

Penstock Break and Repair Daily Logs

June 25—August 20, 2001

Prepared By:
D.G. Jones/Associates
P.O. Box 2186
Sitka, Alaska 99835
(907) 747-7998
Fax: 747-7997

**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 1 of 1**

22 June 01

Weather

Temp: mid 60's **Wind:** <10 mph **Precipitation:**

Activities:

The top of the penstock between the Stratton Library and Lincoln Street burst in the mid-afternoon. The CBS Public Works crew, SJC Maintenance crew, and D.G.Jones/Associates closed the Indian River flume inlet structure, blinded the trash rack at the penstock intake with reinforced plastic, removed damaged sidewalk, and cleaned up gravel in Lincoln Street.

Other Tasks Performed:

Pictures: SJC Professor Glen Robinson got some photos before we arrived.

Comments:

A large vinyl coated cushion (it looked like it might be from the back of a weight-lifting bench or something of that nature) was taken out of the penstock through the hole in the top where a wood stave came out.

Project Manager: Dan Jones

**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 1 of 1**

23 June 01

Weather

Temp: mid 60's **Wind:** <10 mph **Precipitation:** sunny

Activities:

The SJC Hatchery crew cleaned gravel and wood chips (from the CBS playground between the Hatchery and the tennis courts) out of the hatchery run ways and removed the hatch on the turbine casing.

Other Tasks Performed:

Pictures: none.

Comments:

Because the entrance to the turbine is higher than the penstock, could not inspect the penstock from the inside. The turbine gates and vanes were heavily clogged with debris that has been restricting flow through it, and causing high pressure in the penstock.

Project Manager: Dan Jones

**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 1 of 5**

25 June 01

Weather

Temp: mid 60's **Wind:** <10 mph **Precipitation:** sunny

Activities:

Surveyed the penstock damage to determine how much work is required to repair it, and what repair materials are onsite. SJC has spare staves from a past repair, but no bands.

Other Tasks Performed:

Pictures:



Location
photo from
Lincoln
Street
looking

approximately East

Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003

Project Management Report
Page 2 of 5

25 June 01

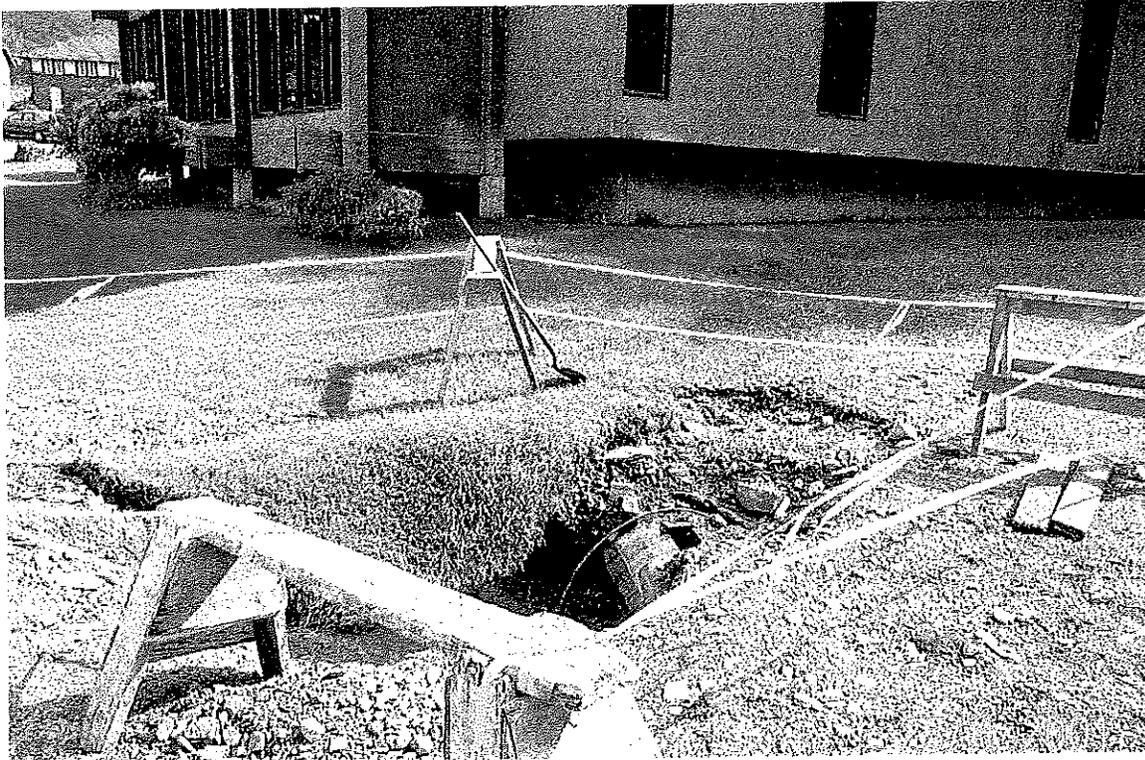


Top of penstock showing one of the broken staves, and one of the broken bands

**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 3 of 5**

25 June 01



Closeup of penstock, additional broken staves below water level.

Comments:

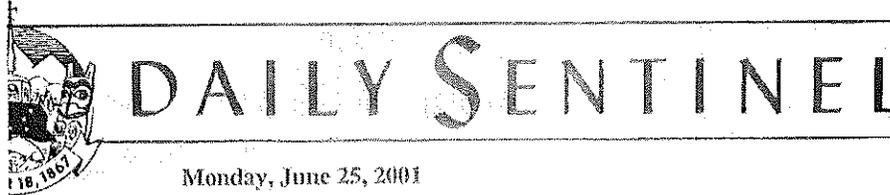
Prepared a memo to Stuart Denslow regarding possible cause(s) of the break and indicating that, in addition to repairing the break, the runner in the Sage hydro turbine should be removed to reduce backpressure in the penstock.

Professor Robinson's photos were in today's Daily Sitka Sentinel. A scanned copy is attached.

Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003

Project Management Report
Page 4 of 4

25 June 01



Sheldon Jackson College volunteer Glen Robinson had his camera handy when the SJC hatchery water line burst Friday afternoon. In the below

photo, bystanders gather as city crews and SJC maintenance workers arrive to assess the damage. (Photos by Glen Robinson and James Poulson)

**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 4 of 5**

25 June 01

Project Manager: Dan Jones

D.G. JONES/ASSOCIATES

ENGINEERING INSPECTION CONSTRUCTION MANAGEMENT

25 June 2001

Dr. Stuart Denslow, Land and Facilities Director
Sheldon Jackson College
801 Lincoln Street
Sitka, Alaska 99835

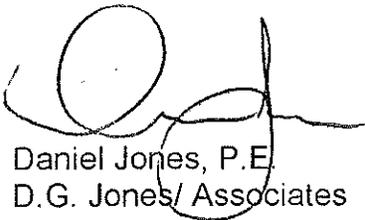
Subject: Penstock Break
Proposed Scope of Repair

Stuart,

Saturday and today we surveyed the penstock and related facilities to determine what work needs to be done to put the system back into service. An adequate stock of wood staves was located in the storage above the oil tank north of the laundry, but there are apparently no bands onsite. Buzz Ichman and Jack Ozment had heard from some source that the wood staves now on hand were left over from a repair quite a few years ago, and that at that time bands had to be fabricated locally because none arrived for the repair.

In addition to repairing the penstock itself, we recommend that the flow probe ordered some years ago be installed, and that the Sage hydro turbine runner (internals) be removed from the casing.

The flow probe should be installed now because of the convenience of making the installation while the penstock is empty, but the removal of the hydro turbine runner should be considered an integral part of the scope of repair and prevention of another penstock break. It appears that the debris that collects on the turbine runner while it is locked creates a significant backpressure on the penstock that would not exist if the turbine were operating.



Daniel Jones, P.E.
D.G. Jones/ Associates

file: 01054

**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 1 of 1**

3 July 01

Weather

Temp: mid 60's **Wind:** <10 mph **Precipitation:** sunny

Activities:

The Del Company surveyed the Leffell turbine to determine method and timing for removal of the turbine runner to prevent future high-pressure episodes in the penstock due to plugging of the turbine gates.

Other Tasks Performed:

Pictures: none.

Copied the original Leffell drawings for use on the project site.

Discussed removal of the turbine runner with Anderes Dyngre of The James Leffell & Co. He warned that if the runner is removed the four 1" (his estimate of diameter without looking at the drawings) x 3-4' long rods that run from the top to the bottom of the turbine casing have to be put back in to keep the casing from expanding vertically under pressure. The rods are not obvious from the drawings, but he indicated that they will be obvious inside the casing.

Comments:

The penstock repair bands and splice plate materials are expected in Sitka Wednesday night.

Project Manager: Dan Jones

**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 1 of 3**

9 July 01

Weather

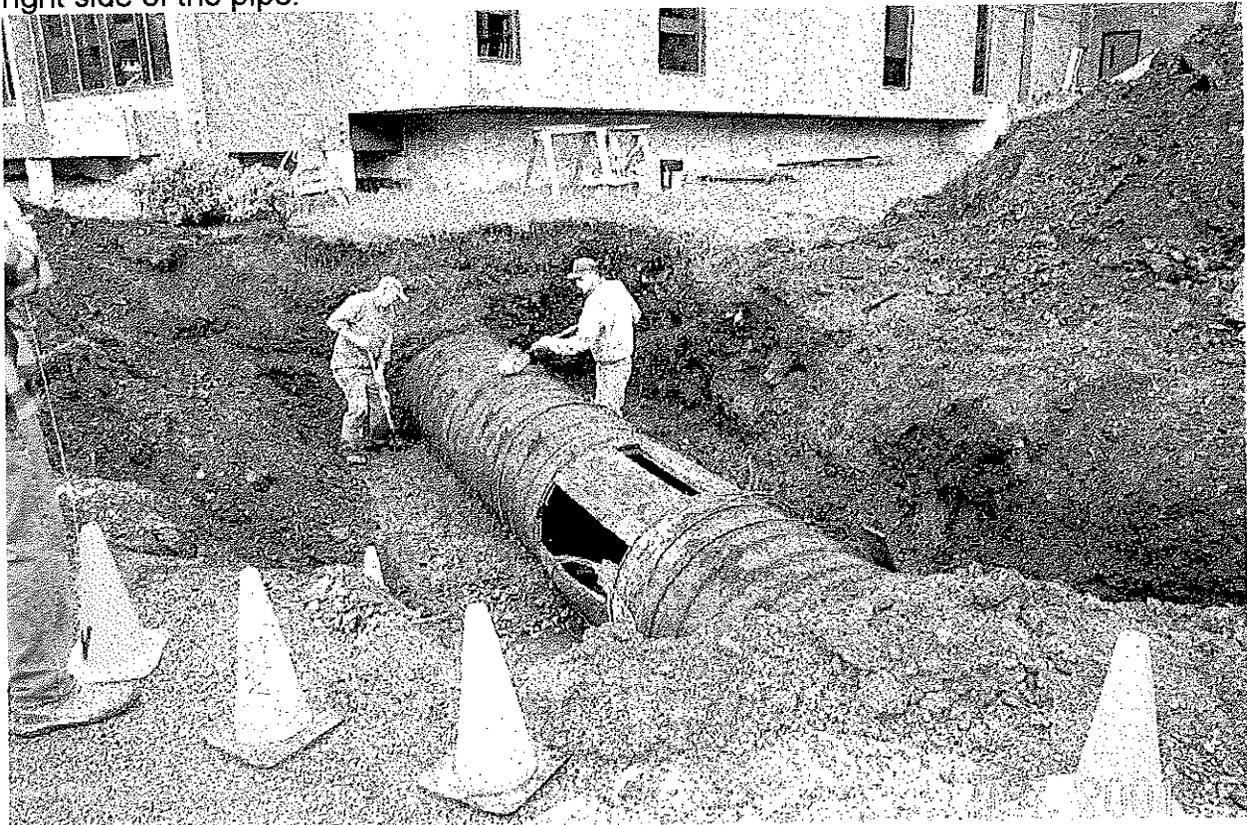
Temp: mid 60's **Wind:** <10 mph **Precipitation:** cloudy/showers

Activities:

The Del Company pumped the water out of the pipe and ditch at the break and opened the ditch to expose the 42" wood stave pipe on both sides back to under the library roof. In the process they exposed some apparently contaminated soil that was stockpiled separately. They also exposed the power cable under the wood stave pipe that was not in conduit on the west side (just bare wire buried in the ground).

