

Appendix E:
ANILCA Section 810 Analysis of
Subsistence Impacts

Appendix E: ANILCA Section 810 Analysis of Subsistence Impacts

E.1 Subsistence Evaluation Factors

Section 810(a) of the Alaska National Interest Land Conservation Act (ANILCA) (16 USC Section 3120) requires that an evaluation of subsistence uses and needs be completed as part of any federal agency determination to “withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands.” Subsistence uses are defined in this title as the “customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food . . . [for] handicrafts . . . for barter, or sharing . . . and for customary trade.” As a consequence, an evaluation of potential subsistence impacts under ANILCA Section 810 must be completed for the TAPS ROW Renewal EIS. ANILCA requires that this evaluation include findings related to three specific issues:

1. The effect of such use, occupancy, or disposition on subsistence uses and needs;
2. The availability of other lands for the purposes sought to be achieved; and
3. Other alternatives that would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes (16 USC Section 3120).

If an evaluation of the three issues concludes that an action “would significantly restrict subsistence uses,” ANILCA Section 810 requires the head of the lead federal agency to:

- Notify the appropriate state agency, local committees, and regional councils (established under 16 USC Section 3115);
- Give notice of and hold a hearing in the vicinity of the area involved; and
- Determine that (1) such restriction to subsistence is necessary and consistent with sound management principles for use of

the public lands in question, (2) the proposed activity will involve the minimal amount of public lands necessary to accomplish its purposes, and (3) reasonable steps will be taken to minimize adverse impacts on subsistence uses and resources.

Appendix E contains ANILCA Section 810 evaluations of the proposed action to renew the TAPS right-of-way for 30 years, the less-than-30-year renewal alternative, and the no-action alternative (nonrenewal of the ROW). The cumulative effects, which include the impacts of one of the alternative actions in conjunction with effects of other past, present, and reasonably foreseeable actions, are also assessed. For each alternative and the cumulative case, the assessments consider five possible impact categories that could restrict the use of resources for subsistence:

1. A decline in the population or amount of harvestable resources,
2. Changes in the geographic distribution of subsistence resources,
3. Competition for potential subsistence resources,
4. Disturbance of subsistence activities, and
5. Constraints on access to subsistence resources.

These categories are compatible with those identified in BLM guidance concerning Section 810 analyses (BLM 1986). They were developed in part on the basis of concerns expressed by subsistence users and in part on the basis of observations of researchers who have examined subsistence in Alaska over the past 20 years. They are intended to encompass all key types of impacts to subsistence, and will

be considered individually and in combination in this analysis.

The criteria used to evaluate impacts on subsistence use consider both type and magnitude of effect. Impacts within these categories would fall below the “may” significantly restrict threshold if the action may result in no (or a slight) reduction in the abundance of harvestable resources; no (or occasional) redistribution of these resources; no effect (or slight inconvenience) on the ability of harvesters to reach and use active subsistence harvesting sites; and no substantial increase in competition for harvestable resources. Conversely, restrictions would reach the “may” significantly restrict threshold if the action may result in large reductions in the abundance of harvestable resources, major redistributions of those resources, substantial interference with harvester access to active subsistence sites, or a major increase in competition for subsistence resources.

The BLM used a “may” significantly restrict test in the Section 810 analysis for this EIS. This is a lower threshold than found in Section 810 itself, which contains a threshold of “would significantly restrict,” before hearings and determinations are required under Section 810(a)(3)(A), (B), and (C).

Section 3.24 of this FEIS provides background on existing conditions for subsistence in the vicinity of the TAPS. The background information is augmented by a more detailed discussion of existing conditions in Appendix D. Section 4.3.20 evaluates subsistence impacts under the proposed action; Section 4.5.2.20 evaluates them under the less-than-30-year renewal alternative; and Section 4.6.2.20 evaluates them under the no-action alternative. Section 4.7.8.1 contains the evaluation of cumulative impacts on subsistence.

E.2 Evaluation of Impacts

E.2.1 Proposed Action

E.2.1.1 Evaluation

The conclusion reached in Section 4.3.20 is that any negative impacts on subsistence from renewing the TAPS ROW would be very small. This conclusion was based on the effects on subsistence that could definitely be associated with renewing the TAPS. Renewal would result in:

- Continued, but not increasing, limitations on access to (very small) parts of certain traditional subsistence use areas, where these intersect the TAPS, and
- Continued use of the Dalton Highway, along with various access roads and airspace over the TAPS, to maintain TAPS operations and continued human activity around the TAPS resulting in generally minor disruption to the movement of small numbers of terrestrial mammals.

As noted in Section E.1, a significant restriction to subsistence uses could result from five impact categories, either alone or in combination. These impacts can be assessed with regard to the proposed action:

1. *A decline in the population or amount of harvestable resources.* As noted in Sections 3.18 through 3.22, the only evidence of decline in the populations or amounts of harvestable resources as a result of current operation of the TAPS, concerns effects on individual or very small numbers of animals. Evaluations of impacts on biological resources under the proposed action, presented in Sections 4.3.15 through 4.3.18, similarly anticipate no impacts on harvestable resources apart from effects on individual or very small numbers of animals. Caribou, moose, and salmon are given particular attention as important subsistence resources. Although caribou herds on the North Slope have increased in population, moose populations have fluctuated, and key Yukon River salmon runs have shown

significant recent declines. Importantly, it is broad environmental conditions, such as harsh winters, predation, or ocean conditions, that are seen as driving these population dynamics, not impacts associated with the TAPS. As a result, there is no anticipated impact with regard to this impact category.

