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PRELIMINARY ARCHAEOLOGICAL ASSESSMENT OF SOME AREAS OF POTENTIAL CONCERN ALONG THE PROPOSED NORTHWEST ALASKAN PIPELINE ROUTE

> Prepared for and Funded by Northwest Alaskan Pipeline Co.

Jean S. Aigner, Ph.D. Professor of Anthropology University of Alaska Principal Investigator

# FLUOR

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November 15, 1979

PRELIMINARY ARCHAEOLOGICAL ASSESSMENT OF SOME AREAS OF POTENTIAL CONCERN ALONG THE PROPOSED NORTHWEST ALASKAN PIPELINE ROUTE

Submitted to

Fluor Engineers and Constructors, Inc. Irvine, California

Under Fluor Contract 468085-9-K050

by

Jean S. Aigner, Ph.D. Professor of Anthropology University of Alaska

Revised November 15, 1979

## Table of Contents

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MANA	AGEMENT SUMMARY	1
1.	Introduction	3
2.	Theoretical Framework	4
5.	Sites in the Six Areas Along the Route of the Proposed Gasline.	7
4.	Summary and Recommendations	2
5.	References Cited and Sources Consulted	5



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#### GAS PIPELINE RELOCATION ASSESSMENT

#### MANAGEMENT SUMMARY

- 1. The report considers archaeological resources which are potentially impacted by construction of the gas pipeline from Delta Junction north to Prudhoe Bay in areas which have been cited by the Department of Interior. The report also considers potential impact to one additional area from Delta Junction north which was not included in the DOI list.
- 2. Primary, secondary, and tertiary effects of project planning, construction, and operation may impact archaeological resources. These impacts may be either direct or indirect but ultimately destruction of the resource is the outcome. Impact must be assessed in relation to significance of the resource. Eligibility and nomination to the National Register may be based upon an assessment of historic, ethnic, public, legal, and scientific significance. For purposes of this report, scientific significance and research potential are considered in the assessment of impacts and recommendations regarding mitigation alternatives.
- 5. The following sites were assessed for significance, impact, and possible alternatives for mitigation, if needed: XBD-071 (MP 525.6); XBD-031 (MP 524-524.5); FAI-035 (MP 477.5); FAI-072 (MP 476.7);LIV-036 (MP 399.6); LIV-032 (MP 398.8); LIV-055 (MP 391.8);LIV-033 (MP 391.2);PSM-049 (MP 148.1); PSM-050 (MP 118.8); PSM-006 (MP 118.4); PSM-073 (MP 116.9); PSM-072 (MP 116.9); PSM-057 (MP 115.1);PSM-060 (MP 112.6).

The following sites might be adversely impacted by planning, construction, and/or operational activities associated with the project: FAI-035; LIV-055; PSM-049; PSM-050. All but LIV-055 are considered potentially eligible for inclusion on the National Register of Historic Places, however, LIV-055 is deemed to be potentially scientifically significant (Table 1).

Each site is recommended for mitigation by excavation if it is to be adversely impacted by the pipeline project. It is noted that the remaining unexcavated portion of LIV-055 must be ascertained and assessed before final recommendation on the design of mitigation, if any, can be made.

4. Recommendations are for necessary mitigation by excavation to be undertaken during the 1980 summer field season, well in advance of project construction and support activities which may adversely impact the sites.

Mitigation by excavation aims to collect scientifically significant information from cultural resources - it is not a "salvage" operation. Thus, careful preplanning and adequate time for controlled data removal are mandatory. Operational planning by the contractor should be authorized for early spring and all permits and letters of nonobjection should be obtained by Fluor no later than late spring.

Our review of the proposed gasline alignment, which lies close to or on the existing Alyeska (TAPS) pad for most of its length, leads us to recommend that this alignment be retained wherever feasible. Many cultural resources were identified along this alignment in earlier surveys and cleared by mitigation. Remaining significant cultural resources should be mitigated if it is determined that they will be adversely impacted by the project. It is unlikely that as many new resources will be identified in the area of the existing pad and haul road as will be the case in adjacent areas which may be proposed as alternative routes.

TABLE 1

SUMMARY OF ARCHAEOLOGICAL DATA FOR SELECTED SITES ALONG THE NORTHWEST ALASKAN PIPELINE PROJECT

Site	Napline Milepost	Alignment Sheet	DOI Reroute Segment	Impacted	Register Eligibility	Mitigation	Comments
XED-071	525.6	93	15	No	Unknown	No	Test to determine eligibility
XBD-031	524-524.5	93	15	No	No	No	Field check location
FA1-035	477.5	85	14	Yes	Yes	Yes	Recommend excavation
FA1-072	476.7	85	13	No	No	No	Pictographs destroyed by blasting
LIV-036	399.6	71	None	No	No	No	Destroyed by gravel mining
LIV-032	398.8	71	None	No	No	No	Distant from pipeline
LIV-055	391.8	69	None	Yes	No	Possible	Assess in field; partially mitigated?
LIV-033	391.2	69	None	No	No	No	Mitigated; destroyed by gravel mining
PSM-049*	148.1	27	None	Yes	Yes	Yes	Excavates locs. 4, 5, 7, 11, 12, 14. Note other sites in area.
PSM-050	113.3	21	None	Yes	Yes	ìes	Excavate north half of site
PSM-005	113.4	21	None	No	No	No	Low scientific value; destroyed -
PSM-073	116.9	21	None	No	No	No	Low scientific value: destroyed
PSM-072	116.9	21	None	No	No	No	Low scientific value; destroyed
PSM-057	115.1	21	None	No	No	No	Mitigated/destroyed
PSM-060	112.6	20	4	No	No	No	Distant from pipeline

"The following sites are mentioned in the text in the discussion of PSM-040; all are on sheet 27: PSM-021 at MP 152.2 (DOI segment 6); PSM-022 at MP 151.1 (DOI segment 6); PSM-055 at MP 149.8 (DOI segment 6); PSM-112 at MP 148.2; PSM-067 at MP 147.6; PSM-036 at MP 147.6 (Register Eligible); PSM-077 at MP 147.4; and PSM-076 at MP 147.1. Some have been wholly or partly mitigated.

#### GAS PIPELINE RELOCATION ASSESSMENT

#### Fluor Contract 468085-9-K050

#### 1. Introduction

The Department of Interior recommended alternate routes for the proposed gasline and listed areas of archaeological concern (Fisch 1979):

- 1. MP\*109 to 114 near Margaret's Marsh;
- 2. MP 114-118, Gallagher Flint Station;
- 5. MP 379-885 (sic), Erickson Creek;
- 4. MP 391-398, Lost Creek;
- 5. MP 469, Moose Creek Bluff, Sections 12 and 28,
  - T-S-2 (sic) and R-2-E; and
- 6. MP 514-516, near Keystone Creek.

The contractor was authorized to assess the status of the sites through a literature search and prepare the following report which addresses four main points. First, the eligibility of the sites for inclusion in the National Register is assessed. Second, the physical extent of each site, insofar as records report, is indicated. Third, possible mitigation measures that might be used to avoid rerouting the proposed alignment are presented. Parenthetically, the contractor subscribes to the conservation model which seeks first to avoid and preserve archaeological resources, and only in the event these alternatives are not viable, to mitigate through excavation. This leads to the fourth point addressed, namely, the theoretical basis for the recommendations made. Specifically, the scope of work requested "references and source documents to support past experience in similar situations, lines of reasoning used, and/or conclusions drawn in the project report" (Fisch 1979). Although no field work component to the project was requested, the contractor did make a field check of Moose Creek Bluff (at contractor's expense) with clearance obtained through Fluor representatives in Fairbanks.

This report presents available information on each archaeological site reported in the study areas noted by the DOI, plus information from MP 148, Mosquito Lake. From this information, deficient in many respects, an assessment of National Register eligibility is made. These same data are used to assess the potential impacts which may be affected by planning, construction, and operational stages of the gasline project. The philosophy or theoretical perspective applied is presented in the first section of this report. It provides necessary background for understanding the assessment of impact based upon known and predicted effects of construction and upon scientific significance of the archaeological resources (sites) involved. It also describes the rationale for recommending the various mitigation alternatives presented in the final sections.

