245 pp.

RPWO
AA

Versar INC.
ESM Operations

CONFIDENTIAL

6 September 1990

Linda Comerci
Oil Spill Restoration Planning Office
437 E. Street, Suite 301
Anchorage, AK 99501

Dear Linda:

I received your message and request for a copy of our final report as the disk we provided does not contain certain pages. Missing pages include figures and tables which were either xeroxed from other documents or created on another system. In addition, the disk does not contain Appendix G (R. Thorne's bibliography) which you provided to us. I did not see the need to retype 35 pages of references and as such just included a copy in the report. Although Hal requested I only send one hard copy to him, to expedite matters since he is out of the office, I am enclosing an unbound copy of our final report, minus the title page and forward, for your use.

If you have any other questions, please call.

Sincerely,

C. F. Stroup

C. Foster Stroup
Task Manager

CFS/dm

Enclosure

cc: H. Kibby
File 5266-031-02

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2 To (Recipient's Name) Please Print: Linda Comerci
Recipient's Phone Number (Very Important): ( )
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Department/Floor No.:
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To: Hal Kibby
Ecosystems Research Lab

From: Brian Ross
Oil Spill Restoration Office

Subject: Comments on Versar, Inc. Preliminary Draft Report - Exxon Valdez Oil Spill Restoration Planning Program: Report on Technical Workshop April 3-5, 1990

The above mentioned document has been reviewed by the Restoration Planning Work Group (RPWG), and I am submitting comments on their behalf for your information and transmission to Versar, Inc. In general, we feel that Versar did a commendable job of summarizing and accurately reflecting the proceedings of the technical workshop. The RPWG was generally pleased that all of the major points brought out at the workshop were able to be pulled together in a cohesive report. One commenter noted that Versar did "quite a good job considering the disorganized state of the conference and what they had to work with".

I am attaching our comments in the following format:

Attachment A - a list of general comments by the RPWG.

Attachment B - a copy of the report labeled "MARKED-UP DRAFT" which contains all specific changes suggested by those reviewers who submitted marked-up copies of the report, including any typograhical or grammer changes noted.

Attachment C - a copy of those specific comments which were submitted in memo form (memos attached). Although some of these comments may be already reflected by other reviewers in the "MARKED-UP DRAFT", we did not incorporate any of the speccific comments noted in these memos into the document, unless otherwise noted.

Please be aware that we have reviewed all comments for any possible inconsistencies between reviewers, and have attempted to resolve them. Please direct Versar to call to our attention any problems or inconsistencies that they may come across during their revision. They may contact Linda Comerci here at the Restoration Planning Office to clarify any comments, and also work through her to resolve any conflicting statements.

In order to meet our commitment to circulate a draft copy of this report to all workshop participants for their review, we will need 100 "bound" copies of the revised version ("draft"

report), plus one "unbound" copy for our own use. In addition, we will need a diskette in WP 5.0 so that the RPWG can finalize the document.

Thanks again for all your help. Call me with any questions.

Attachments

cc: RPWG members

Attachment A

Specific recommendations for suggested changes include the following:

1. Throughout the document, cultural and recreational resources should be addressed as two resource catagories (or "sessions") under natural resources; for example, there are six catagories of natural resources: cultural, recreational, and ecological or biological (fish and shellfish, mammals, coastal resources, and birds). The report should not address cultural or recreational resources versus ecological resources, since the RPWG tries to always addresses each catagory as a natural resource.

2. Consistent with the above comment, Chapter II should address recreational and cultural resources. Chapter II should be reorganized to address each resource catagory seperately (i.e., break down sections according to each natural resource catagory or session - not ecological, cultural and recreational).

3. The organization of Chapter III is difficult to follow. Suggest that an outline format be used, with specific sections (A,B,C, etc.) for each natural resource catagory.

