Conceptual Site Model Considerations - Terrestrial/Groundwater	
Site Name	
Site Description	Location: Size: Site Status: ☐ Active ☐ Inactive ☐ Unknown
Site Conditions	
Current Conditions (Request maps of site and adjacent areas)	Describe present site conditions using information obtained during property inspection or site-specific documents to identify: ☐ On-site land use (e.g. residential, industrial, recreational, commercial, school) ☐ Land use on adjacent property ☐ Site topography and surface water runoff patterns ☐ Surface features (pavement, buildings, landscaping, etc.) ☐ Subsurface infrastructure (pipelines, french drains, utility conduits, ponds, wetlands, drainage features, etc.) ☐ Number/type of people (residents [adults/children], industrial workers, construction workers) ☐ Distance from base boundary, beneficial use wells, or other sensitive resources ☐ Distance to nearest off-base community (residential and non-residential) ☐ Site investigation phase, cleanup, or post-cleanup phase ☐ Biological habitats present on and near the site ☐ Site ownership/control and easements
Future Conditions	Describe potential future conditions (obtain from Base Master Plans or redevelopment plans for property transfers), consider including information as was identified under "current conditions" above.
Geology and Hydrogeology	☐ Description of regional and site geology ☐ Physical properties of subsurface materials (e.g., porosity, bulk density, moisture content) ☐ Stratigraphy, including thickness, lateral extent, continuity of units, and presence of depositional features, such as channel deposits, that may provide preferential pathways for or barriers to contaminant transport or implementation of remedial options ☐ Geologic structures that may form preferential pathways for contaminant migration, zones of accumulation, or may potentially impact in-situ or ex-situ remedial options ☐ Aquifer characteristics including: • On-site and immediate downgradient groundwater use (potable vs. non-potable) • Depth to groundwater and seasonal variation • Hydraulic gradients (horizontal and vertical) (natural vs. induced) and flow velocities

Conceptual Site Model Considerations - Terrestrial/Groundwater	
Site Name	
	• Groundwater recharge and discharge information • Groundwater/surface water interactions • Tidal influence • Halocline or thermocline potentially influencing transport or mixing
Geochemistry and Biotic Conditions	Identify conditions that may impact fate and transport of chemicals in vadose zone and/or saturated zone: ☐ Redox conditions (including these parameters: pH, DO, ORP, Fe, Mn, sulfate, methane, alkalinity) ☐ Groundwater pH and buffering capacity ☐ Nutrients to support in situ bioremediation ☐ Potential electron acceptors and/or donorsÂ for biodegradation ☐ Organic carbon content ☐ Average soil/groundwater temperature ☐ Fresh, brackish, or saline groundwater conditions
Meteorology	☐ Climate ☐ Prevailing wind direction and speed ☐ Seasonal precipitation and evaporation ☐ Irrigation
Nature and Extent of Contamination	
Identify Potential Hazardous Substance Releases	☐ Fuel tanks (AST/UST/bladders) (fuel type, tank specs, integrity), dispensers, and associated lines ☐ Degreasing operations (dip tanks, wash stands, gun cleaning areas) ☐ Painting and plating operations (tanks, sand blast areas, paint booths, plating baths) ☐ Hydraulic lifts and load rack areas ☐ Drum or packaged storage areas ☐ Maintenance areas (garages, public works office, landscape) ☐ Landfills, burn pits, incinerators, dumps, waste disposal pits/trenches ☐ Recycling centers & DRMO yards ☐ Waste handling areas (oil water separators, sewer lines, sewage treatment plants, TSD facilities, leach lines, transfer stations) ☐ Waste discharge areas (storm drains, drainage ditches, sumps, process effluent, random dumping of process waste)

Conceptual Site Model Considerations - Terrestrial/Groundwater	
Site Name	
	☐ Pesticide areas (storage, mixing, loading, equipment cleaning, spills) ☐ Surface impoundment (treatment lagoon, evaporation pond, wastewater treatment pond) ☐ Munitions-related activities (R&D labs, ranges, demilitarization, OB/OD training) ☐ Fire-fighter training areas ☐ Dredge spoil areas, imported fill ☐ Contaminated waste oil used for dust suppression ☐ Areas of known or suspected surface spills ☐ Research and development areas (laboratories, test stands, test ranges) ☐ Other:
Impacted Media	☐ Surface soil ☐ Subsurface soil ☐ Groundwater ☐ Sediment (1) ☐ Surface Water(1) ☐ Indoor Air/Outdoor Air(2) ☐ Soil gas(2)
Description of Contamination (Request figures)	For each area of contamination, record the following information: ☐ Describe history of contamination ☐ Describe previous remedial/removal actions ☐ Depth to top of contamination ☐ Depth to bottom of contamination ☐ Location of contamination relative to site strata ☐ Horizontal extent of contamination ☐ Potential for contaminant mobility (leaching, soil gas transport, groundwater plume) For impacted groundwater only: ☐ Plume orientation, direction, and speed ☐ Plume expanding, stable, or shrinking ☐ Distance to sensitive receptors (e.g., residential or non-residential developments, domestic wells, surface water bodies) or installation boundary
COPC Identification and Properties	☐ Identify COPCs ☐ volatile organics ☐ semivolatile organics ☐ metals

