	Increase based on excavated volume of sediment	-41%	$307,299
Excavator for Installation of Cap material	Excavator, hydraulic, 2 CY bucket	LCY	11,430	$40.00	$457,194	Engineer's Estimate.	Y	Excavator, hydraulic, 2 CY bucket	CY	14604	$50	$730,210		Increase based on excavated volume of sediment	60%	$273,016
Add long reach boom/arm for excavator	add 50% of the excavator costs	LCY	11,430	$20.00	$228,597	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 23 16.42-4250	--	Not included in updated Cost Estimate, current approach negates need for excavator long reach arm	LCY	11430	--	$0	Not included.	not included	-100%	$228,597
Subtotal					**$1,431,300**							**$1,168,400**			-18%	$262,900

Cost Estimate for Dredge and Cap with EMNR Alternative

Item Description	EECA 2013 Cost Estimate (EECA App G-8) Comment	Unit	Quantity	Unit Cost	Cost	EE/CA Reference	TIG/Integral Revised Cost Estimate Change in Dredge/Cap Volume Impacts Costs (Y/N)	Comment	Unit	Quantity (Alt 0)	Unit Cost (Alt 0)	Cost (Alt 0)	TIG/Integral Reference(s)	Change / Description	Alt 0 vs EECA Costs % Difference	$ difference Red font = increased price Black font = decreased price
Enhanced Natural Recovery																
Material Purchase and Transportation	Not Included in EE/CA but possible in light of Pre-Design Studies completed to date.	N/A	N/A	N/A	N/A	N/A	Y	Assume material is 1.5 ton/CY based on data from the Geotechnical Study	CY	2100	$30	$63,000	Unit cost based on Engineer's Estimate from comparable project review for purchase and transport of clean sand	Alt2 use of EMNR applied to 2.6 acres per SWAC analysis. Assumes across the 2.6 acres up to 6 inches of sand is distributed. Resulting sand requirement is 2,100 cy.	--	#VALUE!
Excavator for installation of material	Excavator, hydraulic, 2 CY bucket	NA	NA	NA	NA	NA	Y	Excavator, hydraulic, 2 CY bucket	CY	2100	$50	$105,000	Excavator unit cost assumed based on cap material above (line 88).		--	#VALUE!
Amend Material							Y		LCY	420	$150.00	$63,000	Potential to add an amendment to the material if necessary.		--	
Subtotal					**$0**							**$231,000**			--	$231,000
Lease Staging Area																
Lease Staging Area	Not included in EE/CA.	Month	2	$0.00	$0	N/A	Y	Staging area land lease costs need to be accounted for; required lease are is 13 acre.	Month	3.0	$ 56,625	$169,875	PGE Potrero PP FS includes line item lease cost of $22,651/month for 2 ac of land, roughly $11,325 per acre per month. EE/CA states ~13 ac available for staging, assume min cost for $11K per acre for 2 acre and max cost of $11K for 13 acres		100%	$169,875
Subtotal					**$0**							**$169,900**			#DIV/0!	$169,900
Post Construction Costs																
Site Restoration for Staging Area/Access Roads	grading of access roads and staging area for paving	Day	2	$1,266.02	$2,532	2013 RSMeans Site Work and Landscape Cost Data Crew B-10L - 0.5 laborer	N	grading of access roads and staging area for paving	Day	2	$1,292.18	$2,584	2018 RS Means Line item 312213200210 (B11L rough grader, open site 20K-25K S.F.		2%	$52
Site Restoration for Access road/staging area	Plant-mix Asphalt Paving with binder course 2.5" thick.	SY	9680	$11.30	$109,384	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.32 12 16.13-0130	Y	Plant-mix Asphalt Paving with binder course 2.5" thick.	SY	9680	$13.88	$134,358	RSMeans Line Number 321216130130		23%	$24,974
Site Restoration for Staging Area	Plant-mix Asphalt Paving with wearing course 2.5" thick.	SY	9680	$12.55	$121,484	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 32 12 16.13-0420	Y	Plant-mix Asphalt Paving with wearing course 2.5" thick.	SY	9680	$15.36	$148,685	RSMeans Line Number 321216130420		22%	$27,201
Project Closeout	Phase II Investigation costs	Each	1	$25,000.00	$25,000	Engineer's Estimate	N	Phase II Investigation costs	Each	1	$27,750.00	$27,750	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		11%	$2,750
Subtotal					**$258,400**							**$313,400**			21%	$55,000
Capital Costs Subtotal:					**$7,482,900**							**$8,957,630**	sum updated to include EMNR line items.		20%	$1,474,730
Adjusted Capital Cost Subtotal for San Francisco, CA Location Factor (123.4):					$9,233,900							$8,957,630	Delete this factor, RS means estimate updates account for fact that project to take place in SF, Engineer's Estimate also based on knowledge that the project is to take place in SF.	deleted adjustment factor	-3%	$276,270
10% Legal and Administrative Fees					$923,400							$895,800			-3%	$27,600
20% Contingencies:					$1,846,800							$1,791,600			-3%	$55,200
Predesign Investigations:					$1,000,000	Engineer's Estimate						$2,875,000	Engineer's Estimate		188%	$1,875,000
Construction Management (10% of total capital cost)					$923,400	Engineer's Estimate						$895,800	Engineer's Estimate		-3%	$27,600
Engineering Design (10 % of total capital cost)					$923,400	Engineer's Estimate						$895,800	Engineer's Estimate		-3%	$27,600
Total Capital Costs in 2013 Dollars:					**$14,851,000**							**$16,312,000**			10%	$1,461,000
Monitored Natural Attenuation																
MNR Costs		LS	1	$236,840.00	$236,840	MNR costs provided by Arcadis (2012)			LS	1	$236,840.00	$236,840	MNR costs provided by Arcadis (2012).		0%	$0
Subtotal					$236,840							$236,840			0%	$0
Adjusted Capital Cost Subtotal for San Francisco, CA Location Factor (123.4):					$292,261							$236,840	Delete this adjustment factor per above.	deleted adjustment factor	-19%	$55,421
10% Legal and Administrative Fees					$29,226							$23,684			-19%	$5,542
20% Contingencies:					$58,452							$47,368			-19%	$11,084
Total:					**$380,000**							**$308,000**			-19%	$72,000
																$0
Periodic (5-year) Monitoring for 30 years																
Institutional Controls	Easement, fencing, signs	LS	1	$25,000	$25,000	Engineer's Estimate		Easement, fencing, signs	LS	1	$25,000	$25,000	Engineer's Estimate		0%	$0
Site Monitoring		LS	1	$20,000	$20,000	Engineer's Estimate			LS	1	$20,000	$50,000	Engineer's Estimate		150%	$30,000
Reporting		LS	1	$10,000	$10,000	Engineer's Estimate			LS	1	$10,000	$25,000	Engineer's Estimate		150%	$15,000
5-Year Cost Subtotal:					$55,000							$100,000			82%	$45,000
Adjusted Capital Cost Subtotal for San Francisco, CA Location Factor (123.4):					$67,870							$100,000	Delete this adjustment factor per above	deleted adjustment factor	47%	$32,130
10% Legal and Administrative Fees					$6,787							$10,000			47%	$3,213
20% Contingencies:					$13,574							$20,000			47%	$6,426
5-Year Total:					$88,231							$130,000			47%	$41,769
30-Year Present Worth of Periodic Monitoring Costs:					**$246,000**							**$780,000**			217%	$534,000
2013 Present Worth Cost:					$15,477,000							$17,400,000			12%	$1,923,000