4. The RPWG has decided that the Feasibility Study Proposals presented in Chapter IV may result in some confusion since they differ substantially from the actual proposals ultimately accepted and described in other subsequent documents, such as the Restoration Planning Progress Report. Although we realize that the write-ups in Chapter IV represent proposals as they were submitted by the Workshop sessions, the RPWG feels that they should be replaced instead with a brief summary describing each proposed project in general; perhaps as one concise paragraph. This would avoid any future confusion that may result from having two versions of project proposals, while still serving the purpose of reporting what was proposed at the workshop.

5. The bibliography submitted by R. Thorne on cultural resource site stabilization needs to be included in this document.

6. The references appearing in Chapter 5 and Appendix E are confusing relative to why they appear in different sections. They need to either be combined in one section, if possible, or their differences need to be clarified, perhaps with an opening paragraph at the beginning of the section.

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Versar INC.
ESM Operations

8 June 1990

Hal Kibby
Environmental Protection Agency-ERL
200 SW 35th Street
Corvallis, OR 97333

Dear Dr. Kibby:

This letter is to notify you that Dr. Daniel Sheehy has resigned his position at Versar to seek other employment. Dan has agreed, however, to remain technically involved with the work Versar is conducting for ERL-Corvallis concerning the development of restoration and monitoring plans for the Exxon Valdez oil spill (Contract No. 68-D9-0166, task 31), including assisting in the revisions to the preliminary draft report. Future communication and comments on the report should be addressed to Foster Stroup here at ESM Operations.

Foster has provided much of the technical support for the work and had a major role in both the Technical Workshop and preparation of the draft report. She has the experience to ensure that Versar responds to comments on the draft report in a timely and high quality manner. Foster will be technically supported by myself and Jeff Frithsen in this effort. I will provide any other program management support ERL-Corvallis needs for completion of this task.

As you are aware, the end date for this task is 15 June 1990. However, comments from the Restoration Planning Office pertaining to the preliminary draft report are not anticipated before the end of next week (15 June 1990). A no-cost extension to 1 September 1990 (for a total of 6 months from task inception date) is requested to ensure Versar can respond to comments and appropriately revise the draft report.

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We look forward to receiving your comments on the report and providing additional support as needed to facilitate the activities of the Restoration Planning Work Group.

Sincerely,

A.F. Holland
Vice President

WP74:4973

cc: Foster Stroup
Jeff Frithsen
Brian Ross, EPA Anchorage
File 5266-031-02

Missing Pages - Report

FAX TRANSMITTAL PAGE

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From: ~~Foster~~ Sloup

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Notes: Pgs 55-58 of report on Technical Workshop

MAC 66

Types of Damage to Cultural Resources

Effects of Oil

Oil contamination is suspected to have masked beach deposits, making them difficult or impossible to identify by ordinary methods of site reconnaissance. Where stratified deposits exist in the intertidal and subtidal zones, oil penetration may mask the stratigraphy, thus reducing the information available from those deposits. In addition, oil contamination of materials used to determine the age of archaeological sites will effect radio carbon dating techniques. Potential effects of fertilizers used in bioremediation and chemical dispersants on artifacts are unknown.

Erosion

The presence and activities of the massive beach clean-up force resulted in considerable accidental and deliberate disruption of beach deposits; consequently, cultural information that could have been obtained from the patterns of human and animal bones and other artifacts present in the deposits has been minimized or lost. In addition, the destruction of the matrix in which artifacts are embedded results in the loss of important information such as paleoecological data (e.g. contemporary pollen types) and other clues to the age of the deposit. Cleaning techniques, particularly washing beaches with high pressure hot water, contributed to disruption of deposits and destruction of matrix, as well as to general beach erosion. The potential loss of supratidal beach vegetation due to the toxic effects of oil splattered by storms may further destabilize beaches, resulting in additional erosion of lag deposits and potential degradation of some relatively undisturbed upland deposits.

