Southeast Management Services
2470 Engineers Cutoff
Juneau, Alaska 99801

December 13, 1993

Houston L. Hannafious
Project Manager
Project Evaluation Section - South
U.S. Army Engineer District, Alaska
Department of the Army
P. O. Box 898
Anchorage, Alaska 99506-0898

Dear Mr. Hannafious:

On behalf of Alaska Pulp Corporation, modifications to the Zimovia Strait 87 intertidal fill application No. 2-880483 are hereby submitted for your review and approval. Also included are responses to concerns expressed by agencies and private parties on the initial application. The information is organized in the following attachments to this letter:

I. Modifications to Original Application
II. Responses to U.S. Army Corps of Engineer Concerns
III. Responses to Fish & Wildlife Service Concerns
IV. Responses to National Marine Fisheries Service Concerns
V. Responses to Environmental Protection Agency Concerns
VI. Responses to Private Party Concerns.

As described in the attachments, the project size has been reduced to 11.8 acres of intertidal lands. The reduced size was achieved by integrating the adjacent uplands fill and relying on the existing Sort Yard to accomplish all log scaling, sorting and banding functions. Significant mitigation measures are proposed if this project is approved, including the closing out of log storage areas at Blind Slough, Aarons Creek, Berg Bay, Pt. Babler and restoration of the tideland immediately north and south of the project.

We believe that all of the concerns expressed on this project have been addressed. The modified project should meet the essential needs of APC's Wrangell sawmill, while at the same time providing significant environmental improvements over the present methods of log handling and storage.

By all means give me a call (789-0637) on any questions or additional information you might need. We are looking forward to completing the review and approval of the project.

Sincerely yours,

Thomas R. Hanna

Attachments

cc: Carl Alsup, APC - Wrangell
George Woodbury, APC - Sitka

ATTACHMENTS TO 12/13/93 LETTER

DESCRIPTION OF MODIFICATIONS TO ZIMOVIA STRAIT 87 NO. 2-880483 PERMIT APPLICATION & RESPONSES TO REVIEWER COMMENTS

Alaska Pulp Corporation, Wrangell Sawmill

Alaska Pulp Corporation applied for an Army Engineer Corps permit on 7/21/93, to construct a 20-acre intertidal fill to the immediate north of its Wrangell sawmill at 6.5-mile Zimovia Highway. Since then, the application has been modified to address the concerns of reviewing agencies and private parties. The project has been reduced to 11.8 acres of intertidal fill, and the following attachments describe the project's design modifications, alternatives and proposed mitigation measures, and detailed responses to the reviewer comments:

Pages

I. Modifications to Original Application ---------- 2

A. Summary of Modified Project Design ---------- 2
B. Review of Alternatives ---------- 3
C. Mitigation Measures ---------- 5
D. Environmental Quality Effects & Controls ---------- 6

II. Responses to U.S. Army Corps of Engineer Concerns ---------- 13

III. Responses to Fish & Wildlife Service Concerns ---------- 19

IV. Responses to National Marine Fisheries Service Concerns ---------- 21

V. Responses to Environmental Protection Agency Concerns ---------- 24

VI. Responses to Private Party Concerns ---------- 26

ATTACHMENT #I

MODIFICATIONS TO ORIGINAL APPLICATION

I.A. SUMMARY OF MODIFIED PROJECT DESIGN

A concern of all reviewing agencies involved the size of intertidal fill proposed on the original Zimovia Strait 87 project, and whether it was needed or could be reduced, After considerable review of the mill's log processing needs, the total intertidal project area has been reduced to 11.8 acres as shown on Figures I - IV (see pages 9 - 12), with 5.5 acres in the adjacent uplands to be developed as part of the facility for log storage. A description and estimated construction quantities for the project are as follows:

1. The total project will consist of 11.8 acres of intertidal lands below MHHW, in addition to about 5.5 acres of log storage on the immediately adjacent uplands;

2. The Modified Zimovia 87 project will provide the needed space to

   A. Offload log barges directly onto the project area. This unloading operation requires a dry-land bulkhead above the MLLW level of 0.0'. Mooring dolphins will be placed along the bulkhead and deep-water face of the fill,

   B. Provide log storage for about 14.8 mmbf (see Figure IV), including

      a. 8.2 mmbf on the intertidal portion of the project, and

      b. 6.6 mmbf on the uplands portion of the project. This uplands area represents the last remaining uplands option for log storage development, but is only possible as part of this project;[1]

3. Construction volumes and areas are the following, compared to the original facility concept;

		Modified Project			Original Project	
a.	Intertidal Area	9.8	Acres	Corr. 2/94	19	Acres
b.	Adjacent Uplands Area	5.5	Acres		1	Acre
c.	Perimeter Dike (shot rock)	45,200	c.y.		67,000	c.y.
d.	Interior Dikes (shot rock)	15,200	c.y.		19,300	c.y.
e.	Bulkhead Fill (shot rock)	24,000	c.y.		24,000	c.y.
f.	Surfacing Cap (shot rock)	38,200	c.y.		53,750	c.y.
g.	Armor Rock	3,100	c.y.		8,000	c.y.
	Total Shot Rock Quantity:	125,700	c.y.	Corr. 2/94	172,050	c.y.
h.	Clay/Rock Sealant	10,300	c.y.		15,900	c.y.
i.	Wood/Rock-Mixed Fill	202,600	c.y.		375,000	c.y.

1/ This uplands area has been used as a log storage area, with Zimovia Highway being the only access to-and-from the Wrangell mill. Aside from its excessively high handling and transportation costs, the 7-acre site is limited in log storage height because of complaints from the neighbors across the highway. As a result, only about 3.5 mmbf of logs could be stored at any time, regardless of the excessive costs of handling.

4. The project will be constructed in self-contained and sealed cells of compacted wood/rock fill. The fill will come from the existing uplands fill as it is re-shaped to become part of the project. The project's cell fill volumes are expected to come from the uplands fill, which will be re-sealed with a clay/rock cap as shown on Section C - C when final contours are achieved;

5. Transport access through the adjacent uplands will be provided as shown on Figures I - IV, to gain access to and from the mill via Zimovia Highway. An alternative access also is proposed, to construct a causeway connecting the bulkhead's southwestern area with the millsite's northwestern corner, thereby avoiding any significant impact on Zimovia Highway;

6. The project's entire surface water runoff will be collected and routed to sedimentation traps and surface oil collection systems, to avoid potential water quality concerns, and

7. The existing culvert drainage system through the uplands fill will be extended to assure that uplands surface water runoff from Zimovia Highway does not affect the project.

I.B. REVIEW OF ALTERNATIVES

The 9/8/93 alternatives analysis, submitted by Alaska Pulp Corporation as part of the project application, was re-evaluated to make certain that (a) the existing mill areas for log storage purposes are being fully utilized, and (b) Make certain that no feasible options have been overlooked. The following presents the evaluation's results of the mill's existing log storage capacity, needs and alternatives:

1. **Existing Log Storage.** During this past year, the mill completed the Zimovia 52M bulkhead fill, thereby providing new log storage space for about 2 mmbf. In addition, the concrete pad for the White Pass fuel storage facility along the dock access road was removed, providing storage capacity for about 1.5 mmbf. When the north-end fill (see Figure I for location) is completed in 1994, further log storage space for about 0.6 mmbf will be created. These new areas inadvertently were left out of the 9/8/93 log storage capacity numbers, thereby making the total log storage capacity at the mill as follows:

a.	Existing Sort Yard Log Storage	5 mmbf
b.	Zimovia 52M Log Storage	2 mmbf
c.	Northwest Corner of Mill Yard Log Storage	1.5 mmbf
d.	North-End Fill Log Storage	.5 mmbf
e.	Uplands Log Storage (Mt. Seley)	3.5 mmbf
	Total Existing Mill Log Storage:	12.5 mmbf

2. **Log Storage Needs.** The mill's capacity of 60 - 72 mmbf/yr requires that 23 - 30 mmbf of logs be stored on land or in the water to accommodate the winter months when logging operations are shut down and winter log rafting is impossible. With only 12.5 mmbf of log storage available at the mill, the shortfall of 10.5 - 17.5 mmbf must be stored in the water in front of the mill, or in nearby

tidelands log storage areas. Storage of logs in the water at best is an undesirable option, because it increases

a. The damage caused by toredos, which becomes significant with prolonged in-water storage time,[2]

b. Moisture and salt content in the logs as well as barnacle growth, making the bark and waste wood created during the sawing process a less-than-desirable material for burning or marketing as a power-generating fuel, and

c. Overall handling of the logs, thereby increasing the potential of losing bark in the waterways as well as causing bruising of the logs.