Conceptual Site Model Considerations - Terrestrial/Groundwater	
Site Name	
	☐ NAPL ☐ Identify key chemical and physical properties of each COPC ☐ Identify COPC concentrations in each medium
Assess Quality of Data	Are there sufficient data of adequate quality and quantity to support a quantitative risk assessment? ☐ Age of the data ☐ Number of sample events/number of samples ☐ Media sampled ☐ Sample collection methods ☐ Analyses conducted for all suspected chemicals and degradation products ☐ Reporting limits sufficiently low for comparison to screening criteria ☐ Sampling locations relative to source area and current understanding of CSM ☐ Nature and extent of contamination delineated
Contaminant Phases	☐ Dissolved ☐ DNAPL ☐ LNAPL ☐ Sorbed ☐ Vapor
Contaminant Release Mechanisms	Source # : ☐ infiltration/percolation ☐ volatilization ☐ fugitive dusts ☐ erosion/runoff ☐ uptake by plants Source # : ☐ infiltration/percolation ☐ volatilization ☐ fugitive dusts ☐ erosion/runoff ☐ uptake by plants Source # : ☐ infiltration/percolation ☐ volatilization ☐ fugitive dusts ☐ erosion/runoff ☐ uptake by plants
Factors Affecting Migration	Define the key subsurface characteristics and migration pathways: ☐ Heterogeneity and orientation of strata ☐ Natural or man-made barriers to migration ☐ Groundwater gradients ☐ Retardation factors ☐ Advective vs. diffusive contaminant transport ☐ NAPL viscosity and capillary action ☐ Biotic or abiotic attenuation factors ☐ Identify locations and depths of underground utilities or other potential preferential pathways

Conceptual Site Model Considerations - Terrestrial/Groundwater	
Site Name	
Establish Background Concentrations	☐ Surface soil ☐ Subsurface soil for each geologic strata ☐ Groundwater ☐ Indoor Air[2] ☐ Outdoor Air[2]
Risk Assessment Exposure Pathways and Receptors	
Current and Future Land Use	Current: ☐ residential/school ☐ industrial ☐ commercial ☐ agricultural ☐ recreational ☐ other Future: ☐ residential/school ☐ industrial ☐ commercial ☐ agricultural ☐ recreational ☐ other Surrounding: ☐ residential/school ☐ industrial ☐ commercial ☐ agricultural ☐ recreational ☐ other
Media Affected or Potentially Affected by Soil Contamination	Source #: ☐ air ☐ groundwater ☐ surface water ☐ sediments Source #: ☐ air ☐ groundwater ☐ surface water ☐ sediments Source #: ☐ air ☐ groundwater ☐ surface water ☐ sediments
Identify Potential Receptors	<u>Human</u> Current: ☐ residents ☐ visitors ☐ workers ☐ other: Future: ☐ residents ☐ visitors ☐ workers ☐ other: <u>Ecological</u> Current : ☐ plants ☐ mammals ☐ invertebrates ☐ avian ☐ other: Future: ☐ plants ☐ mammals ☐ invertebrates ☐ avian ☐ other:
Identify Potential Routes of Exposure for each Receptor	<u>Human</u> Current: ☐ ingestion ☐ dermal contact ☐ inhalation (outdoor) ☐ inhalation (indoor) ☐ food intake Rationale for exclusion of exposure pathway(s): Future: ☐ ingestion ☐ dermal contact ☐ inhalation (outdoor)

Conceptual Site Model Considerations - Terrestrial/Groundwater	
Site Name	
	☐ inhalation (indoor) ☐ food intake For each Potential Ecological Receptor Current : ☐ ingestion ☐ dermal contact ☐ inhalation (outdoor) ☐ food chain ☐ plant uptake Future: ☐ ingestion ☐ dermal contact ☐ inhalation (outdoor) ☐ food chain ☐ plant uptake
Identify Appropriate Chemical-Specific Screening Level for Exposure	Human: ☐ generic (e.g., USEPA's Regional Screening Levels[RSL] for Chemical Contaminants at Superfund Sites [http://www.epa.gov/region09/superfund/prg/index.html]; USEPA MCL; Risk Assessment Information System website [http://rais.ornl.gov/tools/eco_search.php]; State-specific risk-based screening values). ☐ site-specific (back-calculation of risk-based screening levels) Ecological: ☐ generic (e.g., USEPA Ecological Benchmark Values [http://www.epa.gov/ecotox/ecossl/]; U.S. Navy Ecological Risk Assessment Guidance website [http://web.ead.anl.gov/ecorisk/methtool/]; Risk Assessment Information System website [http://rais.ornl.gov/tools/eco_search.php]; and state-specifc screening values. ☐ site-specific (back-calculation of risk-based screening levels)
Is an Exposure Route Potentially Complete?	For each potential exposure route identified above, determien whether the exposure route is potentially complete. Human Current: ☐ yes ☐ no Rationale for identifying incomplete exposure pathway(s): Future: ☐ yes ☐ no Rationale for identifying incomplete exposure pathway(s): Ecological

Conceptual Site Model Considerations - Terrestrial/Groundwater	
Site Name	
	Current: ☐ yes ☐ no Rationale for identifying incomplete exposure pathway(s): Future: ☐ yes ☐ no Rationale for identifying incomplete exposure pathway(s):

(1) Sediment and surface water may become impacted due to soil and/or groundwater contamination (i.e., surface runoff, groundwater to surface water discharge). Please refer to the CSM consideration list developed especially for impact to sediment/surface water.

(2) Please refer to the CSM consideration list developed especially for vapor intrusion.