\*MP refers to NAPLINE mileposts, May 1979 alignment sheets.

MP cited by DOI are not strictly accurate in all cases.

#### 2. Theoretical Framework

Information about impacts is extremely important for management purposes. Responsible proposals for mitigation rest upon the reliable predictions of <u>impacts</u>. Impacts may be direct or indirect: "Direct impacts occur from the immediate physical consequences of a project's planning, construction, or use, while indirect impacts are those that are not directly caused by the project's activities but that would not occur otherwise" (Schiffer and Gumerman 1977: 291).

We are not concerned in this report with a strict distinction between direct and indirect impact. Our assessment of impacts is predicted upon evidence which indicates that damage to the archaeological resource base can "reasonably be predicted as a result of some activity or process set in motion or accelerated by the land modification project being considered" (Schiffer and Gumerman 1977:291-292).

In order to assess impacts, we need to delineate the <u>effects</u> of all activities that occur during a project's planning, construction, and operation, to have knowledge of the nature and significance of the archaeological resources in the affected area, and to understand the relationships between the resources and expected effects.

Effects may be primary, secondary, or tertiary. Primary effects include obvious activities such as bulldozing, coring, digging, operation of track vehicles over the land surface, and removal of material from a borrow area. Secondary effects are associated with support activities such as construction of access roads, establishment of control centers, and the like. Tertiary effects are not the direct result of construction or support activities; for example, collecting by construction personnel would constitute a tertiary effect (Schiffer and Gumerman 1977:294). Tertiary effects would also include project-induced changes in demography and land use, including opening the haul road to commercial traffic.

Since it is agreed that archaeological clearance is required preparatory to engineering studies which may impinge upon archaeological resources (such as tree clearance, core drilling, track vehicles on the tundra), planning stage effects upon the archaeological resource base are being taken into account by project management. The analysis of effects may, therefore, be considered within the same framework as that occurring in the construction stage of the project.

At this point, in reference to indirect impacts, we stress the documented cases in Schiffer and Gumerman (1977:294) that "construction personnel will vandalize archaeological sites unless strong negative sanctions are maintained against such activities" (emphasis ours). Given the scope of the gasline project and length in miles of the work area, it is unlikely that adequate measures are enforceable. In addition to construction personnel, support personnel and truckers supplying camps cannot be adequately monitored. Thus, at the outset, it is our position that negative sanctions are not a viable mitigation alternative to predicted impacts of the gasline project, for cultural resources easily accessible from existing public roads, the Prudhoe Bay road, camps and operational facilities. Assessment of impacts and recommendations for mitigation require us to evaluate the significance of the endangered archaeological resource. This is somewhat apart from a determination of eligibility for the National Register. That is to say, "adverse impacts to the archaeological resource base are not simply land disturbances or even modifications of cultural deposits; instead they are losses of values related to significance."

Significance or site significance can only be interpreted in relation to a frame of reference. We follow Schiffer and Gumerman (1977) in the types of significance we recognize: scientific, historical, ethnic, public, and legal. Our concern is mainly with scientific significance or research potential in determining eligibility to the National Register; however, historic and ethnic significance may also qualify a site for inclusion in the National Register of Historic Places. This assessment of scientific significance is based upon the potential of the site to answer research questions.

In 1976 the Society for American Archaeology prepared an informational paper on determinations of eligibility to the National Register of Historic Places. "Any archaeological resource is potentially eligible if it can legitimately be argued that it is associated with a cultural pattern, process, or activity important to the history or prehistory of its locality, the United States, or humanity as a whole, provided its study can contribute to the understanding of that pattern, process, or activity" (Society for American Archaeology 1976:1). Furthermore, some properties which cannot be shown to be significant individually "may be eligible as segments of archaeological district" (Society for American Archaeology 1976:1).

The Society suggests that "properties that have lost their integrity by being completely excavated or otherwise totally disturbed do not normally quality(sic), unless they are of particularly noteworthy historical significance for the data they have yielded" (Ibid.).

They are not excluded a priori. A statement of significance must be based upon adequate data from and information about a site. "It is not sufficient to simply assert one's professional opinion that the property does or does not contain information important to the history or prehistory" (Ibid., p. 3).

Thus, data must be available from or in the resource to answer research questions and the nomination must indicate how the study of the resource might or might not contribute to the pursuit of the scientific questions.

Mitigation is the alleviation of impacts (Schiffer and Gumerman 1977: 521). Mitigation activities include avoidance and preservation of archaeological resources. The aim of conservation archaeology is to explore possible ways to preserve or avoid destruction of archaeological resources. This will depend upon the scope of the project, its current stage, and predicted impacts on and significance of the archaeological resource. However, as Schiffer and Gumerman note, when factors of significance and on-going destructive processes (including impacts) are considered, the conservation model becomes complicated. Excavation is a mitigation alternative which may be most viable in some cases.

This report concerns sites in six delineated areas plus Mosquito Lake. A potential direct impact means that construction efforts will directly encroach upon a cultural resource. However, the actual zone which may be affected by the project lies beyond the centerline, right-of-way, access roads, haul road and camp boundaries. Thus, a potential indirect impact, no less adverse in its effect upon a resource, results from activities related to construction. For discussion purposes, the zone of indirect impact is 2000 feet.

We reiterate that care alone, or negative sanctions against off-road activities, do not protect sites. Active preservation of sites along the gasline is also another possible mitigative alternative. However, it should be noted that most arctic sites lack the materials which mark them for "public use" (through development of parks and the like). Stockpiling sites by burying them under fill, similarly, is sometimes recommended. In the arctic, burial under yards of gravel (to make sites inaccessible) will change the environment of the sites and thus the geomorphic processes affecting them. The potential impact of these newly created effects may be highly adverse in themselves. Furthermore, altering the landscape may damage the integrity of the site.

Novement of the centerline to avoid impact of a known archaeological resource may result in greater site destruction than some other mitigation alternative. This is because impacts include those resulting from secondary and tertiary effects and because in avoiding one known site there is no guarantee that two new sites will not be potentially impacted. On the other hand, mitigation of a site by excavation will require not only money, but more important from a management consideration, time. Thus, for example, our recommendation of mitigating Galligher Flint Station by excavation may be viable from a management point of view since the site is not directly impacted by construction of the gasline. However, mitigation by excavation at Moose Creek Bluff will be time consuming; the archaeological resource lies directly in line of the gasline. The management decision must be based on a consideration of both the cost of moving the line (far more expensive than excavation) versus the time lost in construction along the preferred route while mitigation is carried out.

This brings us finally to excavation as an alternative. If and only if avoidance and active preservation alternatives cannot quarantee the integrity of the archaeological resource, then scientific archaeological excavation, that is, multistage research, problem oriented research design, rigorous sampling programs, multidisciplinary cooperation, rapid publication and wide dissemination of results, may be a viable alternative. Excavation is justifiable, however, only if it makes a solid research contribution: salvage work as formerly undertaken does not constitute a viable mitigation alternative. Thus, when we recommend multistage mitigative excavation, we propose exploratory testing, literature review, and the like first, then development of the research program which warrants intensive excavation. Mitigation by excavation is a lengthy procedure. For some sites under discussion in this report, Gallagher Flint Station, for example, there may be adequate preliminary data available to constitute the first phase and therefore recommend a design for final mitigation; for others this may not be true.

