

		<p>6.8 Risk characterization for injection of a carbon dioxide stream into a specific formation would typically be based on site-specific considerations of the potential exposure pathway, probabilities of leakage, and effects on the marine environment, human health, and other legitimate uses of the sea or geological surroundings. Important factors may include the nature, temporal and spatial scales, duration and likelihood of expected impacts. When evaluating the spatial aspects of risk characterization, various factors are relevant to the potential area impacted, including the injection volumes, location of the CO₂ injection point and geological characteristics of the storage reservoir.</p> <p>6.9 Potential migration and leakage pathways from sub-seabed geological formations include:</p> <ol style="list-style-type: none"> 1. the injection well and/or other abandoned or active wells; 2. areas where permeable rock reaches the surface of the seabed (e.g. seabed outcrop); 3. transmissive fractures of, or high permeability zones within, the cap rock; 4. the pore system in low permeability cap rocks if the capillary entry pressure at which carbon dioxide streams may enter the cap rock is exceeded or degradation of the cap rock is caused by reaction with acidic formation waters; 5. areas where the cap rock is locally absent; and 6. lateral migration of free or dissolved carbon dioxide along the reservoir rock (e.g. if a storage structure is overfilled beyond the spill point). <p>6.10 Simulation of the long-term fate of stored carbon dioxide streams may be appropriate to identify potential migration and flux rates through identified leakage pathways and assess the likelihood of leakage.</p> <p>(EDITORIAL NOTE: further consideration will be given to how the text in 6.11-6.13 applies to CO₂ streams.)</p> <p>6.11 The extent of adverse effects of a substance is a function of the exposures of organisms (including humans). Exposure, in turn, is a function, <i>inter alia</i>, of input flux and the physical, chemical and biological processes that control the transport, behaviour, fate and distribution of a substance.</p> <p>6.12 The presence of natural substances and the ubiquitous occurrence of contaminants means that there will always be some pre-existing exposures of organisms to all substances contained in any waste that might be dumped. Concerns about exposures to hazardous substances thus relate to additional exposures as a consequence of dumping. This, in turn, can be translated back to the relative magnitude of the input fluxes of substances from dumping compared with existing input fluxes from other sources.</p>	<p>6.8 特定の炭素層への二酸化炭素流注に関するリスクの特定づけは、一般的に、潜在的漏洩経路、漏洩の可能性、海洋環境、ヒトの健康、そして、その他の海又は地質環境の合法的利用についての、サイトごとの考察に基づくものである。重要な要素としては、予測される影響の性質、時間及び空間的規模、予測される影響の継続性及び可能性などが含まれるだろう。リスクの空間的特徴を評価する場合には、注入体積、二酸化炭素流注地点の位置、貯留層の地質的特性などを含む様々な要因が、影響を受ける可能性のある地点と関係してくる。</p> <p>6.9 海底下地質炭素層からの潜在的移動及び漏洩経路には、以下のものを含む。</p> <ol style="list-style-type: none"> 1. 注入坑及び又は廃坑、あるいは現行の坑井 2. 浸透性岩が海底表面に達する地域（例：海底露頭） 3. キャップロック中の透過性の割れ目、又は、浸透性の部分 4. 低浸透性のキャップロックの開閉システム（二酸化炭素流注がキャップロックに浸入する毛細管圧（capillary entry pressure）が上昇した場合、あるいは地層水の酸化によるキャップロックの機能が低下した場合） 5. キャップロックが局所的に存在しない場所 6. 