2. *Changes in the geographic distribution of subsistence resources.* One of the most frequently cited concerns about the current and potential future operation of the TAPS expressed by subsistence users is the adverse impacts on the geographic distribution of subsistence resources, notably terrestrial mammals (see community descriptions in Section 3.24.2 and Appendix D). The implications of such changes would be reduced accessibility, minimally requiring greater travel distances for subsistence users. Thus, even in cases where resource populations are present at levels equal or greater than those in the past, they might not be as accessible for subsistence harvest if they have been displaced to more distant ranges. Available evidence does indicate that caribou, in particular, are sensitive to human activity, including movement on foot or in various types of vehicles (Horejsi 1981; Murphy and Lawhead 2000; Tyler 1991; Wolfe, S. et al. 2000). Moreover, many rural Alaskans contended during public scoping for the TAPS ROW EIS that nonlocal hunters disturb migration patterns by shooting at the lead animals in the migration. However, there is no evidence from scientific studies that the TAPS or activity in the TAPS ROW or on the Dalton Highway in support of the TAPS have affected herd movement at a population level (Sections 4.3.15, 4.3.16, and 4.3.17) (TAPS Owners 2001). Very small numbers of caribou, moose, and other key subsistence resources may alter their movement patterns, and hence possibly their geographic distribution, as a consequence of the continuation of the TAPS and the human activity required to maintain it, but there is no evidence that such changes in behavior would have more than a negligible effect on subsistence activities.
3. *Competition for potential subsistence resources.* Another frequently cited concern about the current and future operation of the TAPS is competition from nonlocals who harvest fish and game that might otherwise be harvested for local subsistence (Section 3.24.2 and Appendix D). One of the causes of this competition is increased access to remote areas, primarily as a consequence of opening the Haul Road/Dalton Highway to the public. TAPS service roads also are cited as providing increased access to remote areas. It is indisputable that opening the Dalton Highway to public use in 1994 provided increased access to a large part of north-central Interior Alaska, leading to increased hunting and fishing in this part of the state (Haynes 2000). However, the decision to open this road was not related to the TAPS and is not attributable to the TAPS.

Since the time of its opening to public use, the Dalton Highway has been owned, operated, and maintained by the State of Alaska, which made the decision to allow public use. Currently there are no indications that ownership of the highway or its availability to public use would change, regardless of the outcome of the decision on whether to renew the TAPS ROW. Service roads are related directly to the TAPS, and their continuation is directly related to the ROW renewal. However, the amount of access they provide to subsistence resources is limited because of their relatively short length, the size of the vast Alaska Interior, and the size and configuration of subsistence use areas (Map 3.24-1). Since May 16, 1983, (48 *Federal Register* 22001) vehicular use of access roads has been restricted. Use of these service roads was further restricted for security purposes following the events of September 11, 2001. Thus, access-related competition with nonlocals for subsistence resources either is not related to the TAPS ROW renewal or is limited. Claims that TAPS employees compete for fish and game in areas they are familiar with as a result of their work on the TAPS could certainly be true, but under federal Grant Stipulation 1.14.1, APSC prohibits

employees from camping, hunting, fishing, and trapping in the right-of-way during their work shifts. There is no evidence to indicate that this source of competition (if present) is large. If competition directly related to the TAPS has an adverse impact on subsistence, the magnitude of this impact likely would be extremely small.

4. *Disturbance of subsistence activities.*

Disturbance of subsistence activities due to the TAPS refers primarily to the presence of TAPS-related activities or nonlocals interfering with subsistence hunting and fishing. This interference could take the form of activities associated with the operation of the TAPS — vehicular or airplane movement, maintenance activities, etc. — interfering with subsistence harvests. It also could involve the presence of other nonlocals whose presence or actions somehow adversely affect subsistence activities. As discussed above (see impact category 2), humans and human activities have been shown, in some instances, to interfere with the behavior of certain types of wildlife. However, TAPS-related sources of such interference are limited to the ROW, which represents a very small portion of the subsistence-use areas concerned; as a consequence, interference would be similarly limited. Although many more people may have access to previously remote portions of Alaska, thereby acting as possible sources of interference with subsistence activities, as discussed above (see impact category 3), most of the increase in access relates to the Dalton Highway. The state decision to open this highway to public use was not linked to the TAPS. There are no indications that this highway would be closed to public use even if TAPS operation were terminated. Disturbance of subsistence activities either appears to be geographically quite limited or is not related to the TAPS. As a consequence, any negative impacts from ROW renewal likely would be negligible.

5. *Constraints on access to subsistence resources.* Continued operation of the TAPS would continue to restrict access to TAPS facilities, such as pump stations. Such

restrictions would affect subsistence activities. However, for many of the communities possibly affected by the TAPS, such restrictions do not involve any of their traditional subsistence use areas (Maps 3.24-1 and D-3 through D-24). For those communities with subsistence areas that include restricted areas (Section 3.24-2), the reduction in access would be extremely small given the size of the harvest regions in question. Note that this evaluation does not include state restrictions to hunting with firearms in the Dalton Highway corridor, defined as the area 5 mi on either side of the Dalton Highway between the Yukon River and the Arctic Ocean, as these restrictions are not due to the TAPS. Moreover, in the federal land portion of the corridor, (i.e., all but the northernmost approximately 110 mi) rural subsistence users from nearby villages are authorized to use firearms for subsistence harvests under the federal subsistence management regulations. The restrictions also do not include state-imposed constraints on harvesting game in the Prudhoe Bay Closed Area, again because they are not due to the TAPS. Thus, although there would be constraints on access to subsistence resources due to continued operation of the TAPS, the impacts of these constraints would likely be very small by virtue of the proportion of subsistence use area affected.

E.2.1.2 Findings

Impacts of the proposed action on subsistence would not reach the threshold of “may” significantly restrict subsistence uses. As discussed in the preceding section, small or slight impacts in all five categories might occur under ROW renewal. The consequences likely related to the TAPS would be (1) reduced access to portions of subsistence use areas and (2) possibly disruptions to the movement of game. However, it is likely that the magnitude of these consequences would be very small, such that neither would significantly restrict subsistence uses.

E.2.2 Less-Than-30-Year Renewal Alternative

E.2.2.1 Evaluation

Anticipated impacts under the less-than-30-year renewal alternative are discussed in Section 4.5.2.20. The evaluation of the less-than-30-year alternative for purposes of ANILCA Section 810 considers the five potential impact categories defined in Section E.1 to determine if this alternative would lead to significant impacts on subsistence uses.