Other Tasks Performed:

Pictures: 42" wood staved water line exposed with contaminated soil in the ditch on the right side of the pipe.



**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 2 of 3**

9 July 01

Pictures (Cont.): Interior of the 42" wood stave pipe upstream from the break.



Comments:

The penstock repair bands and splice plate materials were at Alaska Airlines Air Freight this morning and were picked up by Del Company.

Del Company pumped the pipe and ditch dry at the break and excavated/exposed the pipe on both sides of the break.

They found the power cable under the wood stave pipe and had the City power company come by to check it out. The City said it was a live line, even though it was not in conduit on the west side of the pipe and said to use extreme care working around the direct buried power cable.

**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 3 of 3**

9 July 01

Contaminated soil was found on the east side of the wood stave pipe and was stockpiled beside the ditch.

Dan Jones duck-walked the inside of the pipe upstream to the inlet and downstream to under the pavement (where the water was getting to deep). There was a significant accumulation of gravel and other debris downstream of the break. Otherwise, the interior of the wood pipe looked good the entire way, with just some light slim build-up and the grain of the wood raised by contact with the running water. The accumulation of gravel and debris in the lower end of the pipe is likely due to the backpressure in the pipe caused by flow having to travel through the locked rotor of the hydro turbine.

The Del Company determined that removal of the turbine rotor is beyond their capabilities, and S&S General Contractors was contracted to do this portion of the work.

Project Manager: Dan Jones and Ken Hammons

**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 1 of 3**

10 July 01

Weather

Temp: low 60's **Wind:** <10 mph **Precipitation:** cloudy/showers

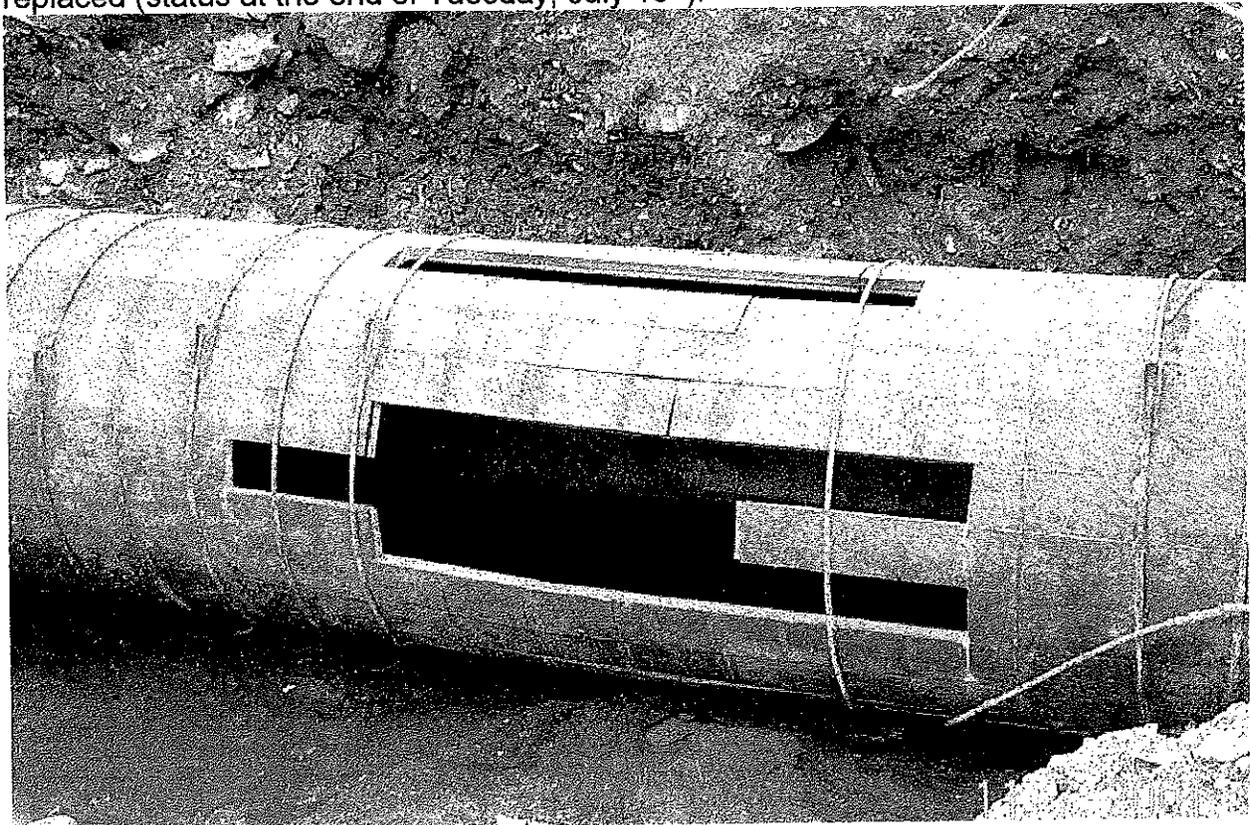
Activities:

The Del Company cleared the ditch, cleaned the wood stave pipe, exposed the power cable under the pipe, and covered the contaminated soil with visqueen.

S&S came to the site in the afternoon and began taking the turbine and generator apart for removal from the 42" line.

Other Tasks Performed:

Pictures: The 42" wood stave pipe with the broken staves cut out and ready to be replaced (status at the end of Tuesday, July 10th).

