UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

August 10, 2010

Enbridge Energy, Limited Partnership
c/o Tom Fridel
1500 West Main Street
Griffith, IN 46375

Re: U.S. EPA Notice of Disapproval of Enbridge Energy, Limited Partnership's August 2, 2010, submission in response to the Removal Administrative Order issued by U.S. EPA on July 27, 2010, pursuant to §311(c) of the Clean Water Act in Docket No. CWA 1321-5-10-001

Dear Mr. Fridel:

The United States Environmental Protection Agency (U.S. EPA) has completed a review of the following document submitted by Enbridge Energy, Limited Partnership, (Enbridge) on August 2, 2010, pursuant to Paragraph 19 of the above-referenced Order and pursuant to U.S. EPA's request in its July 31, 2010 letter:

Remediation Plan for Downstream Impacted Areas

U.S. EPA disapproves Enbridge's Remediation Plan for Downstream Impacted Areas (DIAR Plan) due to deficiencies in content and lack of sufficient technical details. Specific comments are set forth below and shall be incorporated into a revised DIAR Plan, pursuant to Paragraph 20 of the U.S. EPA Order. As set out below, U.S. EPA technical staff has been designated to direct Enbridge's revision of the plan. In addition, the Incident Commander (IC), Ralph Dollhopf, has directed Enbridge to work with U.S. EPA to address a lack of information in the DIAR Plan.

The final DIAR Plan, as amended, shall be submitted to U.S. EPA by no later than 1200 hours Eastern, August 12, 2010. The U.S. EPA IC will then complete a final review. Any additional corrections of, or modifications to, the DIAR Plan will be made by Enbridge as directed by the IC. Enbridge is directed to submit the DIAR Plan in Microsoft Word format to allow for corrections or modifications to the electronic documents.

General Comments

The U.S. EPA notes that it was unable to provide comments on certain sections and/or parts of the DIAR Plan in their entirety because of significant deficiencies in those sections or parts. The U.S. EPA reserves the right to disapprove, comment, or modify, as appropriate, the DIAR Plan upon its resubmission. As set out below, the final DIAR Plan must be comprehensive, detailed, and must include standard operating procedures and specifics on types, sizes, and volumes of materials, equipment, supplies, and procedures to be used and implemented.

The primary objective of this DIAR Plan shall be to describe, in detail, response actions that Enbridge will perform in the short-term to remove and/or abate visible oil and/or sheen that is either currently affecting navigable water ways and/or poses the threat of release of a visible oil or sheen discharge to navigable waterways. For purposes of the DIAR Plan, the response area is divided into the following sections:

> Source Area – the spill source area and Talmadge Creek. Specifically, this includes the spill location and all downstream areas including the Talmadge Creek and all associated affected navigable waterways and their shorelines/adjacent affected areas up to the confluence of Talmadge Creek with the Kalamazoo River
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> Downstream Area - downstream of the spill Source Area. Specifically, this includes Kalamazoo River located downstream of the confluence of Talmadge Creek with the Kalamazoo River and all subsequent downstream affected navigable waterways and their shorelines/adjacent affected areas.

Accordingly, in the context of the DIAR plan, "remediation" shall be defined to include the interim response action of removal of visible oil and petroleum products from media affected by the spill and located downstream of the spill source area. Specifically, this includes response actions to remove and/or abate visible oil and/or sheen that is either currently affecting navigable water ways and/or poses the threat of release of a visible oil or sheen discharge to navigable waterways.

Future longer-term actions, beyond those described in the response plan, to address residual effects from the spill will be governed by regulations and regulatory agencies with the appropriate jurisdiction. Enbridge may desire to consider these future requirements for actions which will be required for remediation and/or closure as secondary objectives in the current response plan. To the extent feasible, Enbridge may elect to perform response actions supportive of the secondary objective during the current response action.

Part 201 (Environmental Remediation) of the Natural Resources and Environmental Protection Act (1994 PA 451, as amended) administered by the Michigan Department of Natural Resources and Environment (DNRE) may govern issues related to residual contaminant compound concentrations after the current response actions to remove/abate visible oil are completed. Enbridge may consider the Part 201 regulations and others that may apply in the future while preparing the current response action plan for the areas downstream of the spill source area. Other regulatory agencies that may have jurisdiction over future actions, after the visible oil has been removed, include, but are not limited to: U.S. EPA; U.S. Coast Guard; U.S. Army Corps of Engineers; DNRE; U.S. Fish & Wildlife Service (U.S. FWS); Michigan Department of Agriculture (MDA); Michigan Department of Community Health (MDCH); Calhoun County Public Health Department (CCPHD); Kalamazoo County Health and Community Services Department (KCHCSD); and/or others.

