



TANANA CHIEFS CONFERENCE

Health Services – Remote Maintenance Worker

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DATE: August 20, 2012
FROM: Arlo Garrison Bante, Remote Maintenance Worker
SUBJECT: Travel Report, Stevens Village, Alaska
TO: Travis Monson, TCC RMW Program Manager, TCC OEH
Project #: 05042 **Task #:** 07692 **Award #:** 002802

From	To	Date	Departure	Arrival	Airline
Fairbanks	Stevens Village	8-15-12	2:40 pm	3:30 pm	Warbelows
Stevens Village	Fairbanks	8-16-12	4:15 pm	5:00 pm	Warbelows

OBJECTIVES:

Accompanied the Village Safe Water engineer to Stevens Village and introduced him to the water treatment system and operator to inspect the lift station piping and do the necessary repairs.

CONTACTS:

Mr. Prashant Kc, Village Safe Water engineer.
Mr. Henry Smoke, Stevens Village water plant operator.
Mr. William Tritt, Warbelow's agent.

FINDINGS & ACCOMPLISHMENTS:

On Thursday August 2, I received an email from Mr. Prashant Kc stating that he was the new project engineer for Stevens Village. I called Mr. Prashant Kc at his office and we discussed the upgrade project situation at the Stevens Village water treatment plant. Mr. Prashant Kc stated he wanted to go to Stevens Village visit the water plant and inspect the first phase of the upgrade to the water plant made by past Village Safe Water engineers and Summit Construction. I had prior commitments with other villages and was not able to make a trip with Prashant to Stevens Village. We postponed the trip until August 22. Before leaving for Stevens Village I talked with Mr. Patrick McAree about the sewage lift station. He stated that piping between the lift station and utility door had a kink in it and slowed down the sewage going to the lagoon. Before leaving for Stevens Village I tried calling the operator and council office with no response. I made the trip because I had no contact with the operator and I wanted to do a site inspection of the plant.

On August 15, Mr. Prashant Kc from VSW and I landed in Stevens Village and got a ride to the water plant by the Warbelows agent Mr. William Tritt. We stopped at the operator's house and found that he was able to work with us. When we arrived at the water plant we inspected the lift station and found the kinked hose Pat McAree was talking about. We turned on the lift station pumps and after some adjustment to the pipe I had the transmission line working. While we were in the lift station building we performed some flow tests with the backwash pump. When the low level float turned the lift station pumps off we started the backwashing and timed how long it would take the waste water to fill up the wet well. It took 1 minute 12 seconds to turn on the lift station pumps and 2 minutes 40 seconds for the alarm to come on. After the alarm came on we turned off the lift station pump and it took 4 minutes 30 seconds to pump the waste water out of the lift station for the float to turn off the pumps. The pump is not sitting directly on the ground and is 8 inches below the lip of the station I calculated that 254 gallons of waste water remains in the lift station. The blue prints in my office calculate that a proper back wash needs 10 minutes at 145 gpm equaling 1450 gallon of water. If it take 2 minutes 40 seconds for the alarm to sound for 254 gallons of backwash water to flow and the operator has to wait 4 minutes 30 seconds for the pumps to get back down to the low level cut off then the operator would have to do this 5.7 times before he had a proper backwash.

The existing lift station building has a transmission line of potable water piped to the school that needs to be moved out of the lift station because of possible cross connection. The potable water line to the school can be inside the same utility door as the sewage line when it's higher than the sewage line. The drain pipe from the council office is at a lower elevation then the inlet sewage line into the new lift station that is being constructed. This drain line needs to be cut back until the drain pipe is at the proper elevation to allow for drainage into the new lift station.

The upgrades to the water plant address the original problem with the settling tank possibly falling through the building, but new problems have emerged. The old settling tank was taken out and re-piped to the potable water tank that is now the settling tank. The potable water was piped to temporary containers that hold 3600 gallons of water. The new settling tank has many obstacles that make it difficult to access for cleaning. The walls are too close to access and the operator needs to maneuver around pipes, pumps and the oil Pre-Way heating stove which is useless and needs to be removed. Talking with Mr. Prashant Kc he stated that a door will be

installed next to the tank to ease access to the tank. When the operator wants to clean the tank he is fearful of getting hurt inside the tank because rust is eating the bottom of the tank. This tank could use a potable water epoxy spray on sealant. If the tank needs cleaning the operator will be getting into a confined space because there is only one access door on the top of the tank. Mr. Patrick McAree and I propose and recommend that the top of the new settling tank be taken off for the operator's safety. It is necessary to clean at least the bottom of the tank because sediment from the tank will affect the pumps performance. Over time grime will collect in the pump's volute causing performance problems. Stevens Village has financial issues and buying a new pump will be a problem. Some possible solutions are connecting a 90 degree bend inside the tank and installing an inline Strainer. The drain valve for the tank needs to be re pipe because its currently not piped correctly. A ladder inside the settling tank is needed for entrance.

After the settling tank water is pumped into two filters. Both the multi media filter and the polishing filter need new differential pressure gauges because the ones that are there are not working. After the backwash the waste water is dumped into the catch basin that needs a p-trip because the operator has sewage gases going back into the water plant.

The building heat was only getting supplied by waste heat from the generator building. The water plant didn't have any fuel to operator the boilers. There are three boilers and only two are functional and the middle boiler is too close to the other boilers making it hard to clean. Prashant and I discovered a cross connection between the potable water and the boiler glycol system. This could not be repaired because of the lack of parts, but there are three closed valves and a backflow preventer to prevent the glycol going into the potable water. The building heater pumps only work manually. One set of pumps heats the clinic and council building, the next set heats the water plant and the last set are for the dryers. The dryer pumps run all the time but do not warm the dryers until money is put into them and a solenoid valve open heat to the dryer. Hot water to the shower comes from four elements. The main heater is the waste heat from the generator building, and then from the hot water generator has a heat exchanger coming from the boilers. Interior Regional Housing Authority installed a solar panel heat exchanger on the roof which adds about 10 degrees of heated hot water into the system. The hot water generator pipes water into the Toyo oil fired hot water generator and then is piped into the showers and sinks.

The new pad that is being built outside the water plant has some issues. The retaining wall is falling apart in the center of the wall and leaning out the new tanks hold 12,000 gallons of

water weighing 100,080 lbs alone with the tank and the weight of the lift station. Will this wall hold this amount of weight? I was not able to locate the geotechnical engineer report about the new pad. The insulation foam board was not properly jointed with the outside of the new lift station and has air movement down the lift station outside walls.

RECOMMENDATIONS/CONCLUSION

A handwritten signature in black ink that reads "Arlo Bante". The signature is written in a cursive style with a large, sweeping initial "A".

Arlo Bante

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