遊離又は溶解した二酸化炭素の、貯留層の岩石に沿った水平移動（例：貯留構造が流出地点を超えて一杯になった場合）。 <p>6.10 貯留された二酸化炭素流の長期的運命予測のシミュレーションは、特定された漏洩経路を経由して移動する可能性及び流動速度を確認し、漏洩の可能性を評価するのに適しているかもしれない。</p> <p>(編集注：6.11から6.13項の文章が二酸化炭素流注にどのように適用されるか、更なる検討が加えられる。)</p> <p>6.11 ある物質の悪影響の程度は人間を含む生物がその物質にさらされることのある作用のことである。さらされるとは、特に投入物の流れ及び物質の運搬、動き、消滅、散乱を管理する物理的、化学的、生物学的過程の作用のことである。</p> <p>6.12 天然物質の存在と汚染物質のいたるところにおける発生が意味しているのは、生物は、常に、投棄される何かなる廃棄物の中にも含まれている全ての物質の前もってさらされていることである。つまり、危険物質にさらされることについての懸念は、投棄の結果として更にさらされることになることである。これは、他の発生源から出た既存の流れ（input fluxes）と比較して、投棄された物から出た流れの方が、相対的に大きいこととも関係することになる。</p>
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	<p>25 Accordingly, due consideration needs to be given to the relative magnitude of the substance fluxes associated with dumping in the local and regional area surrounding the dump site. In cases where it is predicted that dumping will substantially augment existing fluxes associated with natural processes, dumping at the site under consideration should be deemed inadvisable.</p> <p>26 In the case of synthetic substances, the relationship between fluxes associated with dumping and pre-existing fluxes in the vicinity of the site may not provide a suitable basis for decisions.</p> <p>27 Temporal characteristics should be considered to identify potentially critical times of the year (e.g., for marine life) when dumping should not take place. This consideration leaves periods when it is expected that dumping operations will have less impact than at other times. If these restrictions become too burdensome and costly, there should be some opportunity for compromise in which priorities may have to be established concerning species to be left wholly undisturbed. Examples of such biological considerations are:</p> <ol style="list-style-type: none"> 1. periods when marine organisms are migrating from one part of the ecosystem to another (e.g., from an estuary to open sea or vice versa) and growing and breeding periods; 2. periods when marine organisms are hibernating on or are buried in the sediments; and 3. periods when particularly sensitive and possibly endangered species are exposed. <p>28 Contaminant mobility is dependent upon several factors, among which are:</p> <ol style="list-style-type: none"> 1. type of matrix; 2. form of contaminant; 3. contaminant partitioning; 4. physical state of the system, e.g., temperature, waterflow, suspended matter; 5. physicochemical state of the system; 6. length of diffusion and advection pathways; and 7. biological activities e.g., bioturbation. 	<p>6.13 Accordingly, due consideration needs to be given to the relative magnitude of the substance fluxes associated with dumping in the local and regional area surrounding the dump site. In cases where it is predicted that leakage of the carbon dioxide stream would substantially augment existing fluxes associated with natural processes, disposal at the site under consideration should be deemed inadvisable.</p> <p>6.14 Temporal characteristics should be considered to identify potentially critical times of the year (e.g., for marine life) when dumping should not take place. This may not be relevant to disposal of carbon dioxide streams, where no direct exposure to the marine environment during injection is expected. It is recognized that management measures may vary during critical periods. (EDITORIAL NOTE: Potential temporal characteristics of monitoring activities could be dealt with in the Monitoring section.)</p>