In the section which follows, the archaeological sites which are known in the vicinity of the six areas of gasline alignment are discussed. National Register status and eligibility are indicated in the discussion of each site. The more important, for management considerations, impacts (nature of effects and scientific significance of sites) are also considered here and again in summary form in Section 4. The data on sites in the vicinity of the designated NAPLINE mileposts (MP 109-118, MP 148 (added by us), MP 379-398 this includes sites from MP 385-391 which we have also added to the present review , MP 469, and MP 514-516) are presented in order from south to north. It should be noted that the quality and quantity of information on these reported sites is inadequate in some cases for determining eligibility for the Register as well as for assessing scientific significance. A number of sites listed in early Alyeska pipeline reports have never been given state numbers nor described. Many have been destroyed or excavated. Maps with site locations provided to the State Historic Preservation Office are often imprecise and are not useful for many purposes (the "dot" locating the site is scaled equivalent to 0.3 miles in diameter). It is also noted in some descriptions of sites where the collections, if any, may be found. In a number of cases, materials were not or have not been deposited with the University of Alaska Museum. In other cases, tools which were accessioned into the museum have subsequently been removed from that repository and are not available for study. Nonetheless, previous surveys along the TAPS have produced valuable information on the distribution and nature of sites with regard to terrain features. Much of the basic locational information may be used for predictive modes of past land use. Information not available in published sources was made available for review.

We wish to acknowledge the unqualified cooperation of the Curator of Archaeology, University of Alaska Museum, and the State Archaeologist, State Historic Preservation Office in providing us with information.

## 3. Sites in the Six Areas Along the Route of the Proposed Gasline

The following information on sites in the six areas marked for special study by the Department of Interior plus MP 148 comes from several principal sources. The maps prepared by John Cook were consulted, as were AHRS files and copies of Cook's various reports to Alyeska on archaeology were obtained (Cook 1970, 1971, 1976, 1977). In addition, the article by John Campbell (1973) and several reports by Linda Yarborough (1975a, b; 1978) and others were pertinent in several instances. The data prepared for Alyeska was all especially hard to use since site numbers assigned in the field are not necessarily those assigned on the final maps. Furthermore, some sites preliminarily noted in early reports under old field numbering systems, are sometimes described under their state numbers in final reports while the map locations bear yet another number. Finally, the location of collections is often in doubt. The University of Alaska is missing collections which were accessioned to them in part or total; some materials were never submitted to the Museum, the designated repository. With the obvious shortcomings in mind, the available information on sites is presented.

The mileposts cited are from alignment sheets (release date 6/1/79) prepared for Fluor for the Northwest Alaskan Pipeline Company in conjunction with its proposed soil borehole locations. They refer to the NAPLINE mileposts. These mileposts differ slightly from those cited by the DOI.

#### 3.1. XBD-071, the Mead Site, near MP 525.6

The Mead site is nearly 1 mile west of the proposed pipeline alignment. The extent of the site is not known. The site is located on the Mead property and has suffered partial destruction through construction of a house and garden.

It appears that the eastern portion (for the site is (was) undisturbed - indeed, perhaps the major significance of the Mead site is that it is the only one in the area which is not completely disturbed.

Flint flakes and charcoal have been recovered from 15-20 cm of loess. House construction reportedly uncovered "arrowheads," scrapers, and firecracked rock (Yarborough 1975b:21). The age and cultural-historical affiliation of the site, its function, and physical extent are unknown.

Given the considerable distance of the site from the alignment, there will be no direct or indirect impact from construction. As for the scientific significance of the site, and its eligibility for inclusion on the National Register, it is undetermined at this time. Testing would be required to delimit site extent, determine stratigraphy, recover datable materials, and obtain diagnostic remains.

Discussion: No impact from construction is anticipated. Register eligibility cannot be determined without further data.

## 5.2. XBD-031, the Koppenhaver Site, near MP 524-524.5

Koppenhaver, unfortunately, cannot be precisely located (see Map 1). The total published description of Koppenhaver is but three paragraphs:

> On the nearby Koppenhaver property, through which the pipeline will be constructed, a scattered surface site was found on a large ridge that appears to be a stabilized sand dune. The flakes had been thoroughly scattered on the wind deflated surface of the hill. The blow-out had been started through farming activities. Several test pits in undisturbed parts of the hill did not turn up any more sites. The only (marginally) diagnostic specimen was a midsection of a microblade which gives us no clue to cultural affiliation or age. (Cook 1971:455).

A small-sized crew conducted a preliminary, rapid survey along the right-of-way and located and tested two new sites: Koppenhaver (XBD-031) and Quartz Lake (XBD-030)



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Revisions shown in purple and recompilation of woodiand areas compiled from aerial photographs taken 1975. To runtiformation pot field chargest PHOTOREVISED 1975

(Cook 1970). These were determined to be outside of the construction impact zone although they may be affected by secondary impact. (Cook 1977:70)

Waste flakes and microblades found in tilled field. Some flakes found in test. (AHRS card)

The Koppenhaver site is evidently off the alignment - how far off is not known. (A field check of the location is recommended.) Apparently the site is disturbed by natural process brought about initially by farming activities. Thus, collected materials were from the surface for the most part. Artifacts recovered from the surface and the (few?) from test pits have not been submitted to the museum (the museum has no record of the site). They are reportedly not diagnostic and not dated.

Significance, from a scientific view, is minimal based upon the available information. Register eligibility is unlikely for the same reason and also because the site is disturbed.

Discussion: No direct impact from construction is probable. Register eligibility is highly unlikely. Nonetheless, a field check of the site (to verify location and perhaps extent) is recommended.

#### 3.3. FAI-035, the Chugwater Site, near MP 477.5

Chugwater is an extensive area comprised of a number of activity localities (Map 2). There is some evidence that cultural materials are culturally stratified as they were located directly below the humus level and again at approximately 0.15 m below the surface. Cook located some materials (see Cook 1976 letter) at 20 cm and 161 are reported. Yarborough's tests produced an additional 97 artifacts and Holmes' surface collection runs the total count to 635 (Yarborough 1978:8-10).

The materials on record come from some four localities at Chugwater, on Moose Creek Bluff (not to be confused with the Moose Creek Bluff/pictograph site). Diagnostic remains include bases from side-notched points as well as midsections, microblade cores, and microblades, a core rejuvenation tablet, and burins. Yarborough (Ibid., p. 8-12) reports collecting materials from an area some 800 x 900 feet and we observed flakes intermittently along the length of the main road from Chugwater to the Haines Pipeline corridor (on August 22, 1979), a distance of 0.5 mile.

Yarborough contacted the State Historic Preservation Office about the eligibility of the site for inclusion on the National Register (Yarborough 1978:15) and the nomination has been completed. That nomination notes that except for a "twisting dirt road, from 5 to 10 feet wide" which loops through the known extent of the site, there is no other major disturbance (but see notes from our August 22, 1979, visit, below). The several localities which comprise the site have produced materials spanning several millennia. The site was probably used often as a lookout for moose hunting; at the same time, materials were flaked at the site. Fishing activities may have been



undertaken from the site although there is no solid evidence at this time. Thus, the "significance of the Chugwater site, FAI-035, lies in its integrity of location and setting, and its potential to contribute to the understanding of Alaskan prehistory" (Yarborough, Register Nomination, n.d.:4). We concur with Yarborough's professional assessment of the scientific potential of Chugwater and with the case for eligibility to the Register which has been put forward.

Yarborough's recommendations to the Army Corps of Engineers (1978:16) are pertinent as well. Construction on Moose Creek Bluff should be mitigated by excavation. She also recommended that all vehicular access to the site be restricted and that dirt roads be stabilized. "Leaving access open to the site would. . . be detrimental, and probably constitute an adverse effect through willful neglect" (Ibid., p. 16).

We visited Moose Creek Bluff and the site of Chugwater (as defined by Yarborough 1978) and observed flakes in the dirt roads for a distance of 0.5 mile. We noted that Chugwater is located on one of several knolls on Moose Creek Bluff and that the Nike site is located on one of these. The Haines corridor is 300-500 feet from the Nike site. Evidently the materials we observed on the surface near the Haines derives from the Nike site. At the time of our visit, Berg Construction was actively engaged in demolishing the Nike site and its disturbance of subsurface materials uncovered the source for flakes near the Haines.

