1986/87

MEMORANDUM State of Alaska

TO: Alvin G. Ott
Regional Supervisor
Habitat Division

DATE: September 17, 1987

FILE NO:

TELEPHONE NO: 451-6192

THRU:

SUBJECT: Seward Peninsula Field Trip, 6/22-26/87

FROM: Alan Townsend and Robert McLean
Habitat Biologists
Habitat Division
Department of Fish and Game

June 22, Townsend and McLean arrived in Nome at approximately 10:00 am. A 4x4 pickup truck had been reserved, and was ready at ADOT/PF. Sample bottles and copies of NPDES permits were delivered to ADEC from the Fairbanks ADEC office. We checked in at the ADF&G office and outlined our plans for the week.

NOME CAUSEWAY

The first ever barge was unloading onto the causeway. Since no cranes, docks, or ramps are available on the causeway yet, the barge was unloaded with its own crane.

The breach in the causeway has an effective opening of approximately 200 feet at the water surface. A east to west current was visible on June 22. On June 23, the causeway's affect on nearshore sediment transport was clearly visible--a distinct plume was visible from the air with turbid water on the west side and nearly clear water on the east side. Photographs were taken from the air as we were departing Nome in a Cessna 206 for an overflight of placer mining areas.

PLACER MINING

June 22, APP Mining - Speciman Gulch. Mr. Plockowietz and Bert Pettigrew were processing 50-60 cyd in a shaker screen equipped sluice plant. They were recycling the washwater and collecting the entire flow of Speciman Gulch (est. flow less than 1 cfs). Two pre-settling ponds and one recycle pond was being used. Less than 1 cfs was leaching through the pond walls and flowing to Anvil Creek which appeared nearly clear. Mr. Pettigrew was advised that he was operating without having filed an APMA or receiving the required

permits. Mr. Pettigrew stated that Mr. Tanner, a joint venture member, had taken care of the permit applications. Mr. Pettigrew was advised to promptly submit a completed APMA.

June 23, APP Mining - Speciman Gulch. McLean, Bauer, and Townsend viewed APP Mining from a Cessna 206 charter. Anvil Creek was slightly turbid (greenish) in two of the old dredge ponds through which it flows. The path of the APP Mining effluent could not be followed because of riparian vegetation.

June 24, APP Mining - Speciman Gulch. McLean and Townsend observed a highly turbid discharge crossing Glacier Creek Road at Speciman Gulch. Water samples were collected from Anvil Creek and Speciman Gulch. Settleable solids were measured in the samples from Anvil Creek, above and below the Speciman Gulch confluence, and from Speciman Gulch, both above and below APP Minings discharge. Two separate samples were collected from above the mining discharge. One sample measured trace settleable solids; the other measured zero settleable solids. The Anvil Creek sample collected below the Speciman Gulch confluence measured 13 ml/L SS. The Speciman Gulch sample collected below the mine discharge measured 130 ml/L SS. The solids were entering the creek from a drainpipe in the recycling pond. The operator had uncovered the pipe to drain the recycling pond. The settling pond located below the road crossing was already filled with solids and nearly the entire flow of the discharge was entering the creek. This discharge lasted less than an hour; however, the clear water flowing into the recycling pond from a Speciman Gulch spring was resuspending some of the previously deposited solids and discharging lower SS levels to the creek.

June 26, APP Mining - Speciman Gulch. Townsend issued a Notice-of-Violation (NOV) to Mr. Pettigrew for the June 24 discharge to Anvil Creek. Mr. Carl Plockowietz signed the NOV and agreed to promptly submit an APMA. Mr. Noel Tanner, joint venture member of APP Mining, came in to Mr. Plockowietz's apartment while Townsend was discussing the NOV with Plockowietz and showed a copy of a recently completed APMA for APP Mining on Speciman Gulch stating that he would be sending the APMA and $100.00 check to ADNR in the next mail.

June 23. J. Bauer (ADEC), R. McLean, and A. Townsend conducted aerial reviews of placer mining along a route from Nome to Granite Mt. to Candle to Deering to Garfield to Anvil Mt. to Cripple River and back to Nome.