Approval of the DIAR Plan by the U.S. EPA, once granted, does not imply approval of the DIAR Plan by any other regulatory agencies. Approval of the DIAR Plan by U.S. EPA, once granted, also does not represent assurance that activities undertaken consistent with DIAR Plan are in compliance with laws and regulations outside the purview of the U.S. EPA during these initial response actions to remove visible oil. Among the laws and regulations that are outside the purview of U.S. EPA and the laws and regulations of the State of Michigan. Citations to Michigan laws and regulations in these comments are not meant to be all inclusive, and Enbridge is not relieved of its obligation to comply with other laws and regulations if omitted in these comments. Finally, undertaking activities consistent with the SAR Plan, once it is approved by U.S. EPA, does not obviate the need for Enbridge to acquire all necessary permits and comply with other applicable regulatory requirements including, but not limited to: NREPA and other Michigan law (specifically) Part 201; Part 31, Water Resources Protection (Part 31); Part 55, Air Pollution Control (Part 55); Part 91, Soil, Erosion, and Sedimentation Control (Part 91); Part 111, Hazardous Waste Management (Part 111); Part 121, Liquid Industrial Wastes (Part 121); Part 115, Solid Waste Management (Part 115); Part 301, Inland Lakes and Streams (Part 301); Part 303, Wetlands Protection (Part 303); and Michigan's floodplain regulatory authority found in Part 31. Additionally, permits from the County Drain Commissioner and other local authorities may be required.

DIAR Plan-Specific Comments

1. The title of the document shall reference a "response" plan, not a "remediation" plan. The actions described in the plan are intended to address the actions necessary to remove and abate all visible oil and petroleum from areas downstream of the referenced spill source area.

2. All references to "remediation" within the DIAR Plan which are intended to address the interim response action of removal of visible oil and petroleum products from media affected by the spill and located downstream of the spill source area shall be referred to as "response" actions. The term "remediation" shall be used in reference to long-term actions/objectives which will be decided by the appropriate regulatory agency.

3. The DIAR Plan shall identify that the response actions must be performed in accordance with recommendations made for each individual area by the Shoreline Cleanup Assessment Team (SCAT).

4. The DIAR Plan shall be amended to include a section for definitions of terms used in the DIAR Plan, such as "response" and "remediation". Additionally, terms used and defined by the SCAT program shall be used as much as possible to increase consistency between the actions proposed in the DIAR Plan and results of the previous/ongoing SCAT effort.

5. The DIAR Plan shall provide a detailed description of the methods and metrics that will be employed to confirm that the response actions have removed all visible oil from each affected media in the downstream areas. The endpoints may vary by habitat type and so endpoint evaluation must include habitat as a consideration. These endpoints shall be well-defined and include sufficient explanation of the measurement metrics to improve consistency in implementation of the DIAR Plan. Appropriate treatment for each habitat will

be identified prior to making SCAT recommendations to Operations. A sample of a previously utilized comprehensive shoreline cleanup plan is attached for reference only.

6. With regards to the "Anticipated Clean up Methods" referenced: Given that there is a continuum of visible oil contamination ranging from thick layers to thin sheens on the floodplain and riparian areas, please provide specific definitions and metrics that will be used to determine how the quantity of oil will be evaluated. This will determine if response actions are warranted at a given area, because initial efforts are anticipated to be based on visible indications of oil, and not necessarily on quantitative analytical results.

7. Page 7 suggests "Natural re-vegetation" as a method of restoration. Natural re-vegetation" is not acceptable. Bare soil left alone to re-vegetate will result in both erosion and establishment of invasive plant species. U.S. EPA has re-vegetation plans that are being used on the Kalamazoo River Superfund Site for the Plainwell Impoundment Time-Critical Removal Action (Final Plan is in "Documents" section of http://www.epaosc.org/site/site_profile.aspx?site_id=2815).