Discussion: The Chugwater site consists of a number of lookout-camp localities spread all along the bluff, certainly far beyond the limits of Chugwater as indicated in Yarborough 1978 and for Register nomination purposes. The integrity of the localities remains high. The scientific value of the entire bluff is high and Chugwater is eligible for nomination to the Register. The proposed pipeline alignment will directly impact the Chugwater site. Short of moving the alignment, excavation is the only viable type of mitigation we would recommend. Even moving the alignment to the base of the bluff will not eliminate at least tertiary impact to the site (currently collecting is continuing; Berg has obviously destroyed materials; erosion is impacting remains). Because of the rarity of sites with integrity and which appear to contain materials both vertically and horizontally stratified which relate to several millennia of human occupation in the area, Chugwater and all of adjacent Moose Creek Bluff should receive careful study before the various impacts which already are taking their toll of the site(s) destroy it completely.

#### 3.4. FAI-072, Moose Creek Bluff, near MP 476.7

Moose Creek Bluff is the name given to the site containing the pictographs discovered by Giddings (1941) in 1940 (Map 2). No other cultural remains were observed since "unfortunately, the greater part of Moose Creek Bluff was blasted out during the summer, and, with the exception of a pictured rock slab preserved at the University of Alaska, the paintings were destroyed (Giddings 1941:70). The pictographs (depicting human figures in various attitudes) were located on the 20 foot high by 50 foot long rock face of the west end of the bluff which was substantially blown away. These were among the few known pictograph sites in the interior of Alaska. Given the fact that the cultural resource is completely destroyed and has no scientific value, nor, evidently, local people who hold the locality valuable for other reasons (ethnic, religious), there is no basis for a Register nomination at this time. In any event, there is no impact since the locality is completely gone.

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Discussion: The pictographs are destroyed and have no scientific value. There is no basis at present for suggesting Register eligibility. No mitigation is needed.

#### 5.5. LIV-036, Lost Creek Overlook near MP 399.6

Lost Creek Overlook was slightly northwest of the Alyeska pipeline and was located on material source 71.0. The extent of the site has never been published but 402 one meter squares were excavated at the locality. Cook (1976:12-13) reports 5,800 waste flakes, many retouched flakes, fragments of bifaces, and both worked and unworked nodules. The museum has accessioned only 384 artifacts.

Lost Creek Overlook was apparently a lookout camp and quarry site. Apparently no cultural-historical affiliations have been postulated. The lack of cultural historical information alone does not preclude the possibility of eligibility for the Register; however, the site apparently has been destroyed by archaeological excavation (in 1975) suggesting that scientific value is limited to the existing collection and notes. The extent of these is not known but in our view Lost Creek Overlook probably is not eligible for the Register.

Discussion: It is likely that Lost Creek Overlook which lies off the alignment was mitigated by excavation. There is, in that case, no danger of impact from future construction activities. No mitigation is required. Register eligibility is unlikely. It should be noted that we expect there are other sites in this area that a survey of this area may reveal; we recommend that the alignment not be altered in this area.

#### 5.6. LIV-052, Lost Creek Shelter, near MP 398.8

Lost Creek Shelter is located some 1,500 feet northeast of the proposed alignment, on a prominence overlooking Lost Creek (Map 3). The archaeological site, a small (15 m x 15 m) flaking/lookout station was located in the course of examining a proposed material source to the west. (Formerly Lost Creek Shelter was located on the centerline but the Alyeska line was relocated to follow an old drainage channel.) Use of the nearby material site was subsequently deleted. Thus, Lost Creek Shelter was never excavated although a cat track through it initiated erosion which Cook (1976:4) reported would destroy it. Map 3. Livengood (C-4) Quadrangle



Four artifacts from test pits at the site are in the Museum - they are not diagnostic. However, the 5/27/75 field survey from notes that in conjunction with the likelihood of uncovering a small campsite at the base of the bluff ("highly likely"), the site would assume some importance.

The available information certainly does not indicate scientific significance for Lost Creek Shelter, and the predicted associated campsite cannot be confirmed at this time. There is thus insufficient data to suggest Register eligibility.

Discussion: Distance from the proposed alignment precludes impact. Size of the site and probably ephemeral nature indicate the site is not eligible for the Register and its scientific value is probably low.

## 3.7. LIV-055, the Juswon Site, near MP 391.8

Juswon appears to be located directly on the proposed pipeline alignment (Map 5). Cook (1976:17) reports it on a well-drained knoll on top of the ridge that runs parallel to the west fork of Erickson Creek, "adjacent to the proposed through-cut of MS 72-0." Field survey notes (6/9/75) indicate the extent of the site as 15 m x 15 m and Cook reports that subsequent investigations revealed two separate activity areas and a wider distribution of materials than originally observed (Cook 1976:16). Excavations of 113 one meter squares were completed and over 500 flakes, fragments of bifaces, point fragments, obsidian flakes, scrapers, and cutting tools were collected. The distribution of materials suggested to Cook that this was an ephemeral camp.

It is unclear if the site was completely excavated. It is also unclear if the materials contain any diagnostic artifacts (for cultural-historical reconstruction). (Obsidian hydration analysis is presented in Cook 1977:57.) There may be materials remaining and these may be directly impacted by construction of the gasline.

It is not possible to assess the eligibility of Juswon for the Register. If most of the materials are gone, then probably Register eligibility is unlikely. Nonetheless, if the site is impacted any remaining materials should be mitigated by excavation and these materials studied in conjunction with those at the museum (we note that some accessioned artifacts are not present in the museum). Realignment of the line in this area is likely to impact as yet unsurveyed sites; presently only Juswon and LIV-035, Erickson's Razor, are known to be in the direct line of the alignment. The area in general has good potential for sites as it is a knoll which overlooks the confluence of two creeks. The adjacent sections of the ridge evidently were not surveyed.

<u>Discussion</u>: Direct impact is likely although the extent of remaining materials is not known. Register eligibility is problematical at best. Impact should be mitigated by excavation; movement of the alignment is not recommended.

#### 3.8. LIV-033, Erickson's Razor, near MP 391.2

Erickson's Razor was evidently just west of the Alyeska work pad on MS 72-1 (Map 3). The ridge on which it was situated extended into a tributary valley of Erickson Creek (Cook 1976:15). The haul road is "0.5 km" to the northeast.

The site probably functioned as a lookout site; few cultural remains were recovered from the 22 one meter squares which were excavated to clear the site for construction. Cook reports unworked flakes, worked flakes, fragments of bifaces, and a few flake scrapers in addition to 126 flakes (1976:16). Cultural identification and age were not determinable but site duration was estimated as "perhaps only a few hours" (Cook 1976:16).

Scientific significance of the site is clearly low; it has been totally destroyed by mitigation and subsequent construction activities. Thus, no impact will be effected by construction of the gas line. It is not eligible for the Register.

Discussion: Erickson's Razor was destroyed; its scientific value is low and it is not eligible for the Register. Construction activities will have no impact; mitigation is not required.

#### 3.9. PSM-049, Mcsquito Lake Site and Others, near MP 148.1

Although not included on the list of areas with potentially impacted archaeological resources, the Mosquito Lake Site, PSM-049, at MP 148 is noteworthy (Map 4). The ridge on which the site is located served as a lookout point many times during the past 4,000-5,000 years (Cook 1971:305). Within a 5 km radius of the site there is a resident population of about 250 Dall sheep, caribou are common though not numerous and have one of their two main travel routes through the valley "directly through the site" (Cook 1977:747). Furthermore, there are ptarmigan nearby, several moose, and lake trout and grayling in all local ponds and lakes. The Atigun River contains some arctic char during spawning time (Cook 1977:747).

As in the case with other lookout sites, PSM-049 actually contains horizontal stratigraphy and some 17 known localities, 13 of which are reportedly affiliated to the Denbigh Flint Complex (Arctic Small Tool Tradition\*) (Cook 1977:754). There are several reported sites approximately a quarter mile from PSM-049 and also near the road and pad: PSM-067, PSM-112, and PSM-076. Others, at greater distance, are cited below.