Because of the above considerations, the Wrangell sawmill has set an objective of maximizing the barge transport of logs, and taking log rafts out of the water as soon as practical after reaching the sawmill. This objective not only will allow the mill to more effectively handle the logs, but also will reduce water quality concerns at the mill's waterfront and remote storage sites. Furthermore, it will have a very positive effect on the mill's woodwaste boiler air emissions, because the source of salt in the woodwaste being burned will be drastically reduced;

3. **Alternatives for Meeting Log Storage Needs.** The following alternatives to this project were considered and evaluated for helping to meet the Wrangell sawmill's on-land log storage needs. However, none of them were found to be practical or adequate for the following reasons:

a. Increased log storage at the Uplands Storage Site (Mt. Seley). This site is immediately north of the mill and consists of about 7 acres of land. The log storage volume capacity is about 3.5 mmbf. This site could accommodate higher log stacking and therefore higher storage volumes. However, the site is at the same elevation as the roadway, and the neighboring private residences have complained of this practice because their Zimovia Strait views are blocked. Consequently, additional log storage at the site is not considered feasible. This site also requires the use of Zimovia Highway for transport to and from the mill, thereby requiring at least 4 additional handlings of the logs and substantial added expense. In addition, increased safety hazards are present due to the necessity of using the Zimovia Highway for the short hauling of logs to-and-from the mill;

b. Use of APC-Owned Upland Lots. APC owns five upland lots on the east side of Zimovia Highway, four of which are immediately across the highway from the mill and the fifth is across from the Mt. Seley uplands fill.[3] All of these lots are unsuitable for log storage purposes, although they were seriously considered for this use several years ago. The terrain is steep and showing solid rock outcroppings. In addition, what limited space could be made available on these lots would require the use of Zimovia Highway for access to-and-from the mill. This practice would create a traffic hazard and

---

2/ Toredos are marine organisms which bore into logs being stored in the water, eating the wood while making small tunnels which often become lined with calcium deposits from the toredo secretions. Toredo damage can be significant and account for 10% of the log wood volumes in some cases. Toredo damage normally becomes a major problem with water storage times of about 3 months or more.

3/ See the attachments to APC's 9/8/93 response to the Corps for a location of the mill's 5 uplands lots.

---

be completely unworkable in early spring monhs due to the heavy-load restrictions placed on both log loader and logs to the highway surface. It also would result in high cost, because it would require at least 4 additional handlings of the logs before processing, and

c. Availability of private lots in the mill vicinity. There are no privately owned lots in the vicinity of the mill which might be available and used for on-land log storage. Real estate is at a premium near the mill and all remaining property is privately owned.

In conclusion, there were no alternatives found that could provide additional log storage capacity to meet the mill's needs through the wintertime months. In contrast, the proposed project will have the capacity of providing the needed additional log storage space to allow the mill to work through the winter without relying on in-water log storage.[4]

I.C. MITIGATION MEASURES

If the Modified Zimovia 87 project is approved, APC will provide the following mitigation measures:

1. Relinquish the Blind Slough deep-water log storage permit ADL-101706, consisting of 66.12 acres;

2. Relinquish the Aaron Creek deep-water log storage permit ADL-101002, consisting of 9.19 acres. In addition, APC will withdraw its appeal for reinstatement of the Aaron Creek shallow-water log storage area, consisting of 72.3 acres;

3. Relinguish the Pt. Babler log storage permit ADL-104926, consisting of 35.03 acres (ref. ADL-104926 & ATS-784);

4. Relinguish the Berg Bay deep-water log storage permit ADL-100827, consisting of 6.93 acres (ref. ADL-'00827 & ATS-849;

5. Withdraw the appeal for reinstatement of the Fish Bay shallow-water log storage area in Peril Strait, consisting of 53.33 acres (ref. ADL-104737 & ATS 954) and

6. Remove the shallow-water dolphins to the immediate north of the proposed project within ATS-1249, and no longer use this 450' x 500' area for routine log raft storage (about 5.2 acres). Any residual logs or debris will be removed from the area at the same time as the dolphins are removed. In a like manner, the unused portion of tidelands between the project and the mill site will not be used for in-water log storage or transport, and any residual logs or debris will be removed from the area prior to project completion.

4/ While the Modified Zimovia 87 project will have an overall log storage capacity of 14.8 mmbf, the existing Uplands Log Storage capacity of 3.5 mmbf would be lost to the mill. As a result, the new log storage capacity for the mill would become 14.8 + 9.0 = 23.8 mmbf.

I.D. ENVIRONMENTAL QUALITY EFFECTS & CONTROLS

The environmental quality improvements to be achieved through this project are significant:

1. For the first time the mill will have enough log storage capacity to get log rafts out of the water quickly. As a result, log handling in the water along the front of the mill will be reduced, turbidity caused by the mill's boom boat activity will be reduced, and the potential for bark and debris from the logs sluffing into the water will be reduced as well;

2. The area in the vicinity of the proposed project no longer will be used for log raft storage. The unused tideland areas on the immediate north and south sides of the project will be cleaned of any logs or similar materials. Once the project is complete, neither of these tideland areas are expected to be used in the mill's operations, thereby allowing them to return to their natural state;

3. At least 40% of the logs offloaded onto the Zimovia 87 fill will be delivered by barge, with the logs never entering the water. The remaining volume will be by rafts of already-banded log bundles which would be lifted out of the water soon after arriving at the mill. It is not expected that any log raft will be stored in front of the Zimovia 87 fill for more than a week, without being lifted out of the water for storage. As a result, long-term water storage of log rafts in the vicinity of the Zimovia 87 fill will cease for all practical purposes, and there should be a measurable improvement in the water quality parameters throughout the area over present levels;

4. The existing intertidal log storage areas at Blind Slough, Aaron Creek, Pt. Babler and Berg Bay all will be relinquished once this project is completed and in operation. These areas account for 117.23 acres of presently permitted log storage areas. In addition, APC would withdraw its appeal process for the Aaron Creek shallow water log storage area and the Fish Bay log storage area, together accounting for an additional 125.63 acres, and

5. The woodwaste burned in the mill's boiler would have substantially reduced levels of small-diameter salt particulate. The project directly would cause the substantially reduced salt content in the woodwaste, because the mill finally would have adequate on-land log storage capacity to meet its wintertime needs. Perhaps more importantly, the reduced salt content would make the mill's 'woodwaste' material more attractive to outside firms for direct purchase for product manufacture or power generation.

The Modified Zimovia 87 project is designed to minimize any potential water quality problems, both during and after construction:

1. Prior to placing any fill in Cell No. 1 or No. 2, the containment dike around the cell will be constructed as shown on Figure III. Then, the wood material will be deposited and

    a. A layer of typar fabric will be laid along the entire inward face of the perimeter dike, extending 3' below the natural ground level,

b. A 6"-thick layer of clay/rock sealant material will be compacted into place along the entire inward face of the perimeter dike to an elevation of +22'. A sealing layer also will be compacted into place along the side of the cell's interior dike if needed, with the bottom of the seal layer extending at least 3' below the natural ground level for all dikes,

c. Once the clay/rock sealant layer is in place around the perimeter of the cell, the wood fill material will be vibratory-compacted into place in 2' layers throughout the entire cell above el. +10' until it is within 2' of finish grade.[5] All side sealant layers will be in place within three months of initiating wood fill into the cell,[6] and then

d. A sealant surface at least 6" thick of clay/rock will be thoroughly compacted into place across the entire surface of the cell.[7] Once completed, a peripheral surface water collection system of clay-lined ditches will be constructed to assure positive collection of all surface waters for treatment before discharge;

2. Filling of one cell will proceed to completion, prior to initiating fill in the other cell;

3. The two intertidal cells will be sealed along the uplands and keyed 3' into the natural ground surface, thereby providing a positive barrier to all upslope surface water drainage;

4. As small an area as practical of the upland fill will be exposed at any time during construction of the project. As soon as a portion of the upland fill area is to final contours, it will be compacted and the clay/rock seal placed on all sides including the surface before the final 2'-thick layer of cap rock is laid down. When completed, the entire upland fill will be sealed in the same manner as the intertidal fill, thereby assuring minimal potential for any water quality concerns from the entire facility;

5. Sedimentation traps and surface oil containment facilities will be constructed to treat all surface waters from the fill as shown conceptually in Figure IV, prior to the facility being put into use for log storage purposes, and

6. The proposed causeway access, to directly connect the Zimovia 87 facility to the mill's northwest corner, will have its entire surface served by a surface water