Cost Estimate for Dredge and Cap with EMNR Alternative

	EECA 2013 Cost Estimate (EECA App G-8)						TIG/Integral Revised Cost Estimate								
Item Description	**Comment**	**Unit**	**Quantity**	**Unit Cost**	**Cost**	**EE/CA Reference**	**Change in Dredge/Cap Volume Impacts Costs (Y/N)**	**Comment**	**Unit**	**Quantity (Alt 0)**	**Unit Cost (Alt 0)**	**Cost (Alt 0)**	**TIG/Integral Reference(s)**	**Change / Description**	**Alt 0 vs EECA Costs % Difference**

$ difference
Red font = increased price
Black font = decreased price

EECA 2013 Assumptions

1. Volume of Contaminated Material — 9,939 BCY, as estimated using the polygon method, E&E, 2013
2. Volume of Hazardous lead contaminated soil — 3000 BCY
3. Perimeter around staging area — 3000 ft
4. Area available for Staging Area — 13 acre
5. Project Duration
   - Mobilization — 5 days
   - Dewatering and Treatment system set up — 5 days
   - Excavation — 16 days
   - Capping — 16 days
   - Restoration — 5 days
   - Demobilization — 5 days
   - Total Project Duration — 52 days
6. Dewatering
   - Volume of water from the sediment (assume that the sediment will only have 30% water, as dewatering activities would have removed most of the water) — 80505.9 CF
   - Total volume removed/excavation rate of 165 CY/HR. Assume 8 hours per day, 5 days per week, Assume 50% production rate. — 404,278 CF
   - Volume of water that would be pumped during dewatering (assume 50 gpm, 24 hours a day during dewatering setup, excavation, capping and restoration)
7. In-Situ Bulk Density assumed for the project is 1.5 Tons/BCY
8. Swell Factor was assumed to be 15%
9. Assume access road preparation will disturb 1 acre and the staging area will disturb 1 acre for a total of 2 acres.
10. After construction activities are completed, the disturbed two acres will require pavement restoration.
11. The surveying crew will be needed for the entire project duration to compete a pre-excavation, post-excavation, and post capping surveys and to assist the excavation crew.
12. The cofferdam needed is 1000' (length) by 36' (depth). Assume that a silt curtain will be in place during the installation and removal of the cofferdam.
13. Assume 5000 gallons of water/decon setup would be needed daily for decontamination purposes. Assume this water will be treated by the dewatering process water treatment facility.
14. Approximately 200 timber crane mats will be needed for the entire project.
15. One sample is needed every 10,000 CF of processed water.
16. The Suspended Solids, Oil/Grease and COD will be removed during the sediment dewatering process.
17. Assume that there is a manhole located onsite discharge of treated dewatering process water.
18. Assume there is a fire hydrant onsite for the supply of decontamination water.
19. Onsite material from access road creation will be used to fill in depressions created by debris removal.
20. Amount of backfill material needed for bank treatment is 1000' bank length x 50' width x 2' depth.
21. Assume 10 truck loads of debris will be removed from banks.
22. Present worth of costs assumes 5% annual interest rate.
23. Unit costs listed were obtained from 2012 RS Means Cost Data and engineering judgement.
24. Institutional Controls at the site are expected to include deed restrictions, informational signs and dissemination of information by the State Parks to the general public.

TIG/Integral Assumptions (Red Font if Different/Updated from EECA

1. Volume of Contaminated Material — 11,234 BCY, as estimated using the polygon method
2. Volume of Hazardous lead contaminated soil — 3900 BCY
3. Perimeter around staging area — 3000 ft
4. Area available for Staging Area — 13 acre
5. Project Duration
   - Mobilization — 5 days
   - Dewatering and Treatment system set up — 5 days
   - Excavation — 18 days
   - Capping and EMNR — 23 days
   - Restoration — 5 days
   - Demobilization — 5 days
   - Total Project Duration — 56 days
6. Dewatering
   - Volume of water from the sediment (assume that the sediment will only have 30% water, as dewatering activities would have removed most of the water) — 90971.78 CF
   - Total volume removed/excavation rate of 165 CY/HR. Assume 8 hours per day, 5 days per week, Assume 50% production rate. — 404,278 CF
   - Volume of water that would be pumped during dewatering (assume 50 gpm, 24 hours a day during dewatering setup, excavation, capping and restoration)
7. In-Situ Bulk Density assumed for the project is 1.5 Tons/BCY
8. Swell Factor was assumed to be 15%
9. Assume access road preparation will disturb 1 acre and the staging area will disturb 1 acre for a total of 2 acres.
10. After construction activities are completed, the disturbed two acres will require pavement restoration.
11. The surveying crew will be needed for the entire project duration to compete a pre-excavation, post-excavation, and post capping surveys and to assist the excavation crew.
12. The cofferdam needed is 1000' (length) by 36' (depth). Assume that a silt curtain will be in place during the installation and removal of the cofferdam.
13. Assume 5000 gallons of water/decon setup would be needed daily for decontamination purposes. Assume this water will be treated by the dewatering process water treatment facility.
14. Approximately 200 timber crane mats will be needed for the entire project.
15. One sample is needed every 10,000 CF of processed water.
16. The Suspended Solids, Oil/Grease and COD will be removed during the sediment dewatering process.
17. Assume that there is a manhole located onsite discharge of treated dewatering process water.
18. Assume there is a fire hydrant onsite for the supply of decontamination water.
19. Onsite material from access road creation will be used to fill in depressions created by debris removal.
20. Amount of backfill material needed for bank treatment is 1000' bank length x 50' width x 2' depth.
21. Assume 10 truck loads of debris will be removed from banks.
22. ~~Present worth of costs assumes 5% annual interest rate.~~
23. Unit costs listed were obtained from 2018 RS Means Cost Data and engineering judgement unless otherwise noted in TIG/Integral References Column
24. Institutional Controls at the site are expected to include deed restrictions, informational signs and dissemination of information by the State Parks to the general public.