As discussed in Section 4.5.2.20, impacts associated with the less-than-30-year renewal alternative generally would be less than those associated with the proposed action. For the impacts considered in the ANILCA Section 810 evaluation:

1. Any changes in the population of subsistence resources would be smaller.
2. Changes in the geographic distribution of subsistence resources would have less time to accumulate, thereby likely resulting in smaller shifts.
3. Impacts from competition would have less time to accumulate, although the consequences of competition in any given period of time (e.g., year) could be the same as those under the proposed action.
4. Impacts from disturbance would have less time to accumulate, although, once again, the consequences of disturbance in any given period of time could be the same as those under the proposed action.
5. Impacts from constraints on access would have less time to accumulate, although impacts for any particular period could be the same as those under the proposed action.

E.2.2.2 Findings

Impacts of the less-than-30-year renewal alternative on subsistence would not reach the threshold of “may” significantly restrict

subsistence uses. As discussed in the preceding section, although impacts in any of the five categories might occur under ROW renewal, their magnitudes generally would be smaller than they would be under the proposed action. Once again, consequences likely related to the TAPS consist of limiting access to subsistence use areas and possibly disrupting the movement of game. However, the magnitude of both consequences likely would be very small, such that neither would significantly restrict subsistence uses.

E.2.3 No-Action Alternative

E.2.3.1 Evaluation

Section 4.6.2.20 concluded that any impacts to subsistence under the no-action alternative likely would be slightly positive. This conclusion is based upon a qualitative evaluation of possible results from discontinuing the TAPS. On the one hand, the population of Alaska is anticipated to increase slightly under the no-action alternative (although less rapidly than under other alternatives), with much of the increase coming from Alaska Natives (Tables 4.6-12 and 4.6-15), who have traditionally pursued subsistence more than have other groups in Alaska. Economic conditions resulting from discontinuation of the TAPS likely would yield slight declines in personal income (Table 4.6-16), possibly creating a greater economic reliance on subsistence. Declines in personal income might make it more difficult to purchase the modern technology often used in subsistence activities as well as in recreational hunting and fishing, and it might reduce the number of individuals engaged in the latter because of other associated costs. The no-action alternative possibly would remove existing restrictions on subsistence activities associated with the TAPS, depending on the disposition of pump stations. Finally, discontinuing the TAPS would reduce human activity on the Dalton and Richardson Highways, on TAPS access roads, and near various TAPS facilities, which might have a slight effect on the movement of certain subsistence resources (Section 4.3.20).

A consideration of key impact categories set forth in Section E.1 to evaluate the potential for significant restrictions under ANILCA Section 810 similarly yields mixed results:

1. *A decline in the population or amount of harvestable resources.* There is no clear evidence that harvestable resources would decline as a direct consequence of the no-action alternative. It is possible that an increase in the population of Alaska Natives, coupled with increased economic impetus to pursue subsistence, might yield increased pressure on subsistence resources. However, as noted in Sections 3.18 through 3.22, with the exception of certain threatened and endangered species, the populations of fish and game appear to be adequate to sustain themselves and reasonable harvests. Moreover, subsistence activities account for a relatively small amount, on the order of 2% by weight, of the aggregate of all fish and game harvested in Alaska (Wolfe 2000).
2. *Changes in the geographic distribution of subsistence resources.* As noted above, discontinuing the TAPS would eliminate TAPS-related traffic on the Dalton and Richardson Highways, TAPS access roads, and near TAPS facilities, which might have a slight effect on the movement of small numbers of terrestrial mammals important to subsistence. The Dalton Highway itself would remain open for public use. There is no evidence that any disruption to movement at population levels has occurred as a result of TAPS operation; thus, the removal of the TAPS and activities associated with it would likely have only a small positive effect.
3. *Competition for potential subsistence resources.* Under the no-action alternative, it is likely that competition from recreational hunting and fishing would decline slightly. The magnitude of this change probably would be small. Competition from other subsistence users, in turn, likely would increase, in part in response to a reduction in other economic opportunities. The increase in overall subsistence use probably also would be small for the area considered, in part because of participation that already is high for many of the rural communities

examined and in part because much of the seasonal and government employment currently available to supplement subsistence activities would continue.

4. *Disturbance of subsistence activities.* Disturbance of subsistence activities would probably decline under the no-action alternative. This conclusion is based, in part, on (1) an anticipated small decline in personal income in Alaska, which might reduce the number of state residents traveling to remote areas in the state, and (2) a possible decline in the amount of maintenance on the Dalton Highway because of reduced state revenues, which would make it more difficult to use the highway. Moreover, any deterioration in the condition of the Dalton Highway would not affect the potential disruption of subsistence activities in other areas where that transportation link is not a key means of general regional access.
5. *Constraints on access to subsistence resources.* Restrictions to subsistence use areas likely would decline under the no-action alternative. Present TAPS-related restrictions to access pertain to TAPS facilities, such as pump stations. Depending on the disposition of these facilities following the discontinuation of the TAPS, access could be reinstated to these localities (if, for instance, pump stations were removed). However, the total area involved is extremely small in comparison to subsistence use areas, so any improvements in access would be slight.

E.2.3.2 Findings

Impacts of the no-action alternative on subsistence would not reach the threshold of “may” significantly restrict subsistence uses. As discussed in the preceding section, individual impacts are anticipated to be small and likely would be slightly positive overall.

E.2.4 Cumulative Impacts

Section 4.7.8.1 summarizes cumulative impacts to subsistence associated with the

proposed action, less-than-30-year renewal alternative, and no-action alternative. Whereas the individual alternatives refer only to renewal of the TAPS right-of-way, the cumulative effects analysis takes into account past, present, and reasonably foreseeable actions whose impacts might complement those associated with the TAPS. In particular, this brings into the analysis continuing oil field development on the North Slope, and the marine transport component of taking oil from the Valdez Marine Terminal to market. The analysis in the EIS concluded that cumulative effects of the proposed action would include moderate negative impacts on the North Slope, but only minor negative impacts in the Interior Alaska and Prince William Sound-Lower Cook Inlet regions. The anticipated impacts of cumulative impacts associated with the less-than-30-year renewal alternative were judged to be less than those associated with the proposed action, while impacts associated with the no-action alternative were anticipated to be slightly positive. All negative impacts were felt to be small, with the exception of the moderately negative impacts identified for the North Slope region associated with the proposed action and less-than-30-year renewal. This conclusion is based on a qualitative evaluation of likely consequences of past, present, and reasonably foreseeable actions in a broad geographic area affected by the TAPS, organized into the three subregions noted above. In all cases, the contributions from the TAPS to the cumulative impacts appeared to be relatively small when compared with the contributions from other actions.

