Water pump service provider
52 years of experience in Alaska

Interviewer
0:16
Hi. Is this [REDACTED – name]

Interviewee
0:18
Yes

Interviewer
0:19
Hi this is [REDACTED – name]. It's still an okay time to chat.

Interviewee
0:26
Sure

Interviewer
0:27
Okay, thank you. And is it okay if I record this conversation.

Interviewee
0:33
Thats fine.

Interviewer
0:33
Okay, thanks. Um, so I think, as was in the email, we are doing a project, trying to get a better understanding of groundwater supply treatment, use in rural Alaskan communities. And I got pointed in your direction because of your experience as a well driller and, I think, developing groundwater resources. In that context. So, Just so you know we we might eventually, you know, publish use some of our findings but whatever you tell me through this will be kept confidential. Your name won't be associated with it in the off chance but that is conceing for you.

Interviewee
1:32
Fine

Interviewer
1:33
Okay. So, um. Could you just tell me more about your professional experience and how long you've been doing that.

Interviewee
1:45
Okay, I've been a contractor for 52 years, eight two years old. Wow,

Interviewer
1:52
that's amazing.

Interviewee
1:53

We've got about 5300 wells statewide. We pretty much had a hold on, not hold on. We get most of the commercial or public wells that come out of Statewide, and currently there's not very much work construction around anchorage at all. And so we've gone after a lot of the village or bushwork, which is not always fun but there's a paycheck.

Interviewer
2:26
And so, why has work kind of slowed down in Anchorage is that related to COVID

Interviewee
2:34
cut back to about 40% of what it was. People are moving out.

Interviewer
2:38
Oh, okay, I see.

Interviewee
2:41
Strickly economic

Interviewer
2:43
Got it.

Interviewee
2:45
Versus the rest of the state bush Alaska, in particular, is not so badly affected. Now of course this is primarily when you might be interested I think the groundwater resources around the Ancorage that valley i have pretty well tied down could handle and probably one can say the same about the Fairbanks area

Interviewer
3:12
Right yeah

Interviewee
3:12
And the problem that you have when you start talking about bush Alaskan villages and all that you're talking about an area one third the size of the United States. All there variations in water sources and everything that you can imagine.

Interviewer
3:31
Yeah, it's a big area. I imagine getting equipment out there is challenging.

Interviewee
3:42
Expensive

Interviewer
3:42
Expensive. So, I guess, do you have much experience with groundwater that's contaminated with, like, arsenic, iron, manganese, kind of those naturally occurring contaminants,

Interviewee
3:58
Yeah those are those are the three worst enemies in Alaska

Interviewer
4:06
and why is that. Do you often know ahead of time where the contamination resides, or is it discovered after the fact.

Interviewee
4:16
Quite often We'll know, because most of these have got at least one well in or knowledge they're of trying to get the authorities to understand that and think up front is a different story.

Interviewer
4:31
And who are the authorities

Interviewee
4:32
I'll give you a for instance up in [REDACTED – community] we initially went in there as a subcontract to the [REDACTED – organization] who's got a ton of money that they've been putting out into bush Alaska in sewer and water development. We knew that the shallow water between 50 and 70 feet is high in arsenic and other issues, tried to tell them that. Because of the time of getting water samples in the town and tested. Well, you know, right after drawing before moving on to the next one. We just went ahead and drilled all five wells and then the water samples started coming in with 18 to 30 some parts per million arsenic, so they just elected to go back to the five wells pull the strings and deepen it, which we've done and now we've got good water gotten into the bedrock aquifer and solved the problem.

Interviewer
5:35
And so, you knew it was contaminated at that depth, because

Interviewee
5:40
I wouldn't use use the term contaminated, it's poor quality

Interviewer
5:43
poor quality.

Interviewee
5:45
We got, we got people drinking arsenic water with arsenic levels of 20% or 20 parts per million. And getting along okay even in the Fairbanks up hills. Out of Fairview, which of course is a gold mining district. So you got arsenic for sure you got arsenio pyrite dose of pyrite associated with the gold. So in the groundwater is going to have high arsenic, and there are families that have been living on higher arsenic water for generations.