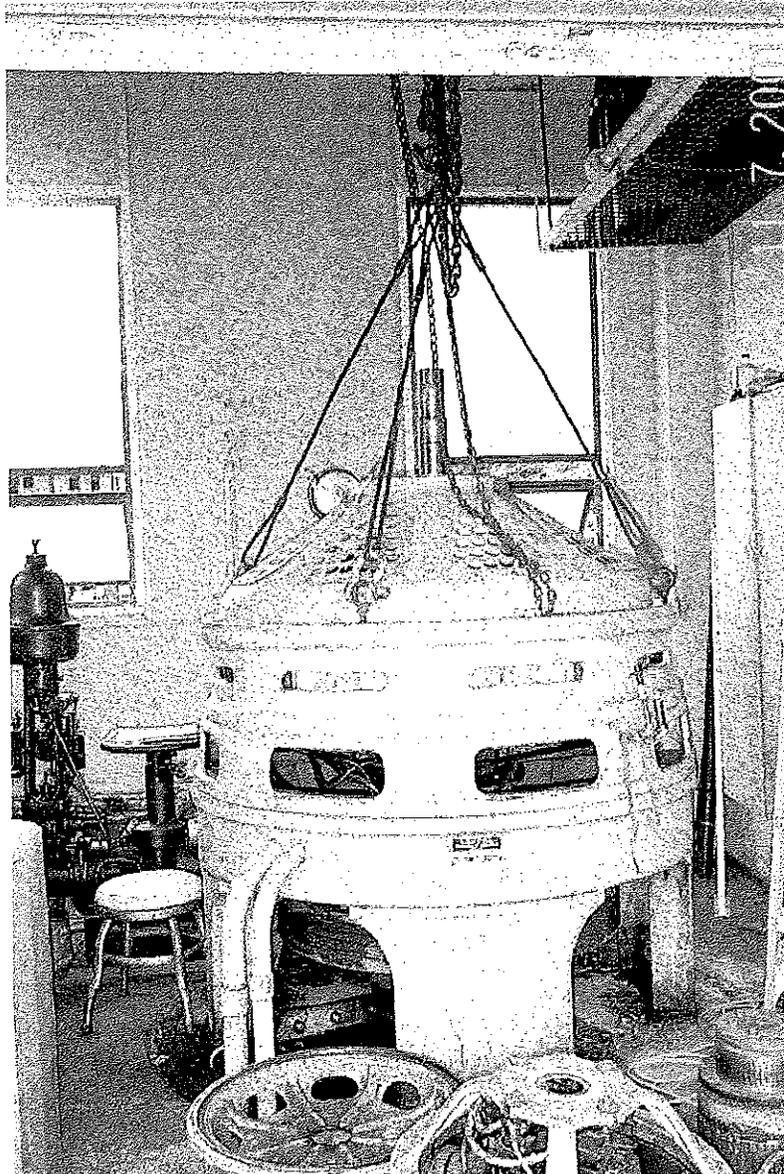


**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 2 of 3**

10 July 01

Pictures (Cont.):



The generator rigged for removal with the exciter already on the floor (status at the end of Tuesday, July 10th).

**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 3 of 3**

10 July 01

Comments:

Del Company pumped the ditch and collected oil sheen from the ditch and the pile with absorbent pads. They put together a collection system for the water pumped from the ditch to remove the oil sheen using a 55-gallon drum and absorbent pads.

The cleaned out the cracks in the wood staves and made clean cuts in the broken staves to facilitate repairs.

S&S came to the project after lunch and started working on the generator and turbine removal.

Project Manager: Dan Jones and Ken Hammons

**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 1 of 3**

11 July 01

Weather

Temp: low 60's **Wind:** <10 mph **Precipitation:** cloudy/showers

Activities:

The Del Company repaired the 42" wood stave pipe.

S&S removed the turbine and generator.

Other Tasks Performed:

Pictures: The 42" wood stave pipe with the repairs made to the lower broken staves and preparations being made to repair the last broken/missing stave.