ASSESSMENT OF POTENTIAL EFFECTS	<p>28 Contaminant mobility is dependent upon several factors, among which are:</p> <ol style="list-style-type: none"> 1. type of matrix; 2. form of contaminant; 3. contaminant partitioning; 4. physical state of the system, e.g., temperature, waterflow, suspended matter; 5. physicochemical state of the system; 6. length of diffusion and advection pathways; and 7. biological activities e.g., bioturbation. <p>(EDITORIAL NOTE: further consideration will be given to how the text in 6.11-6.13 applies to CO2 streams.)</p> <p>7 ASSESSMENT OF POTENTIAL EFFECTS</p> <p>7.1 Although the intention of the process of CS-SSGS is no leakage, effects assessment contributes to informing site selection, monitoring to verify the impact hypothesis, and management measures. While the effect mechanisms of release of carbon dioxide stream from sub-seabed geological formation may differ from the disposal of other controlled materials, the possible impacts can be identified and assessed within the</p>	<p>6.13 したがって、近傍と周辺地域において、投棄に関連した物質の流量(flux)の相対的大きさに基づき十分な検討を行う必要がある。二酸化炭素流の漏洩が自然の過程に関連して既に存在している流量を大きく増大するのであることが予測される場合には、投棄中の投棄場所への投棄は勧められないと考えるべきである。</p> <p>6.14 一年のうちで（例えば海洋生物にとって）潜在的に投棄が行われるべきでない期間を特定するために、時間的特性が検討されるべきである。ただし、注入中に海洋環境への直接暴露が予測されないのであれば、二酸化炭素流の処分には該当しないものと考えられる。また、処分が行われるべきではない期間(critical periods)では、管理方法が異なるかも知れない。(編集注：可能性のある監視活動の時間的特性については監視の章で取り扱うかも知れない。)</p>
ASSESSMENT OF POTENTIAL EFFECTS	<p>Contaminant mobility is dependent upon several factors, among which are:</p> <ol style="list-style-type: none"> 1. type of matrix; 2. form of contaminant; 3. contaminant partitioning; 4. physical state of the system, e.g., temperature, waterflow, suspended matter; 5. physicochemical state of the system; 6. length of diffusion and advection pathways; and 7. biological activities e.g., bioturbation. <p>(EDITORIAL NOTE: further consideration will be given to how the text in 6.11-6.13 applies to CO2 streams.)</p> <p>7 ASSESSMENT OF POTENTIAL EFFECTS</p> <p>7.1 Although the intention of the process of CS-SSGS is no leakage, effects assessment contributes to informing site selection, monitoring to verify the impact hypothesis, and management measures. While the effect mechanisms of release of carbon dioxide stream from sub-seabed geological formation may differ from the disposal of other controlled materials, the possible impacts can be identified and assessed within the</p>	<p>汚染物質の移動</p> <p>6.15 汚染物質の移動はいくつかの要素に基づいている。それらの中には以下がある。</p> <ol style="list-style-type: none"> 1. 母物質の種類 2. 汚染物質の形態 3. 汚染物質の分配 4. 温度、流動、懸濁物質といった系の物理状態 5. 系の物理化学状態 6. 拡散・移動経路の長さ 7. 生物環境のような生物学的活動 <p>(編集注：6.11から6.13項の文章が二酸化炭素流にどのように適用されるか、更なる検討が加えられる)</p> <p>7 潜在的影響の検討</p> <p>7.1 CS-SSGSの工事は、漏洩しないことを意図してはいるものの、影響評価はサイト選定、影響低減のための監視、および管理方法に関する情報入手の一助となる。海底下地質層からの二酸化炭素流漏洩の影響メカニズムは、その他の規制物質の処分の場合とは異なるが、考えられる影響はレビュー決定書附属書2の枠組みにより特定及び評価</p>