Alaska Gold Dredges #5 and #6 - APMA's 871025 and 871026. Dredge #6, near the Snake River, was operating with small volume discharge from the dredge pond to settling pond between the thaw field and beach. A readily noticeable plume of turbid water extended from the beach for several hundred yards. Nearshore turbidity was being added by wave action from Norton Sound.

Dredge #5 was also operating and turbid water escaping from the dredge pond was being pumped back from an impoundment on Dry Creek. Both Bourbon and Dry creeks were turbid from water loss from Dredge #5.

Buster Creek, Hoogenborn, APMA 872022. A dozer was on site near an ice field but no 1987 mining activity was apparent.

Casadepaga River, Gold Prospectors of America. A backhoe and loader were parked near the buildings but no 1987 mining activity was apparent. The overland access from the Solomon River was visible for 10 miles.

Sweepstakes Creek, Hatch, APMA 872108. Recent area of mining activity was apparent but none appeared to be from 1987.

Bear Creek, Parent, APMA 872032. The airstrip had been graded, 4 settling ponds were in place (offstream) and were full of turbid water but the operation was not sluicing at the time. A new mining cut was open and mining had occurred in 1987.

Quartz Creek, Granite Investment, APMA 871136. A dozer was working on the airstrip but no sluice or washplant was observed. A newly cut ditch extending approximately ½ mile parallel to the creek was discharging suspended sediments to Quartz Creek and the creek was turbid throughout its length to the Kiwalk River.

Candle Creek, M. Vial, APMA 872090. Operator was still setting up and stripping.

Candle Creek, V. Vial, APMA 872055. Active mining in progress with recycle. However, overburden that had been stockpiled between the mine cut and creek was melting and bleeding a considerable quantity of sediments into Candle Creek. Mr. Berg, claim owner, was contacted and advised of the problem which he said he would get corrected. Bauer took water samples.

Jump Creek, V. Vial, APMA 872056. Resuspension of sediments and erosion occurring in 1986 mine cut. No sign of 1987 mining activity.

Imnachuk River, unknown owner, no APMA. Mining equipment present near buildings close to the forks. No apparent mining activity in either 1986 or 1987.

Garfield Creek, Tachick, APMA 871314. Stripping with dozer on west bench above the creek. Access route appeared to be heavily rutted and muddy and was visible for 10-15 miles.

Boulder Creek, Mullikin, APMA 871389. A small backhoe was on site but no mining activity for this season was apparent.

American Creek, Gold Prospectors of America, APMA 872105. A dozer was on site and a small area of dirt work had been done near the grounded bucketline dredge.

Iron Creek, owner unknown, no APMA. Small track loader and suction dredge present but not operating. A vehicle was observed moving toward this site along the creek about 2 miles downstream.

Basin Creek, Engstrom, APMA 871489. The bucketline dredge appeared to be grounded. The Nome-Taylor Road construction contractor was excavating a large pit about ½ mile downstream from the dredge (free overburden removal?) adjacent to the creek.

Dorthy Creek, owner unknown, no APMA. A dozer was on site, old tailings were present but the only recent work appeared to be access improvements and building improvements.

Cripple River, Gold Prospectors of America, APMA unknown. A western frontier type town has been built on east bench, including boardwalks. No mining activity seen on the river but several hand sluice/shakers were on the beach. Nobody seemed to be present.

Enclosures (4)

cc: C. Lean, Comm Fish - Nome
J. Coady, Game - Nome
J. Clark, Sport Fish - Fairbanks
J. Knudsen, USFWS - Nome
R. Randall, Comm Fish - Anchorage

ENCLOSURE #1

Seward Peninsula General Permit Crossings
ADF&G Field Inspection - June 22-26, 1987
A. Townsend and R. McLean

Lower Glacier Creek Crossing - FG87-III-GP-012

Ground inspection 6/22/87. Water level low. Extensive gravel bars exposed. Approximately 14 instream fords between the Glacier Creek Road and the Snake River. No bank cuts or streambed damage noted. Recommended for continued general permit status.

Nome River Crossing at Buster Creek - FG87-III-GP-003

Ground inspection 6/22/87. Trail continues on opposite side up to the dredge site on Dexter Creek. Water level low, approximately 14 to 16 inches deep. No bank or streambed damage noted. One-quarter mile up the Dexter Creek trail, 2 full and one partially full 55-gallon drums were noted lying on their sides in the tundra on the south side of the trail. Three-eights of a mile up the trail, an additional 5 full 55-gallon drums of lube oil were also noted lying on their sides in the tundra on the south side of the trail. No leakage was noted for any of the drums. Recommended for continued general permit status.

