level of restoration appropriate for a particular injury or loss shall be used;

(b) If a range of procedures providing the same type and quality of assessment information are available, the most cost-effective procedure will be used;

(c) The incremental cost of more complex studies must be reasonably related to the expected increase in relevant assessment information provided by the more complex study; and

(d) Procedures selected must be reliable and valid for the particular context.

III. Injury Assessment

A. Purpose

The goal of injury assessment, which includes determination and quantification of injury, is to determine the nature, degree, and spatial/temporal extent of injuries to natural resources and/or services, thus providing a technical basis for evaluating the need for and scale of restoration. While the basic steps discussed below are applicable to all assessments, selection of approaches for demonstrating exposure, pathway, and injury will be incident-specific. Thus, this proposed rule provides a range of possible procedures and methods for injury determination and quantification, including simplified (e.g., models, literature extrapolation) and more detailed procedures (e.g., generation of original data). Trustees are encouraged to use simplified procedures, when appropriate.

Under OPA, trustees must determine whether injuries ''resulted from'' the incident. Establishing that a specific injury has resulted from a particular incident may be accomplished through a number of procedures, alone or in combination. These include field investigations, laboratory studies, models, and the literature.

To determine injury under this proposed rule, trustees must determine if:

(1) The definition of ''injury'' is met; and

(2) The injured natural resource has been exposed to the discharged oil and a pathway links the incident and the injured natural resource and/or service, or,

for injuries resulting from response actions or incidents involving a substantial threat of a discharge, an injury or an impairment of use of a natural resource service has occurred as a result of the incident.

If any of the above conditions for determining injury provided in this section is not met, trustees may not take additional action under this part. However, trustees may recover all reasonable assessment costs incurred up to the point when they determined that the conditions were not met. If all the conditions are met, trustees may proceed with the assessment. These steps and concepts are described in more detail below.

B. Injury Determination

1. Definition of Injury

Under this proposed rule, trustees must determine if the definition of ''injury'' has been met. ''Injury'' is defined as an observable or measurable adverse change in a natural resource or impairment of a service.

Injury includes adverse changes in the chemical or physical quality or viability of a natural resource. The simplest example is death of an organism, but indirect, delayed, or sublethal effects may also be considered. Other potential categories of injuries include adverse changes in: survival, growth, and reproduction; health, physiology and biological condition; behavior; community composition; ecological processes and functions; physical and chemical habitat quality or structure; and services to the public.

Although injury often is thought of in terms of adverse changes in biota, the definition of injury under this rule is broader. Injuries to non-living resources (e.g., removal of oiled sand on a beach) as well as injuries to resource services (e.g., lost use associated with a fisheries closure to prevent harvest of tainted fish, even though the fish themselves may not be injured) may be considered.

This list of potential adverse changes is not intended to be inclusive of all injuries that trustees may evaluate.

2. Exposure

The purpose of the exposure portion of an injury assessment is to determine whether natural resources came into contact with the oil from the incident. Early consideration of exposure (i.e., ideally during the Preassessment Phase) should help to focus the assessment on those natural resources and/or services that are most likely to be affected by an incident.

Trustees must determine whether the natural resource came into contact, either directly or indirectly with the oil discharged from the incident. Under this proposed rule, exposure is broadly defined to include not only direct physical exposure to oil, but also indirect exposure (e.g., injury to a organism as a result of a food web disruption). Documenting exposure is a prerequisite to determining injury, except for response-related injuries and injuries from substantial threats of discharges. However, evidence of exposure alone may not be sufficient to conclude that injury to a natural resource has occurred (e.g., the presence of petroleum hydrocarbons in oyster tissues may not, in itself, constitute an injury).

Exposure can be demonstrated with either quantitative or qualitative methods. As with other elements of the NRDA process, selection of approaches for demonstrating oil exposure will depend on the type and volume of discharged oil, natural resources at risk, and nature of the receiving environment. For example, chemical analysis of oil in sediments, alone, may not be adequate to conclude that a benthic organism was otherwise exposed to the oil. Likewise, the presence of petroleum in fish tissue, alone, may not be adequate to link the exposure to the discharge because metabolism of the oil may blur the chemical characterization. The combination of the two approaches may, however, demonstrate exposure.

Typically, procedures for exposure analysis include: (a) Field observations or measurements; (b) laboratory exposure studies; (c) transport and fate modeling; and (d) the literature. This proposed rule emphasizes that these procedures may be used alone, or in combination, depending on the specific nature of the incident. Trustees must determine the most appropriate approach to evaluating exposure on an incident-specific basis. For example, for some types of incidents, visual observation in the field and/or modeling may be sufficient to evaluate exposure. For other incidents, more involved site-specific sampling, including chemical analysis and biological data collection, may be more appropriate.

3. Pathways

To determine whether an injury resulted from a specific incident, a plausible pathway linking the incident to the injury must be identified. As with exposure, demonstrating a pathway is a prerequisite to determining injury, but evidence of a pathway, alone, is not sufficient to conclude that injury has occurred (e.g., demonstrating that prey species are oiled can be used to document that a plausible pathway to a predator species exists. However, such data do not, in themselves, demonstrate that the predator species is injured).

Pathway determination can include evaluation of either:

(a) The sequence of events by which the discharged oil was transported from the incident and came into direct