PSM-049 was excavated between 1970 and 1974 as 17 separate localities. A total area of 655 square meters was removed; some winter excavation was attempted in 1975 owing to a construction schedule change.

Geological determinations revealed deglaciation in the late Pleistocene but optimal conditions for long-term human use of the area only for the last 4,000 years. Solifluction has slightly altered the site (Cook 1977:

\*Usually considered associated with Eskimo peoples circa 4,000 years ago.



755). Cook also noted that areas entirely surface collected in 1971 had surface materials which had worked up in 1974. Reportedly, the movement is vertical with little or no horizontal displacement. The activities of arctic ground squirrels at the site are also noted.

Carbon-14 dates for the localities are presented in Cook (1977:62-64) as follows:

GХ	4075	Sub datum	n #2	2705	160	В.Р.
	4076	locality	A	less	than 2	200 years
	4077	locality	А	305	130	B.P.
	4079	locality	4	2424	160	B.P.
	40S0	locality	3	2135	160	B.P.
	4081	locality	13	1030	140	B.P.
	4104	locality	5	2665	155	B.P.
	4111	locality	1	too s	mall	
	4248	locality	4	1975	140	B.P.
	4250	locality	8	3515	160	B.P.

A portion of the site was directly in the line of the pad; it was excavated prior to pad construction and the area has subsequently been destroyed by construction activities (Cook 1977:749). Most of the area which was excavated is upslope from the right-of-way and was not destroyed by construction. "The majority of the site remains unexcavated and more work should be undertaken at a future date" (Ibid.).

A brief summary of materials from each of the excavated localities is presented in order that the richness of Mosquito Lake be clear.

Locality A is indicative of recent Eskimo activity and excavations produced some 60 artifacts and 2,692 waste flakes. There were special clustering of materials within the locality. Cook reports that the locality was completely excavated (see Cook 1977:756-63).

Locality 6 consisted of a tent ring, waste flakes, a piece of sawcut caribou antler, and presumably reflects recent Nunamiut activity (Cook 1977:769).

Locality 7 yielded three artifacts and 120 waste flakes from a 12 square meter area. Cultural affiliation and age are unknown (Cook 1977: 770).

Locality 15 covered 24 square meters and contained several discrete spatial clusterings of materials. These are possibly associated with the Arctic Small Tool Tradition but the available date  $(1030 \pm 140)$  is not in keeping with this interpretation. Cook is inclined to hold off final judgement on this locality which produced 20 artifacts and 569 waste flakes; the dated material, however, may not be associated with the artifacts but rather with a later sheep kill (Cook 1977:776).

Localities B, 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 14, and 15 are identified by Cook as Arctic Small Tool Tradition (Cook 1977:779). Locality B covered 24 square meters and produced 52 artifacts and 429 waste flakes. It was probably a campsite used for several days. Cook reports it was completely excavated. As was the case for other localities, spatial clustering of artifacts was evident.

Locality 1 consists of approximately 40 square meters with artifacts concentrated in two main areas. Some 106 artifacts and 3,957 flakes were recovered. The range is said to be fairly complete in terms of those commonly associated with the Arctic Small Took Tradition within the Brooks Range and Arctic Foothills region (Cook 1977:817). Probably all materials were excavated from this camp site locality.

Locality 2 produced 55 artifacts and 1,160 flakes from an area of 48 square meters. Tools were manufactured at the site, suggesting it was a camp; at the same time Cook interprets the absence of hunting implements to mean that Locality 2 was excavated and the area destroyed by construction.

Locality 5, covering 22 square meters, showed 26 artifacts and 1,102 flakes in two main clusters. It was excavated then buried beneath the pad.

Locality 4 covered 106 square meters and contained several concentrations of materials and several hearths. Some 242 artifacts and 8,939 flakes were recovered. Two cultural-historical entities (at least) are represented: Arctic Small Tool Tradition and (intrusive, later) Kavik.\* The probable cultural-historical entity associated with the date (2425  $\pm$  160) is in question (see Cook 1977:879). Fishing may have been the main activity for people occupying this site. Cook suggests that not all of Locality 4 was excavated but is unclear about whether or not unexcavated areas lie outside the pad (Cook 1977:880).

Locality 5 excavations covered some 116 square meters and contained two distinctive clusterings of artifacts - one for tool manufacture may be linked temporally and in terms of activity with one or more other localities. Concentration 1 contained 6,283 flakes and 45 artifacts. Concentration 2 contained 1,699 flakes and 67 artifacts. This second concentration seems to reflect tool finishing activities. It was perhaps not completely excavated (see Cook 1977:911) and it was not destroyed by construction activities.

Locality 8, covering 26 square meters, produced 22 artifacts and 543 flakes. It was a briefly used campsite which produced the oldest date at Mosquito Lake. The site was excavated. A portion was earlier destroyed by a Nodwell; a portion was buried by the pipe pad, and a portion lies outside the pad (Cook 1977:927-928).

<sup>\*</sup>Kavik is a name given to a type of arrow point. It is considered by some to have a late prehistoric Athapaskan Indian affiliation.

Locality 9 covered about 40 square meters and produced 21 artifacts and 85 flakes. Soil creep had distorted the spatial relationships among the artifacts (Cook 1977:935). Its value is more limited than in the case of other localities.

Locality 10 is the smallest at Mosquito Lake; the excavated area was only 5 square meters. It is interpreted as simply an artifact/debitage concentration (Cook 1977:957). It contained 8 artifacts and 13 flakes including a burin, retouched blade, several retouched flakes, and microblades. Completely excavated, the locality lies off the pad.

Locality 11 was only partially excavated (32 square meters) so the possible spatial concentrations are unclear from the site map. To date, some 68 artifacts (microblades, retouched flakes and blades, bifaces, burins and spalls, side blades, and a projectile point) and 458 flakes have been catalogued. "Further testing and/or excavation should be encouraged" (Cook 1977:942). The locality is off the pad by about 75 feet only and would be subject to at least secondary and tertiary impact. Mitigation by excavation (initially a testing program to determine the limits of the locality) is recommended.

Locality 12 is one of the largest localities of the site. It has been only partially excavated (60 square meters) but concentrations of flakes and artifacts seem indicated (Cook 1977:955-956). Among the 32 artifacts are a projectile point or end blade, side blade, several burin spalls, microblades, retouched blades and flakes, a core, and flake knife. Some 1,250 flakes were recovered. The site was probably occupied for only a short time. Located some 250 feet from the Alyeska pad, it is probably liable to tertiary impact. Excavation by mitigation is recommended.

Only 4 square meters of <u>locality 14</u> were excavated, partly due to the lateness of the season and partly to the distance of the locality from the work area (Cook 1977:963). At least 95% of the locality remains unexcavated according to Cook (1977:963-964). A burin, two microblades, and four flakes were recovered. Even though the locality is "several hundred meters to the east of the pipe pad" (Cook 1977:964), additional work at this locality is recommended since (1) potential for information return is high, (2) mitigation of other localities will probably be required (and crew and equipment will be in the area), and (3) locality 14 completes the data set from the site. Given the location on the top of a large, flat terrace, the conspicuous locality will invite tertiary impact.

Locality 15 is located only 10 meters from the lake shore on the top of the hill. Only 36 square meters of the locality were excavated and definite patterning of activity areas is not clearly revealed in the present sample. Sixteen artifacts and 2,481 flakes were collected from the locality before it was buried beneath fill (Cook 1977:970). The scientific significance of the Mosquito Lake localities is clear. Particularly important are the potential for understanding the contents of activity distribution in limited occupation sites of Arctic Small Tool Tradition. Evidently, variations occur not only as ideosyncratic expressions but also with different primary functions (fishing, hunting, overnighting, lunching, etc.). Inter-locality associations are also indicated (see Cook 1977:972). The localities should be considered as a total data set and those small localities and areas not yet completely excavated should be.

Impact of the remaining localities cannot be directly determined but it is likely that both secondary and tertiary impacts will destroy the value of the unexcavated areas (and thus give us less than a complete data set for analysis).