8. The DIAR Plan does not address short-term detailed restoration and/or vegetation activities required for shorelines and other non-aquatic areas addressed by the DIAR Plan. As an example, the DIAR Plan shall address, in detail, the application of vegetative cover or other methods required to minimize erosion until long term restoration is performed by Enbridge. Relative to the Demobilization and Restoration section:

    a. Planting shall incorporate native species. Species existing prior to disturbance include invasive species like purple loosestrife and reed canary grass that shall not be replanted.

    b. Mulch blankets shall not use plastic mesh that may entrap snakes.

    c. Monitoring plans shall include performance criteria (e.g. erosion, establishment of vegetation, absence of invasive species) and contingencies and commitments to action if they are not met.

    d. The last paragraph of this section mentions "the following river and bank restoration activities", but none appear.

9. The DIAR Plan shall establish detailed baseline conditions of the response area including, but not limited to: fluvial geomorphology within the downstream areas; baseline topographic conditions and fluid flow channel physical dimensions/survey; and ecological habitats. The County Commissioner may have existing topographic maps or cross-section surveys of the waterway(s) which Enbridge could use to facilitate the production of physical baseline conditions of the waterway(s).

10. The DIAR Plan shall address the detailed process that will be used to determine if sediments in downstream areas contain oil andthe process that will be used to address the sediments during this preliminary response if oil is found. If oil in sediment is not addressed, discharge to a navigable waterway could occur.

11. The DIAR Plan shall provide a detailed process description for determining if visible oil is comprised of dense non-aqueous phase liquid (DNAPL), light non-aqueous phase liquid (LNAPL) or both.

12. Evaluation of sediment, with specific protocols and metrics, needs to be proposed in the DIAR Plan to evaluate the effectiveness of the response action. Special consideration shall be given to increased density of the oil if/when lighter petroleum fractions evaporate or become diluted. The evaluation shall include a detailed contingency plan with specific response actions for oil converting from LNAPL to DNAPL.

13. Do not use the term "practical" when describing the actions planned for removal of visible oil. The DIAR Plan shall be a firm plan of action. The IC will maintain a sufficient technical staff throughout the response action to consider situations that may arise which will work with Enbridge to review and approve alterations to the planned course of action, if required. This should be incorporated into SCAT recommendations.

14. The DIAR Plan shall provide a detailed description of how Enbridge will balance the need to invasively remove oil and simultaneously minimize adverse impacts to and preserve natural environments and/or sensitive habitats.

15. The DIAR Plan shall provide an explanation of permitting for the short-term oil removal response actions and that these permits for short-term actions may need to be supplemented and/or replaced when future longer-term response actions are performed.

16. The DIAR Plan shall include a detailed contingency plan to address actions that will be performed by Enbridge if visible oil resulting from the spill affects or threatens navigable waterways after the initial oil removal actions are complete.

17. On page 3, the DIAR Plan indicates that the SCAT process makes recommendations about the number of cleanup crews. This actual process calls for operations to make recommendations for the number of cleanup crews. Please correct this.

18. Use of thermal destruction and/or burning of oil on shorelines shall be avoided whenever possible. Alternative countermeasures shall be evaluated and presented in detail as options for consideration in the DIAR Plan. Thermal destruction/burning of oil will require evaluation by the Regional Response Team (RRT) for efficacy testing and use. Please address these issues in detail in the DIAR Plan.

19. Paragraph 3 on Page 2: Operation updates shall not be included in a work plan because they will likely become outdated immediately.

20. Paragraph 1 on Page 2: The statement that "no impacts to Morrow Lake" is incorrect, because sheen has been observed and analytical results confirm contaminants. Therefore, this statement must be removed.

21. The "appropriate levels" for goals and objectives are referenced, but not defined. Please define them.

22. Page 8: The Post Remedial Assessment section states that the investigation "may include sampling and/or monitoring". Because these actions are required, and not optional, please change replace "may" with "shall".

23. Please further explain and better define "intrusive disturbance", as used in the second full sentence on Page 9. Also, please address this concern for the more distal and often sensitive back swamps where the floodplain is broader. Please evaluate natural recovery in some areas, perhaps in conjunction with a longer term boom management plan, to capture any oil that is remobilized upon inundation and would re-enter the waterways.

24. The term "regular basis" used at the end of the first full paragraph of Page 9 is not well-defined. Please provide a defined frequency and schedule for reporting of results to the UC, not just to the U.S. EPA.

25. Page 5 of the DIAR Plan states "Review the creek water level, conduct flow volume determinations if needed, and determine water level modification methods needed.". Please address, in detail, how the berms will be created in a manner so as not to induce subsurface water flow by creating different water levels across the berm. Please provide any information known or obtained from response actions performed about groundwater flow patterns in the wetland system.