Key:
LF = Linear Foot SY = Square Yard
BCY = Bank Cubic Yard LCY = Loose Cubic Yard LS = Lump Sum
LCY = Loose Cubic Yard
LS = Lump Sum
SF = Square Feet CF = Cubic Feet

Cost Estimate for Dredge and Cap Only Alternative

Item Description	EECA 2013 Cost Estimate (EECA App G-8) Comment	Unit	Quantity	Unit Cost	Cost	EE/CA Reference	TIG/Integral Revised Cost Estimate Change in Dredge/Cap Volume Impacts Costs (Y/N)	Comment	Unit	Quantity (Alt 1 - Additional Dredge & Cap Only)	Unit Cost (Alt 1 - Additional Dredge & Cap Only)	Cost (Alt 1 - Additional Dredge & Cap Only)	TIG/Integral Reference(s)	Change / Description	Alt 0 vs EECA Costs % Difference	$ difference Red font = increased price Black font = decreased price
Capital Cost																
Institutional Controls		Each	1	$25,000.00	$25,000	Engineer's estimate	N		Each	1	$25,000.00	$25,000	same as eeca		0%	$0
Subtotal					**$25,000**							**$25,000**			0%	$0
Preconstruction/Site Preparation																
Surveying Crew	assume availability of the crew during mobilization/demobilization for pre- and post-construction surveys and during excavation/capping.	Day	42	$1,889.31	$79,351	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.Crew A-7	Y	assume availability of the crew during mobilization/demobilization for pre- and post-construction surveys and during excavation/capping.	Day	76	$2,636.51	$200,375	Total O&P, 3 person crew (A7) RS Means Line number 017123131200	Added 34 days survey crew for additional excavate/cap duration	153%	$121,024
Cut and Chip Trees	Trees to 6" dia.; assume 1 acre for haul roads and one acre for staging areas	Acre	2	$4,625.00	$9,250	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 11 10.10-0020	N	Trees to 6" dia.; assume 1 acre for haul roads and one acre for staging areas	Acre	2	$4,882.70	$9,765	2018 RS Means Line number 311110100020		6%	$515
Grub Stumps and Remove	Trees to 6" dia.; assume 1 acre for haul roads and one acre for staging areas	Acre	2	$2,050.00	$4,100	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 11 10.10-0150	N	Trees to 6" dia.; assume 1 acre for haul roads and one acre for staging areas	Acre	2	$2,009.00	$4,018	2018 RS Means Line number 311110100150		-2%	$82
Strip topsoil and Stockpile	200 HP Dozer, adverse conditions; Assume top 6" would be stripped and stockpiled for disposal	CY	1614	$0.98	$1,582	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 14 13.23 0020	N	200 HP Dozer, adverse conditions; Assume top 6" would be stripped and stockpiled for disposal	CY	1614	$0.93	$1,501	2018 RS Means Line number 311413230020		-5%	$81
Crushed Stone for establishing haul roads and staging areas	Assume 6" layer of Crushed Stone, spread with 200 HP Dozer, no compaction, 2 mi. RT haul	CY	1614	$42.00	$67,788	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 05 16.10 0300	N	Assume 6" layer of Crushed Stone, spread with 200 HP Dozer, no compaction, 2 mi. RT haul	CY	1614	$42.53	$68,643	2018 RS Means Line number 310516100300		1%	$855
Compaction	Riding, Vibrating Roller, 6" Lifts, 2 passes	CY	1614	$0.45	$726	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 23 23.23 5000	N	Riding, Vibrating Roller, 6" Lifts, 2 passes	CY	1614	$0.43	$694	2018 RS Means Line number 312323235000		-4%	$32
Grading	Grading subgrade for base course, roadways.	SY	9680	$0.20	$1,936	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 22 16.10 3300	N	Grading subgrade for base course, roadways.	SY	9680	$0.20	$1,936	2018 RS Means Line number 312216103300		0%	$0
Install Fence	Chain link industrial, 6' H, 6 gauge wire with 3 strands barb wire; around staging area	LF	3000	$30.00	$90,000	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 32 31 13.20-0500	N	Chain link industrial, 6' H, 6 gauge wire with 3 strands barb wire; around staging area	LF	3000	$36.52	$109,560	2018 RS Means Line number 323113200500		22%	$19,560
Gate	Double swing gates, includes posts with 12' opening	Each	2	$1,100.00	$2,200	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 32 31 13.20-5060	N	Double swing gates, includes posts with 12' opening	Each	2	$1,117.88	$2,236	2018 RS Means Line number 323113205060		2%	$36
Signs	Reflectorized 24"x 24" sign mounted to fence	Each	4	$130.00	$520	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.10 14 53.20-0100; increase by 50% for text customization	N	Reflectorized 24"x 24" sign mounted to fence	Each	4	$216.20	$865	2018 RS Means Line number 101453200100 (increase by 50% for custom text per EECA)		66%	$345
Office Trailer Rental	Office trailer, furnished, rent per month, 50' x 12' excl. hookups. + air conditioning. Assume 6 month rental	MO	6	$425.50	$2,553	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.01 52 13.20 0550	N	Office trailer, furnished, rent per month, 50' x 12' excl. hookups. + air conditioning. Assume 6 month rental	MO	6	$526.19	$3,157	2018 RS Means Line number 015213200550		24%	$604
Office Trailer Delivery	Office trailer, delivery and pickup, assume 40 miles/round trip	MI	40	$11.65	$466	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 01 52 13.20 0800	N	Office trailer, delivery and pickup, assume 40 miles/round trip	MI	40	$14.03	$561	2018 RS Means Line number 015213200800		20%	$95
Trailer Telephone	Field office expense - telephone bill; avg. bill/month, incl. long distance., Assume 6 month rental	MO	6	$89.00	$534	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 01 52 13.40 0140	N	Field office expense - telephone bill; avg. bill/month, incl. long distance., Assume 6 month rental	MO	6	$100.45	$603	2018 RS Means Line number 015213200800		13%	$69