<u>Eligibility</u> for the Register seems likely despite the fact that many localities are excavated. Mosquito Lake is a unique setting which was repeatedly used by people of the Arctic Small Tool Tradition (and more recent groups) because of the concentration of resources in the vicinity including fish, sheep, and some caribou, moose, and ptarmigan. The excavations which were undertaken resulted in a good data base which should be completed by finishing the excavations Cook could not or did not.

The Mosquito Lake site is dotted with archaeological localities. Running the gas line alongside the Alyeska pad will destroy the following localities at PSM-049 (some of which are not completely excavated): 8, 1, 5, 7, 10, 13, 11, and A (map 5). Localities B and 12 will be very near the construction area as may be locality 14 (see Figure 49-4 from Cook 1977:755).

- Discussion: There is some possibility of primary, and likely secondary and tertiary impact to all remaining Mosquito Lake localities. The slight distortion of context by slope action, the good data available from previous work, the number of manifestations of Arctic Small Tool Tradition camps and work areas and the potential for understanding relationships among these, indicate that the site has high scientific value. Furthermore, even though much excavation has been undertaken at the site, the value in relating information on interior Arctic Small Tool Tradition activities is unique. Register eligibility is likely. It is recommended that if impacted by proposed construction activities, the unexcavated portions of the PSM-049 localities be mitigated by excavation to complete the data set for the site before the information is destroyed.
- Note: Another reason for including Mosquito Lake in this report is that there are a number of other sites in the general vicinity (map 4). This was a heavily utilized area over many millennia. For example, PSM-036 (Aniganigurak) was an early contact period site with tent rings and moss houses. Without excavation it would have been destroyed by construction. Probably it is eligible for the Register as of



PROPOSED NAPLINE LIES ON ALYESKA PAD

MAP თ • MOSQUITO LAKE LOCALITIES (PSM-049) historic significance even though excavation has occurred (Cook 1970:166-170; 1971:272-296). PSM-022 consists of two probable tent rings; PSM-021 revealed several flakes near the alignment (Cook 1970:121), and PSM-055 or Tea Lake Knoll is among camp site examples in the area dating to the recent period (despite old dates - see Cook 1976:103 and 1977:63). Other sites include PSM-067, PSM-077, and so on (see Cook 1970, 1976).

#### 5.10. PSM-050, the Gallagher Flint Station, near MP 118.8

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Gallagher Flint Station is best known perhaps for the early date of  $10,540 \pm 150$  B.P. (SI-974) associated with cores, blades, and flakes from locality 1 of the site (Dixon 1972, 1975). However, there are a number of other localities at the site, a knoll somewhat northeast of the work pad and just southwest of the haul road. About 30% to 40% of the knoll has been excavated, principally the area of the several localiites other than one. Locality 1 (and the more recent and intrusive 1A) is a small part (5% - Dixon, oral communication, 1979) of the remaining knoll and but a small part of the total archaeological materials there (Dixon, oral communication, 1979).

In addition, there are at least nine known sites within 2 square miles of Gallagher Flint Station which were discovered, tested, or impacted by the Alyeska line (map 6). The cultural potential of the area both north and south of MP 118.8 is very high.

As we did for Mosquito Lake, the individual localities at PSM-050 are described. PSM-050 is reportedly in the process of being nominated to the Register - given the potential of the remaining site area, plus the data collected from the various excavated localities, the significance of the site is rather obvious. Locality 1, specifically, may be impacted (tertiary, probably secondary) by new construction in the area; other localities which are excavated obviously are not of the same concern.

The following data on PSM-050 are derived from Cook (1976: 109-119). Gallagher and Dixon located the site in 1970 and limited excavations were undertaken at localities 1 and 2 in 1970 and 1971. The 1976 report deals with the 1974 excavations at localities 2 through 10. Cook notes that "at present, the decisions had been made not to use the kame (for road materials). However, its proximity to the road will undoubtedly lead to secondary impact unless further excavations are conducted" (1976:109).

Carbon-14 dates for PSM-050 (Cook 1977:65) were not available at the time the 1976 preliminary report was prepared (and the 1977 report did not give a final analysis).





4258locality51100 ±1604259locality71735 ±1504260locality72640 ±1804261locality72365 ±1704262locality81840 ±1704263locality9970 ±1604264locality92665 ±1804565locality101780 ±150

Other dates are supplied by Dixon (1975):

SI	972A	locality	2	2920 ±	155
	975A	locality	2	3280 <u>+</u>	155
	974	locality	1	10,540	± 150
	975	locality	1A	2620 ±	175
		*			

Locality 2 is located in the southeast corner of the site and Cook (1976:115) reports that the locality covers some 356 square feet (different measures are used in the several reports). "Part of the locality was excavated in 1971" and 100 catalog entries include 80 flake clusters. End blades, bifaces, burins and spalls, and end and side scrapers were recovered. Cook attributes the materials to "a Choris\* related component" noting the presence, however, of several notched points (Ibid., 114). The 1977 Cook date is just slightly later or within the upper limits of Choris and Dixon's dates are within the lower limits.

Locality 5 in the southern part of the site comprises about 464 square feet. Among the 80 implements recovered are 36 notched points or knives or their fragments. Other tools include several lanceolate knives or points, a hammerstone, and several retouched flakes. Cook does not discuss cultural affiliation.

Locality 4 is in the south central part of the site and covered some 464 square feet. Most of the projectile points from the locality, despite its proximity to locality 3, are side or end blades. Furthermore, pottery fragments and 15 burin spalls attributed to Choris were recovered (Cook 1976:115). The dates are within the range of Choris.

Locality 5 covers an area of 10,500 feet and contains four major concentrations (which, Cook suggests, may prove to be separate components upon further anlaysis [Cook 1976:115]). The major concentration at the southwest corner is located so as to command an excellent view in all directions. A dozen small stemmed end blades like those from locality 4 were recovered. Fragments of a pottery vessel, burins and spalls also indicate a Choris affiliation. There is bone at the locality, some of it

<sup>\*</sup>Usually viewed as a Eskimo variant about 3,000 years old which developed from earlier Arctic Small Tool Tradition.

worked and this differs from that at Locality 4 (Cook 1976:116). Details are not provided. Partenthetically, the two older dates are consonent with this Choris attribution. Possibly the younger date will prove associated with another of the differentiable clusters at the locality.

Other areas considered part of Locality 5 produced a heterogeneous collection of types (Denali Complex; Arctic Small Tool Tradition, Village Site, interior boreal forest types). In addition, there are materials "like that from Locality 1. The actual boundaries of Locality 1 are not known, inasmuch as it lies on the north side of the kame and was not excavated in 1974" (Cook 1976:117).

Locality 6 is demarcated from 3 and 7 by sterile ground between. Some 2,600 flakes, 1,400 of which were recovered from a 2 foot square area, and several notched points, stemmed end blades, and possible burin spalls do not yet permit Cook to hazard a guess as to affiliation. No dates are reported in Cook 1977.

Locality 7, far south and low on the kame, covered 204 square feet. The same black chert as Locality 6 is present although the amount of debitage is lower. Burins are said to show similarities to Denali Complex (Cook 1976:118).

Locality 8 covered only 20 square feet on a small knob on the southwest part of the kame. A hearth with several end blade fragments and waste flakes was noted (Cook 1976:118). Dates presumably from the hearth range from 1735-2640 B.P.

Locality 9 is separated from others on the kame by 150 feet and is at the far northeast corner of the site. The single burin recalls Akmak\*\* at Onion Portage according to Cook.

Locality 10. Cook says that 4 squares (16 square feet) were excavated at Locality 10 and "no diagnostic artifacts (as yet) were found" (Cook 1976: 119). The locality is in the eastern part of the southern half of the kame.

Before continuing the report with a discussion of Locality 1, it must be stressed that the final report on the Gallagher Flint Station localities has not been completed. However, the richness of the localities and their diversity certainly indicate high scientific value. The kame is uniquely situated in the area, commanding wide view. In short, it is and was the best lookout site in the area.