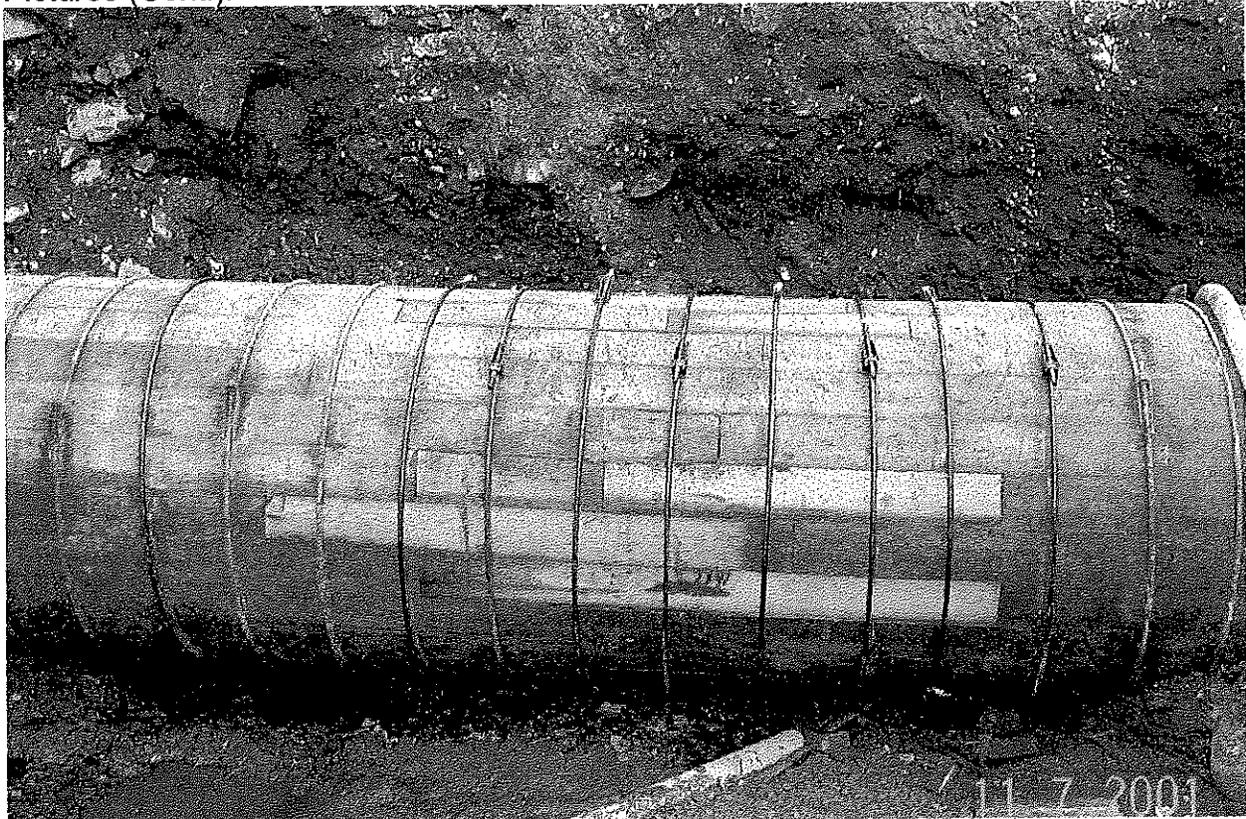


**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 2 of 3**

11 July 01

Pictures (Cont.):



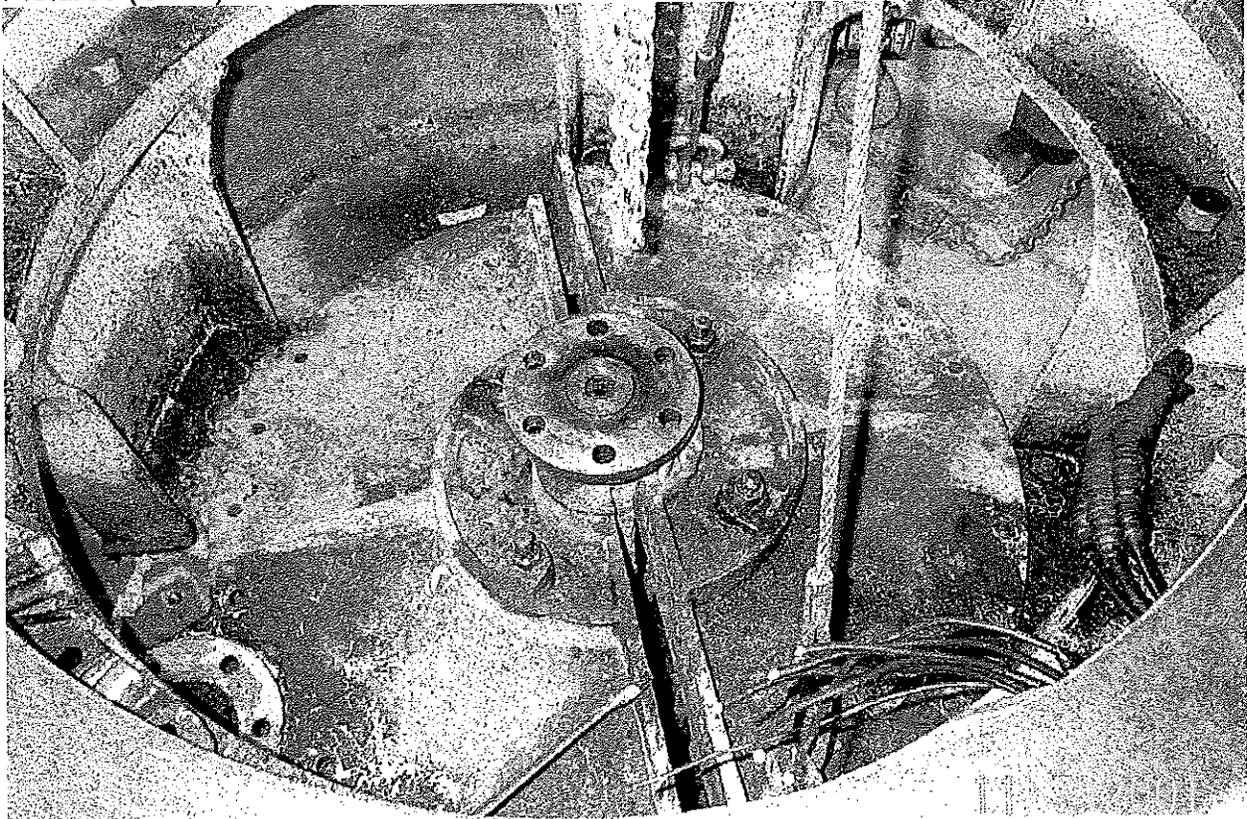
The repaired 42" wood stave pipe. Note the new (black) bands and clean wood staves and black caulk in the repaired areas of the pipe.

**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 3 of 3**

11 July 01

Pictures (Cont.):



Preparing to remove the cap and the turbine with the drive shaft in the center of the picture.

Comments:

Del Company repaired the broken staves in the 42" line.

S&S removed the generator and the turbine and then replaced the cap over the vault/turbine housing.

Project Manager: Dan Jones and Ken Hammons

**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 1 of 2**

12 July 01

Weather

Temp: high 50's **Wind:** <10 mph **Precipitation:** cloudy/showers

Activities:

The Del Company placed and compacted D1 around the 42" wood stave pipe, drilled the pipe and installed the saddle, flow meter, and meter box and cleaned up around the site.

Other Tasks Performed:

Pictures: The 42" wood stave pipe covered with D1 and the flow meter box in the back of the ditch over the wood stave pipe.