<p>12 Assessment of potential effects should lead to a concise statement of the expected consequences of the sea or land disposal options, i.e., the "Impact Hypothesis". It provides a basis for deciding whether to approve or reject the proposed disposal option and for defining environmental monitoring requirements.</p>	<p>29 Assessment of potential effects should lead to a concise statement of the expected consequences of the sea or land disposal options, i.e., the "Impact Hypothesis". It provides a basis for deciding whether to approve or reject the proposed disposal option and for defining environmental monitoring requirements. As far as possible, waste management options causing dispersion and dilution of contaminants in the environment should be avoided and preference given to techniques that prevent the input of the contaminants to the environment.</p>	<p>framework of Annex 2 to the London Protocol. The main considerations in relation to the leakage of carbon dioxide streams should be the effects of carbon dioxide concentrations on human health, marine resources, sensitivity of species, communities, habitats and processes, and other legitimate uses of the sea. Effects of exposure to other contaminants in the carbon dioxide stream, if any, should be included in the assessment.</p>	<p>することが可能である。二酸化炭素流の漏洩に関する主たる検討事項は、ヒトの健康、海洋資源、生物種や群衆、生態系や作用(processes)の感受性、その他の合法的海洋利用に及ぼす二酸化炭素濃度の影響であるべきである。二酸化炭素流中のその他の物質への曝露による影響が考えられる場合には、それも評価の対象とすべきである。</p>
<p>13 The assessment for dumping should integrate information on waste characteristics, conditions at the proposed dump site(s), fluxes, and proposed disposal techniques and specify the potential effects on human health, living resources, amenities and other legitimate uses of the sea. It should define the nature, temporal and spatial scales and duration of expected impacts based on reasonably conservative assumptions.</p>	<p>30 The assessment for dumping should integrate information on waste characteristics, conditions at the proposed dump site(s), fluxes and proposed disposal techniques and specify the potential effects on human health, living resources, amenities and other legitimate uses of the sea. It should define the nature, temporal and spatial scales and duration of expected impacts based on reasonably conservative assumptions.</p>	<p>7.2 Assessment of potential effects should lead to a concise statement of the expected consequences of the sea or land disposal options, i.e., the "Impact Hypothesis". It provides a basis for deciding whether to approve or reject the proposed disposal option and for defining environmental monitoring requirements. For the disposal of carbon dioxide streams in sub-seabed geological formations, this assessment should address potential impacts in the event of not only a spill during transportation or disposal operations, but a leak of the carbon dioxide stream from the sub-seabed geological formation, while a thorough site characterization will provide a basis of assessing the likelihood of the event of such a leak. A sub-seabed geological storage site is not intended to leak to the marine environment, therefore the following null-hypothesis is proposed: <i>No impact on human health, the marine environment and other legitimate uses of the sea will occur</i> As far as possible, waste management options causing dispersion and dilution of contaminants in the environment should be avoided and preference given to techniques that prevent the input of the contaminants to the environment.</p>	<p>7.2 潜在的影響を検討することにより、海洋又は陸上処分を選択したことによって想定される結果に関する簡潔な説明、すなわち「影響仮説」を立てるべきである。影響仮説は、提案された処分方法を承認するか、拒否するかを決定するための判断基礎、及び、漏洩を監視するための要件を決定するための判断基礎となる。締密なサイト特性の把握が、海底下地質炭素層からの漏洩の発生する可能性を評価する基礎となるが、海底下地質炭素層への二酸化炭素流処分の評価の際には、輸送中又は処分活動中の流出のみならず、漏洩した際の潜在的影響についても対象とすべきである。海底下地質貯留サイトは海洋環境への漏洩しないことを意図するため、以下の帰無仮説が提案される。 ヒトの健康、海洋環境、及び、その他の合法的海洋利用に対する影響はない。 出来る限り、漏洩で汚染物質を拡散・希薄させる廃棄物管理の選択肢は避けるべきであり、環境に対する汚染物質の投入を避ける技術が選択されるべきである。</p>
<p>31 The assessment should be as comprehensive as possible. The primary potential impacts should be identified during the dump-site selection process. These are considered to pose the most serious threats to human health and the environment. Alterations to the physical environment, risks to human health, degradation of marine resources and interference with other legitimate uses of the sea are often seen as primary concerns in this regard.</p>	<p>31 The assessment should be as comprehensive as possible. The primary potential impacts should be identified during the dump-site selection process. These are considered to pose the most serious threats to human health and the environment. Alterations to the physical environment, risks to human health, degradation of marine resources and interference with other legitimate uses of the sea are often seen as primary concerns in this regard.</p>	<p>7.3 The assessment for disposal should integrate information on characteristics of carbon dioxide stream, conditions at the proposed sub-seabed geological formation, fluxes and proposed disposal techniques and specify the potential effects on human health, living resources, amenities and other legitimate uses of the sea. It should define the nature, temporal and spatial scales and duration of expected impacts based on reasonably conservative assumptions.</p>	<p>7.3 処分に関する影響評価では、二酸化炭素流の特性、予定された海底下地質炭素層の状況、流量、予定される処分方法に関する情報を統合した上で、人の健康、生物資源、アメンティエー及び他の合法的な海洋利用に対する潜在的影響を明らかにするべきである。その際には、合理的な程度に保守的な仮定に基づいて、予測される影響の自然的、時間的、空間的規模、及び持続期間を明らかにするべきである。</p>
		<p>7.4 The assessment should be as comprehensive as possible. The primary potential impacts should be identified during the selection process of the sub-seabed geological formation. These are considered to pose the most serious threats to human health and the environment. Alterations to the physical environment, risks to human health, degradation of marine resources and interference with other legitimate uses of the sea are often seen as primary concerns in this regard.</p>	<p>7.4 影響評価は可能な限り包括的であるべきである。基本的な潜在的影響は海底下地質炭素層の選定過程で明らかにされるべきである。これらは人の健康と環境への最も深刻な脅威を防ぐために検討される。この観点での基本的な概念点としては、物理的環境の改変、人の健康への危害、海洋資源への損害、海洋の他の合法的な利用への干渉等が挙げられる。</p>
		<p>7.5 The main effects to consider in relation to the leakage of carbon dioxide are those that result from the</p>	<p>7.5 二酸化炭素の漏洩に関して考慮すべき主な影響は、二酸</p>