Niukluk River Crossing at Council - FG87-III-GP-015

Aerial inspection 6/23/87 at an altitude of approximately 2,500 feet. No stream bank damage noted. Tailing ponds (reported to contain fish) are located on opposite side of the proposed Council runway extension; not adjacent to the Niukluk River as had been previously thought. Recommended for continued general permit status.

Pilgrim River Crossing near Iron Creek - FG87-III-GP-009

Aerial inspection 6/23/87 at an altitude of approximately 800 to 1,000 feet. Water level low, visual clarity high. No stream bank or bed damage noted. Upland trail appeared to be in good shape with little rutting or erosion observed. Recommended for continued general permit status.

Penny River Crossing - FG87-III-GP-002

Aerial inspection 6/23/87 at an altitude of approximately 1,000 feet. Water level low, visual clarity high. No stream bank or bed damage noted. Several tents and small beach mining operations were located in this vicinity. Recommended for continued general permit status.

Cripple River Crossing - FG87-III-GP-001

Aerial inspection 6/23/87 at an altitude of approximately 1,000 feet. Water level low, visual clarity high. No stream bank or bed damage noted. No additional construction was noted at GPAA's camp adjacent to this crossing. One 4x4 Suburban and two small front end loaders were noted at the GPAA camp. Recommended for continued general permit status.

Solomon River Crossing at Lees Camp - FG87-III-GP-010

Ground inspection 6/25/87. Water level low, visual clarity high. No stream bank or bed damage noted. Indications of light vehicular use were noted. A single set of tracks for a heavy piece of wheeled equipment was also noted. The streambed at this crossing appears to be quite solid. Recommended for continued general permit status - consideration should also be given to increasing the allowable gross vehicle weight restriction from the current 10,000 GVW to a revised 20,000 GVW on a one year trial basis.

Big Hurrah Creek Crossing - FG87-III-GP-011

Ground inspection 6/25/87. Water level low, visual clarity high. At existing low water level, only one small stream channel crossing is required. No stream bank or bed damage noted. Indications of light vehicular use were noted. The streambed at this crossing appears to be quite solid. Recommended for continued general permit status - consideration should also be given to increasing the allowable gross vehicle weight restriction from the current 10,000 GVW to a revised 20,000 GVW on a one year trial basis.

ENCLOSURE #2

Nome-Council Project MP 42 to 53
ADF&G Field Inspection - June 25, 1987
A. Townsend and R. McLean

STATION 1109+00 (French Creek)

° Inspected 6/25/87 at 1700 hours

° 48 inch CMP at approximately 1.0 slope; set at thalweg; Class II riprap apron extends 10 to 12 feet downstream at outlet. Possible fish barrier at lower flows due to tighly placed riprap.

Recommendations: Remove 1 or 2 large boulders by hand from west side of outlet channel to create clear channel. Leave remainder of riprap to provide outlet protection at higher flows.

STATION 1071+60 (Orphan Creek)

° Inspected 6/25/87 at 1716 hours.

° 48 inch CMP set 6 inches below thalweg; substantial bend in lower half of culvert has resulted in an overall hydraulic gradient of approximately 2.8% (5.6% in lower half). Outlet backwater control extended approximately 7 feet upstream into culvert barrel. Water depth in culvert barrel 2 to 3 inches; 12 inches deep in backwatered section at outlet. Mean surface velocity 0.5 f/s as determined by timing the passage of a stick through the culvert barrel.

Recommendations: monitor closely - if excessive outlet scour or barrel velocities develop due to excessive slope, an outlet control structure which provides fish passage may be needed to backwater the CMP.

Riprap in stream channel at inlet should be removed.

STATION 1045+48

° Inspected 6/25/87 at 1731 hours.

° 48 inch CMP set 4 inches below thalweg at approximately 1% slope. Inlet bridged over with snow. Some stream bed material in lower 1/4 of culvert barrel. Extensive riprap apron at outlet.