This section of Appendix E evaluates the cumulative impacts of the TAPS in the context of ANILCA Section 810. The discussion is divided into three subsections dealing with cumulative impacts associated with the proposed action, less-than-30-year renewal alternative, and no-action alternative. The conclusion reached is that cumulative impacts associated with the proposed action may significantly restrict subsistence uses. The specific impacts identified are the same as those identified in Section 4.7.8.1, and so at first glance this conclusion may seem inconsistent with the conclusions presented in the main body of the EIS under cumulative impacts in that section. The difference is that here the specific impacts

are reviewed on the basis of the lower threshold embodied in the phrase “may” significantly restrict.

E.2.4.1 Cumulative Impacts Associated with the Proposed Action

E.2.4.1.1 Evaluation. As discussed in Section E.1, a significant restriction to subsistence uses may result from five categories of impacts, either alone or in combination. These can be assessed with regard to cumulative impacts associated with the proposed action:

1. *A decline in the population or amount of harvestable resources.* As noted in Sections 3.18 through 3.22, there is no evidence that a decline in the populations or amounts of harvestable resources has resulted from current operation of the TAPS and other current actions in the TAPS ROW, apart from effects on individual or very small numbers of animals. Indeed, the populations of certain caribou herds have increased, some substantially, during the period of TAPS operation (TAPS Owners 2001), although this population growth is not necessarily a consequence of pipeline operation. Some of the actions considered as contributing cumulative impacts already are in place and apparently have not led to any population declines in key subsistence resources. Other cumulative actions (e.g., additional oil exploration, development, and production and the construction and operation of a natural gas pipeline), although not yet in place, are similar to those currently in operation and thus are not expected to yield large negative impacts. Exploration and construction activities would have localized and generally short-term effects. As a result, there is no anticipated effect under this impact category.
2. *Changes in the geographic distribution of subsistence resources.* As noted above, one of the most frequently cited concerns about the current and potential future operation of the TAPS expressed by subsistence users is the adverse impact on the geographic distribution of subsistence resources (see

community descriptions in Section 3.24.2 and Appendix D). The implication of such changes would be reduced accessibility. Even though the size of populations of key resources might be equal to or larger than those of the past, they might not be as accessible for harvesting as they were in the past, because of displacement to more distant ranges. Available evidence does indicate that caribou, in particular, are sensitive to human activity, including movement on foot or in various types of vehicles (Horejsi 1981; Murphy and Lawhead 2000; Tyler 1991; Wolfe, S. et al. 2000). There is no evidence from scientific studies that the TAPS or activity in the TAPS ROW or on the Dalton Highway in support of the TAPS has affected herd movement at a population level. Impacts identified are often temporary and confined to a few animals (Sections 4.3.15, 4.3.16, 4.3.17, and E.2.1.1) (TAPS Owners 2001). However, additional activity presumably would add to the disruption of game mobility, particularly on the North Slope, where many of these activities would be concentrated. The amount of disruption cannot be quantified given the present knowledge about locations of specific activities — e.g., it is not known precisely where additional oil fields will be discovered and developed. However, if the cumulative extent of developed lands were to become larger, the effects on the movements of wildlife may become more significant, with potential implications for subsistence. This finding is similar to that reached in the cumulative effects analysis of the Section 810 Findings and Evaluations for the Northeast National Petroleum Reserve Alaska (BLM 1998).

3. *Competition for potential subsistence resources.* Also frequently cited as a concern with regard to both the current and future operation of the TAPS, competition, in this case, involves nonlocals harvesting fish and game that might otherwise be harvested for local subsistence (Section 3.24.2 and Appendix D). One of the causes of this competition is increased access to remote areas, primarily as a consequence of opening the Dalton Highway to public use. Service roads also are cited as providing

increased access to remote areas. Additional service roads would accompany new oil and gas exploration, development, and production on the North Slope and the construction and maintenance of a natural gas pipeline, thereby providing further (but not unrestricted) access. The degree to which TAPS employees compete for fish and game in areas they are familiar with as a result of working on the TAPS is uncertain, but under federal Grant Stipulation 1.14.1, ASPC prohibits employees from camping, hunting, fishing, and trapping in the right-of-way during their work shifts. Furthermore, although more individuals would become familiar with remote parts of Alaska because of their association with these additional activities, their contribution to competition is estimated to be minimal. If cumulative impacts associated with the proposed action were present, their magnitude likely would be small.

4. *Disturbance of subsistence activities.* Disturbance of subsistence activities from cumulative actions refers primarily to the presence of activities or nonlocals interfering with subsistence hunting and fishing. This interference could take the form of activities associated with the construction or operation of the other facilities — use of heavy equipment, vehicular or airplane traffic, maintenance activities, etc. It also could involve the presence of other nonlocals (e.g., tourists, indirect support personnel) whose presence or actions somehow adversely affect subsistence activities. As discussed above (see impact category 2), human activities have been shown to interfere with the behavior of certain animals. Moreover, access to remote areas would likely increase because of reasonably foreseeable actions (see impact category 3). Nevertheless, cumulative impacts in the form of disturbance to subsistence activities likely would be geographically limited to the areas associated with cumulative actions. As a consequence, any negative impacts likely would be small.
5. *Constraints on access to subsistence resources.* The construction and operation of other facilities in addition to the TAPS would

lead to placing limits on access to subsistence areas or placing restrictions on hunting and fishing in certain areas. Such restrictions would provide a means of protecting the personnel and infrastructure associated with the cumulative actions. For most of the communities examined in this document, current and reasonably foreseeable future actions do not and would not involve any of their traditional use areas (Map 3.24-1). However, in some cases, restrictions would affect these areas. Traditional use areas tend to be large, and restricted areas likely would be comparatively small. The Native Village of Eyak has asserted that the closure of oil tanker lanes in the Valdez Arm to Cape Hichinbrook waters, recently adopted for national security reasons, has restricted access to a traditional fishing area. The map of the traditional use area for Cordova residents, does not show these lanes to be a part of the traditional use area (see Maps 3.24-1 and D-22).