increase of carbon dioxide concentration in the ambient water and sediments. The effects of carbon dioxide released to water bodies depend upon the magnitude and rate of release, the chemical buffer capacity of the water body, and transport and dispersion processes. Changes in pH are directly related to the partial pressure of carbon dioxide and the chemical buffer capacity of the water. Effects of exposure to other contaminants in the carbon dioxide stream could be assessed as well. Also, changes of pH in sediments due to carbon dioxide might have effects on metal speciation e.g., mobilising trace metals and other compounds to a higher extent of bioavailability. This may lead to direct toxic effects and/or accumulation in the food chain. Contracting Parties should refer to the Action List under Annex 2 to the Protocol for additional information on potential substances of concern. The effects of displacement of saline water may be included in the effects assessment as well.

7.6 In constructing an impact hypothesis applicable to the operation phase, particular attention should be given to, but not limited to, potential impacts on amenities (e.g., presence of floatables), sensitive areas (e.g., spawning, nursery or feeding areas), habitat (e.g., biological, chemical and physical modification), migratory patterns and marketability of resources. Consideration should also be given to potential impacts on other uses of the sea including: fishing, navigation, engineering uses, areas of special concern and value, and traditional uses of the sea.

7.7 Even the least complex and most innocuous wastes may have a variety of physical, chemical and biological effects. Impact hypotheses cannot attempt to reflect them all. It must be recognized that even the most comprehensive impact hypotheses may not address all possible scenarios such as unanticipated impacts. It is therefore imperative that the monitoring programme be linked directly to the hypotheses and serve as a feedback mechanism to verify the predictions and review the adequacy of management measures applied to the dumping operation and at the dump site. It is important to identify the sources and consequences of uncertainty.

7.8 The expected risks and consequences of disposal should be described in terms of likelihood of exposure and impact on habitats, processes, species, communities and uses. The precise nature of the predicted risk and effect (e.g., change, response, or interference) should be described. The risks and effect should be quantified in sufficient detail so that there would be no doubt as to the variables to be measured during field monitoring. In the latter context, it would be essential to determine "where" and "when" the impacts can be expected. The disposal of carbon dioxide streams into sub-sea geological formations, where the "sub-sea geological formations" are supposed to isolate carbon dioxide streams from marine environment and atmosphere

化炭素濃度の増加による、周辺水域や底質に対する影響である。水塊へ漏洩した二酸化炭素による影響は、漏洩の規模及び漏洩率、水塊の化学的緩衝容量、及び輸送と拡散の過程に依存する。水素イオン濃度の変化は、二酸化炭素分圧と水塊の化学的緩衝能力に直接関連している。二酸化炭素流中の他の汚染物質に対する感度影響についても評価することができる。また、二酸化炭素に起因する底質の水素イオン濃度の変化は金属組成に影響を及ぼし、例えば微量金属及びその他の化合物が移動すれば、生物学的利用率が一層高くなる可能性がある。これにより、直接的な毒性影響及び又は食物連鎖による蓄積をもたらす可能性がある。締約国は、議定書2中の行動基準を参照し、懸念すべき潜在的物質の付加的情報を確認するべきである。(貯水圏内の塩水の(二酸化炭素流による)置換による影響についても、影響評価に含まれることがある。

7.6 操業段階で適用される影響仮説を立てるに当たっては、特に、快適性への潜在的影響(例えば浮遊物の存在)、感受性が大きい場所(例えば産卵地、養殖地、採餌地、生息場(例えば生物学的、化学的、物理的改変)、回遊パターンの及び資源の市場性について注意が払われるべきであるが、これらに限られる必要はない。また、他の海洋利用、例えば、漁業、航行、工業的使用、特別な関心や価値のある場所、漁業、航行の伝統的使用に対する潜在的影響についても検討するべきである。