Lights and HVAC	Field office expense - field office lights & HVAC., Assume 6 month rental	MO	6	$167.00	$1,002	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.01 52 13.40 0160	N	Field office expense - field office lights & HVAC., Assume 6 month rental	MO	6	$188.15	$1,129	2018 RS Means Line number 015213400160		13%	$127
Sanitary Facilities	Rent toilet, portable, chemical, Assume 6 month rental	MO	6	$183.00	$1,098	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 01 54 33.40 6410 (Construction Aids)	N	Rent toilet, portable, chemical, Assume 6 month rental	MO	6	$217.21	$1,303	2018 RS Means Line number 015433406410		19%	$205
Three Phase power supply	Assume cost for setting up electrical service to operate equipment to be around $20,000	LS	1	$20,000.00	$20,000	Engineer's Estimate	N	Assume cost for setting up electrical service to operate equipment to be around $20,000	LS	1	$20,000.00	$20,000	retained EECA estimate		0%	$0
Utility Cost during Project activities	Assume $15,000	LS	1	$15,000.00	$15,000	Engineer's Estimate	N	Assume $15,000	LS	1	$15,000.00	$15,000	retained EECA estimate		0%	$0
Bank Treatment Debris Removal	Cost for removing debris located along the Slough banks. Assume 1 Gradall, 3 ton, 1 CY, 1 Equipment Operator, 4 laborers	Day	5	$3,448.20	$17,241	2013 RSMeans Site Work and Landscape Cost Data Crew B-12 K + 3 laborers	Y	Cost for removing debris located along the Slough banks. Assume 1 Gradall, 3 ton, 1 CY, 1 Equipment Operator, 4 laborers	Day	7	$3,269.00	$22,883	Excavator (1cy) RS Means 2018 Line item 312316130600, B-12K crew (6.38 per CY, assumes 400 CY per line item below) plus 3x Gen purpose laborer = 2018 RS Means Line item 013113200160 ($1,195/wk)	Add 2 day for Alt 1	33%	$5,642
Bank Treatment Transport Debris to Staging Area	Assume 50 truck loads of debris will be removed from banks. 8 C.Y. truck, 15 MPH ave, cycle 1 mile, 30 min wait/Ld./ Uld.	CY	400	$7.55	$3,020	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 23 23.20-0414	Y	Assume 50 truck loads of debris will be removed from banks. 8 C.Y. truck, 15 MPH ave, cycle 1 mile, 30 min wait/Ld./ Uld.	CY	400	$7.61	$3,044	2018 RS Means Line number 312323200414		1%	$24
Transportation of Collected Debris	Debris removed for staging area/access road construction and other Debris. Dump truck transport from Yosemite Slough to Landfill; incl taxes and fees	Ton	3,021	$50.00	$151,050	Engineer's Estimate	Y	Debris removed for staging area/access road construction and other Debris. Dump truck transport from Yosemite Slough to Landfill; incl taxes and fees	Ton	4380	$63.82	$279,560	Low ($55) from T-117 EECA (includes T&D) ($63.82) from Potrero FS (includes T&D) High ($99.90) from UG FFS (includes T&D)	Increase by 45% due to additional Bank for Alt 1	85%	$128,510
Disposal of Collected Debris	Debris removed for staging area/access road construction and other Debris. Disposal at Landfill; incl taxes and fees	Ton	3,021	$50.00	$151,050	Engineer's Estimate	Y	Debris removed for staging area/access road construction and other Debris. Disposal at Landfill; incl taxes and fees	Ton	4380			Separate costs for transport and disposal as outlined in original EECA cost estimate not supported, combined T&D into single line item.	Increase by 45% due to additional Bank for Alt 0	-100%	$151,050
Bank Treatment Backfill	Assume 1-1/2" crushed stone will be used to fill in depressions that could potentially could form during excavation activities. Assume 500 CY of fill, includes cost for spreading, 2 mi RT Haul	LCY	500	$42.00	$21,000	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 05 16.10 0300	Y	Assume 1-1/2" crushed stone will be used to fill in depressions that could potentially form during excavation activities. Assume 500 CY of fill, includes cost for spreading, 2 mi RT Haul	LCY	725	$42.53	$30,834	2018 RS Means Line number 31051610300	Increase by 45% due to additional Bank for Alt 0	47%	$9,834
Erosion and Sediment Controls - Jute Mesh	Includes Jute Mesh 100 SY per roll, 4' wide, stapled	SY	9,680	$2.06	$19,941	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 25 14.16 0020	Y	Includes Jute Mesh 100 SY per roll, 4' wide, stapled	SY	14036	$1.70	$23,861	2018 RS Means Line number 312514160020	Increase by 45% due to additional Bank for Alt 0	20%	$3,920
Erosion and Sediment Control - Silt Fence & Hay Bales	Includes Silt Fence, polypropylene, 3' high, adverse conditions & Hay Bales, staked	LF	3,000	$11.75	$35,250	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 25 14.16 1100 + 1250	Y	Includes Silt Fence, polypropylene, 3' high, adverse conditions & Hay Bales, staked	LF	4350	$7.84	$34,104	2018 RS Means Line numbers 312514161000+1250	Increase by 45% due to additional Bank for Alt 0	-3%	$1,146
Subtotal					**$696,700**							**$835,600**			20%	$138,900
Health and Safety																
Health and Safety Plan	Prepare Site-specific health and safety plan as well as prepare community notification documents	Each	1	$10,000.00	$10,000	Engineer's Estimate	N	Prepare Site-specific health and safety plan as well as prepare community notification documents	Each	1	$10,000.00	$10,000	retained EECA estimate		0%	$0
Construct Decontamination Pad & Containment	For equipment and personnel, Assume 4 setups will be needed.	Setups	5	$5,000.00	$25,000	Engineer's Estimate	N	For equipment and personnel, Assume 4 setups will be needed.	Setups	5	$5,000.00	$25,000	retained EECA estimate		0%	$0