Relative impacts from restricted access would be greatest on the North Slope, where activities contributing to cumulative impacts would be most heavily concentrated, and would include the subsistence use areas for Anaktuvuk Pass and Nuiqsut (Maps 3.24-1, D-3, and D-4). Despite the ability of the residents of these two communities to pursue subsistence in other, unrestricted portions of their traditional subsistence use areas, because of their need to pursue game where and when it occurs, in some circumstances cumulative restrictions may significantly restrict subsistence uses. Empirical research at Nuiqsut showed that physical barriers and security measures in oil fields moving closer to the community has resulted in longer detours, avoidance of some areas, and reluctance to use others. Data on caribou harvest locations show displacement: by 1992-1993, "about 80 percent of the communities' annual harvest [of caribou] . . . came from areas distant (16 mi) from development" (Pederson et al. 2000). Nuiqsut was particularly affected by oil field development with the Alpine field just 6 mi to the north and the Tarn field at western edge of Kuparak some

15 mi away (Pedersen et al. 2000). These fields pre-date the leasing program recently reviewed for the National Petroleum Reserve Alaska, North East, for which the Section 810 Analysis also found that in the cumulative case, restrictions on access reach the "may" significantly restrict threshold. Phillips Petroleum has been working with local communities to reduce the areas restricted for safety and security purposes (see Section 4.1.5), and the National Petroleum Reserve Alaska, North East environmental review identified measures to mitigate impacts on subsistence users due to new exploration and leasing. Nonetheless, this conclusion is consistent with the studies that have examined the impacts of oil development on the North Slope (e.g., BLM 1998; Pedersen et al. 2000), when assessed with the reduced threshold of identifying activities that "may" significantly restrict subsistence.

E.2.4.1.2 Findings. Cumulative impacts associated with the proposed action on subsistence meet the threshold of "may" significantly restrict subsistence uses. As discussed in the preceding section, an increase in potential disruption of subsistence resource movement and an increase in the area closed to subsistence may hamper subsistence activities on the North Slope.

E.2.4.2 Cumulative Impacts Associated with the Less-Than-30-Year Renewal Alternative

E.2.4.2.1 Evaluation. The evaluation of cumulative impacts associated with the less-than-30-year renewal alternative is generally the same as the evaluation of cumulative impacts associated with the proposed action just discussed (Section E.2.4.1.1). This similarity reflects, in part, the relative importance of impacts from other actions when compared with impacts from the TAPS and, in part, the resemblance of subsistence impacts from the TAPS under the entire 30-year and the less-

than-30-year renewal periods. Evaluation of the five categories of impacts is repeated here:

1. *A decline in the population or amount of harvestable resources.* As noted in Sections 3.18 through 3.22, there is no evidence that a decline in the populations or amounts of harvestable resources has resulted from current operation of the TAPS and other current actions in the TAPS ROW, apart from effects on individual or very small numbers of animals. The populations of certain caribou herds have increased, some substantially, during the period of TAPS operation (TAPS Owners 2001), although this population growth is not necessarily a consequence of pipeline operation. Some of the actions considered as contributing cumulative impacts are already in place and apparently have not led to any population declines in key subsistence resources. Other cumulative actions (e.g., additional oil exploration, development, and production and the construction and operation of a natural gas pipeline), although not yet in place, are similar to those currently in operation and thus are not expected to yield large or lasting negative impacts. Localized effects of construction activities would be short-term. As a result, there is no anticipated impact under this impact category.
2. *Changes in the geographic distribution of subsistence resources.* As noted above, one of the most frequently cited concerns about the current and potential future operation of the TAPS expressed by subsistence users is the adverse impact on the geographic distribution of subsistence resources (Section 3.24.2 and Appendix D). The implications of such changes would be reduced accessibility. Even though the size of populations of key resources might be equal to or larger than those of the past, they might no longer be as accessible (because of displacement to more distant ranges) for harvesting as they were in the past. Available evidence does indicate that caribou, in particular, are sensitive to human activity, including movement on foot or in various types of vehicles (Horejsi 1981; Murphy and Lawhead 2000; Tyler 1991; Wolfe, S. et al. 2000). There is no evidence from conventional scientific studies that the TAPS or activity in the TAPS ROW or on the Dalton Highway in support of the TAPS has affected herd movement at a population level. Impacts that have been identified are often temporary and confined to a few animals (Sections 4.3.15, 4.3.16, 4.3.17, and E.2.1.1) (TAPS Owners 2001). However, additional activity presumably would add to the disruption of game mobility, particularly on the North Slope, where many of these activities would be concentrated. The amount of disruption cannot be quantified given the present knowledge about the locations of specific activities. However, if the cumulative extent of developed lands were to become larger, the effects on the movements of wildlife may become more significant, with important implications for subsistence.
3. *Competition for potential subsistence resources.* Also frequently cited as a concern about the current and future operation of the TAPS, competition involves nonlocals harvesting fish and game that might otherwise be harvested for local subsistence (Section 3.24.2 and Appendix D). One of the causes of this competition is increased access to remote areas, primarily as a consequence of opening the Dalton Highway to public use. Service roads also are cited as providing increased access to remote areas. Additional service roads would accompany oil and gas exploration, development, and production on the North Slope and the construction and maintenance of a natural gas pipeline, thereby providing further (although likely limited) access. The degree to which TAPS employees compete for fish and game in areas they are familiar with as a result of working on TAPS is uncertain, but under Federal Grant Stipulation 1.14.1, ASPC prohibits employees from camping, hunting, fishing, and trapping in the right-of-way during their work shifts. Although more individuals would become familiar with remote parts of Alaska because of their association with cumulative actions, their contribution to competition is estimated to be minimal. If cumulative impacts associated

with the less-than-30-year renewal alternative were present, their magnitude likely would be small.