Recommendations: Installation looks good. Riprap placement at outlet is excellent, well placed, and should be left intact.

STATION (Approximately) 999+20

° Inspected 6/25/87 at 1746 hours.

° 48 inch CMP set approximately 6 inches above thalweg. Water surface profile drops approximately 18 to 20 inches between inlet and outlet. Nearly all of the drop is in the lower 3/8ths of the barrel. Large riprap in outlet apron has brought water surface up to the outlet lip.

Recommendations: Riprap placement at outlet is good and should be left in place. Culvert should be monitored. If excessive velocities develop due to slope, effective backwater control structure(s) at the outlet may be necessary.

STATION (Approximately) 863+40

° Inspected 6/25/87 at 1808 hours.

° 48 inch CMP high water relief pipe. Set approximately one foot below thalweg. Good gravel substrate througout length of culvert barrel. Culvert slope approximately 0.8%. Water depth in barrel 6 to 8 inches. Outlet riprap apron in position and well placed. Overburden had been pushed out onto ice over outlet stream channel. 10 to 12 foot high overburden piles had been pushed up to the stream banks in the SW, SE, and NE quadrants. NW quadrant overburden pile was set back approximately 50 feet from the stream bank.

Recommendations: Riprap placement at outlet is good and should be left in place. Overburden piles in the SW, SE, and NE quadrants should be pulled back 50 feet from the stream bank as per project specifications.

STATION 839+00 (Vinegar Creek)

° Inspected 6/25/87 at 1824 hours.

° 42 inch (?) CMP set approximately 2 inches below thalweg at approximately 1% slope. Some sand deposited

in lower 5 feet of culvert barrel. Ice plug half eroded in center of culvert.

Recommendations: None.

East Fork Solomon River

° Numerous heavy equipment fords at multiple sites were noted throughout the length of the project. Instream gravel from berm piles had been pushed up into stockpiles apparently prior to any intended actual use. A significant amount of fill material had been sidecast from the old road bed into the active channel of the East Fork.

° Surface runoff from excavated cuts and fills was contributing significant sediment loads to the East Fork. A sediment plume was evident in the main channel of the Solomon River downstream from its confluence with the East Fork.

Recommendations: A schedule for necessary instream activity should be developed. All other instream activity, inclusive of gravel pushing/stockpiling operations, should be avoided. All runoff channels should be fitted with gravel (not overburden) check dams to reduce non-point source pollution of the Solomon River.

ENCLOSURE #3

Nome-Taylor Road Project MP
ADF&G Field Inspection - June 22-26, 1987
A. Townsend and R. McLean

STATION 1067 (Hoodoo Creek)

- Inspected 6/22/87 at 2039 hours.
- 48 inch CMP; downstream culvert invert perched approximately 20 inches; upstream culvert invert perched approximately 10-12 inches above thalweg.
- Culvert not aligned with original stream channel; south outlet stream bank cut to accommodate culvert.

STATION 1084+40 (Darling Creek)

- Inspected 6/22/87 at 2055 hours and 6/24/87 at 1300 hours.
- 60 inch CMP; non-bedded outlet, perched 2 feet above scour pool thalweg; inlet perched 8 inches above stream thalweg; approximate slope of culvert invert was 2 to 2½ %.
- Cross-check with permit authorizations indicated that the 60 inch CMP was suppose to have been installed at STATION 1081. The 11'5" by 7'3" pipe arch installed at STATION 1081 was suppose to have been installed in Darling Creek. A meeting was requested with Ron Davenau, ADOT&PF Maintenance Supervisor, and Mr. Adams, ADOT&PF Project Supervisor, on 6/26/87 at 1000 hours to discuss the permit non-compliance. ADOT&PF acknowledged that a "station bust" had occurred. Several options were suggested by ADOT&PF to correct the non-compliance:

    1. rechannelization of Darling Creek to STATION 1081 (Pipe Arch).
    2. Removal of the 60 inch CMP and replacement with the permitted pipe arch.
    3. Other various combinations of CMP's.