---

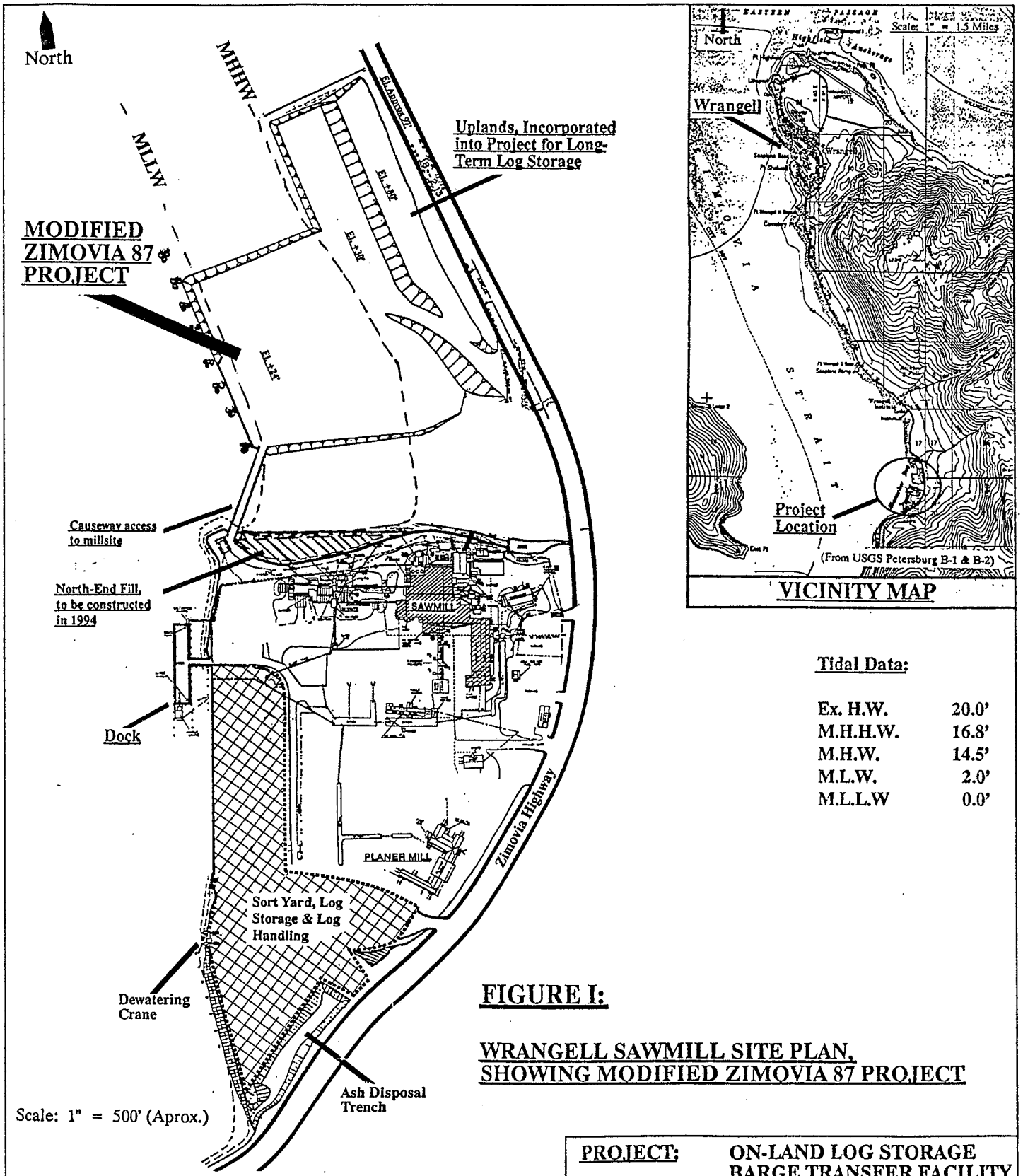
5/ All of the wood/rock fill for Cell Nos. 1 & 2 is expected to come from the Uplands Fill as it is re-countoured. In the unlikely event additional wood fill is needed to complete the cells, it would come from the mill's present hogged-bark volumes and Sort Yard scrapings, which are about 50% rock and 50% bark/wood debris. Either material readily compacts and would make excellent fill if needed.

6/ The earlier Corps Zimovia Strait 52 permit fill on the mill's south end required completion of the clay sides of any cell containing wood material within three months of initiating the wood deposits. During that project, it was found that a 3-month timeframe for completing the sidewall containment layer was essential for practical considerations of constructing the overall cell. However, this condition also assured that any wood fill material deposits were sealed within a short period of time. As a result, APC is including this criteria in the Zimovia 87.

7/ The earlier Corps Zimovia Strait 52 permit fill on the mill's south end required placement of the clay/rock surface sealant layer to be in place and completed within four months from the beginning of the start of filling. For much the same reasons stated in Footnote #6, this time constraint was found to be achievable and reasonable on that project, and is being included for the Zimovia 87 project as well.

---

collection system including containment barriers on both sides. All runoff will be directed back to the sedimentation and surface oil collection systems which will be in place on either side of the causway.



VICINITY MAP

Tidal Data:

Ex. H.W.	20.0'
M.H.H.W.	16.8'
M.H.W.	14.5'
M.L.W.	2.0'
M.L.L.W	0.0'

FIGURE I:

WRANGELL SAWMILL SITE PLAN, SHOWING MODIFIED ZIMOVIA 87 PROJECT

Adjacent Property Owners:

1. Bill & Hazel Krepps
2. Keith Bloom
3. Dept. of Transportation

Purpose:

Increase on-land log storage

PROJECT: ON-LAND LOG STORAGE BARGE TRANSFER FACILITY

WATERWAY: Zimovia Strait
LOCATION: T63S, R84E Section 20

Sheet 1 of 4 Date 12/13/93 (Rev.)