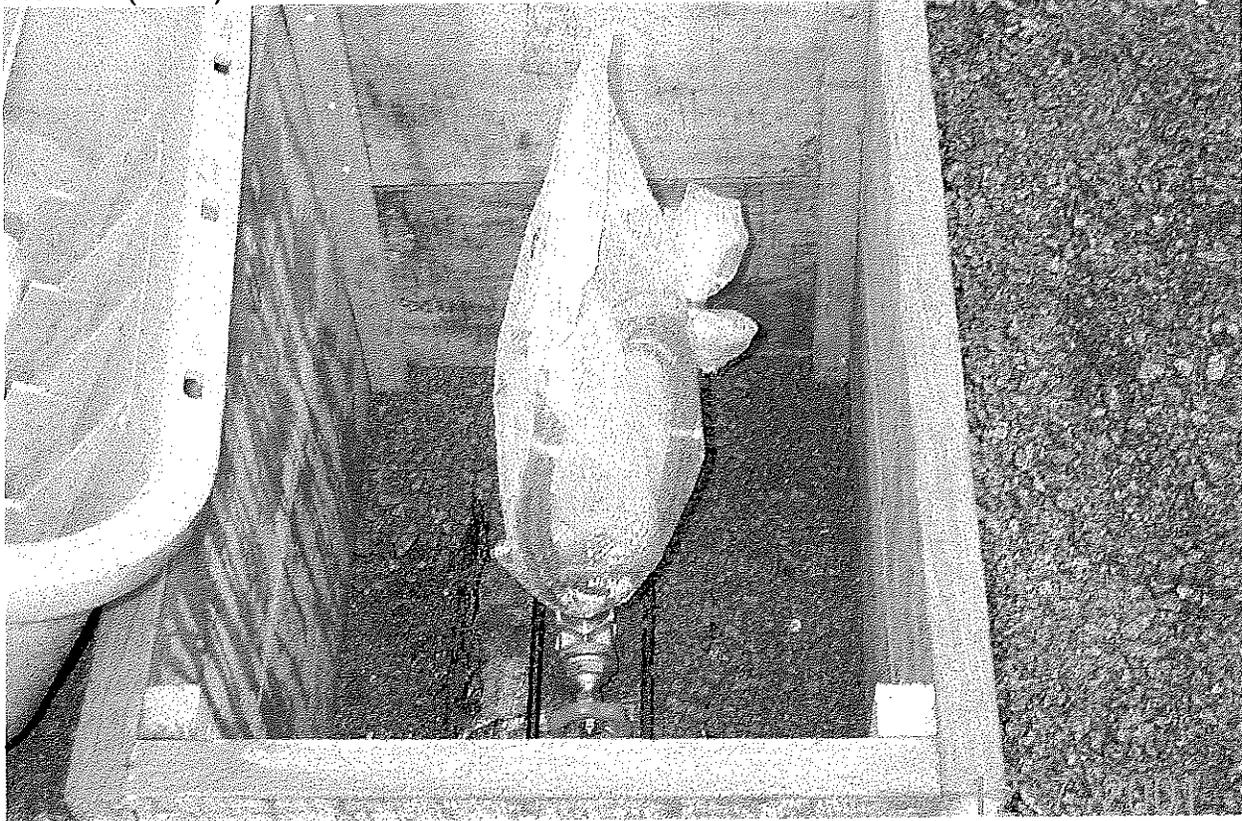


**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 2 of 2**

12 July 01

Pictures (Cont.):



Flow Meter and saddle installed over the 42" wood stave pipe.

Comments:

Del Company buried the 42" wood stave pipe and installed the flow meter.

S&S put the generator and exciter back in the building and left the turbine/runner outside to be sent south to James Leffel Company for rebuilding under another project. They had to cut the 4 long bolts that hold the Turbine/runner in place from the top, so those will have to be replaced by James Leffel Company when they are rebuilding the turbine/runner. They were done by 1:30pm and closed the building and gate when they left.

Project Manager: Dan Jones and Ken Hammons

**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 1 of 2**

13 July 01

Weather

Temp: low 60's **Wind:** <10 mph **Precipitation:** cloudy/showers

Activities:

Del Company finished burying the 42" pipe and put a 6" lift of compacted D1 over it before pouring a 6" slab of concrete over the pipe to protect it from traffic. They also excavated contaminated soil adjacent to the pipe ditch for samples collected by Dan Jones.

Other Tasks Performed:

Pictures: The concrete is installed over the 42" wood stave pipe, with 6" of D1 over the top of the pipe before the 6" concrete slab was installed. Note the flow meter box for the pipe beyond the concrete slab.



**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 2 of 2**

13 July 01

Comments:

Del Company finished burying the 42" wood stave pipe, put a 6" lift of D1 over it, and then installed a 6" concrete slab over the D1 to protect the wood stave pipe. They also excavated some contaminated soil from the east side of the area excavated to repair the wood stave pipe so Dan Jones could collect some samples to send off to the lab for testing.

Ken talked with Stuart Denslow and told him there was water in the pipe and that it was going to run free for the weekend. The valve in the fisheries building will be closed some on Monday to fill the 42" wood stave pipe.