Interviewer
6:28
So, yeah, okay. So, um, so the poor quality, do you, um, I guess, given your experience as a well driller, you know have a sense of correlating with anything geologically, hydrologically.

Interviewee
6:49
As i just mentioned and in Fairbanks that's given in any gold area around Nome For instance fatface Nome which is just beautiful, urban, suburban house lots. You know, you don't complete an unconsolidated sales of gravel you go down to bedrock. That polidarity was fine at one time. you've got heavy arsenic. And so you have. That's the one thing that you can tie to, if there's gold production in the area. They're going to have an arsenic problem.

Interviewer

7:26
Yeah. So how would you given you know the wide range of experiences you've had, particularly in bush Alaska, would you define success for a water supply project. What makes it successful.

Interviewee
7:50
Oh adequate yield and adequate or usable quality yield is rarely the issue.

Interviewer
8:00
Okay. And is this yield for community well, like for the whole community to access or yield for kind of individual household wells.

Interviewee
8:13
Most of bush Alaska are not community wells anymore. The problem is maintenance

Interviewer
8:21
of the community well,

Interviewee
8:22
Native Alaskans don't do maintenance. They run something until it breaks and then they cry for a new one.

Interviewer
8:30
And so the individual wells

Interviewee
8:33
And they are pretty successful about getting funding for new stuff that could have been repaired,

Interviewer
8:37
I see.

Interviewee
8:39
Obviously I'm prejudice with that. That's a straight fact.

Interviewer
8:44
Well, that's what I'm talking to you to get your perspective. And so do individual wells seem to require less maintenance than a larger community well, or is it just that it gets like overall less use per Well,

Interviewee
8:58
i don't know that one can draw that conclusion, I would think so because okay yeah actually yes because community wells now we're talking about water lines and valving and all that sort of thing and that's where the maintenance problems usually come about not the well itself,

Interviewer
9:19
I see. So the closer you have it to someone's house, the fewer kind of parts that can fail.

Interviewee
9:27

Yep

Interviewer
9:31
And do you have a sense about why groundwater is used over surface water sources, often in these locations.

Interviewee
9:42
Well surface water now you're talking extensive treatment so there now you're back into maintenance steps of mechanical plumbing etc etc. Plus, I can't think of a other than Anchorage see Fairbanks have public walls, other than Anchorage there aren't very many surface source systems.

Interviewer
10:17
Okay, for all of the state

Interviewee
10:20
for the whole state. Yeah.

Interviewer
10:24
And do you have a

Interviewee
10:26
bear in mind.

Interviewee
10:30
70% of the state is subject of 30 to 50 below in the winner.

Interviewer
10:35
Right.

Interviewer
10:37
Right. So groundwaters stays the uniform temperature.

Interviewee
10:41
You betcha. That's a significant factor as far as piping and all that sort of thing.

Interviewee
10:47
Yeah.

Interviewer
10:49
Do you have any sense that, like thawing of permafrost might affect groundwater supply groundwater quality.

Interviewee
11:01
No,

Interviewer
11:02

no.

Interviewee
11:02
Generally speaking, no, if you've got to add, number one, you don't complete on the permafrost you complete all the permafrost, and you set a good ground plug, etc. Not saying that it has not been a problem, by and large, okay.

Interviewer
11:23
So besides kind of yield for the water supply sources. Are there any other kind of factors that you feel like are matter for, um, no water supply, treatment, use of water, success of a water system in rural Alaska

Interviewee
11:51
I think there has been a real improvement last decade, is what we call under the counter treatment systems so that you can get your drinking water safe for one closet. If you're there and we've got some of these and no,

Interviewer
12:07
I'm sorry. Did you call them under, under what sorry What were they called

Interviewee
12:12
under counter.

Interviewer
12:13
Oh, okay.

Interviewee
12:15
You got a kitchen sink under the counter, you can have a small pretreatment system that will handle arsenic and some of these other things pretty well as far as just providing a drinking water and then the rest of the house can plumbed on the full source.