- \* Denali Complex, "campus" cores, and the Village Site all produced distinctive microblade cores and microblades most seen as associated with Interior Indian peoples. Dates cited range widely from more than 6,000 years ago to within the Christian era.
- \*\* An early site usually dated 8,000-9,000 years ago. The ethic affiliation is a matter of debate.

The southern half of the kame has been excavated and archaeological materials per se therefore are not impacted by proximity to the road or alignment. However, the northern half of the kame has not been extensively tested and only a small portion has been excavated. The kame is subject to tertiary impact and given the shallowness of archaeological materials from the surface, any off-road travel across the knoll would destroy valuable scientific data. Another point to keep in mind, the knoll invites foot travel. Surface collecting and potting are serious realities facing the integrity of the northern half of the kame containing Locality 1.

Locality 1 and intrusive Locality 1A (dated 2620  $\pm$  175 B.P.) were excavated in 1970 and 1971. Original site maps and most of the artifacts have not been deposited with the museum.

Locality 1 produced workshop materials dominated by cores and by flakes and blades. Blade size varies along a continuum from very small (microblade) to large. Cores have been rotated and repeatedly used for blade production. "On purely typological grounds the material appears to be old" (Dixon in Cook 1971:175). Thus, the single date of about 10,000 years ago, obtained on a small charcoal sample, confirmed Dixon's view of the materials. He also views the materials as part of the repertoire of the original ancestral Eskimo-Aleuts to more into Alaska from Asia and Beringia (see Dixon 1972, 1975).

It should be noted, however, that not all scholars accept the dating of Locality 1 (R. Powers, oral communication, August, 1979). The thousands of flakes, blades, and cores recovered from the small excavations in 1970 and 1971 indicate to Dixon (oral communication, August, 1979) that the northern half of the kame contains much accitional material comparable to Locality 1.

Locality 1A is intrusive into the northeast of the excavated part of Locality 1 and C-14 dating confirms Dixon's original view that it is indeed later (Dixon in Cook 1971:177 and elsewhere).

The Gallagher Flint Station, PSM-050, rather clearly contains and has yielded valuable scientific data on the prehistory of the northern Alaska area. It is potentially eligible for the National Register. Its time depth may be considerable, including a terminal Pleistocene component. The reported nomination (Dixon, oral communication, August, 1979) of the site to the Register is certainly warranted on the bases cited above.

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PSM-050, particularly the key northern portion, lies between the haul road and Alyeska pad. The kame on which the materials are found is still a potential material source. The kame is conspicuous and invites visitors because of its commanding view of the surrounding area and easy accessibility from the road. Currently the effects of casual visitation and collecting are impacting the site. Heavier traffic associated with proposed construction of the gasline will step-up these tertiary impacts. It should be noted that any off-road vehicular activity on the kame will severely disturb the site and destroy its context. Increased impacts even of this level will destroy the remaining scientific value of PSM-050, which may be very considerable, within a few years.

A addition to that being backfilled.

A program of mitigation by excavation is recommended in order to collect the remaining scientific information at the site.

Discussion: The eleven localities at the Gallagher Flint Station (1, 1A, <sup>2</sup> through 10) have produced a quantity of carefully collected information which has yet to be fully analyzed. Nonetheless, the location of the site and intensity of use are suggestive of its importance to our understanding of one or several aspects of human adaptation to the area. The site functioned, without much question, as a camp and lookout as well as a quarry location. Several different temporal periods seem to be indicated. While the bulk of preliminary information indicates that Arctic Small Tool Tradition is mainly represented, there are suggestions that other cultural-historical entities also are represented.

The search of the northern half of the kame for additional Locality 1 materials and datable materials is key. The site is eligible for on the the Register based upon extant and predicted information it contains. The site is in danger of being destroyed by a series of tertiary and perhaps secondary impacts which will be markedly accelerated by construction activities and step-ups in support activities in the area. "Much of the interpretive potential of this site is not yet realized, and it provides more questions demanding answers from further field and analytic work than it provides answers. . . Hopefully, those responsible for the stewardship of this important site will insure that its data are wisely recovered, rather than left to the vagaries of an increasingly populated Arctic" (Dekin 1972:151).

#### 3.11. S-79 or PSM-006, at MP 118.4

The site PSM-006\* was found about 0.5 mile north of PSM-050 on a high gravel ridge (Cook 1970:191) (map 6). Some 25-30 surface flakes were

<sup>\*</sup>S-49 or PSM-035 of Cook's final maps of site locations along the oil pipeline appears near S-10 or PSM-050 "Gallagher Flint Station" but is crossed out. The description of S-49 in Cook (1970) locates it on one of the knolls along the north side of the Atigun Canyon, some 600 yards northwest of centerline stake #1550, and identifies it as a small surface site with but three fragments of flake cores. The same report, however, describes S-79 (70-196) or PSM-006 in the area of PSM-050; this site is not shown on Cook's maps but probably is the location cited above.

scattered over an area of about 1 square meter. Subsurface materials were confined to the location and approximately 700 flakes were recovered from an area less than 2 m in diameter. Chip and flake clusters, evidently debris from chipping artifacts, occurred in the site. Some 125 artifacts, mainly retouched flakes, were identified in addition to 7 nodules of chert, 17 blades or blade fragments, 1 flake knife, and a possible burin.

Cultural historical relationships of the material cannot be determined owing to the lack of diagnostic artifacts. Excavation of the entire site effectively destroyed it. Artifacts were deposited with the University of Alaska Museum.

Discussion: The small size of the locality and lack of significant features or diagnostic materials suggests low scientific value to existing data. The site is destroyed. It is not eligible for the Register and will not be impacted.

## 5.12. S-24, the Blip Site, or PSM-075 and 1629 or PSM-072, near MP 116.9

PSM-073 is described in Cook (1976) [in the same single paragraph with PSM-072 (1629)]. The site is some 1,000 feet from the pad on Cook's map although the site description (Cook 1976:106) locates it directly in the pipeline right-of-way at PL Sta. 1629, AS 119, along with PSM-072 (map 7). In 1976 some 547 one meter square had been excavated at the <u>two</u> sites. The field survey form was not available in records provided by the state for PSM-073. However, the site form for PSM-072, dated "9/11/74" gives the extent of the site as 20 m x 15 m. Hearths with datable charcoal, artifacts (tools and flakes), and animal bone are inventoried on the site form. Cook's 1976 mention of the site, however, does not indicate the size of the collections or the stratigraphy which delimits the several archaeological complexes which are identified: Arctic Small Tool Tradition; Choris-Norton-Ipiutak,\* and recent Nunamiut Eskimo.

It is unclear from the available material if the materials occur in stratigraphic sequence at the two sites or if one or both sites contain horizontal stratigraphy (the latter is more likely).

The 1974 site form for PSM-072 indicates at that time some 20 one meter squares had been excavated. It seems likely that all of the site, and probably all of PSM-073 were destroyed by excavation and construction.

Dates for PSM-072 reported in Cook (1976:106; 1977:62) are less than 200 years (GX 4073 and GX 4074). GX 4082 provided a date less than 200 years at PSM-075, while GX 4083 is listed as 113% [sic], GX 4084 as

<sup>\*</sup>Choris-Norton-Ipiutak refer to archaeological units considered affiliated with Eskimos and sequentially related.

 $3480 \pm 180$ , and GX 4086 as  $210 \pm 110$  years B.P. Again, we presume that horizontal rather than vertical stratigraphy characterized the sites and that they were destroyed by excavation.

It is not apparent from the published materials that either PSM-073 or PSM-072 contains or produced the quality of information to warrant continuing analysis. Both evidently are destroyed. Neither appears eligible for the Register and neither will be impacted by construction.

<u>Discussion</u>: PSM-075 and PSM-072 are potentially informative in terms of providing examples of camp sites of Arctic Small Tool Tradition and later Eskimos. Neither offers sufficient information potential to indicate Register eligibility, however. Both have been destroyed by excavation; neither is in danger of impact. No mitigation is required.