Project Manager: Dan Jones and Ken Hammons

**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 1 of 2**

17 and 20 August 01

Weather

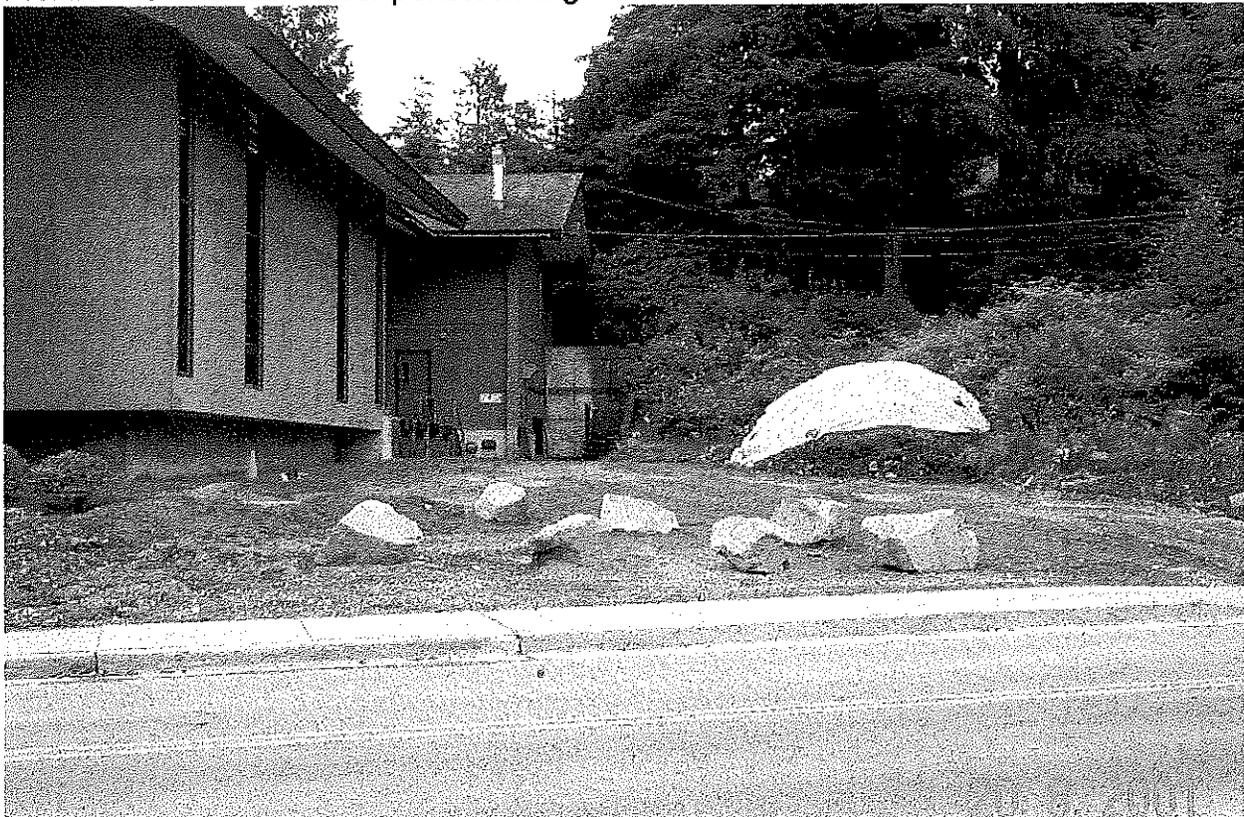
Temp: low 60's **Wind:** <10 mph **Precipitation:** cloudy/showers

Activities:

Del Company cleaned up and re-graded the site after completion of the sidewalk work late last month.

Other Tasks Performed:

Pictures: Guard rocks over penstock alignment.



**Sheldon Jackson College
Sage Hydro Penstock Repair
Saint Paul Insurance Claim CK08403010 09T003**

**Project Management Report
Page 2 of 2**

17 and 20 August 01

Pictures: (Cont.) Replaced sidewalk, in use.



Comments:

Rennie's Concrete formed and placed new sidewalk where the original was undermined by the running water. Formwork was done late the week of 23 July, and the concrete was placed on Tuesday 31 July. The driveway for access to the rear of Stratton Library was moved slightly south from its previous location and made more narrow, in order to keep delivery vehicle off of the penstock.

Del Company cleaned up and re-graded the site today.

Project Manager: Dan Jones and Ken Hammons

STATE OF ALASKA

FRANK H. MURKOWSKI, GOVERNOR

410 Willoughby Ave., Ste 303

Juneau, AK 99801-1795

PHONE: (907) 465-5340

FAX: (907) 465-2237

<http://www.state.ak.us/dec/home.htm>

**DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
PREVENTION AND EMERGENCY RESPONSE PROGRAM
SOUTHEAST ALASKA RESPONSE TEAM**

December 17, 2002

C. Carlyle Haaland, President
Sheldon Jackson College
801 Lincoln Street
Sitka, AK 99835

Dear President Haaland:

In a letter dated September 19, 2001 I asked for several questions to be answered relating to an oil pollution incident that occurred July 13, 2001 on college property. This pollution incident began while repairing a rupture in the college hatchery's penstock line.

On August 20, 2002 you sent me a letter saying you had requested a report on this incident and the report would be forwarded when completed. If the report is not yet ready would you please provide a date that you expect it to be ready.

As noted in my first letter, D. G. Jones Associates responded to this incident on behalf of the college. If a report of their activities and findings was prepared would you be so kind as to forward a copy to me.

If you have any questions please feel free to call me. My direct number is (907) 465-5378.

Sincerely,


Scot W. Tiernan
Project Manager

D.G.JONES/ASSOCIATES

Civil and Environmental Engineering
Construction Management
Environmental Planning

11 February 2003

Mr. Scot W. Tiernan, Project Manager
Alaska Department of Environmental Conservation
410 Willoughby Avenue, Suite 303
Juneau, Alaska 99801-1795

Subject: Sheldon Jackson College Contaminated Soil at Penstock
Spill Number 01-11-99-194-01

Mr. Tiernan,

Thank you for your time on the telephone yesterday discussing the current status of this contaminated soil.

Referring first to your letter of 19 September 2001, we offer the following answers to your questions of that date:

Where is the contaminated soil now located?- The soil is stockpiled just west of the penstock alignment where it was found, and south of the Stratton Library. It was not placed on a membrane, but was covered with reinforced plastic. An inspection today found that the plastic cover is currently displaced and there are weeds growing out of portions of the pile, but found no signs of leaching of contamination onto the adjacent ground. See the photo below.



P.O. Box 2186, Sitka, Alaska 99835
www.dgjonesassociates.com
(907) 747-7998 Fax: (907) 747-7997

“Have arrangements been made to either treat the contaminated soil or transfer it of an approved facility for remediation?”- Based on fiscal restraints, no action has been taken on the soil removed, or with regard to the likelihood that additional contaminated soil remains in the ground.

“Was the source of the oil ever located?”- The source was not located, but was presumed to be from tankage or piping used in the early years of the campus. The property upgradient from the discovery location is all owned by Sheldon Jackson College.

“Has there been any additional pollution found at this site or adjacent sites by the college faculty, staff, or other persons?”- No additional contaminated soil has been found on the campus since the original report.

With regard to the report promised by Dr. Haaland in August 2002, information available beyond the initial spill report is as follows:

Amount of soil removed- Approximately 30 CY. This amount was removed in order to complete the work under which the discovery was made, and represents only a fraction of the material that is presumed to remain in place.