4. *Disturbance of subsistence activities.* Disturbance of subsistence activities from cumulative actions refers primarily to the presence of activities or nonlocals interfering with subsistence hunting and fishing. This interference could take the form of activities associated with the construction or operation of the other facilities — use of heavy equipment, vehicular or airplane traffic, maintenance activities, etc. It also could involve the presence of other nonlocals (e.g., tourists, indirect support personnel) whose presence or actions somehow adversely affect subsistence activities. As discussed above (see impact category 2), humans and human activities have been shown to interfere with the behavior of certain animals. Moreover, access to remote areas would likely increase due to reasonably foreseeable actions (see impact category 3). Nevertheless, cumulative impacts in the form of disturbance to subsistence activities likely would be geographically limited to the areas associated with cumulative actions. As a consequence, any negative impacts likely would be small.
5. *Constraints on access to subsistence resources.* The construction and operation of other facilities in addition to the TAPS could lead to limitations on access to subsistence areas or restrict hunting and fishing in certain areas. Such restrictions would provide a means of protecting personnel and infrastructure associated with the cumulative actions. Although for many of the communities examined in this document, current and reasonably foreseeable future actions do not involve any of their traditional use areas (Map 3.24-1), in some cases, restrictions would affect these areas. Traditional use areas tend to be large, and restricted areas likely would be comparatively small. The Native Village of Eyak has asserted that the closure of oil tanker lanes in the Valdez Arm, recently adopted for national security reasons, has restricted access to a traditional fishing area.

The mapped traditional subsistence use area for Cordova residents does not show these lanes as a part of the traditional use area (see Maps 3.24-1 and D-22). Relative impacts from restricted access would be greatest on the North Slope, where cumulative actions would be most heavily concentrated, and would include the subsistence use areas for Anaktuvuk Pass and Nuiqsut (Maps 3.24-1, D-3, and D-4). Despite the ability of the residents of these two communities to pursue subsistence in other, unrestricted portions of their traditional subsistence use areas, because of their need to pursue game where and when it occurs, in some circumstances, cumulative restrictions “may” significantly restrict subsistence uses. This conclusion is consistent with those reached in other studies that have examined the impacts of oil development on the North Slope (e.g., BLM 1998; Pedersen et al. 2000), combined with the reduced threshold of impact anticipation.

E.2.4.2.2 Findings. Cumulative impacts associated with the less-than-30-year renewal alternative on subsistence meet the threshold of “may” significantly restrict subsistence uses. As discussed in the preceding section, an increase in potential disruption of subsistence resource movement and an increase in the area closed to subsistence may hamper subsistence activities on the North Slope.

E.2.4.3 Cumulative Impacts Associated with the No-Action Alternative

E.2.4.3.1 Evaluation. The mixed impacts of the no-action alternative on subsistence, with some consequences likely positive and others likely negative, also characterizes the cumulative impacts under the no-action alternative. After a brief period of decline following TAPS discontinuation, the population of Alaska is anticipated to increase slightly under the no-action alternative (Tables 4.6-12 and 4.6-15), with much of the increase coming from Alaska Natives, who have

traditionally pursued subsistence more than other groups in the state. Moreover, economic conditions resulting from discontinuation of the TAPS is expected to yield decreases in per capita personal income (Table 4.6-16), probably creating a greater economic reliance on subsistence. Declines in personal income might make it more difficult to purchase the modern technology often used for subsistence activities as well as recreational hunting and fishing, although may also reduce the number of individuals engaged in the latter because of other associated costs. Finally, the no-action alternative would remove some existing restrictions on subsistence activities near the TAPS and reduce human activity on the Dalton Highway, TAPS access roads, and near various TAPS facilities, which have an effect on the movement of small numbers of certain subsistence resources (see Section 4.3.20).

The cumulative case associated with the no-action alternative is different than the no-action alternative by itself. The termination of TAPS operations would have important implications for North Slope oil production, inasmuch as oil production requires transportation of the product to the market to continue. This analysis assumes discontinuation of North Slope operations. Although it makes no particular assumptions about the removal of infrastructure, the discontinuation of production would remove personnel from the North Slope, where some of the largest impacts on subsistence are concentrated. Economic impacts would be the same as presented under the no-action alternative (see Section 4.6.2.19), which evaluated the consequences of shutting down oil production in Alaska as it currently exists.

A consideration of key impacts used to evaluate the presence of significant restrictions under ANILCA Section 810 similarly yields mixed results:

1. *A decline in the population or amount of harvestable resources.* There is no evidence that harvestable resources would decline as a consequence of the no-action alternative. It is possible that an increase in the Alaska Native population, coupled with increased economic impetus to pursue subsistence, may yield increased pressure on subsistence resources. However, as noted

in Sections 3.18 through 3.22, with the exception of certain threatened and endangered species, the populations of fish and game appear to be adequate to sustain themselves and reasonable harvests. Moreover, subsistence activities harvest a relatively small amount, on the order of 2% by weight, of the aggregate of all fish and game harvested in Alaska (Wolfe 2000). Increases in fish and game harvests by the relatively slightly growing population associated with other current and reasonably foreseeable future actions may have little effect on subsistence resource populations.

2. *Changes in the geographic distribution of subsistence resources.* As noted above, discontinuing the TAPS would eliminate TAPS-related traffic on the Dalton and Richardson Highways, TAPS access roads, and near TAPS facilities, which likely has a slight effect on the movement of small numbers of terrestrial mammals important to subsistence. There is no evidence that any disruption to their movement at population levels has resulted from TAPS operations; thus, the removal of the TAPS and activities associated with it likely would have only a small positive effect on subsistence resource migration. In the cumulative case, traffic and activity related to North Slope oil production also would cease. This reduction in traffic includes the Dalton Highway and possibly other public highways. The reduction in traffic and activity also includes the North Slope oil fields. Although little evidence exists to indicate that traffic on the Dalton Highway and the TAPS access roads has had much effect on animal migration, the concentration of infrastructure and activity on the North Slope appears to have had more influence in a localized area. As a result, the slight impacts on animal migration as a consequence of the oil industry is anticipated to decline, which may yield a slight positive impact on subsistence.
3. *Competition for potential subsistence resources.* Under the no-action alternative alone, it is likely that competition from recreational hunting and fishing would decline slightly because of reduced personal

income. The no-action cumulative case likely would see a further decrease in such competition, through a further decline in oil industry personnel. Competition from subsistence users, in turn, is expected to increase under the no-action alternative as other economic alternatives to subsistence decline in number. Although the same would be expected in the cumulative case, the increase in overall subsistence use probably would be small for the area considered. This conclusion is based in part on the observation that subsistence participation that already is high for many of the rural communities in the vicinity of the TAPS and the North Slope oil fields, and in part on a likely continuation of much of the seasonal and government employment currently available to supplement subsistence activities. Both increases and decreases in competition likely would be small. The net effect of the no-action alternative in the cumulative case likely may be positive but small in magnitude.