Interviewer
12:41
And so are these pretty widespread throughout Alaska.

Interviewee
12:44
No,

Interviewer
12:45
No

Interviewee
12:46
we've got a number of no because we have a large area where we really don't have much other water available other than the stuff that is high in contaminants.

Interviewer
13:00
Yeah.

Interviewee

13:03
Or you go super deep,

Interviewer
13:06
which becomes expensive right.

Interviewee
13:10
One thing of Alaska, it's all expensive.

Interviewer
13:12
Yeah, Just because of how remote everything is.

Interviewee
13:19
Yep

Interviewer
13:20
Yeah.

Interviewee
13:22
You know you can mobilize to a place like [REDACTED – community] for ten wells. None of go any deeper than 230 feet, and a second mobilization will be $100,000.

Interviewer
13:37
So it almost makes sense to drill a lot of wells, once you're out there.

Interviewee
13:41
Correct. Correct. In fact, that's what's happened all the land in front of [REDACTED – community] which we wanted to rig in there for the initial five wells that's two years ago. Now we got another 10 or 15 coming up to this year. So I've just left the rig there.

Interviewer
14:02
So the rigs. You just put them on an airplane or a boat or something and

Interviewee
14:11
they either barge if they are river accessible or you have to put them on a plane, in pieces. We've got one rig that we can break down into DC six loads. Well another one well we just finished a job in [REDACTED – community]. And that was a herc load. Hercules 130 carry about 48,000 pounds, give you an idea of costs, two wells, public wells city well in [REDACTED – community], because they've already developed their system. So these are for back up because some water systems. example, they've got leaks that could easily be fixed. Instead, they got the money and drill two more wells so they can pump more.

Interviewee
15:12
The cost of Hurricane the rig and casing and stuff into there was $53,000 a load.

Interviewer
15:22
Wow.

Interviewer
15:26
Yeah, it's expensive

Interviewee
15:33
for a village of about. Let's say 300 inhabitants.

Interviewer
15:40
Yes, some, some very small communities. Right.

Interviewee
15:46
Right.

Interviewer
15:46
Yeah. Um, so for someone like me who is from not Alaska and, and certainly not rural Alaska. What do you feel like we just probably don't understand about water supply groundwater in the rural Alaskan context

Interviewee
16:12
Well the one thing that stuck out was your comment about surface water.

Interviewer
16:16
Yeah.

Interviewee
16:20
The other problem is you know there's a lot of

Interviewee
16:23
a lot of hoopla out there about the effect of thawing permafrost and all that sort of thing and from a groundwater standpoint it's not really an issue. Groundwater wells issue okay we go through the permafrost get into a bedrock situation now. There are places so this is interesting to like on the North Slope the permafrost goes deep is 1200 feet in the water belown is salty anyhow we've had very much success with drilling slat wells into thaw bulbs undeeath standing bodies of water or rivers that have six foot or more in depth. Usually undeeath these bodies of water there is permafrost but depending on the depth of the water in the body. There will be a thaw bulb. What we call a thaw bulb undeeath so just a zone of thawn gravels that are water saturated. And so, we've had good success with putting the mast on a slant drilling and dropping a screen to well into the thaw bulb.

Interviewer
17:40
And so they're deep enough, I guess you said that they don't end up freezing in the winter then.

Interviewee
17:48
Well you run heat k visor right by the pump,

Interviewer
17:55
okay,

Interviewee

17:55
if you got to float it you got to pull the pump, you're gonna have to thaw it out, steam it out.

Interviewer
18:02
But the gravels themselves don't end up freezing.

Interviewee
18:05
No that's reason for it

Interviewee
18:07
That's the reason we drill into them.

Interviewer
18:08
Yeah. And how do you identify where these full, I'm sorry thaw bulbs are Can you visually see them or

Interviewee
18:16
not at all they are twenty thirty feet down or whatever, you drill verticals and establish their now obviously you can only do that in the winter, which is no big deal. Since you can do it nine months of the year and just go with the driver you got some lake and drill down and see what you hit a below mud line. Then you just measure your distance offset. Calculate the slant that you need so that you can drill from the shore and hit.