Vandalism

The influx of people on PWS beaches due to the oil spill has made the location of artifacts general knowledge. In fact, participants suggested that artifact hunters currently may have more information about the location of sites than resource managers. The session discussed anecdotal evidence that amateur and professional artifact hunters are removing items of archaeological and cultural significance from PWS beaches in quantity. In support of such evidence, session participants described a pre-spill shift in collector attention from high

arctic artifacts to native artifacts from the PWS area, which has resulted in increased market value for such items. In addition, the session reported that a government agency employee involved in clean-up has been prosecuted for looting artifacts. This would seem to suggest that spill related attention may further increase the demand for artifacts from the PWS area. Improper removal of artifacts from beaches contributes to destruction of matrix and to erosion by leaving holes in the beach.

Loss of Heritage

The session emphasized that native communities, with their rich traditions, represent an invaluable cultural resource. The participants expressed concern that native groups whose ancestral sites have been devastated by the effects of the oil spill and clean-up may perceive a sense of injury and insult to their heritage. In addition, the session participants suggested that these groups may have lost faith in the health of the resources upon which their subsistence economy, and ultimately their entire culture, is based. Systematic analysis of the seafood resources harvested by native subsistence fishermen indicates that fish are generally clean but that shellfish in some areas are contaminated with polyaromatic hydrocarbons. There is concern that if subsistence resources are perceived to be tainted, native groups will be forced to rely on other sources of support, losing their sense of self sufficiency and potentially forgetting traditional fishing methods and associated customs. The session pointed out that a Minerals Management Service social indicator study has shown an increase in native alcoholism and suicide rates in 1989. Participants suggested that spill related alterations in the traditional native routine may contribute to the erosion of the culture.

Estimating the Cost of Damages to Cultural Resources

The session pointed out that section 106 of the NHPA (36 CFR 800) stipulates that planned destruction of historic properties must be mitigated and provides guidelines for estimating the cost of damages to historic resources from a planned disturbance of a site, such as development. In addition, the ARPA provides guidelines for recovering the value of archaeological resources. The costs considered eligible for recovery under these two acts are:

- pre-impact site survey costs

- o market value of artifacts lost to looting resulting from site identification
- o data collection costs
- o landscape mitigation costs.

Although these guidelines for cost recovery are typically employed prior to the execution of a planned disturbance of an historic property, the session suggested that these guidelines could be applied to the effects of the oil spill accident by analogy, to provide a framework for determining the monetary value of damages to historical and archaeological resources in Prince William Sound.

Restoration Needs

The session participants emphasized the need to increase and obligate the budget for a Natural Resource Damage Assessment study of the effects of the oil spill on cultural resources in the PWS area. Session participants suggested that it would be premature to define the nature and magnitude of the restoration efforts required without a more precise understanding of the extent and degree of damage that has occurred and whether there is continuing damage. Several session participants expressed the opinion that cultural resources should be given priority for restoration funding because, unlike biological and ecological resources, archaeological and historical material has no regenerative capacity. The session identified the following preliminary restoration needs:

- o complete inventory of sites to assess the extent of damage from oiling
- o reduction of accelerated erosion of PWS beaches impacted by the spill and mitigation of the effects of clean-up
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- o restoration and preservation of native cultural integrity and trust in the quality of subsistence resources.

A discussion of specific restoration alternatives suggested to address each of these needs follows.

Restoration Alternatives

Site Inventory

Because there is minimal pre-spill information about site locations and characteristics and because participants believe that the Exxon surveys may have been inadequate, the session recommended an intensive beach survey to identify sites. Because there is concern that many sites may be difficult to identify due to oil contamination, the session recommended testing for sites in upland areas adjacent to beaches. This recommendation is based on the assumption that eroded lag deposits containing artifacts may be present on the beaches below any identified upland sites. The session pointed out the value of employing native knowledge of ancestral sites to locate deposits and remarked that this resource is already being tapped to some extent. The session suggested developing a site occurrence model to derive a statistical estimate of the total number of sites and the most likely locations of sites. The model could be based on using GIS data to identify physiographic regimes and other factors, such as floral and faunal assemblages, slope, and aspect, that correlate with site occurrence.