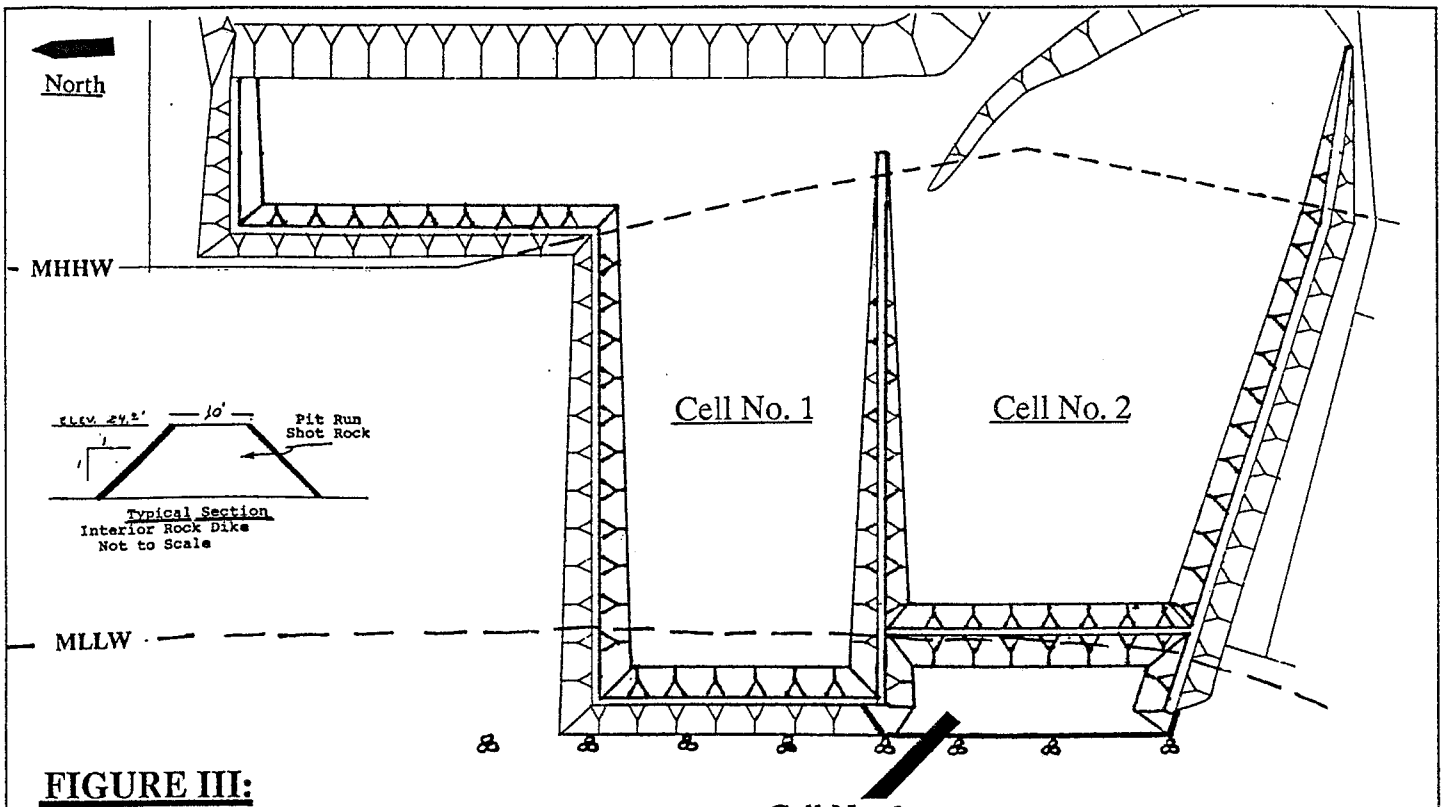
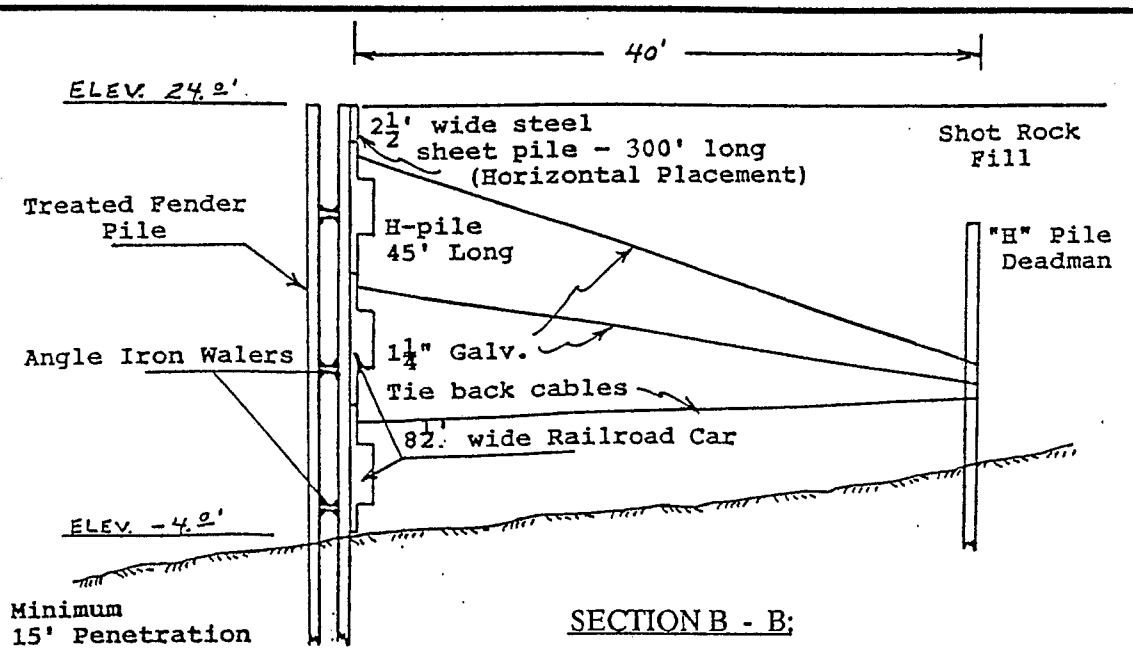


FIGURE III:

CELL CONSTRUCTION DETAIL



SECTION B - B;

TIEBACK DETAIL FOR 300' BULKHEAD

Adjacent Property Owners; 1. Bill & Hazel Krepps 2. Keith Bloom 3. Dept. of Transportation	Purpose; Increase on-land log storage	PROJECT: ON-LAND LOG STORAGE BARGE TRANSFER FACILITY WATERWAY; Zimovia Strait LOCATION; T63S, R84E Section 20 Sheet 3 of 4 Date 12/13/93 (Rev.)

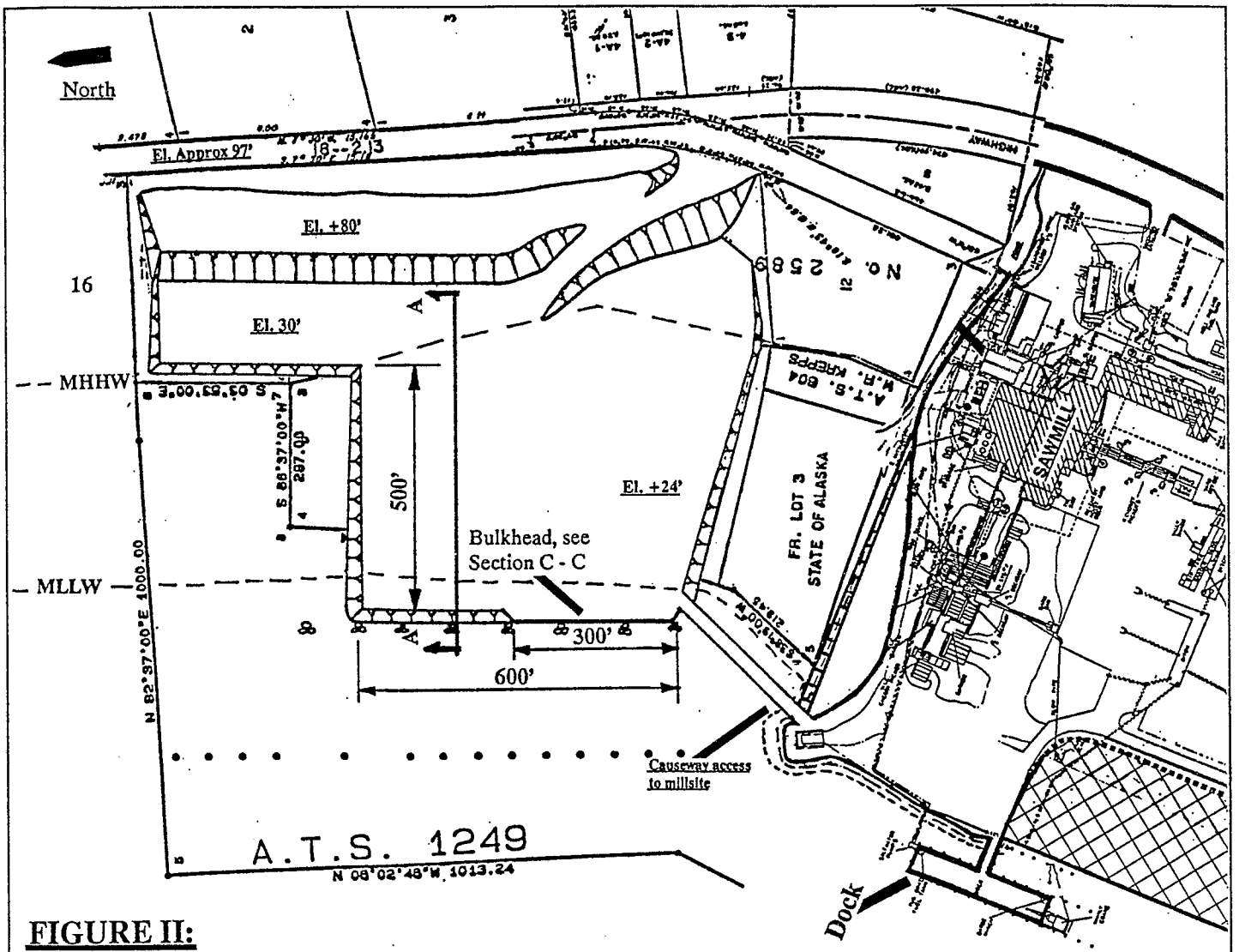
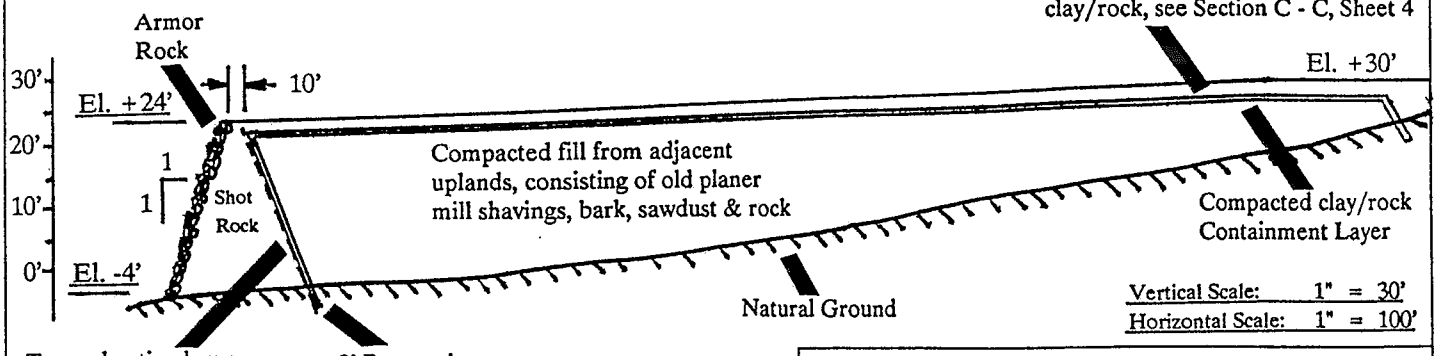