Interviewer
18:49
Okay. And so you might draw multiple vertical wells, trying to identify where a thaw bulb is located.

Interviewee
18:58
That's correct,

Interviewer
19:01
but they're relatively common.

Interviewee
19:04
No what I've been trying to sell particular to the oil field. We've got of it done on the slope, probably about a dozen so far.

Interviewer
19:16
Okay.

Interviewee
19:19
The facility has to be relatively adjacent to a standing water body but that's not difficult at all if your on a slope picture it like one big lake with cabins

Interviewer
19:41
So, I guess, um, you know, I guess perhaps the maintenance issue which you brought up in your experience, what are some things, big or small that kind of getting ignored. When people are trying to provide water to rural Alaska.

Interviewee
20:06
Well the quality of the water that you are after and I don't no of a place necessarily ignored, because there's only one way to find out. That's to drill it,

Interviewer
20:19
drill it and test it.

Interviewee
20:20
Yeah, drill and test it you might be able to get by with driving some of these foundation drillers have got the drive belt points and stuff like that. That may be a little bit of a cheaper way to go because it is a smaller rig. But basically, you've got to find out the quality of the water, and other than that keep it simple. Keep the mechanical issues, parts of it simple. Stay away from constant pressure systems, all the fancy electrical stuff that goes with it because the natives will screw it up anyhow.

Interviewer
21:15
And so do you get to design and choose those things or is that, designed by other people.

Interviewee
21:22
Well, that's, you put your thumb on a real unfortunate thing it depends. I've been around long enough that I get a lot of people get a lot of calls of [REDACTED – name] we are putting wells and so on. So what do you think about this, can I send you a schematic what we are thinking about, that sort of thing. So yeah, we do get input but rarely is it formally,

Interviewer
21:54
I see. And who is the one doing the, the decision making.

Interviewee
22:04
Unfortunately it's usually the agency that's funding it, they oftentimes they will have a consultant engineer. I don't know how they select their consultants. There's a few really good ones. With a lot of Alaskan experience, but they're not getting all the work, and I don't know if there's some kind of a well we got to spread it around type of syndrome or what. I think there is.

Interviewer
22:38
And who. So when you say that, like the people funding it that would be like, ANTHC

Interviewee
22:44
Correct, ASW, they have gotten pretty good they've gotten a lot of extensive experience. ASW is doing Villiage safe water. Right.

Interviewer
22:56
So what do you what do you mean they've gotten pretty good.

Interviewee
23:00
Well they've at it quite a while and they've made a lot of mistakes and lea and lea from it.

Interviewer
23:05

Okay.

Interviewer
23:08
And ANTHC is younger organization.

Interviewee
23:11
Much

Interviewer
23:12
Okay,

Interviewee
23:14
like, just within the last two years.

Interviewer
23:16
Oh, I know

Interviewee
23:17
that was that was the result of a political deal that actually get started by our senator Stevens really started getting money pumped into Native water and sewage. So then the feds decided, first it was under the Native health service. But then they got switched, I don't even know if Native health services is still in existence or not, they actually had drill rigs up here and did some of their own drilling for awhile

Interviewee
23:53
say in the last five years has switched to ANTHC. I don't know of any other firms some of the larger villages have just gone after funding themselves and gone to the state gotten themselves a hydrologist engineering firm and done it a [REDACTED – community] has done that and it's been successful for them. But they're, you know, again, they're a much larger village, but honestly probably 30% of their population is is white. And I'm not trying to come across as a racist or anything but facts are facts. And there is a difference where there's a better white influence for a long time. [REDACTED – community] was originally a [REDACTED – affiliation] or whatever you call it, that's the basis of their education and all that and it shows. And we have a number of villages along the same lines. Now recently, the Arctic slope native Corporation has gotten into the act matter of fact they're the ones that funded the project we're just finishing up in [REDACTED – community]. Because [REDACTED – community]. The village is running artichoke native Corporation. And the reason they've done so involved they're just filthy rich. They collect taxes off of all the oil field equipment on North Slope and all the production and everything else and their not a man up. They're having a leaing curve too but I'm just saying I found is still better to ANTHC.