Townsend and McLean denied further consideration of Option #1, citing loss of downstream fish habitat, inadequate hydraulic capacity for the combined flow of the two drainage areas, and unacceptable velocities for

fish passage. Davenau and Adams agreed to replace the 60 inch CMP with a pipe arch; however, it was determined that the only available 11'5" by 7'3" pipe arch was located in Nebraska and would cost approximately $100K to obtain. Davenau and Adams requested that consideration be given to other alternative CMP combinations. Numerous options were considered and hydraulicly modelled utilizing ADOT&PF Environmental's computer modelling program (via phone link to Fairbanks). An experimental twin 60 inch CMP culvert battery was approved subject to the following express understandings:

1. The remedial authorization was experimental;

2. The experimental prototype would be evaluated by ADF&G for 2 to 3 years; and

3. If the experimental prototype was ultimately determined inadequate for fish passage, it would be replaced with the originally permitted 11'5" by 7'3" pipe arch during construction of the next adjoining road project segment (FY 90-91?).

A schematic diagram of the approved experimental culvert battery is depicted in Enclosure 4.

° Approximately 24 small Arctic char were observed at the culvert outlet by Townsend and McLean. Approximately 12 to 15 Arctic char (2" to 3") and one 6" Arctic char were observed at culvert inlet.

STATION 1081

° Inspected 6/22/87 at 2055 hours

° 11'5" by 7'3" Pipe arch installed instead of the permitted 60 inch CMP. Drains small muskeg area. Installed pipe in excess of fish passage requirements.

° Two small Arctic grayling and three small Arctic char observed by Townsend and McLean at culvert inlet.

DAVID CREEK

° Inspected 6/22/87 by 2122 hours.

° Same culvert in place as in 1986.

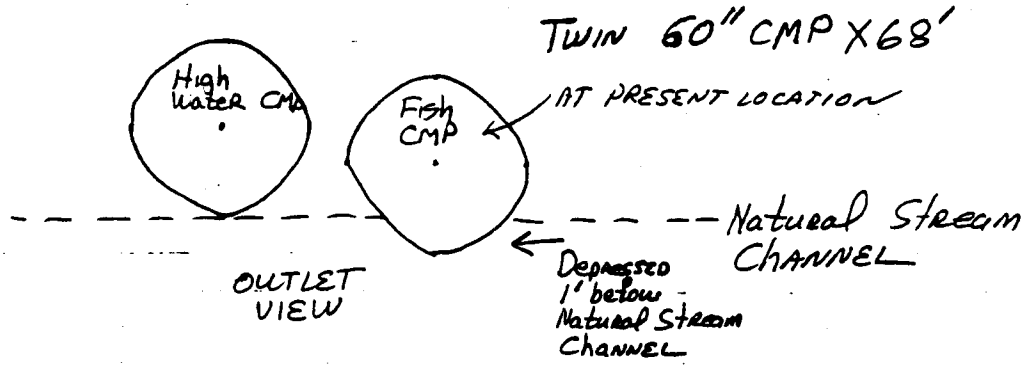
- Timber which was partially blocking the culvert inlet in 1986 was gone.
- Inlet contraction was resulting in an approximate 2 foot high headwall.
- Outlet invert perched approximately 18 to 24" above stream thalweg.
- Inlet armor beginning to fail.

SAMPSON CREEK

- Inspected 6/24/87.
- Approximate 12 foot pipe arch; highway fill 15 to 20 foot deep.
- Culvert inlet and outlet set well; stream cobble present in culvert barrel; Class II riprap well placed in culvert.

ENCLOSURE #4

DARLING CREEK STATION 1084+40
AOF#6 6/25/87 AUTHORIZED RETROFIT
AHT & MAC



DARLING CREEK

HYDROLOGY
$Q_{1.25}$ = 33 cfs
$Q_{2.33}$ = 54 cfs
Q_5 = 66 cfs
Q_{50} = 165 cfs
Q_{100} = 210 cfs

Hydraulics (TWIN 60" CMP w/1 buried 1 foot below thalweg)
2.8 fps
2.9 fps Depth of Flow 2.0'
3.4 fps
Depth of Flow 3.2'

SPECIFICATIONS
Both 60" CMP set @ stream gradient not to exceed 0.5%
One CMP set 1 foot below thalweg
ONE CMP set @ thalweg
Baffle system installed in fish passage CMP (depressed invert) consisting of rebar baffles with hand placed CLASS II RIPRAP set in each notch.