FIGURE II:

PLAN VIEW OF MODIFIED ZIMOVIA 87 LOG STORAGE FACILITY

Scale: 1" = 300'

SECTION A - A: TYPICAL FILL CROSS-SECTION DETAIL



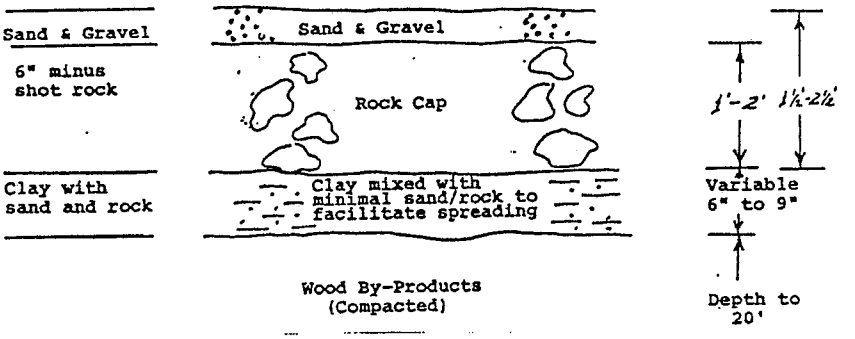
Vertical Scale: 1" = 30'
Horizontal Scale: 1" = 100'

Adjacent Property Owners: 1. Bill & Hazel Krepps 2. Keith Bloom 3. Dept. of Transportation	Purpose: Increase on-land log storage

PROJECT: ON-LAND LOG STORAGE BARGE TRANSFER FACILITY

WATERWAY: Zimovia Strait
LOCATION: T63S, R84E Section 20

Sheet 2 of 4 Date 12/13/93 (Rev.)



SECTION C - C: CROSS-SECTION OF SURFACE CAP & CLAY SEAL

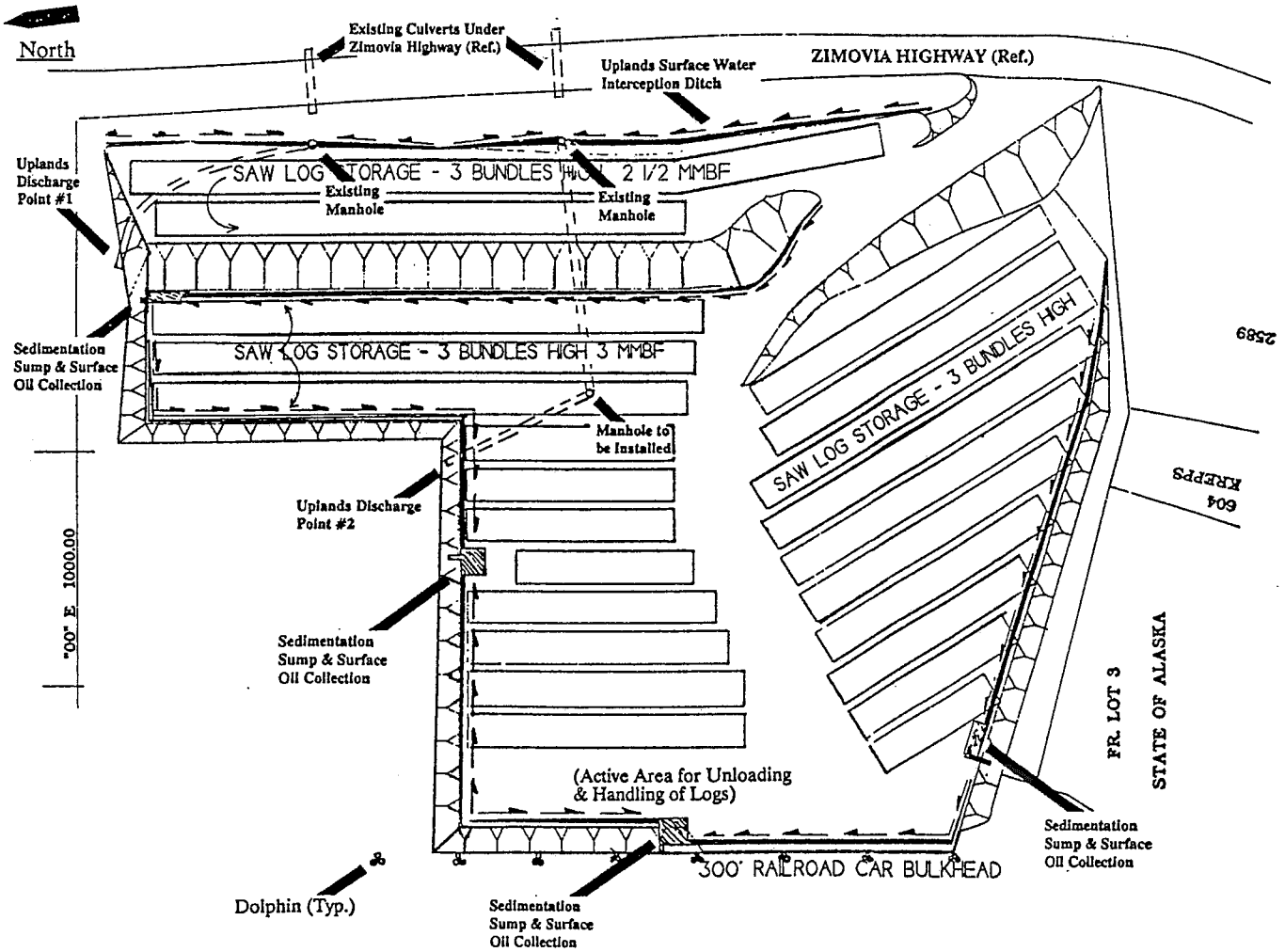


FIGURE IV:

Scale: 1" = 200'

CONCEPTUAL LOG STORAGE LAYOUT & SURFACE WATER RUNOFF CONTROL

Adjacent Property Owners:	Purpose:
1. Bill & Hazel Krepps 2. Keith Bloom 3. Dept. of Transportation	Increase on-land log storage

PROJECT: ON-LAND LOG STORAGE BARGE TRANSFER FACILITY

WATERWAY: Zimovia Strait
LOCATION: T63S, R84E Section 20

Sheet 4 of 4 Date 12/13/93 (Rev.)

ATTACHMENT #II

RESPONSES TO U.S. ARMY CORPS OF ENGINEERS CONCERNS

On 10/26/93 the Army Engineer District requested clarification of a list of questions related to the Zimovia Strait 87 permit application. The questions and responses to each are as follows:

1. **What is the size of the proposed fill?** The project area as shown on Sheets 1 and 2 of the original application is about 20 - 21 acres, using the High Tide Line of 19.7' as the eastern boundary of the project. EPA's calculation of 23.9 acres undoubtedly came from the application's narrative which stated that the project was approximately 1300' x 800'. However, the 800' dimension had to have included a portion of the adjacent upland lots to be correct.

   The area of the modified project now includes 9.8 acres of intertidal land and 5.5 acres of uplands, for a total area of 17.3 acres. Corr. 2/94

2. **Mt. Seley - 7 or 11 acres?** The Mt. Seley uplands fill is placed on four lots in USS-2589, including Lot 13 (4.02 acres), Lot 14A (4.00 acres) Lot 14B (0.55 acres) and Lot 15 (3.24 acres). Therefore the total base area is 11.81 acres. However, only a portion of the lots could be made into a flat useable storage space because all of their steepness. Based on a 1991 closure survey of the capped fill, the useable flat storage area amounted to 6.99 acres.