## 5.13. PSM-057, or Ipnaq or S 25, near MP 115.1

PSM-057 was located on Alyeska material site 119-4 (map 7). The 1974 field survey form reports 34 one meter squares were excavated to clear the material site. The archaeological site area is indicated as 10 m x 10 m with a depth of up to 20 cm.

Two localities with "Norton-Choris" affinities are reported; the expected age of "ca. 400 B.C." (Cook 1976:108) did not, however, materialize. GX 4091 yielded a date of  $270 \pm 140$  and GX 4092 yielded a date of less than 200 years (Cook 1977:63).

The 1974 field survey form reports the two localities to have been excavated but anticipates additional materials in the area of MS 119-4. It will be impacted by construction only if a decision is made to take materials from the area of Alyeska MS 119.4. In that case, we would recommend mitigation of materials by excavation. PSM-057 is not eligible for the Register.

Discussion: PSM-057 is not in the line of the proposed alignment. No impact is presently indicated. The site was archaeologically mitigated through excavation. The discrepancy between typological affiliation and dating lessen the value of the materials. PSM-057 is not of Register quality.

## 3.14. PSM-060, or the Ribdon Site, near MP 112.6

PSM-060 was excavated in both 1974 and 1976 (map 7). The 1974 field survey form indicates at that time four localities with Palisades/Tuktu\* material being identified but the dimensions of the site remained undetermined.

<sup>\*</sup>Palisades and Tuktu materials are generally considered affiliated with Indian peoples and dated 8,000-3,000 years ago.



Cook (1976:106) reports 148 one meter squares were excavated at 17 localities, all but one with Palisades/Tuktu affiliations. The remaining "locality" produced a single artifact which "indicates ties with the Denbigh Flint Complex" (Cook 1976:106). The quantity of materials associated with each locality is not indicated in the brief paragraph. A single date of 1780  $\pm$  150 B.P. (GX 4085) is listed in Cook (1977:63) and identified as collected in 1974 from "site #20." Presumably the date refers to one of the original Palisades/Tuktu affiliates; Cook (1976:106) expected dates in the 6,000 year ago range for the materials (and some 4,000 years for the material with Denbigh "ties").

The site lies well east of the proposed gas line, as well as east of the haul road.

The available information from PSM-060 does not suggest Register eligibility. The site is not endangered by proposed construction, thus no impacts are anticipated.

Discussion: PSM-060 is not eligible for the Register and is not in danger of impact from proposed construction. No mitigation is recommended.

#### 4. Summary and Recommendations

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In Section 2 we discussed impacts, indicating that both direct and indirect impacts to sites can cause damage to the archaeological resource base. We can predict damage caused by the effects of activities that occur during the planning, construction, and operational stages of the project. These effects may be primary or secondary (often referred to as primary impacts by authors since construction and support activities both directly impinge) or tertiary (secondary impacts in the use of most authors, and demonstrably related to construction and support activities). Direct and indirect impacts resulting from primary, secondary, and tertiary effects of the project may adversely affect site significance. Site significance is determined in relation to a particular frame of reference: in this case the reference is scientific or research potential. The alleviation of impacts to significant resources may take several forms: avoidance and preservation (by employing negative sanctions, by stockpiling sites through their burial, by moving the construction site); and excavation (prior to allowing construction to go on in the preferred area).

Another issue which needs to be addressed is Register eligibility; it is not fully coincident with the determination of scientific significance. This is because Register criteria may include historic or ethnic significance and need not demonstrate scientific or research value. The guideline which we apply to cultural resources along the pipeline alignment is association with a cultural pattern, process, or activity important to the history or prehistory of the locality, if its study can contribute to understanding that pattern, process, or activity. The cases we consider eligible to the Register meet one or more of these criteria and in all but one case will probably require mitigation (there remains unexcavated material) if adversely impacted by project planning, construction, or operational stages.

Summary	of	Results	of	the	Background	Study
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atio	on I	mpacted	Significant/ Register Eligible	Mitigate	
MP	525.6	no	unknown	no	
MP	524-524.4	no	no	no, field check	
MP	477.5	yes	yes	excavation	
MP	476.7	no	no	no	
MP	399.6	no	no	no	
MP	398.8	no	no	no	
MP	391.8	yes	no	assess in the field the need for excavation	
MP	391.2	no	no	no	
MP	148.1	yes	yes	excavate loc. 4, 5, 7, 11, 12, 14	
(e: ion	xampled in of PSM-049	no )	yes	no	
MP	118.8	yes	yes	excavate northern half	
MP	118.4	no	no	no	
MP	116.9	no	no	no	
MP	116.9	no	no	no	
MP	115.1	no	no	no	
MP	112.6	no	no	no	
	atic MP MP MP MP MP MP MP (e: ion MP MP MP MP MP MP	ation I MP 525.6 MP 524-524.4 MP 477.5 MP 476.7 MP 399.6 MP 398.8 MP 391.2 MP 148.1 (exampled in ion of PSM-049 MP 118.8 MP 118.4 MP 116.9 MP 115.1 MP 112.6	ationImpactedMP 525.6noMP 524-524.4noMP 477.5yesMP 476.7noMP 399.6noMP 399.8noMP 391.8yesMP 148.1yes(exampled in noion of PSM-049)MP 118.8yesMP 118.4noMP 116.9noMP 115.1noMP 112.6no	Significant/ Register   ation Impacted Eligible   MP 525.6 no unknown   MP 524-524.4 no no   MP 477.5 yes yes   MP 476.7 no no   MP 399.6 no no   MP 398.8 no no   MP 391.8 yes no   MP 391.2 no no   MP 148.1 yes yes   (exampled in no yes   ion of PSM-049) mo   MP 118.8 yes   MP 116.9 no   MP 116.9 no   MP 116.9 no   MP 112.6 no	

If the site is to be adversely impacted, mitigation is recommended at FAI-055 (Chugwater); this will require a major field effort. Two months with a full crew of 10-20 persons will probably be required. Money and personnel for analysis and publication should also be budgeted.

Mitigation is recommended at LIV-055 (Juswon) if field assessment reveals unexcavated portions remain and the site is to be adversely impacted. A minor effort only is anticipated, perhaps two weeks with a crew of five. Analysis and publication support will be required.

Mitigation is recommended for the localities at PSM-049 (Mosquito Lake) that will be adversely impacted. These are considered most important to complete the data set for the site and avoid any potential loss from construction activities. If need, Localities 4, 5, and 7 are expected to require minimal work (1 week each with a crew of five), but localities 11, 12, and especially 14 will require a major effort. At least 1 month each with a crew of 10-20 will be required. Analysis and publication costs will be required.

PSM-050 (Gallagher Flint Station), specifically its northern half, requires mitigation by excavation if it is determined to be impacted adversely. Two months of work with a crew of at least 10-20 will be required. Personnel for analysis and cost of preparing the publication will also be required.

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Recommendations:

- 1. The gas line should be placed as close as possible to the existing pad. A number of sites directly and indirectly impacted by construction efforts associated with work by Alyeska have already been identified and mitigated.
- 2. Identify the exact pipeline alignment, and ancillary areas, as early as possible in order to have required lead time to determine if adverse impacts will occur and to recommend possible mitigation alternatives.
- 5. Undertake the program of mitigation by scientific excavation recommended for FAI-035, LIV-055, PSM-049 and PSM-050 by June 1980. Since the interested state and federal agencies must approve mitigation alternatives which are recommended, considerable pre-planning is required. Once all parties agree to their role in mitigation efforts, the contractor must have time to design research to maximize the scientific potential of cultural resources to be mitigated by excavation. Fluor's role is to obtain required permits and letters of non-objection and prepare the contract and task release for the work in early spring.
- 4. Complete the fieldwork aspect of the mitigation study, if possible, in 1980 and complete analysis, write-up, and preparation of the final manuscript by the end of 1981.

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