26. Page 6 of the DIAR Plan states "Wetland area assessments will be completed as part of the shoreline review. As noted earlier, the SCAT process will guide assessment, prioritization and selection of cleanup approaches and methodologies." Please provide details and specific information about the wetland assessments that will be performed. Results of the SCAT findings must be incorporated into response actions and treatment recommendations prepared by SCAT.

27. Page 7 states "Harvest oiled vegetation, bag the material, and dispose according to waste management plan". Please provide specific details about the methods that will be used to harvest and the anticipated effect of the harvestation method on root recovery.

28. Page 19 references "Natural recovery" as "C". However, this ranking depends on whether the other options would cause undesirable level of disturbance. Please address, in detail, the possibility of multiple rankings for a possible action.

29. Large potentially impacted sections of the Kalamazoo River are in heavily forested, difficult to reach areas with little/no road access. The DIAR Plan is not clear on how Enbridge will minimize "intrusive disturbance" of not only the river bank, but the land it will need to cross

to access these areas for possible oil removal. Please provide a decision tree diagram with details about the planning process for removal actions in these difficult to access areas. The decision flow shall also include a detailed evaluation of screening potential identified impacts, risks and trade-offs involved in the decision process and the resulting potential response activity, and contingency plans for monitoring and containment of releases from these areas should impacted habitats identified in these areas be managed in place

30. Please modify the DIAR Plan to include notification to the MDA if access to a response area will occur through active farmland and the proposed timing of such notification as the MDA will determine if the action will result in impacts to enrolled Part 361 (Farmland Preservation Program – formerly PA 116) properties. Also, please provide a detailed process for evaluating potential long-term impacts to a land precluding continued enrollment of lands prior to their contract end.

31. In addition to the response and remediation methods noted on Page 13 of Appendix A, please add the following document reference for providing options to treat marshes and other wetlands soil and vegetation: NRCS Interim Conservation Practice Standard 772 Guidance "Organic Sorbents for the Remediation of Oil-Contaminated Soils".

32. Page 5 states "Minimally scrape areas (if required) to remove remaining liquid or heavy deposits of crude oil and dispose resulting material according to waste management plan". There is no specific mention of how oil-containing soils will be evaluated or addressed. Please provide specific details on evaluation criteria and metrics for soil evaluation during oil removal response activities.

33. Page 7 states "Priority areas will be those areas where observed impacts are high, that are close proximity to a receptor, or could have future impacts to downstream areas. Anticipated priority areas are wetland areas adjacent to the river that contains oil that could become mobilized in the River under different conditions such as a heavy rain event resulting in high water levels". The United States Army Corp of Engineer's (USACE) concrete channel project requirements shall be included as an additional bulleted item.

34. Please provide details about water discharges that may occur during oil removal operations and contingencies for preventing or responding to any releases.

35. Please provide personnel qualifications for each Shoreline Cleanup Assessment Technique (SCAT) team to confirm that at least one member has sufficient expertise wetland and aquatic ecology to evaluate the sensitivity of impacted areas.

36. Page 3: A method of prevention needs to be defined, so that oil is not remobilized to the river during shoreline washing. Additionally, power washing must include boom or other containment with oil-sorbing properties or suction. Please add these provisions.

37. Page 5, First Bullet: Please add clarification that this refers to shrubs, tree branches and non-persistent grasses and forbs, and does not include trees unless necessary for temporary road construction. Trees larger than 4" diameter at breast height (DBH) shall be preserved.

38. Page 5, Second Bullet: Clarify that testing is for purposes of determining effectiveness of oil removal.

39. Page 5, Sixth Bullet: Identify where and what the low-pressure washing will be targeting and that secondary containment will be used to prevent mobilization of the petroleum to the river.

40. The DIAR Plan references the clean-up methodologies from Table 17 of the NOAA guide "Options for Minimizing Impacts of Freshwater Spill Response." In addition, Tables 22 and 25 of that guide are relevant for stream banks and wetland areas and shall also be considered. Please provide details regarding the relative impact of each clean-up method for the appropriate ecosystem and its effect on the ecosystem.

41. Page 19 of the DIAR Plan includes an abbreviated version of Table 17; however it is not clear if the methods from Table 17 that are not included here will be considered. Please provide any details regarding the planned use of any alternative clean-up methods such as dispersants and other chemical agents. The use of these materials would require the prior approval of the Region 5 Regional Response Team (RRT) and the discharge of these materials into waters of the state would require permitting.