3. **How much time is required to move a log raft onto the upland storage area?** About 3 days are needed to move a log raft out of the water with the Berger Crane, located at the mill's existing Sort Yard. It is estimated that moving a log raft out of the water at the proposed Zimovia Strait 87 project will take less time and likely will be 1 - 2 days.

4. **How much volume will be delivered via barge?** It is estimated that about 40% of the logs delivered to the Zimovia Strait 87 facility will be by barge.

5. **Percentage of wood affected by toredos? Salt?** As much as 10% of a log's wood volume can be affected by toredo damage, and toredo damage normally becomes a major problem with water storage times of about 3 months or more. Salt uptake into logs stored in water also is time dependent, with the outer bark becoming saturated within days or weeks due to its high porosity. Salt impregnation will continue into the outer 2" - 4" of the log, as logs remain in the water for periods of 3 - 6 months and longer.

6. **What areas are worse from the standpoint of toredos?**

   Toredo damage normally is not a problem wherever there are heavy currents and rocky bottoms. In addition, the presence of freshwater tends to minimize toredo infestations. However, toredos likely will be a problem where there are muddy shallow bottoms, and warm weather will accelerate any already-existing toredo populations.

7. **What is effect to adjacent areas from elevated BOD, COD, color, ph, etc of water quality from Zimovia Strait 52?** When the earlier Zimovia Strait 52 intertidal

permit was issued, the State's certification required that the following parameters be monitored on a quarterly basis: pH, dissolved oxygen (DO), turbidity (NTU), color, BOD, COD suspended solids, and sulfates. While the mill has followed through with the monitoring obligations, the State's water quality standards in 18 AAC 70.020 only have limits set out for dissolved oxygen, pH, turbidity and color for marine waters. The sampling results for those parameters are compared to the standards as follows:[1]

a. pH. 18 AAC 70.020's limits vary from the range of 5.0 - 9.0 for the water-use of 'Water Recreation', to the most stringent range of 6.5 - 8.5 for the water-use of 'Growth and Propagation of Fish, Shellfish, Aquatic Life and Wildlife.

   The results of two years of data clearly indicate that the limits for even the most stringent marine water use classification have not been exceeded for any of the monitoring stations in front of the mill, and certainly not for the three stations directly in front of Zimovia Strait 52. Clearly, the State's water quality standards for pH are being met throughout the mill's waterfront.

b. Dissolved Oxygen. Perhaps the most important water quality parameter is dissolved oxygen, because it provides a direct indication of the water's ability to sustain aquatic life. 18 AAC 70.020's limits are 6.0 mg/l for the water use of 'aquaculture' and several other use categories, and 5.0 mg/l for the water use of 'Seafood Processing'.

   The results of two years of data indicate a very high level of DO throughout all monitoring stations. In fact, the levels were substantially above the allowable limits and typically in the range of 10 - 12 mg/l. There should be no doubt that DO levels throughout the mill's waterfront are high and easily in compliance with State water quality standards.

c. Turbidity. The only numerical limit for turbidity in 18 AAC 70.020 is 25 NTU. All mill monitoring stations easily meet this level, with typical values being much lower and in the range of 0.2 - 6 NTU.

d. Color. Depending on the marine water use classifications, the color limit in 18 AAC 70.020 is as high as 70 color units for 'Marine Processing' and as low as 15 color units for 'Water Contact Recreation'. As shown in the monitoring data, typical results are 10 - 15 color units for all stations except for the two fresh-water stations #1 & #2, which measure upslope runoff.

   Except for the first quarter's sampling in 1991 and the 2nd quarter of 1992 when all stations indicated high levels of 35 - 50 color units,[2] there were only a few isolated color values of 20 and 25 color units determined for several of the stations. In each of those cases, the freshwater runoff station values always were higher and appeared to be a major contributor for the color level exceeding 15 color units. As a result, the marine waters in front of the

---

1/ The water monitoring results for the first seven quarters from 7/5/91 through 1/4/93 were summarized and included in the original project permit application. The 2nd and 3rd quarter sampling results for 1993 are included at the end of this Attachment 16 - 17 so that all of the collected monitoring data can be available for the record.

2/ The high results of the 2nd quarter of 1992 undoubtedly were caused by factors beyond the mill, because the background station #15 was the highest of all and the turbidity levels for all stations were by far the highest recorded for any of the quarters.

Wrangell mill appear to be in compliance with the color criteria for even the most stringent water-use category in 18 AAC 70.020.

The marine water quality parameters which were monitored but do not have a State standard limit established include BOD, COD, suspended solids and sulfates, and their results are discussed as follows:

a. BOD & COD. The monitoring results for BOD are low and were 'nondetectable' for the last two quarters. For the other quarters, there was no indication of higher values in front of the Zimovia Strait 52 fill as opposed to the other mill waterfront monitoring locations. In a similar manner, the COD results showed no discernable pattern across the waterfront of the mill, and if anything tended to show much lower values in front of the Zimovia Strait 52 fill.

b. Suspended Solids. The suspended solids monitoring values typically have been in the range of 1.5 - 8 mg/l, and did not differ much from the marine and upland freshwater background station values. In fact, in many instances the background stations reported higher suspended solids values than in along the mill's waterfront. The suspended solids results do not suggest any adverse effects from the Zimovia Strait 52 project.

c. Sulfates. Sulfate levels across the front of the mill's tidelands showed wide ranges of values from quarter to quarter, but for 1991-92 there was little discernable pattern across the mill's waterfront. For the three quarters of 1993, the sulfate values in front of the Zimovia Strait 52 project actually were lower than the other monitoring sites along the mill's waterfront, and even lower than the marine background sites. For whatever the sulfate levels mean, it seems clear that the Zimovia Strait 52 project is having very little if any effect on the values.

In conclusion, the water quality monitoring results do not indicate violations of any of the State's water quality criteria in 18 AAC 70.020, and the non-criteria parameter results do not appear to suggest any adverse effects coming from the Zimovia Strait 52 project. If anything, the monitoring results appear to confirm that the Zimovia Strait 52 project was well designed and constructed to minimize if not eliminate water quality concerns, and in fact achieved its intended result.

8. **Has a combination of reduced elevation in Mt. Seley with a reduced fill been considered?** The modified Zimovia Strait 87 project has completely integrated the Mt. Seley fill into the project, causing much of the substantial reduction in needed intertidal area (about 35% - 40%) that is not proposed for the modified Zimovia Strait 87 project.

9. **The size of fill does not seem justified.** As described in Attachment I, APC thoroughly re-evaluated the project to make certain that all options and alternatives had been considered. Based on that re-evaluation, the project was scaled down and Attachment I includes the detailed justification of the proposed modified project.

10. **What are volume/acre storage requirements for dry land, and water?** Typically, dry land log storage can be about 1.3 mmbf/acre, when stacked three bundles high and not taking in allowance for access. The ability to stack that high is machine-dependent and that height generally would be used only for long-term

storage, not for active log bays. For water storage, a standard APC log raft will be 550' long by 70' wide, and will include 0.5 mmbf.

11. **Would deep water storage be reduced at Blind Slough + Aaron Creek?** The modified Zimovia Strait 87 project is proposing to relinquish the deep water storage sites at both Blind Slough and Aaron Creek if the project is approved. In addition, the log storage sites at Pt. Babler and Berg Bay are now proposed to be relinquished as well. Refer to page 5 in Attachment I for a more detailed description and listing of the substantial mitigation measures now proposed for this project.

ARL
Water Management
Consultant

September 18, 1993

TO: Ursula Spannagel
ADEC
Southeast Regional Office
410 Willoughby Ave.
Suite 105
Juneau, Alaska 99801

SUBJECT: Alaska Pulp Corporation project: Expanded Zimovia 52, Laboratory report on samples taken by ARL on July 6, 1993.

Dear Ms. Spannagel

At approximately 2:30 PM, 7/6/93, sixty samples were taken from fifteen locations offshore from the Zimovia 52 land-fill project. Thirty samples were immediately shipped to the Montgomery Laboratories for C.O.D. and Sulfates analysis. Fifteen samples were taken to the WWTP for pH, D.O., NTU, B.O.D and Suspended Solids Analysis. Fifteen samples were evaluated for color, on location.