Cost Estimate for Dredge and Cap Only Alternative

Item Description	EECA 2013 Cost Estimate (EECA App G-8) Comment	Unit	Quantity	Unit Cost	Cost	EE/CA Reference	TIG/Integral Revised Cost Estimate Change in Dredge/Cap Volume Impacts Costs (Y/N)	Comment	Unit	Quantity (Alt 1 - Additional Dredge & Cap Only)	Unit Cost (Alt 1 - Additional Dredge & Cap Only)	Cost (Alt 1 - Additional Dredge & Cap Only)	TIG/Integral Reference(s)	Change / Description	Alt 0 vs EECA Costs % Difference	$ difference Red font = increased price Black font = decreased price
Water Supply for Decontamination	Assume daily water need for decontamination process is 5,000 gallons/setup.	100 CF	1,390	$5.10	$7,091	2012 costs from the San Francisco Public Utilities Commission. Water price of $5.10 per 100 CF.	N	Assume daily water need for decontamination process is 5,000 gallons/setup.	100 CF	1390	$9.17	$12,746	2017 costs from SFPUC. Water price of $9.17 per Ccf, builders and contractors		80%	$5,655
Community/Exclusion Zone Air Monitoring	Particulate meter purchase (Qty 4)	Each	4	$7,200.00	$28,800	Industrial Environmental Monitoring Instruments, http://www.ierents.com/ as of January 2012	N	Particulate meter rental (Qty 4)	2 months	4	$2,570.00	$10,280	Met One E-Sampler plus tripod rental for 2 month period.		-64%	$18,520
Site Safety Officer	10 hrs./day, 5days/wk., $100/hr.; 100% of project duration	man weeks	11	$5,000.00	$55,000	Engineer's Estimate	N	10 hrs./day, 5days/wk., $100/hr.; 100% of project duration	man weeks	11	$5,000.00	$55,000	retained EECA estimate		0%	$0
Subtotal					**$125,900**							**$113,100**			-10%	$12,800
Construction Mob/Demob																
Construction Oversight	10 hrs./day, 5days/wk., $100/hr.; 100% of project duration	man weeks	11	$5,000.00	$55,000	Engineer's Estimate	Y	10 hrs./day, 5days/wk., $100/hr.; 100% of project duration	man weeks	18	$5,000.00	$90,000	retained EECA estimate	Increase based on duration	64%	$35,000
Pre-Construction Safety Meeting	Pre-Construction safety meeting for all equipment operators and other personnel on the job. Assume 20 people will attend for 8 hours at $125/hour	Each	20	$1,000.00	$20,000	Engineer's Estimate	N	Pre-Construction safety meeting for all equipment operators and other personnel on the job. Assume 20 people will attend for 8 hours at $125/hour	Each	20	$1,000.00	$20,000	(Same as eeca) Pre-Construction safety meeting for all equipment operators and other personnel on the job. Assume 20 people will attend for 8 hours at $125/hour		0%	$0
Mobilization for Dry Excavation Equipment	Up to 25 mile haul distance; 3 loader, 1 forklift, 2 excav., 1 grader, 1 paver, and 2 Trucks above 150 H.P.,	Each	10	$505.00	$5,050	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 01 54 36.50-0100	N	Up to 25 mile haul distance; 3 loader, 1 forklift, 2 excav., 1 grader, 1 paver, and 2 Trucks above 150 H.P.,	Each	10	$369.71	$3,697	2018 RS Means Line number 015436501300		-27%	$1,353
Demobilization for Dry Excavation Equipment	Up to 25 mile haul distance; 3 loader, 1 forklift, 2 excav., 1 grader, 1 paver, and 2 Trucks above 150 H.P.,	Each	10	$505.00	$5,050	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 01 54 36.50-0100	N	Up to 25 mile haul distance; 3 loader, 1 forklift, 2 excav., 1 grader, 1 paver, and 2 Trucks above 150 H.P.,	Each	10	$369.71	$3,697	2018 RS Means Line number 015436501300		-27%	$1,353
Mob/dmob for Overwater Equipment	--	--	--	$0.00	$0	--	N	Mob/Demob of overwater equipment	LS	1	$300,000	$300,000	Not included in EECA, but based on PGE Potrero and UH FFS cost estimates mob/demob of overwater related equipment is not insignificant. Possible range of $265k (UH) to $400K (Potrero)		100%	
Subtotal					**$85,100**							**$417,400**			390%	$332,300
Hydraulic/Turbidity Controls																
Hydraulic/Turbidity Controls	Assume uniform $1,000,000 placeholder for all alternatives	LS	1	$1,000,000	$1,000,000	Engineer's Estimate	Y	$1,000,000 placeholder should be bumped to $1,200,000 for size and duration	LS	1	$1,200,000	$1,200,000	Engineer's Estimate, based on Potrero FS PortoDam ($635/LF) and silt curtain ($870,000 LS) cost data, with reasonable upper and lower factor. The length of the PortoDam would be approximately 300 LF (lengthwise at mouth of slough) or a high of 1,600 LF (from head of the slough to mouth). Rounded to $1.2M		20%	$200,000
Water Quality Monitoring	--	--	--	$0.00	$0	--	N	Water Quality Monitoring for turbidity, PCBs and lead	LS	1	$200,000	$200,000	Engineer's Estimate based on BPJ and UH FFS detailed estimate ($170,000)	Line item added	100%	$200,000
Subtotal					**$1,000,000**							**$1,400,000**			40%	$400,000
Contaminated Sediment Removal (Sediment Excavation, Transport, and Stockpiling)																
Timber Crane Mats for Slough Access	Cost for timber mat material. Assume the Yosemite Slough width is 300 ft., the number of pieces of Mat needed to cross the Slough is: 300 ft./4ft =75. Assume 200 mats needed for the entire project.	Each	200	$785.00	$157,000	The Mat Source: http://www.thematsource.com/mat-inventory/timber-mats.html. Douglas Fir Crane Mats (12 in *4 ft. * 20 ft.), each mat consists of 4 timbers. Accessed in June 2012	Y	Cost for timber mat material. Assume the Yosemite Slough width is 300 ft., the number of pieces of Mat needed to cross the Slough is: 300 ft./4ft =75. Assume 200 mats needed for the entire project.	Each	200	$871.35	$174,270	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		11%	$17,270
Timber Crane Mats Relocation	Backhoe Loader, 80 HP, 1 equipment operator and 2 laborers. For adjusting and relocating timber mats as needed during the project duration	Day	37	$1,888.04	$69,857	2013 RSMeans Site Work and Landscape Cost Data Crew B-11 M plus one additional laborer	Y	Backhoe Loader, 80 HP, 1 equipment operator and 2 laborers. For adjusting and relocating timber mats as needed during the project duration	Day	71	$1,717.00	$121,907	Backhoe (48HP with operator) 2018 RSMeans line item 024210209030 ($1,239/day) plus 2x Gen purpose laborer = 2018 RS Means Line item 013113200160 ($1,195/wk)	Increase duration of moving mats due to additional acreage for alternative	75%	$52,050
Excavation of Sediment	Excavator, hydraulic, 2 CY bucket = 165 CY/hr. Assume 5 % of the volume removed would be debris.	BCY	9,939	$45.00	$447,255	Engineer's Estimate	Y	Excavator, hydraulic, 2 CY bucket = 165 CY/hr. Assume 5 % of the volume removed would be debris.	BCY	20545	$70	$1,438,150	Engineer's Estimate. Comparing to LPR at $58/yd (2010) and Boeing Plant 2 at $67/cy (2013-2015) the assumed unit rate of $70 is reasonable. With reasonable upper and lower factor	Increase vol per SWAC est for Alt 1	222%	$990,895
Loading sediment onto trucks	add 15% to excavation costs	BCY	9,939	$6.75	$67,088	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 23 16.42-0020	Y	Transfer DM from barge to truck, including overwater transfer.	BCY	20545	$25	$513,625	Based on Potrero FS, transport, offload, and dewater to berth from barge was estimated at $25/CY. With reasonable upper and lower factor	Increase vol per SWAC est for Alt 1	666%	$446,537
Add long reach boom/arm for excavator	add 50% of the excavator costs	BCY	9,939	$22.50	$223,628	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 23 16.42-4250	--	add 50% of the excavator costs (Remove Line Item.)	BCY	0	$0.00	$0	Line Item to be removed /excluded		-100%	$223,628
Transport Sediment to Stockpile (staging area)	8 C.Y. truck, 15 MPH ave, cycle 1 mile, 30 min wait/Ld./ Uld.	LCY	11,430	$7.55	$86,295	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 31 23 23.20-0414	Y	8 C.Y. truck, 15 MPH ave, cycle 1 mile, 30 min wait/Ld./ Uld.	LCY	23627	$7.61	$179,800	2018 RS means Line number 312323200414	Based on 15% expansion factor for BCY to LCY	108%	$93,505
Stockpiling of Dredged Sediment	1 F.E. Loaders, Wheel Mounted, 2.5 CY capacity, 1 operator and laborer, available onsite full time during excavation, capping, restoration and demobilization activities.	Day	42	$1,371.22	$57,591	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.Crew B-10T	Y	1 F.E. Loaders, Wheel Mounted, 2.5 CY capacity, 1 operator and laborer, available onsite full time during excavation, capping, restoration and demobilization activities.	Day	76	$1,010.00	$76,760	F.E. Loader, 2.5CY = 2018 RS Means Line item 015433204710 ($4,772/mn plus $1,591/wk; 532/day) Gen purpose laborer = 2018 RS Means Line item 013113200160 ($1,195/wk)	additional active duration (34 additional days vs EECA	33%	$19,169
Line Item - Sediment Dewatering	including debris removal, generator, shakers, belt press, and polymer dosage. Assumed Dewatering for mechanical and hydraulic dredging activities are equal.	LCY	11,430	$63.00	$720,081	2012 Vendor quote provided by JND Thomas Co., Inc. provided for Hydraulic dredging.	Y	Including equipment and operations for debris removal, barge dewatering, and upland dewatering/polymer dosage.	LCY	23627	$78.00	$1,842,887	Engineer's Estimate (TBD)	Based on 15% expansion factor for BCY to LCY	156%	$1,122,806
Subtotal					**$1,828,800**							**$4,347,400**			138%	$2,518,600