42. To the extent that mature trees are being felled as part of the oil removal actions, consultation with the U.S. Fish and Wildlife Service must be made prior to the felling due to the potential to affect Indiana bats. See the "Inter-agency Memorandum of Agreement Regarding Oil Spill Planning and Response Activities Under the Federal Water Pollution Control Act's National Oil and Hazardous Substances Pollution Contingency Plan and the Endangered Species Act" of 2001. Please contact Jack Dingledine, U.S. Fish and Wildlife Service, 2651 Coolidge Road, Suite 101, East Lansing, MI 48823, 517-351-6320, jack_dingledine@fws.gov .

43. Because at least some of the product released may have sunk to the river bottom, additional investigations beyond SCAT must be conducted and shall also include Morrow Lake (as it is the first significant depositional area of the river and because intermittent sheen observations in the lake may be because of submerged oil). Please include in your DIAR Plan a section that details an investigation of the bottoms of the Kalamazoo River and Morrow Lake.

44. Please provide a section with details regarding emergency response activities that have already been completed and/or are underway.

45. Large woody debris is an important component of rivers and stream structure for turtles, fish, other organisms as well as stream stabilization. Large woody debris that is oiled and removed from the river may be required to be replaced with clean unimpacted wood during future restoration activities. Clean parts of mature trees felled in the response may be able to be used on-site as part of stream restoration efforts once the response actions are complete.

46. Please amend site controls to include minimizing the trampling of wetland areas that are not impacted by oil. Walking and operation of equipment in impacted wetlands shall also be

minimized as that could drive oil into the soils, increase the need for removal and future remediation, and lengthen the time required for the wetland to recover to pre-spill conditions.

47. Please expand the definition of receptors to explicitly include people, plants, animals and other ecosystem components.

48. Please provide details for the disposition of carcasses. All oiled carcasses found during removal activities shall be photographed in place, documented with GPS coordinates, and shall be reported immediately to the U.S. Fish and Wildlife Service (migratory birds) or the MDNRE (other species), and to the UC. If spill response is still underway, this can be accomplished through the spill hotline: 800-306-6837. Reports of live oiled wildlife shall also be reported to the hotline.

49. Please provide details regarding the controls to limit additional impacts downstream. The details shall include, as a minimum, what will be measured at control points and a description of the observations that will trigger contingency operations or cessation of operations until the problem is addressed.

50. Please provide more details regarding how areas will be defined as Priority Areas for response actions under this DIAR Plan.

51. For the "Anticipated Cleanup Methods" of Kalamazoo River, please provide detailed definitions for:

    a. "Minimally scrape".

    b. "Low pressure waterwash", including operating pressures and their impacts on soil structure, grasses, forbs, and woody vegetation.

52. SCAT teams shall consider state and federal threatened and endangered species during oil removal response actions, as well as species and habitats of special concern or management interest by MDNRE or the U.S. Fish and Wildlife Service. The area of the impact is not one that has been intensively surveyed, so occurrences noted in the Michigan Natural Features Inventory, although the best information currently available shall not be assumed to be complete. Absence of evidence is not evidence of absence. SCAT teams shall be alert to new occurrences of species and habitats of special concern and shall immediately notify the U.S. Fish and Wildlife Service upon discovery. U.S. FWS has sensitive environment GIS data available for use to assist in the above endeavor.

The nature of this emergency response effort demands an expedited and efficient review and approval process. U.S. EPA is providing competent and technical resources to ensure that a final comprehensive and functional DIAR Plan for this project can be in place by no later than 1200 hours on August 12, 2010

U.S. EPA appreciates Enbridge's continued desire to conduct response efforts to the release from its 6B Pipeline, but requires that these efforts be conducted safely, promptly, and with

appropriate resources and best technical practices. U.S. EPA will not accept further submissions of deficient plans.

Sincerely,

Ralph Dollhopf
Federal On-Scene Coordinator and Incident Commander
U.S. EPA, Region 5

cc: L. Kirby-Miles, U.S. EPA, ORC
J.Cahn, U.S. EPA. ORC
J . Kimble, U.S. EPA, Dep. IC, FOSC
M. Durno, U.S. EPA, Dep. IC, Section Chief
Records Center, U.S. EPA, Reg. V

Savannah River Mystery Oil Spill

Shoreline Clean-Up Plan

Cooperatively Prepared by:

USCG

GADNR

SCDHEC

NOAA

USFWS

NPS

Shoreline Clean-up Plan

This shoreline clean up plan is preliminary and may be modified as additional information is obtained from the Shoreline Cleanup Assessment Teams (SCAT). Information from SCAT teams will be relayed to the Unified Command and this plan may be modified accordingly.