The results of the color evaluation (done on location) and the analysis done at the Wrangell Wastewater Treatment facility and Montgomery Laboratories are shown below.

	pH	D.O.	NTU	Color	B.O.D.	Su. So.	C.O.D.	SULFATES
#1	6.0	7.8	13.0	25	ND mg/l	6.3 mg/l	ND mg/l	ND mg/l
#2	5.4	8.4	16.0	20	ND mg/l	5.5 mg/l	10 mg/l	ND mg/l
#3	7.1	8.6	18.0	10	ND mg/l	10.5 mg/l	76 mg/l	790.0 mg/l
#4	8.0	8.5	18.0	10	ND mg/l	11.3 mg/l	65 mg/l	780.0 mg/l
#5	8.0	8.9	15.0	10	ND mg/l	9.3 mg/l	32 mg/l	470.0 mg/l
#6	8.0	8.7	20.0	15	ND mg/l	13.5 mg/l	85 mg/l	820.0 mg/l
#7	8.1	8.8	19.0	10	ND mg/l	15.5 mg/l	245 mg/l	860.0 mg/l
#8	8.1	8.9	15.0	10	ND mg/l	12.0 mg/l	91 mg/l	890.0 mg/l
#9	8.1	8.8	15.0	10	ND mg/l	16.3 mg/l	440 mg/l	990.0 mg/l
#10	8.2	8.8	18.0	15	ND mg/l	14.3 mg/l	315 mg/l	1090.0 mg/l
#11	8.2	9.0	15.0	10	ND mg/l	13.0 mg/l	310 mg/l	1020.0 mg/l
#12	8.1	8.7	14.0	10	ND mg/l	4.3 mg/l	325 mg/l	1000.0 mg/l
#13	8.2	8.6	15.0	10	ND mg/l	7.5 mg/l	395 mg/l	1040.0 mg/l
#14	8.2	9.0	15.0	10	ND mg/l	10.8 mg/l	550 mg/l	1220.0 mg/l
#15	8.2	8.9	15.0	10	ND mg/l	9.5 mg/l	265 mg/l	810.0 mg/l

Sincerely,

Robin Larsson

Robin Larsson
ARL Water Management

ATTACHMENT #III

RESPONSES TO FISH & WILDLIFE SERVICE CONCERNS

The U.S. Department of the Interior's Fish & Wildlife Service submitted 10/25/93 comments on the proposed Zimovia Strait 87 permit application. Most of their comments and concerns have already been addressed in Attachments I & II, which describe the proposed project modifications and provide considerable descriptive information concerning the project. Responses to some of the more specific comments and concerns which may not have been completely addressed in Attachment I are provided below.

1. **Habitat values in the intertidal area of the proposed project remain degraded.** As described in Attachment I, APC has modified the project and if approved intends cease the routine practice of log raft storage in the unused portions of the tidelands around the proposed project. For the unused areas, which include over 5 acres on the north side of the modified project and the strip of intertidal area between the project and the mill site, all remaining logs and similar residue will be removed and those two areas allowed to return to their natural state.

   While some of the intertidal area is essential for meeting the mill's log storage needs, it should not be overlooked that any bark and sluffing of other wood debris from log rafts will be substantially reduced all along the mill waterfront, due to the drastically reduced times that log rafts will remain in the water. Also, this project will allow far more of the mill's log supply to be delivered by barge, thereby totally avoiding the potential for water quality concerns from the handling of those logs. In summary, whatever problems are currently perceived problems in the project's intertidal area are likely to be corrected with this project, and overall water quality in front of the mill will be improved because of this project.

   It should also be mentioned that this project's mitigation measures will relinquish the use of four remote log storage areas and end the appeal process for two others. As a result, 117.63 acres of existing log storage area no longer will be used if this project is approved, and the appeals process for an additional 125.63 acres will stop as well. Undoubtedly, habitat values in these areas will improve if this project goes forward.

2. **This project is essentially the same as the earlier project submitted by Seley Inc.** While the area and location for the project are the same, the facility's design is decidedly different because the wood fill to be used will be vibratory-compacted and completely encapsulated with a clay layer. In addition, the mill has had the experience of constructing and monitoring the Zimovia Strait 52 fill, which has confirmed the viability of effectively using wood material as an intertidal fill and successfully sealing it to avoid water quality problems. APC is confident that the proposed Zimovia Strait 87 fill can and will be effectively sealed to avoid any potential water quality concerns.

3. **The project is one of the largest tideland fills every proposed in Southeast Alaska waters.** As described in Attachment I, the project now includes 11.8 acres of

intertidal area, and therefore has been substantially reduced from the original proposed area of 20 acres.

4. **The project has the potential to increase existing leachate control problems.** To the contrary, this project will reduce the amount of potential leachate at the proposed site, because the project's placement and sealing of the wood fill will be far more thorough and effective than was possible on the existing uplands fill. The Mt. Seley fill was inherited by APC when it took control of the Wrangell mill, and extensive corrective steps were taken to seal the upland fill. While those steps were effective in substantially reducing the fill's leachate streams, a complete seal around the periphery and sides was impossible because equipment could not gain access. Those shortcomings will be corrected with the re-contouring of the fill as proposed, and construction of the cells and their sealant cover will be carefully controlled as they are placed in the intertidal area

5. **The project does not resolve the existing solid waste projection and disposal problems associated with operation of the sawmill.** This project has nothing to do with the mill's existing solid waste generation, and never did. Rather, the project is proposing to use already existing fill deposited in the upland lots in constructing the intertidal cells. The re-contouring of the uplands fill will assure that the upland lots will become an effective part of the project and will minimize the amount of needed intertidal area.

APC strongly believes that this project is in the best environmental interests of not only the mill but all environmental agencies. APC would be glad to discuss any remaining agency concerns directly with Fish and Wildlife personnel, in an effort to expedite the final review and approval of the Zimovia Strait 87 project.

ATTACHMENT IV

RESPONSES TO NATIONAL MARINE FISHERIES SERVICE CONCERNS

The National Marine Fisheries Service (NMFS) submitted 10/22/93 comments on the proposed Zimovia Strait 87 permit application. Most of their comments and concerns already have been addressed in Attachment I, which describes the proposed project modifications and provides considerable descriptive information concerning the project. Also, many of the NMFS comments and concerns were similar to those of the Fish and Wildlife Service as well as the Army Corps of Engineers, and therefore the responses provided in Attachments II-III also are applicable to the NMFS comments. Responses to some of the more specific comments and concerns which may not have been completely addressed in Attachments I - III are provided below.

1. **There appear to be questionable discharges in the vicinity of the project.** The 'pink' discharge noted in the EPA comments consisted of a very small stream of surface water runoff from the area immediately behind the mill's beaver slide in the northwest corner of the mill yard (refer to Figure I, page 9, for location reference). The stream was caused solely by a just-ended rain shower which entrained some bark debris left by the ongoing equipment operation. While this discharge was exceedingly small and completely stopped on its own soon after being observed by EPA's Susan Cantor, it will be totally controlled when the mill constructs its small north-end fill in 1994. When that fill is completed, it will have a surface water collection system along its outside lip that will be treated by a sedimentation and surface oil containment trap system which should avoid any similar discharges in the future.

2. **Solid material was observed sloughing from a pile of high moisture bark and wood waste into the intertidal area.** The observed solid material by EPA consisted of about 100 - 150 c.y. of hogged bark that had been temporarily stockpiled until it could be barged from the mill. That pile was removed the following week after EPA's visit, and had never been intended to remain at that site for any length of time.

3. **There are concerns over water quality in the vicinity of the project, and the earlier Zimovia Strait 52 fill.** APC has collected extensive water quality data along the front of the mill and the Zimovia Strait 52 fill, and that data is reviewed in some depth in Attachment II. The data collected from the 15-station monitoring system appears to confirm that all water quality criteria in 18 AAC 70.020 are being met, and that if there are elevated levels of any of the parameters over background, those levels are very unlikely to be caused by the Zimovia Strait 52 project which had its wood fill material completely sealed by compacted clay/rock sides and surface cap.

   Aside from the monitoring results received thus far, the proposed modified Zimovia Strait 87 project should have substantial positive effects on water quality at the mill and the remote sites which will be relinquished if the project is approved. Most if not all of the water quality concerns expressed by the reviewing agencies should be resolved by the completion of the modified project that is now proposed.

APC strongly believes that this project is in the best environmental interests of not only the mill but all environmental agencies. APC would be glad to discuss any remaining agency concerns directly with NMFS personnel, especially water quality results and perceived problems, in an effort to expedite the final review and approval of the Zimovia Strait 87 project.