Reduction of Erosion

Because of concern about continuing beach erosion due to loss of supratidal vegetation killed by oiling, the session participants recommended conducting a survey and analysis to determine whether vegetation loss has occurred and the extent of loss. A suggested method for the survey was to produce an annotated videotape of the PWS coastline, filmed during a helicopter fly-over. A session participant experienced in this technique estimated the cost of such an effort to be approximately $20,000. Once the extent of vegetation loss has been determined, it would be possible to evaluate what long term stabilization technologies (such as construction of riprap barriers) are available and appropriate for Prince William Sound beaches. A session participant suggested that an appropriate short term beach stabilization technique would be to plant annual rye grass, a species that will not reproduce and proliferate. The session emphasized the importance of considering erosion of archaeological deposits in planning any further clean-up activities for PWS and expressed concern that some plans for beach restoration may present additional threats to cultural resources.

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FAX TRANSMITTAL PAGE

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To: Kirsten

Company: Oil Spill Trust Planning Office

Fax Telephone #: 907-271-2467

Verification Telephone #:

From: Foster Stroup

Date Sent: 25 Jun 90

Account #: 5266-031-02 Copy for Central File? ☐ Yes ☒ No

Number of Pages 4 Plus Cover Sheet

Notes: Pgs 55-58 of report on Technical Workshop

MAC #5

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BR
this was with Reilly's 4/19/89 Speech - Do you want it left in that file
ge

3-21 Mon

Otters

Tony DeGange
Chuck Monnett APU (Cordova work)
Jim Estes National Ecology Center - Univ. Cal. Santa Cruz.

- ~~Check w/ ADEC~~

Fisheries

** Will Barber - IMS, UAF 907-474-7177
Marine fish Biol.

** Ricki Ott - ✓ sediment concerns - Bioassay !

** Paul Dinnel - UW - Fisheries, crustaceans in terms of contaminated sediment, ~~both~~ field + lab.
3 days (206) 543-7345
2 days (206) 764-3624

** Jack Anderson - "Scripps Inst." ~~SCRIPPS~~ - La Jolla Cal.

** Jack Word - Battelle NW Labs - Sequim Wa.

Put in Apr. 3-5 Tech'l Workshop file

Sea Birds

Scott Hatch, John Piatt, Dave Irons — USFWS - Anchorage - Research 786 3512
- All have direct seabird exper. in PWS.

Ed Murphy - Univ. of Alt. Frbnks, Inst. Arct. Biol
474-7154

John Wright - Alt Dept. F&G - Frbnks
Experienced w/ PWS

Marine Mammals

Tom Loughlin (NMFS - Seattle)
Byron Morris (NMFS - Anchorage)
Kathy Frost, Lloyd Lowery — Alt. D. F&G - Fairbanks

Soils

Dr. Fiorenzo Ugolini - Univ. of Washington College of Forest resources (Soil Genesis - lots of Ak experience)

Dr. Chen Lin Ping - Univ. Ak. Agric exper. Station Palmer, Ak.

Vegetation

Dr. Susan Williams - Univ. of Wash. Dept. Botany (eelgrass biol. - used to work out of Fairbanks)

Dr. Allison Snow - (won't have current address till ~~don't~~ ✓ - (Worked on Estnarine Veg. Cook Inlet.)

Dr. Peter McRoy - Univ. Ak. Fairbanks, IMS (eelgrass)

(Dr?) Sue Cargill - Ak. Dept. Fish & Game

Dr. Ron Thom - Univ. Wash. School of Fisheries (eelgrass & wetlands restor.)

Dr. Charles Simonstad - " " " (invertebrates - wetland restorat.)

Ask - Frank Williamson - Director Inst. Arctic Biol. - Univ. Ak. Fbnks for names & projects already submitted To Gov. Cowper.