Cost Estimate for Dredge and Cap Only Alternative

Item Description	EECA 2013 Cost Estimate (EECA App G-8) Comment	Unit	Quantity	Unit Cost	Cost	EE/CA Reference	TIG/Integral Revised Cost Estimate Change in Dredge/Cap Volume Impacts Costs (Y/N)	Comment	Unit	Quantity (Alt 1 - Additional Dredge & Cap Only)	Unit Cost (Alt 1 - Additional Dredge & Cap Only)	Cost (Alt 1 - Additional Dredge & Cap Only)	TIG/Integral Reference(s)	Change / Description	Alt 0 vs EECA Costs % Difference	$ difference Red font = increased price Black font = decreased price
Sediment Stabilization for Lead																
Sediment Stabilization	EnviroBlend CS, 1-3% wt./wt. dosage, 2000 # Supersacks, material only	Ton	135	$285.00	$38,475	2012 Vendor Quote from Premier Chemicals LLC.	Y	EnviroBlend CS, 1-3% wt./wt. dosage, 2000 # Supersacks, material only	Ton	279	$316.35	$88,404	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA	107% increase based on additional volume	130%	$49,929
Transportation Costs	Freight Costs, $1,300/22 sacks	Ton	135	$59.09	$7,977	2012 Vendor Quote from Premier Chemicals LLC.	Y	Freight Costs, $1,300/22 sacks	Ton	279	$65.59	$18,329	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		130%	$10,352
ForkLift Rental	Assume Forklift rental for one day when the material would be delivered onsite	Day	1	$1,117.24	$1,117	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.Crew A-3P	N	Assume Forklift rental for one day when the material would be delivered onsite	Day	1	$1,387.32	$1,387	2018 RS Means Line item number 015416500100 (weekly use divided by 5)		24%	$270
Mixing Sediment with the product	Front End Loader, 5 CY bucket	LCY	3,450	$1.94	$6,693	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.312316.42-1350	Y	Front End Loader, 5 CY bucket	LCY	8073	$1.83	$14,774	2018 RS Means Line number 312316421350	Increase of 107% based on additional sediment volume	121%	$8,081
Characterization Sampling of Treated Sediment	Assume 1 sample required per 100 LCY. Includes TCLP, STLC, TTLC tests metals and PCBs	Each	35	$1,000.00	$35,000	Engineer's Estimate	Y	Assume 1 sample required per 100 LCY. Includes TCLP, STLC, TTLC tests metals and PCBs	Each	81	$775.00	$62,566	Assumes 1 sampler per 100 LCY, includes typical IDW and disposal tests at current rates from Test America		79%	$27,566
Subtotal					**$89,300**							**$185,500**			108%	$96,200
Transportation and Disposal of sediment																
Characterization Sampling of Dewatered Sediment	Assume 1 sample required per 500 LCY. Includes analysis for metals and PCBs	Each	23	$1,000.00	$23,000	Engineer's Estimate	Y	Assume 1 sample required per 500 LCY. Includes analysis for metals and PCBs	Each	47	$775.00	$36,621	Assumes 1 sampler reqd per 500 LCY. Includes analysis for Metals, PCBs + other typically disposal required tests	increase due to volume dredge sediment	59%	$13,621
Loading Sediment onto Trucks	Front End Loader, 5 CY bucket, Assumed Loading will occur during the excavation and capping activities.	Day	32	$1,954.00	$62,528	2012 RSMeans Site Work and Landscape Cost Data 31st Ed. Crew B-10U	Y	Front End Loader, 5 CY bucket, Assumed Loading will occur during the excavation and capping activities.	Day	66	$1,800.21	$118,814	RSMeans Line item number 015433204760 (5cy front end loader [$1020/day)) plus 2 laborer crew Gen purpose laborer = 2018 RS Means Line item 013113200160 ($1,1950/wk)	Increase duration of loading due to excavate/cap duration	90%	$56,286
Transportation & Disposal of Non-Hazardous Waste	Dump truck transport from Yosemite Slough to Landfill; incl taxes and fees	Ton	14,909	$50.00	$745,425	Engineer's Estimate	Y	Dump truck transport from Yosemite Slough to Landfill; incl taxes and fees	Ton	30818	$63.82	$1,966,773	Lowest comparable estimate ($55) from T-117 EECA (includes T&D) Mid-range comparable estimate ($63.82) from Potrero FS (includes T&D) High end comparable estimate ($99.90) from UG FFS (includes T&D)		164%	$1,221,348
Transportation and Disposal of Hazardous Waste	Disposal at Landfill; incl taxes and fees	Ton	14,909	$50.00	$745,425	Engineer's Estimate	Y	Disposal at Landfill; incl taxes and fees	Ton	3082	$166.88	$514,267	Higher T&D for Haz Waste included as line item	New line item added.	--	$231,158
Subtotal					**$1,576,400**							**$2,636,500**			67%	$1,060,100
Treatment of Dewatering Process Water																
FRAC Tank Rental; for "holding tank" of water	6 x 21,000 Tank with Cleaning	Day	52	$1,200.00	$62,400	Engineer's Estimate	Y	6 x 21,000 Tank with Cleaning	Day	86	$1,332.00	$114,552	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA	additional active duration (34 additional days vs EECA	84%	$52,152
Rain for Rent dewatering process water treatment system mobilization	process involves a settling tank, sand filtration, bag filter, carbon filter, resins/Organoclay, holding tank for testing	Each	1	$75,000.00	$75,000	Oakley Rain for Rent Quote from Tony DeBellis (2012)	N	process involves a settling tank, sand filtration, bag filter, carbon filter, resins/Organoclay, holding tank for testing	Each	1	$83,250.00	$83,250	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		11%	$8,250
Rain for Rent dewatering process water treatment system spent media disposal and replacement	cost is 125% of cost for mobilization for each media replacement	Each	1	$93,750.00	$93,750	Oakley Rain for Rent Quote from Tony DeBellis (2012)	Y	cost is 125% of cost for mobilization for each media replacement	Each	1	$104,062.50	$104,063	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		11%	$10,313
Treatment System Operations	One operator	Day	52	$574.00	$29,848	2013 RSMeans Site Work and Landscape Cost Data One Equip. Oper. (med)	Y	One operator	Day	86	$666.00	$57,276	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		92%	$27,428
Characterization/Monitoring Sampling of Dewatering Process Water	Including pH, TDS, TSS, COD, Metals, PCBs. Assume one sample is needed every 10000 CF of processed water.	Each	63	$1,000.00	$63,000	Engineer's Estimate	N	Including pH, TDS, TSS, COD, Metals, PCBs. Assume one sample is needed every 10000 CF of processed water.	Each	130	$750.00	$97,808	Assumes 1 sampler per 10000 CF of processed water for pH, TDS, TSS, COD, metals and PCBs. Tests based on recent TA prices for project		55%	$34,808
Combined Water Treatment and Monitoring							N		Lump	1	$945,882.36	$945,882	Lump sum based on above line items, adjusted based on additional volume.	Increase based on additional volume of sed (107%)		
Subtotal					**$324,000**							**$945,882**			192%	$621,882
Discharge of Dewatering Process Water to SFPUC																
Permit Fee		Each	1	$1,000.00	$1,000	Engineer's Estimate	N		Each	1	$1,000.00	$1,000	Assume same as EECA		0%	$0
Batch Discharge to SFPUC	Sewer service charge is per 100 cubic feet discharged	100 CF	6,238	$6.56	$40,923	2012 costs from the San Francisco Public Utilities Commission. Water price of $6.55 per 100 CF.	Y	Sewer service charge is per 100 cubic feet discharged	100 CF	12913	$7.84	$101,235	Based on SFPUC 2017 rates (base rate of $7.664 per Ccf, additional charge for COD, TSS, and O&G per lb [$0.548, $1.033, and $1.082 respectively])		147%	$60,312
Subtotal					**$42,000**							**$102,300**			144%	$60,300
Capping																
Capping Material Purchase and Transportation	Assume the amount of material needed is equal to the amount sediment removed. Assume material is 1.5 ton/CY based on data from the Geotechnical Study	Ton	14,909	$50.00	$745,425	Engineer's Estimate. Source of material has not been identified at this time.	Y	Assume the amount of material needed is 30% greater than the amount sediment removed. Assume material is 1.5 ton/CY based on data from the Geotechnical Study	CY	26709	$30	$801,255	Engineer's Estimate - Based on $45/CY West Basin 2012 (CCSF) contractor Bid Mod for Sediment Trap clamshell dredge and barge placement of 3' sand cap and Boeing Plant 2 actual cost of $80/CY; assume combined estimate is $80/CY to supply and place a 2' engineered sand cap	Increase based on excavated volume of sediment	7%	$55,830
Excavator for Installation of Cap material	Excavator, hydraulic, 2 CY bucket	LCY	11,430	$40.00	$457,194	Engineer's Estimate.	Y	Excavator, hydraulic, 2 CY bucket	CY	26709	$50	$1,335,425		Increase based on excavated volume of sediment	192%	$878,231
Add long reach boom/arm for excavator	add 50% of the excavator costs	LCY	11,430	$20.00	$228,597	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.31 23 16.42-4250	--	Not included in updated Cost Estimate, current approach negates need for excavator long reach arm	LCY	11430	--	$0	Not included.	not included	-100%	$228,597
Subtotal					**$1,431,300**							**$2,136,700**			49%	$705,400