ATTACHMENT V

RESPONSES TO ENVIRONMENTAL PROTECTION AGENCY CONCERNS

The U.S. Environmental Protection Agency submitted 10/22/93 comments on the proposed Zimovia Strait 87 permit application. Most of their comments and concerns have already been addressed in Attachment I, which describes the proposed project modifications and provides considerable descriptive information concerning the project. In addition, many of the detailed EPA concerns and questions already have been addressed in the responses to the other federal agencies as provided in Attachments II - IV. Responses to some of the more specific comments and concerns which may not have been completely addressed in the other attachments are provided below:

1. **The applicant fails to demonstrate that the storage of 375,000 cy of woodwaste in waters of the U.S. will not cause or contribute to water quality violations.** The wood fill for the modified project involves a much smaller quantity of about 202,600 c.y., and for this project it is not 'woodwaste' but rather wood/rock fill for which protection has been taken to avoid any potential water quality concern. Furthermore, the water quality data collected by APC and submitted as part of the application was compared to the State's water quality criteria in 18 AAC 70.020 and appears to be within the State limits (see Attachment II). APC would be willing to discuss the water quality data in further detail with EPA if needed, but the collected data appears to confirm that the earlier Zimovia Strait 52 fill by APC was properly designed and has avoided any water quality problems associated with that wood fill.

2. **The abundance of cheap fill lowers the economic cost of creating "fast land" (in reference to the use of wood fill material).** Properly placed and sealed wood fill is in no way a 'cheap' construction method, contrary to the suggestion in EPA's comments. Instead, the vibratory compaction of wood fill in 2' layers followed by placing a thoroughly compacted clay/rock seal around each cell's periphery and over its surface is in fact very expensive and time-consuming. Furthermore, this project site cannot be developed as the modifications propose in Attachment I, without re-contouring and using the otherwise-excess fill presently in the uplands site.

3. **Monitoring wells should be incorporated into the project design, if the project is allowed to be constructed.** APC has no objection to committing to a monitoring program, to characterize any potential leachate that might be generated from the site. However, such a monitoring program needs to be realistic and limited to confirming compliance with existing standards.

4. **The mill already has the ability to store up to 21.6 mmbf.** As described in Attachment I, the mill has an existing log storage capacity of only 12.5 mmbf. While one of EPA's millsite log storage capacity estimates is relatively close to APC's number (APC estimated a 9-mmbf capacity, whereas EPA has projected a 9.7-mmbf capacity),

   a. The north-of-mill site (Mt. Seley) capacity is limited by practical reasons to only 3.5 mmbf (see discussion in Attachment I), not the EPA projection of

4.4-6.9 mmbf. In reality, it is not a good log storage site at all in its present condition, because of its high cost of log transport handling to-and-from the facility, and the private residents on the upslope side of the road unquestionably would object to increased useage of this present site, and

b. The remote camps are not available to the mill for a winter-time supply of logs.

5. **The mill already has the ability to store 45.5-52.7 mmbf.** EPA also presented information to suggest that log storage capacities as high as 45.2 - 52.7 mmbf could be accommodated on the existing mill site. However, such numbers are unachievable, and APC would be willing to discuss them directly with EPA personnel if needed. Apparently they were based at least in part on a Seley Inc. estimate of 1.8 mmbf/acre number submitted in 1989. However, that estimate

   - First of all was based on a log raft capacity of 0.9 mmbf/acre-of-water-storage. In contrast, APC's actual log rafting size is 550'x70' which includes 0.5 mmbf, amounting to a capacity of about 0.6 mmbf/acre-of-water-storage. APC's numbers reflect existing operational conditions, and

   - Secondly, the Seley Inc. estimate simplistically doubled the in-water capacity to come up with a 2-high stacking capacity of 1.8 mmbf/acre. Aside from the initial basis being suspect, that estimate does not include any allocation for access to-and-from the storage bays (referring to Figure IV of the proposed modifications, access needs are a considerable portion of any storage area). Furthermore, it included no allowance for side handling space between stacks. If these factors were included, Seley Inc.'s dry-land storage estimates would not be that far removed from APC's approximately 1.3 mmbf/acre capacity figure.

   As can be seen on Figure IV in Attachment I, APC's conceptual requirements for the modified Zimovia Strait 87 project are based on 40'-wide log storage bays, with 10' between each bay. Storage facilities cannot function without adequate access to-and-around the bays, and APC would be more than willing to discuss that reality to EPA.

6. **EPA's finding that alternatives exist to the proposed project is consistent with information provided during the previous project review.** It is apparent that EPA has based much of its alternatives analysis and project evaluation on statements by Seley Inc. from the original 1989 proposal. As stated in earlier sections and attachments, Seley's 1989 proposal was much different than APC's 1993 project proposal and unquestionably much different than the modified project presented in Attachment I. Whether or not the variety of statements attributed to Seley in 1989 were appropriate then or even correct hardly should be used as the standard of review now. What really should matter for this project is today's reality, and APC is prepared to discuss and back up its assessment of the project's need.

APC strongly believes that this project is in the best environmental interests of not only the mill but all environmental agencies. APC would be glad to discuss any remaining agency concerns directly with EPA personnel, in an effort to expedite the final review and approval of the Zimovia Strait 87 project.

ATTACHMENT VI

RESPONSES TO PRIVATE PARTY CONCERNS

To APC's knowledge, the only private party which has submitted comments on the original project is the adjacent neighbor, William R. Krepps. Responses to the concerns raised in his comments are as follows:

1. **An industrial waste site is not wanted on the intertidal waters.** The proposed Zimovia Strait 87 project is not an 'industrial waste site', but rather a well-designed dry-land log storage facility which will make efficient use of the available fill material from the adjacent uplands. There is no question but that the wood products now deposited on those uplands can and will make highly effective fill material for this project. At the same time, the wood fill material will be fully encapsulated to avoid any water quality concerns, and in fact will end up better protected from the outside elements than at the present disposal site.

2. **We do not want all the additional noise that will go with this project; the current noise levels are too loud now.** The noise levels are not likely to increase much, if any, with this project. While some increased noise can be expected during barge unloading and lifting of logs out of the water, the proposed project is to create long-term log storage capacity which will not involve much equipment activity except for brief loading and unloading operations. In addition, the Krepps residence can expect substantially less noise from the eventual loading-and-unloading activities than from the present log raft storage activity which periodically occurs in the project area's tidelands.

   As regards the current mill noise levels, there may be ways to reduce the exposure to the Krepps residence. APC is prepared and willing to meet with the Krepps and take what practical steps are possible to reduce their exposure to the mill's noise-generating activity.

3. **APC, through Seley Inc., was responsible for dumping industrial wood wastes, metal, can, 50-gal drums, junk cars, cable, banding straps and much more on the uplands disposal site, and they did this without a permit.** To the best of APC's knowledge, the only waste products deposited in the uplands are wood wastes. At an earlier time there had been some junk cars, drums and metal deposited on the surface of the fill, but those were removed as soon as APC assumed control of the mill from Seley Inc. If any such materials are encountered in the re-contouring of the uplands fill, they would be immediately removed and properly disposed as required for the material found. APC does not expect any to be found.

4. **APC has a large record of non-compliance.** This statement simply is incorrect. The mill has been involved with an extensive program of correcting what compliance problems have existed over the past 3 years with considerable success. At this point the mill's facilities are largely in compliance with all environmental requirements. With the further follow-up action which is planned including the improvements to be achieved through this project, any remaining problems are expected to be solved as well. If there are specific areas of concern

to the Krepps, APC is prepared to sit down and review them, and do whatever is practical in lessening the mill's impact on their residence and lives.

5. **The project site supports a lot of birds and wildlife, and is a natural resource area with clams and crabs.** As proposed, APC will cease the current log raft storage activities which could be adversely affecting the area's habitat values, and instead use only a portion of the total tidelands for the project. The remaining unused area will be cleaned of any residual logs and debris and allowed to return to its natural state. In addition, the re-contouring and re-sealing of the wood fill material of the uplands will result in substantially less water quality impact than the present situation. Consequently, the project should result in an overall environmental and habitat improvement, contrary to what is suggested in the Krepps letter.

6. **APC should find a log storage and waste dump site outside of the incorporated town of Wrangell.** Unfortunately, APC has looked at all options to meeting the mill's long-term log storage needs, and there simply are not options available as suggested by Krepps. There are no out-of-town sites available on private property, and it would be totally out of character for the U.S. Forest Service to authorize any such sites on federal lands. As described in Attachment I, the proposed project turned out to be the only option available to the mill to meet its log storage needs.

7. **The uplands area which includes the Mt. Seley disposal site should only be used for residential purposes.** The Mt. Seley woodwaste fill was permitted by ADEC as an industrial woodwaste disposal site in 1989, at which time the 'residential' character of the 4 lots were forever changed. To the best of APC's knowledge, the present use of the capped woodwaste fill at a log handling/storage facility is in complete compliance with ADEC requirements as well as the City of Wrangell's land use requirements.