Objective: To identify and direct preferred shoreline clean-up priorities, methods and endpoints for impacted shoreline habitat along the Savannah River as a result of the July 2006 mystery oil spill.

ANTICIPATED OIL BEHAVIOR AND MOVEMENT

This shoreline clean-up plan is based on the anticipated behavior/fate of oil released into the environment. Shoreline impacts from the surface spill may adversely affect habitats including wetland vegetation, bank soils and scarps, riprap, fine grain sand beach, bulkheads, pilings and docks. Due to the nature of the oil and the vicinity of its release, these are the identified shoreline habitat types impacted. Tides, winds and river currents all affect distribution, movement and mobility of oil within the Savannah River spill impact area and adjacent wetland habitats. To date, the majority of oil has affected spartina alternaflora wetland vegetation along the Savannah River. SCAT Assessment teams will monitor any oil movement via boats to report potential migration into additional areas. As impacts are observed, they will be documented and the locations relayed back to the Unified Command. Oil samples have been sent to the USCG COIL lab for fingerprinting and characterization. Results from their analysis may influence cleanup priorities and endpoints.

SHORELINE CLEAN-UP ASSESSMENT AND INITIATION

Shorelines in the area of potential impact will be assessed using methods described in the Shoreline Assessment Manual (NOAA, 2000). These methods include assessment checks by Federal, and State representatives. No RP has been identified at this time. A primary SCAT team with USCG, NOAA, and State representatives will conduct assessments of the entire impact areas. This team will report oil locations, degree of oiling and produce a summary of oiled shoreline habitat by type both in tabular and geographic map formats. This information will be used to develop unified stakeholder recommendations for priorities, cleanup methods, and endpoints. This input will be coordinated closely with operations and may be modified as necessary as cleanup progresses.

SHORELINE CLEAN-UP METHODS

For cleanup operations, impacted shorelines will be divided into operational divisions (Figure 1). These divisions may be further subdivided as needed based on oiling levels, habitat changes, sensitive habitats and operational/logistical considerations (i.e., ability to recover the product).

Given the expected nature of any oil that may impact the shoreline, various techniques might be utilized for recovery. Potential methods of recovery and the general areas that they might be used are outlined below.

1) Natural Recovery

Natural recovery involves no action and oil is left to degrade naturally. This method will be used when clean up would be more detrimental to the habitat than would leaving it to degrade naturally. This will likely be used in sensitive marsh environments. Therefore, it is recommended that no clean up actions (i.e., low pressure flushing) be taken in marshes or along marsh shorelines to remove oil from vegetation unless specifically authorized by the environmental unit leader.

2) Barriers/Booms

Barriers and booms are being utilized to prevent floating oil from entering sensitive habitats. Booms are currently deployed and will be continuously monitored to ensure effective oil containment.

3) Mechanical Removal

In some cases, sediments, bank soils, or various other oiled substrates might be physically removed. This would be utilized in areas where access with heavy equipment is possible. It shall only be used as a last resort when large amounts of oil removal are possible. Any mechanical removal must be approved by the unified command.

4) Sorbents

Sorbents might be placed in areas near shore or in marshes where oil is free floating. The oil must be able to be released from the substrate.

5) Vacuum

This is typically used when oil is stranded on the substrate or in pools where the vacuum can be efficiently used to pump larger volumes of oil. This method shall not be used in wetlands unless specifically authorized by the environmental unit leader.

6) Debris Removal

This method involves the physical removal of oiled debris (e.g., wrack) from shorelines and is typically utilized when the material is heavily to moderately oiled. Removal from environmentally sensitive areas shall not be done unless specifically approved by the environmental unit leader.

7) Sediment Tilling

Oiled sediment might be tilled or mixed or sediments pushed to the water’s edge to enhance natural recovery. Tilling is typically used on sand or gravel beaches where erosion potential is high. However, the method shall be avoided in highly sensitive habitats. Sediment tilling must be approved by the unified command.

9) Vegetation Removal

Removal of oiled portions of vegetation is utilized only when the risk of that oil contaminating other species is higher than the risk of leaving in place. Must be monitored closely to ensure survival of the plants. The environmental unit leader must approve vegetation removal.