Cost Estimate for Dredge and Cap Only Alternative

Item Description	EECA 2013 Cost Estimate (EECA App G-8) Comment	Unit	Quantity	Unit Cost	Cost	EE/CA Reference	TIG/Integral Revised Cost Estimate Change in Dredge/Cap Volume Impacts Costs (Y/N)	Comment	Unit	Quantity (Alt 1 - Additional Dredge & Cap Only)	Unit Cost (Alt 1 - Additional Dredge & Cap Only)	Cost (Alt 1 - Additional Dredge & Cap Only)	TIG/Integral Reference(s)	Change / Description	Alt 0 vs EECA Costs % Difference	$ difference Red font = increased price Black font = decreased price
Enhanced Natural Recovery																
Material Purchase and Transportation	Not Included in EE/CA but possible in light of Pre-Design Studies completed to date.	N/A	N/A	N/A	N/A	N/A	Y	Assume material is 1.5 ton/CY based on data from the Geotechnical Study	CY	0	$30	$0	Total slough area is 414K sq ft (EECA Section 2). Capped area excluded. Remaining area may require additional treatment via EMNR. Cost items included as placeholders.		--	#VALUE!
Excavator for installation of material	Excavator, hydraulic, 2 CY bucket	NA	NA	NA	NA	NA	Y	Excavator, hydraulic, 2 CY bucket	CY	0	$50	$0			--	#VALUE!
Amend Material							Y		LCY	0	$150.00	$0			--	
Subtotal					**$0**							**$0**			--	$0
Lease Staging Area																
Lease Staging Area	Not included in EE/CA.	Month	2	$0.00	$0	N/A	Y	Staging area land lease costs need to be accounted for; required lease are is 13 acre.	Month	4.0	$ 56,625	$226,500	PGE Potrero PP FS includes line item lease cost of $22,651/month for 2 ac of land, roughly $11,325 per acre per month. EE/CA states ~13 ac available for staging, assume min cost for $11K per acre for 2 acre and max cost of $11K for 13 acres		100%	$226,500
Subtotal					**$0**							**$226,500**			#DIV/0!	$226,500
Post Construction Costs																
Site Restoration for Staging Area/Access Roads	grading of access roads and staging area for paving	Day	2	$1,266.02	$2,532	2013 RSMeans Site Work and Landscape Cost Data Crew B-10L - 0.5 laborer	N	grading of access roads and staging area for paving	Day	2	$1,292.18	$2,584	2018 RS Means Line item 312213200210 (B11L rough grader, open site 20K-25K S.F.		2%	$52
Site Restoration for Access road/staging area	Plant-mix Asphalt Paving with binder course 2.5" thick.	SY	9680	$11.30	$109,384	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed.32 12 16.13-0130	Y	Plant-mix Asphalt Paving with binder course 2.5" thick.	SY	9680	$13.88	$134,358	RSMeans Line Number 321216130130		23%	$24,974
Site Restoration for Staging Area	Plant-mix Asphalt Paving with wearing course 2.5" thick.	SY	9680	$12.55	$121,484	2013 RSMeans Site Work and Landscape Cost Data 32nd Ed. 32 12 16.13-0420	Y	Plant-mix Asphalt Paving with wearing course 2.5" thick.	SY	9680	$15.36	$148,685	RSMeans Line Number 321216130420		22%	$27,201
Project Closeout	Phase II Investigation costs	Each	1	$25,000.00	$25,000	Engineer's Estimate	N	Phase II Investigation costs	Each	1	$27,750.00	$27,750	Updated quotes from using 11% increase due to >5yr timing difference based on comparison of BCI and CCI City Cost Indices for SF, CA		11%	$2,750
Subtotal					**$258,400**							**$313,400**			21%	$55,000
				Capital Costs Subtotal:	**$7,482,900**							**$13,685,282**			83%	$6,202,382
Adjusted Capital Cost Subtotal for San Francisco, CA Location Factor (123.4):					$9,233,900							$13,685,282	Delete this factor, RS means estimate updates account for fact that project to take place in SF, Engineer's Estimate also based on knowledge that the project is to take place in SF.	deleted adjustment factor	48%	$4,451,382
10% Legal and Administrative Fees					$923,400							$1,368,600			48%	$445,200
20% Contingencies:					$1,846,800							$2,737,100			48%	$890,300
Predesign Investigations:					$1,000,000	Engineer's Estimate						$2,875,000	Engineer's Estimate		188%	$1,875,000
Construction Management (10% of total capital cost)					$923,400	Engineer's Estimate						$1,368,600	Engineer's Estimate		48%	$445,200
Engineering Design (10 % of total capital cost)					$923,400	Engineer's Estimate						$1,368,600	Engineer's Estimate		48%	$445,200
				Total Capital Costs in 2013 Dollars:	**$14,851,000**							**$23,403,000**			58%	$8,552,000
				Monitored Natural Attenuation												
MNR Costs		LS	1	$236,840.00	$236,840	MNR costs provided by Arcadis (2012)			LS	1	$236,840.00	$236,840	MNR costs provided by Arcadis (2012).		0%	$0
Subtotal					$236,840							$236,840			0%	$0
Adjusted Capital Cost Subtotal for San Francisco, CA Location Factor (123.4):					$292,261							$236,840	Delete this adjustment factor per above.	deleted adjustment factor	-19%	$55,421
				10% Legal and Administrative Fees	$29,226							$23,684			-19%	$5,542
				20% Contingencies:	$58,452							$47,368			-19%	$11,084
				Total:	**$380,000**							**$308,000**			-19%	$72,000
																$0
Periodic (5-year) Monitoring for 30 years																
Institutional Controls	Easement, fencing, signs	LS	1	$25,000	$25,000	Engineer's Estimate		Easement, fencing, signs	LS	1	$25,000	$25,000	Engineer's Estimate		0%	$0
Site Monitoring		LS	1	$20,000	$20,000	Engineer's Estimate			LS	1	$20,000	$50,000	Engineer's Estimate		150%	$30,000
Reporting		LS	1	$10,000	$10,000	Engineer's Estimate			LS	1	$10,000	$25,000	Engineer's Estimate		150%	$15,000
5-Year Cost Subtotal:					$55,000							$100,000			82%	$45,000
Adjusted Capital Cost Subtotal for San Francisco, CA Location Factor (123.4):					$67,870							$100,000	Delete this adjustment factor per above	deleted adjustment factor	47%	$32,130
				10% Legal and Administrative Fees	$6,787							$10,000			47%	$3,213
				20% Contingencies:	$13,574							$20,000			47%	$6,426
				5-Year Total:	$88,231							$130,000			47%	$41,769
30-Year Present Worth of Periodic Monitoring Costs:					**$246,000**							**$780,000**			217%	$534,000
				2013 Present Worth Cost:	$15,477,000							$24,491,000			58%	$9,014,000