4. *Disturbance of subsistence activities.* Disturbance of subsistence activities is expected to decline under the no-action alternative, particularly as TAPS operations and maintenance activities decline. This conclusion is based in part on an anticipated small decline in personal income in Alaska, which might reduce the number of state residents traveling to remote areas in the state, and in part on a possible decline in the amount of maintenance on the Dalton Highway because of reduced state revenues, which would make it more difficult to use. The termination of additional oil-related activities under the no-action cumulative case should reduce this disturbance further. Once again, the greatest effects are anticipated on the North Slope, where the greatest concentration of oil activities occur. In addition to the reduction in oil-industry-related personnel and activity along the TAPS and in the North Slope oil fields, deterioration in the condition of the Dalton Highway because of declining revenues likely would reduce travel by non-local hunters and anglers. Overall, the no-action alternative in the cumulative case may have a slight positive impact on

subsistence through reducing possible disturbance to subsistence activities.

5. Constraints on access to subsistence resources. Restrictions to subsistence use areas would decline under the no-action alternative, as most of the few areas inaccessible to subsistence become available once again. When the effects of cumulative actions are considered — notably the termination of North Slope oil production — access restrictions would decline further. The degree of improvement in subsistence access on the North Slope would depend in part on how access would change following cessation of operations, but some improvement should occur. Although changes in access to subsistence resources would be very slight in Interior Alaska, because of the current absence of such constraints, access improvements in the Prince William Sound area likely would accompany the no-action cumulative case. This conclusion is based in part on the assertion by the Native Village of Eyak that the closure of oil tanker lanes in the Valdez Arm of Prince William Sound, recently adopted for national security reasons, has restricted access to a traditional fishing area. That stated, the mapped traditional subsistence use area for Cordova residents does not show these lanes as a part of the traditional subsistence use area (see Maps 3.24-1 and D-22), and this issue currently is being evaluated outside of this EIS. In all, constraints to subsistence resources likely would decline under the no-action alternative combined with cumulative impacts — potentially yielding a net positive effect on subsistence.

E.2.4.3.2 Findings. Cumulative impacts associated with the no-action alternative on subsistence do not meet the threshold of an action that “may” significantly restrict subsistence uses. As discussed in the preceding section, nonrenewal of the TAPS ROW likely would generally improve subsistence, primarily through reducing potential disruption of subsistence resource movement and decreasing the area closed to subsistence activities.

E.3 Notice and Hearings

The ANILCA § 810(a) requires that no “withdrawal, reservation, lease, permit, or other use, occupancy or disposition of the public lands which would significantly restrict subsistence uses shall be effected” until the federal agency gives the required notice and holds hearing in accordance with paragraphs 810(a)(1) and (2). The BLM published notice in the Federal Register on July 5, 2002, that cumulative impacts “may” significantly restrict subsistence uses. Public hearings, combined with public hearings on the DEIS for TAPS right-of-way renewal, were held in Cordova, Valdez, Glennallen, Anchorage, Fairbanks, Minto, and Barrow, Alaska, between July 26 and August 9, 2002.

Several individuals who attended the public hearings expressed concern about continuing impacts on subsistence of the TAPS, alone and in conjunction with other development (including oil and gas exploration and development). The majority of these concerns focused on competition for subsistence resources by nonlocal hunters and fishermen, disruption of game (particularly caribou) movements, persisting impacts of the Exxon Valdez oil spill on subsistence in Prince William Sound, and potential impacts of any future spill in Prince William Sound or a key river used for subsistence. The comments made by rural Alaskans during the public comment/ANILCA hearings were consistent with those provided during the public scoping period for the TAPS ROW EIS and during government-to-government consultation with federally recognized Tribes that occurred while the EIS was being prepared. Nevertheless, the testimony and comments offered during this more recent period led the BLM to reevaluate impacts on subsistence and to refine the presentation of those impacts (including a reassessment of the no-action cumulative case).

E.4 Subsistence Determinations under Section 810(a)(3)(A), (B), and (C)

The ANILCA Section 810(a) states that no action that would significantly restrict subsistence uses can occur until the responsible federal agency provides required notice and holds a hearing, and conducts evaluations in accordance with ANILCA paragraphs 810(a)(3)(A), (B), and (C). Following the determination that cumulative impacts “may” significantly restrict subsistence uses, the BLM scheduled hearings, as noted above. The following three sections comprise evaluations of ANILCA Section 810(a)(C), providing determinations if:

1. Such restriction to subsistence is necessary and consistent with sound management principles for use of the public lands in question [ANILCA § 810(a)(3)(A)];
2. The proposed activity will involve the minimal amount of public lands necessary to accomplish its purposes; [ANILCA § 810(a)(3)(B)]; and
3. Reasonable steps will be taken to minimize adverse impacts on subsistence uses and resources [ANILCA § 810(a)(3)(C)].

E.4.1 The Proposed Action with the Identified Potential Restriction of Subsistence Uses Is Necessary, Consistent with Sound Management Principles for the Utilization of Public Lands

This analysis concluded that the cumulative effects of the proposed action “may” significantly restrict subsistence, because of physical restrictions on subsistence activities in the TAPS corridor and in the North Slope oil fields. The proposed action and associated cumulative effects are necessary and consistent with sound

management of the federal public lands. Physical restrictions on subsistence uses associated with the proposed action involve components of the TAPS and North Slope oil field infrastructure. For example, subsistence activities are not allowed within the fenced areas occupied by pump stations and related facilities, nor within developed oil fields. Such restrictions are consistent with steps to protect TAPS and oil field operations personnel from injury and infrastructure from damage due to stray bullets.