10) Pressure Washing

Pressure washing might be used on man made structures such as docks and bulkhead areas. The method must ensure that flush water is not allowed to disperse into environmentally sensitive areas.

11) Physical Removal using Sorbents

Sorbents may be used to physically remove oil from debris, rocks, pilings and other surfaces.

12) Passive Recovery

This method would consist of staked sorbent boom that is monitored as necessary.

As SCAT teams determine areas needing clean up, they will review the type of habitat and make recommendations to Unified Command regarding the most appropriate methods to use. If alternate shoreline clean-up methods are needed such as shoreline cleaners or other methods requiring RRT approval, due to the nature of the impacted shoreline habitats, the level of shoreline oiling, or the endpoint selected, the methods will be selected and implemented based on the needs of the project.

ADAPTIVE MANAGEMENT

The approach, procedures and geographic extent of this Shoreline Clean-Up Plan will be revised as needed based on information on the location, nature and extent of shoreline impacts reported from the field.

GENERAL ENVIRONMENTAL GUIDANCE FOR CLEANUP

To protect environmental resources, the following general guidelines shall be used

1. Establish work zones and access in a manner that reduces contamination of clean areas.

2. Use only established routes to access areas to be cleaned. No new roads or trails can be created unless specifically approved by the Environmental Unit.

3. Do not fill wetland areas unless specifically approved by the Environmental Unit. Army Corps of Engineer permit will be required.

4. Use boom to protect un-oiled areas adjacent to shoreline cleanup operations.

5. During flushing, deploy sorbent materials to protect lower intertidal zone from oiling.

6. Do not walk in marshes and mudflats. Use wood plank walkways where possible if needed to cross vegetated areas.

7. Minimize walking in lower intertidal areas with soft sediments. Use wood plank walkways where practical.

8. Minimize removal of un-oiled sediments during cleanup. Dig no deeper than necessary to remove surface layer oiled sediment.

9. Do not clean marshes or vegetated shorelines unless specifically approved by the Environmental Unit and FOSC.

10. Do not cut, burn, or otherwise remove vegetation unless specifically approved by the Environmental Unit and FOSC.

11. Report oiled wildlife sightings to Operations Field Supervisor. Supervisors contact John Robinette with USFWS 912-313-1371). Do not attempt to capture oiled wildlife. Do not touch, move or bag dead wildlife unless absolutely necessary to prevent loss of carcass (e.g., float out with tide, etc.) Mark bag with dead animal and set aside for USFWS to collect.

12. All signs of human activity shall be removed upon completion of cleanup.

13. Contact the Unified Command if questions arise.

Habitat-Specific Cleanup Methods and Endpoints

Habitat Type	Cleanup Endpoint	Allowable Cleanup Methods
Sand Beaches	Sand Beaches shall be visibly free of all oil and oil residue. No oil odor shall be evident and there shall be no subsurface oil existing.	• Manual removal with shovels/rakes; minimize removal of clean sediments on/under oiled layers • Use of heavy equipment will require additional approval. • Passive recovery of sheen with sorbents.
Riprap **Seawalls** **Bulkheads** **Pilings** **Docks** **Boat ramps**	General: No potentially mobile oil as evidenced by sheen. Oil on exposed surfaces does not rub off on contact (no oil greater than stain)	• Flushing and high-pressure/ambient or hot-water washing (hotsie), as needed. Containment/recovery of released oil. • Passive recovery of sheen with sorbents on riprap.
Marshes **Vegetated Spoil Banks Scarps** **Forested Wetlands**	General: No potentially mobile oil as evidenced by sheen remaining on substrate. Residual oil does not rub off on contact (no oil greater than stain).	• Remove loose oiled debris (use best mgt guidelines). • Passive removal using snares on a rope or other sorbent material as appropriate. • Minimize foot traffic, and avoid disturbance and removal of peat mat or soil • Other options to be determined on a site-specific basis include flushing, manual pickup of pooled oil, and monitoring. • Aggressive cleanup methods shall not be employed. • Natural recovery shall be considered

Shoreline Clean-Up Plan
APPROVED:

_____ _____

FOSC Date

_____ _____

SOSC (Ga) Date

_____ _____

SOSC (SC)	Date
_____	_____
USFWS	Date
_____	_____
NOAA	Date
_____	_____
NPS	Date