7.7 最小の構成要素からなり最も無害な廃棄物でさえ、種々の物理的、化学的及び生物学的影響がある。影響仮説はそれら全てを考慮することはできない。最も包括的な影響仮説でさえ、予期しない影響等のあらゆる可能なシナリオを考へ出すことはできないということを認識すべきである。それ故、監視計画が仮説と直接関連づけられ、同計画が予測を実証し、かつ操業行為及び投棄場所に適用される管理対策が適当かどうかを検証するためのフー・ド・バック機能を果たさなければならない。不確実性の原因とそれらがもたらす結果を特定することは重要である。

7.8 処分によって予想されるリスク及び結果は、生息場、海洋の過程、生物種、共同体及び利用に対する暴露及び影響の可能性といった観点から示されるべきである。予想されるリスク及び影響の正確な性質(例えば変化、反応、干渉)が提示されるべきである。リスク及び影響は十分詳細に定量化されるべきであり、そうすれば現場での監視の際に測定されるべき変数が明確となるであろう。後者については、どこで、いつ影響が予想されるかを決定することが重要である。「海底下地質系」が二酸化炭素流を海洋環境及び大気から恒久的に隔離すると想定される二酸化炭素流の海底下地質系への処分では、環境中に直接投入することが可能である他の廃棄物の廃棄と同様の環境への

32 In constructing an impact hypothesis, particular attention should be given to, but not limited to, potential impacts on amenities (e.g., presence of floatables), sensitive areas (e.g., spawning, nursery or feeding areas), habitat (e.g., biological, chemical and physical modification), migratory patterns and marketability of resources. Consideration should also be given to potential impacts on other uses of the sea including: fishing, navigation, engineering uses, areas of special concern and value, and traditional uses of the sea.

33 Even the least complex and most innocuous wastes may have a variety of physical, chemical and biological effects. Impact hypotheses cannot attempt to reflect them all. It must be recognized that even the most comprehensive impact hypotheses may not address all possible scenarios such as unanticipated impacts. It is therefore imperative that the monitoring programme be linked directly to the hypotheses and serve as a feedback mechanism to verify the predictions and review the adequacy of management measures applied to the dumping operation and at the dump site. It is important to identify the sources and consequences of uncertainty.

34 The expected consequences of dumping should be described in terms of affected habitats, processes, species, communities and uses. The precise nature of the predicted effect (e.g., change, response, or interference) should be described. The effect should be quantified in sufficient detail so that there would be no doubt as to the variables to be measured during field monitoring. In the latter context, it would be essential to determine "where" and "when" the impacts can be expected.