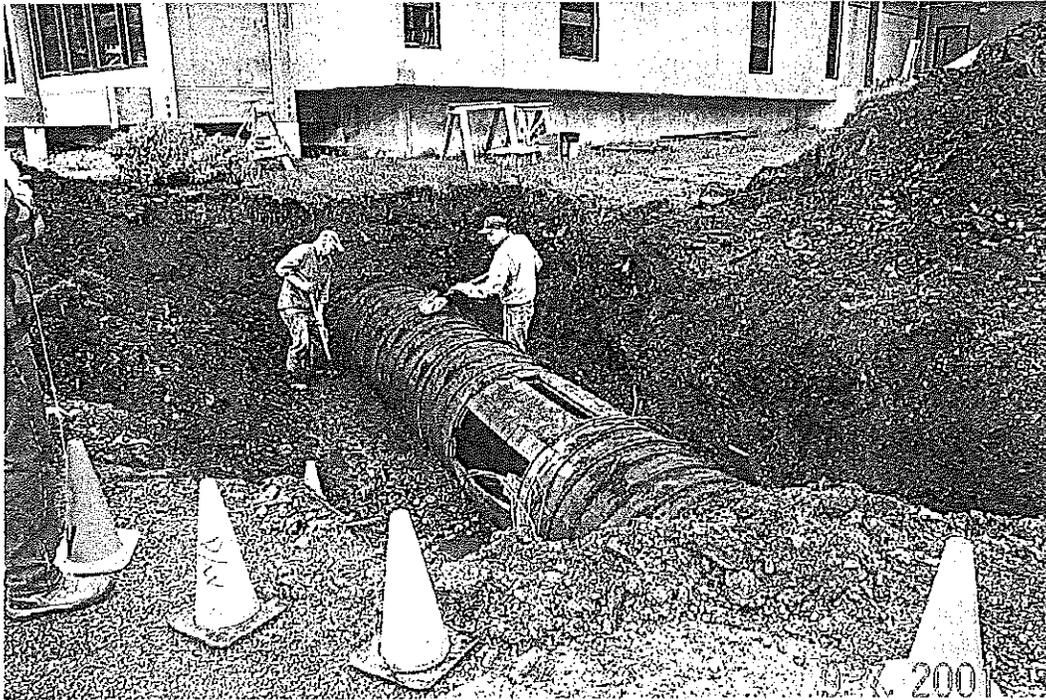
Source and cause of spill- Still unknown.

Surface area affected- Still unknown.

Surface area type- Gravel parking area and drive.

Additional information- On 13 July 2001 a sample of the contaminated soil was field screened using a MiniRae 2000 PID, obtaining a 78ppm reading. This sample was shipped to and tested by Friedman and Bruya of Seattle Washington. Friedman and Bruya reported that the sample was a middle distillate such as diesel fuel #2 or heating oil, and from a release which occurred a minimum of 10 years prior to sampling. A copy of the letter report for this sample is attached.

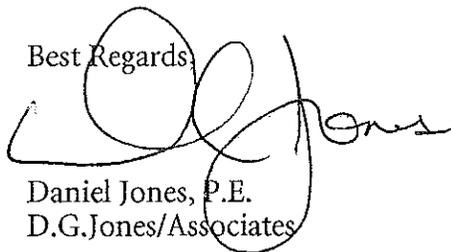
A photo of the penstock excavation indicating the extent of excavation done at that time follows on the next page.



Although Sheldon Jackson College would like to complete the investigation and remediation of this spill, the fiscal restraints which prevented immediate action in 2001 are still in effect. Beyond providing this report of the current status, the College has not directed us to take any other action at this time. While the College pursues a Brownfield grant or other funding to make the required cleanup, we assume that the Department will transfer administration of this reported spill to the Contaminated Sites division of the Department, for future follow-up.

Thank you for your continued concern and assistance with regard to this topic.

Best Regards,



Daniel Jones, P.E.
D.G.Jones/Associates

cc: Dr. C. Carlyle Haaland, SJC
Dr. Stuart Denslow, SJC

file: 03020

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

July 23, 2001

Daniel G. Jones, Project Manager
D.G. Jones/Associates
P.O. Box 2186
Sitka, AK 99835

Dear Mr. Jones:

Included are the results from the testing of material submitted on July 17, 2001 from your #01059 project. The soil sample submitted for forensic evaluation arrived in good condition. Upon its arrival, the sample "SJC01059-01" was assigned our laboratory project number 107063 and was placed in a refrigerator maintained at 4°C until removed for sample processing.

The sample "SJC01059-01" was extracted and analyzed using a gas chromatograph with a flame ionization detector (GC/FID) and an electron capture detector (ECD). The data generated yielded information on the boiling range and general chemical composition of the material present. The GC/FID and GC/ECD traces are enclosed. A GC/FID trace of a standard consisting of normal alkanes is also provided for reference purposes.

Based on the GC/FID/ECD analysis, the material present in the sample "SJC01059-01" is consistent with a middle distillate such as diesel fuel #2 or heating oil. The general chemical composition of this fuel indicates that it has undergone substantial biological degradation. Under typical site conditions, the level of degradation seen is typical for releases that occurred a minimum of 10 or more years ago.

Please contact us if additional consultation is needed by our firm in the interpretation of the analytical results provided. We appreciate this opportunity to be of service to you and hope you will call if you should have any questions. We will hold your samples for 30 days before disposal unless directed otherwise.

Sincerely,

FRIEDMAN & BRUYA, INC.



Kurt Johnson
Chemist

Enclosures
NAA0723R.DOC

D.G. JONES/ASSOCIATES

Civil and Environmental Engineering
Construction Management
Environmental Planning

31 January 2003

Dr. Stuart Denslow, Land and Facilities Director
Sheldon Jackson College
Sitka, Alaska 99835

Transmitted by Fax

Subject: Reply to ADEC Inquiry about Contaminated Soil at Stratton Library

Stu,

I haven't forgotten about this, just keep getting drawn off into other items that come up. I will try to get it done today.

Thanks,

Dan

file: 02004

P.O. Box 2186, Sitka, Alaska 99835
www.dgjonesassociates.com
(907) 747-7998 Fax: (907) 747-7997