Cost Estimate for Dredge and Cap Only Alternative

Item Description	EECA 2013 Cost Estimate (EECA App G-8) Comment	Unit	Quantity	Unit Cost	Cost	EE/CA Reference	TIG/Integral Revised Cost Estimate Change in Dredge/Cap Volume Impacts Costs (Y/N)	Comment	Unit	Quantity (Alt 1 - Additional Dredge & Cap Only)	Unit Cost (Alt 1 - Additional Dredge & Cap Only)	Cost (Alt 1 - Additional Dredge & Cap Only)	TIG/Integral Reference(s)	Change / Description	Alt 0 vs EECA Costs % Difference

$ difference
Red font = increased price
Black font = decreased price

EECA 2013 Assumptions

1. Volume of Contaminated Material — 9,939 BCY, as estimated using the polygon method, E&E, 2013
2. Volume of Hazardous lead contaminated soil — 3000 BCY
3. Perimeter around staging area — 3000 ft
4. Area available for Staging Area — 13 acre
5. Project Duration
   - Mobilization — 5 days
   - Dewatering and Treatment system set up — 5 days
   - Excavation — 16 days
   - Capping — 16 days
   - Restoration — 5 days
   - Demobilization — 5 days
   - Total Project Duration — 52 days
6. Dewatering
   - Volume of water from the sediment (assume that the sediment will only have 30% water, as dewatering activities would have removed most of the water) — 80505.9 CF
   - Total volume removed/excavation rate of 165 CY/HR. Assume 8 hours per day, 5 days per week, Assume 50% production rate. — 404,278 CF
   - Volume of water that would be pumped during dewatering (assume 50 gpm, 24 hours a day during dewatering setup, excavation, capping and restoration)
7. In-Situ Bulk Density assumed for the project is 1.5 Tons/BCY
8. Swell Factor was assumed to be 15%
9. Assume access road preparation will disturb 1 acre and the staging area will disturb 1 acre for a total of 2 acres.
10. After construction activities are completed, the disturbed two acres will require pavement restoration.
11. The surveying crew will be needed for the entire project duration to compete a pre-excavation, post-excavation, and post capping surveys and to assist the excavation crew.
12. The cofferdam needed is 1000' (length) by 36' (depth). Assume that a silt curtain will be in place during the installation and removal of the cofferdam.
13. Assume 5000 gallons of water/decon setup would be needed daily for decontamination purposes. Assume this water will be treated by the dewatering process water treatment facility.
14. Approximately 200 timber crane mats will be needed for the entire project.
15. One sample is needed every 10,000 CF of processed water.
16. The Suspended Solids, Oil/Grease and COD will be removed during the sediment dewatering process.
17. Assume that there is a manhole located onsite discharge of treated dewatering process water.
18. Assume there is a fire hydrant onsite for the supply of decontamination water.
19. Onsite material from access road creation will be used to fill in depressions created by debris removal.
20. Amount of backfill material needed for bank treatment is 1000' bank length x 50' width x 2' depth.
21. Assume 10 truck loads of debris will be removed from banks.
22. Present worth of costs assumes 5% annual interest rate.
23. Unit costs listed were obtained from 2012 RS Means Cost Data and engineering judgement.
24. Institutional Controls at the site are expected to include deed restrictions, informational signs and dissemination of information by the State Parks to the general public.

Key:
LF = Linear Foot SY = Square Yard
BCY = Bank Cubic Yard LCY = Loose Cubic Yard LS = Lump Sum
LCY = Loose Cubic Yard
LS = Lump Sum
SF = Square Feet CF = Cubic Feet

TIG/Integral Assumptions (Red Font if Different/Updated from EECA

1. Volume of Contaminated Material — 20,545 BCY, as estimated using the polygon method
2. Volume of Hazardous lead contaminated soil — 6200 BCY
3. Perimeter around staging area — 3000 ft
4. Area available for Staging Area — 13 acre
5. Project Duration
   - Mobilization — 5 days
   - Dewatering and Treatment system set up — 5 days
   - Excavation — 33 days
   - Capping — 33 days
   - Restoration — 5 days
   - Demobilization — 5 days
   - Total Project Duration — 86 days
6. Dewatering
   - Volume of water from the sediment (assume that the sediment will only have 30% water, as dewatering activities would have removed most of the water) — 166647.4 CF
   - Total volume removed/excavation rate of 165 CY/HR. Assume 8 hours per day, 5 days per week, Assume 50% production rate. — 404,278 CF
   - Volume of water that would be pumped during dewatering (assume 50 gpm, 24 hours a day during dewatering setup, excavation, capping and restoration)
7. In-Situ Bulk Density assumed for the project is 1.5 Tons/BCY
8. Swell Factor was assumed to be 15%
9. Assume access road preparation will disturb 1 acre and the staging area will disturb 1 acre for a total of 2 acres.
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18. Assume there is a fire hydrant onsite for the supply of decontamination water.
19. Onsite material from access road creation will be used to fill in depressions created by debris removal.
20. Amount of backfill material needed for bank treatment is 1450' bank length x 50' width x 2' depth.
21. Assume 10 truck loads of debris will be removed from banks.
22. ~~Present worth of costs assumes 5% annual interest rate.~~
23. Unit costs listed were obtained from 2018 RS Means Cost Data and engineering judgement unless otherwise noted in TIG/Integral References Column
24. Institutional Controls at the site are expected to include deed restrictions, informational signs and dissemination of information by the State Parks to the general public.