<p>14 An analysis of each disposal option should be considered in the light of a comparative assessment of the following concerns: human health risks, environmental costs, hazards (including accidents), economics and exclusion of future uses. If this assessment reveals that adequate information is not available to determine the likely effects of the proposed disposal option then this option should not be considered further. In addition, if the interpretation of the comparative assessment shows the dumping option to be less preferable, a permit for dumping should not be given.</p>	<p>35 Emphasis should be placed on biological effects and habitat modification as well as physical and chemical change. However, if the potential effect is due to substances, the following factors should be addressed:</p> <ol style="list-style-type: none"> 1 estimates of statistically significant increases of the substance in seawater, sediments, or biota in relation to existing conditions and associated effects; and 2 estimate of the contribution made by the substance to local and regional fluxes and the degree to which existing fluxes pose threats or adverse effects on the marine environment or human health. <p>36 In the case of repeated or multiple dumping operations, impact hypotheses should take into account the cumulative effects of such operations. It will also be important to consider the possible interactions with other waste dumping practices in the area, both existing or planned.</p>	<p>permanently does not present the same types of potential environmental concerns as the disposal of other wastes, where the waste materials can be readily distributed into the environment and thereby does not necessarily fit the standard paradigm of biological or chemical impact assessment.</p> <p>7.9 Risk assessment and management for disposal of carbon dioxide streams should take into account of the likelihood of leakage to marine environment from the seabed geological formation. Emphasis should be placed on biological effects and habitat modification as well as physical and chemical change. However, if the potential effect is due to substances contained in carbon dioxide stream, the following factors should be addressed:</p> <ol style="list-style-type: none"> 1 estimates of statistically significant increases of the substance in seawater, sediments, or biota in relation to existing conditions and associated effects; and 2 estimate of the contribution made by the substance to local and regional fluxes and the degree to which existing fluxes pose threats or adverse effects on the marine environment or human health. <p>7.10 In the case of repeated or multiple carbon dioxide disposal project in the same geological formations, impact hypotheses should take into account the cumulative effects of such operations. It may also be important to consider the possible interactions with other waste dumping practices in the area, both existing or planned.</p> <p>7.11 An analysis of each disposal option should be considered in light of a comparative assessment of the following concerns: human health risks, environmental costs, hazards (including accidents), economics and exclusion of future uses. If this assessment reveals that adequate information is not available to determine the likely effects of the proposed disposal option, including potential long-term harmful consequences, then this option should not be considered further. In addition, if the interpretation of the comparative assessment shows the dumping option to be less preferable, a permit for disposal should not be given.</p>	<p>潜在的懸念は存在しない。従って、二酸化炭素流の海底下地質界層への処分は、機動的な生物学的、又は、化学的影響評価の典型に必ずしも当てはまるわけではない。</p> <p>7.9 二酸化炭素流処分のリスク評価及び管理は、海底下地質界層から海洋環境へ漏洩する可能性を考慮に入れるべきである。物理的及び化学的变化と同様に生物学的影響と生態攪乱について重視されるべきである。しかしながら、潜在的影響が二酸化炭素流に含まれる物質によるものならば、以下の要素が取り上げられるべきである。</p> <ol style="list-style-type: none"> 1 現状及び関係する影響に関連づけられた、海水、堆積物または生物相の中の統計的に有意な物質の増加の推定 2 投棄された当該物質が近傍及び周辺のフラスコスに及ぼす脅与と、既存のフラスコスが海洋環境または人の健康にもたらしている脅与又は悪影響への程度の推定 <p>7.10 繰り返し行われる、または数回にわたり同一地質界層において行われる二酸化炭素隔離計画の場合、影響仮説は投棄行為の累積的影響を考慮するべきである。その場所で既にまたは計画されている他の廃棄物投棄との相互作用の可能性を検討することも重要である。</p> <p>7.11 各処分選択肢の分析は、人の健康に対する危険、環境に対する損害、事故を含む危険、経済性及び将来的な利用の排除といった懸念点につき比較評価する観点から検討されるべきである。かかる評価の結果、提案された処分方法による影響（潜在的な長期間にわたる有害な結果を含む）を決定するための適切な情報が入手できないことが明らかた場合には、そのような処分方法についてはそれ以上検討を行うべきではない。さらに、比較評価によって、投棄は好ましくないことが示された場合には、投棄の許可は与えられないべきではない。</p>
<p>15 Each assessment should conclude with a statement supporting a decision to issue or refuse a permit for dumping.</p>	<p>37 An analysis of each disposal option should be considered in light of a comparative assessment of the following concerns: human health risks, environmental costs, hazards (including accidents), economics and exclusion of future uses. If this assessment reveals that adequate information is not available to determine the likely effects of the proposed disposal option, including potential long-term harmful consequences, then this option should not be considered further. In addition, if the interpretation of the comparative assessment shows the dumping option to be less preferable, a permit for dumping should not be given.</p>	<p>7.12 Each assessment should conclude with a statement supporting a decision to issue or refuse a permit for disposal.</p>	<p>7.12 それぞれの評価は、処分許可を発給する又は拒否する決定を支持する声明で結論されるべきである。</p>
<p>16 Monitoring is used to verify that permit conditions are</p>	<p>38 Each assessment should conclude with a statement supporting a decision to issue or refuse a permit for dumping.</p> <p>39 Where monitoring is required, the effects and parameters described in the hypotheses should help to guide field and analytical work so that relevant information can be obtained in the most efficient and cost-effective manner.</p>	<p>8.1 Monitoring is used to verify that permit conditions</p>	<p>7.13 監視が要求されているところでは、仮設で述べられた影響及びパラメーターがフィールドワーク及び分析作業を進めるのに役立つように、関連情報収集が最も効率よく、かつ経済的に収集されるようにするべきである。</p>