Federal management of certain land close to the TAPS helps to reduce restrictions on subsistence users. The State of Alaska identifies two areas north of the Yukon River in proximity of the TAPS and North Slope oil fields where hunting with firearms is not allowed (ADF&G 2002). One area is the Dalton Highway corridor, defined as 5 mi on either side of the Dalton Highway between the Yukon River and the Arctic Ocean. The other is the Prudhoe Bay Closed Area, a roughly rectangular area that includes the Prudhoe Bay oil development infrastructure near the coast of the Arctic Ocean. The Federal Subsistence Board, of which the BLM State Director is a voting member, exercises federal subsistence management jurisdiction on the federal lands in the Dalton Highway corridor. The federal lands encompass all but the final (approximately) 110 mi of the corridor. In providing the rural subsistence priority required under ANILCA, the Federal Subsistence Board has revised regulations to allow residents of selected communities (Alatna, Allakaket, Anaktuvuk Pass, Bettles, Evansville, and Stevens Village) and residents living in the corridor to use firearms for subsistence harvests in those portions of the corridor that it manages (Office of Subsistence Management 2001). This relaxation of restrictions for subsistence users enables those individuals to harvest the resources important to their economies, sociocultural systems, and ceremonial activities in the manner they deem most efficient. Continuing state-imposed restrictions on the northern portion of the Dalton Highway corridor and in the Prudhoe Bay Closed Area are not decisions involving federal land, and thus lie outside of this evaluation.

E.4.2 The Proposed Activity Will Involve the Minimal Amount of Public Lands Necessary to Accomplish the Purposes of Such Use, Occupancy, or Other Disposition

The proposed activity evaluated here concerns renewal of the existing TAPS right-of-way and associated infrastructure. The proposed renewal involves only the land required for TAPS infrastructure and maintenance of that infrastructure, and involves the area currently used for that system. The ROW width varies from 54 ft on federal lands where the pipeline is buried and 64 ft on federal lands where the pipeline is above ground to 100 ft on state lands, becoming as broad as 300 ft on certain private lands (TAPS Owners 2001). The proposed activity involves a narrow transect of public land across the State of Alaska, providing the minimum amount required to maintain the TAPS as a functioning system (allowing for possible repairs, which often involve heavy equipment operating on either side of the pipeline).

E.4.3 Reasonable Steps Will be Taken to Minimize Adverse Impacts upon Subsistence Uses and Resources Resulting from Such Actions

During scoping for this EIS, the BLM and the public identified subsistence as one of the most important concerns to be evaluated in the NEPA process. Government-to-government consultations between the BLM and Alaska Native Tribes were initiated, with subsistence inevitably one of the topics discussed. All five public scoping meetings, as well as government-to-government meetings during the scoping period, confirmed the high level of importance attributed to subsistence. As a result, considerable effort was made to examine subsistence concerns and evaluate subsistence impacts under all alternatives considered in the EIS. On federal lands, managers implement the

rural priority to provide for continuation of subsistence practices.

As noted in Section E.2, the greatest impacts to subsistence are likely to occur not solely due to the proposed renewal of the TAPS right-of-way itself, but rather in the form of cumulative impacts. The greatest potential impacts are those that would be indirect consequences of the proposed action and other actions included under cumulative impacts — economic, demographic, and accessibility conditions expected to accompany Alaska economic growth in general. Ultimately, the steps necessary to minimize impacts of the sort anticipated need to be taken by federal and state agencies managing subsistence and sport fish and game harvests.

E.4 References for Appendix E

- ADF&G (Alaska Department of Fish and Game), 2002, *Alaska Hunting Regulations, Effective Dates July 1, 2002- June 30, 2003*, Juneau, Alaska.
- BLM (Bureau of Land Management), 1986. *Policy for Section 810 Compliance with the Alaska National Interest Lands Conservation Act (ANILCA)*, Instruction Memorandum No. AK 86-350, Anchorage, Alaska. Aug. 26.
- BLM, 1998, *Northeast National Petroleum Reserve-Alaska, Final Integrated Activity Plan/Environmental Impact Statement*, Vols. 1 and 2, prepared by U.S. Department of the Interior, BLM, in cooperation with the Minerals Management Service, Aug. Available at <http://blm.ak/pl-98/016+3130+930>.
- Haynes, T.L., 2000, *Subsistence Information for Alyeska Pipeline Service Company Environmental Report*, Alaska Department of Fish and Game, Division of Subsistence, Fairbanks, Alaska, Nov.
- Horejsi, B.L., 1981, "Behavioral Response of Barren Ground Caribou to a Moving Vehicle," *Arctic* 34:180–185.
- Murphy, S.M., and B.E. Lawhead, 2000, "Caribou," pp. 59–84 in *The Natural History of an Arctic Oil Field: Development and the Biota*, J.C. Truett and S.R. Johnson (editors), Academic Press, San Diego, Calif.
- Office of Subsistence Management, 2001, *Subsistence Management Regulations for the Harvest of Wildlife on Federal Public Lands in Alaska*, U.S. Fish and Wildlife Service, Anchorage, Alaska.
- Pedersen, S., et al., 2000, *Subsistence Economies and Oil Development: Case Studies from Nuiqsut and Kaktovik, Alaska*, Minerals Management Service Contract # 14-35-001-300661, Division of Subsistence, Alaska Department of Fish and Game, Juneau, Alaska.
- TAPS Owners (Trans Alaska Pipeline System Owners), 2001, *Environmental Report for Trans Alaska Pipeline System Right-of-Way Renewal*, Anchorage, Alaska.
- Tyler, B.L., 1991, "Short-Term Behavioral Responses of Svalbard Reindeer *Rangifer tarandus platyrhynchus* to Direct Provocation by a Snowmobile," *Biological Conservation* 56:179–194.
- Wolfe, R.J., 2000, *Subsistence in Alaska: A Year 2000 Update*, Alaska Department of Fish and Game, Division of Subsistence, Juneau, Alaska.
- Wolfe, S., et al., 2000, "Response of Reindeer and Caribou to Human Activities," *Polar Research* 19(1):63–73.