Interviewer
25:42
Um, and so is it. So then, is kind of what part of what you're saying is that the bureaucracy is a challenge for these projects.

Interviewee
25:54
Absolutely.

Interviewer
25:57
And is that in part just, just kind of like a lot of paperwork and headaches, you know, or is it also just kind of unskilled people being in charge of decision

Interviewee
26:11
All of the above. The main thing is over. I'll be blunt. You may be a PE but I call a PE just a license to kill.

Interviewer
26:25
I'm not a PE. I said I'm not a PE.

Interviewee
26:30
You know what I'm talking about going to a firm all we got a PE and its almost like an automatic well then you must know what you're doing, whether that PE has any experience in growth or development anywhere or what Of course they'll go out and hire to whenever there's been an over tendency for the govemental agencies to rely on that. And in their defense I'm not sure they got much else they can use for general condition to rely on what you end up with. And this is, by the way, a universal complaint, much less contractors nationwide. Not just Alaska. All too often will run into an engineer who's got the AA 101 in one hand, and thumbing through all this stuff looks like it'll fit here you know that sort of thing, you run into a lot. By the way, that's one reason why the NGWA came up with our own standard 114, which then a AA politically fought and we lost our ANSI certification on that standard that I hear through the grapevine they're, they're getting close to getting it back. But that's, that's into the National stuff. I was a national president of the Grand National Goveors Association in 96.

Interviewer
28:05
Okay.

Interviewer
28:11
And so, I guess. In an ideal perfect world, how would you want to see the system working running

Interviewee
28:25
Well first off use consultants who have got a record of experience. I don't care if they got a PE or not but check directly as far as what projects have they work on, you know, everybody's got to start somewhere and go from there. Rather than just going with a big name engineering firm, because they're national or something like that.

Interviewer
29:02
And then, would you would you change, I guess, like the funding structure. The

Interviewee
29:10
I don't know that you can. I really don't. North Slope native Corporation, because of their huge capital resources are able to, a lot of these other villages, they got to go begging to the state, wherever they can find the money. And there are consultants out there who specialize in that wherever those consultants can find the money for. Let me give you a feel for how huge the North Slope is.

Interviewer
29:53
I mean, I'm on a map. I've not like physically been there.

Interviewee
29:59
Yeah. Okay, what about the size of the United States. With 5000, indigenous inhabitants. This is an area that's producing 25% of the national oil production. Um, so those are the kind of numbers.

Interviewer
30:33

Um. How long have you been working in these rural locations.

Interviewee
30:44
I'd say, you know like everybody else I started out with one rig and myself drilling. But 40 years. And of course it's picked up dramatically in the last decade. Okay. As a matter of fact, we've gone from oh I don't have a percentage now I have my last year's gross revenues are 80% bush.

Interviewer
31:12
Wow, okay. And that's because of the money coming in,

Interviewee
31:17
yeah and no other domestic projects

Interviewer
31:19
and no other domestic projects.

Interviewee
31:27
I'll give you another interesting. 15 years ago There were 19 waterwell contractors in the Yellow Pages in Anchorage. Today there are six. and most of them are working really much of Anchorage.

Interviewer
31:49
Do you get, do you feel like your company gets most of the jobs or does it get spread around.

Interviewee
31:57
We certainly get our fair share and a lot of it is competitive bid. We get more than our share of the competitively bid public wells, I'll say that statewide that. What's our share you know its whatever you can get. Yeah. But yeah, you talked to [REDACTED – name] he has one small project he gets one or two projects a year. And that's, that's fine that's all he wants, but his have all gone bush too in the last year. Yeah, most of the other guys are about [REDACTED – size of company]. We're sending anywhere from [REDACTED – number of employees] people.

Interviewer
32:47
Okay. And so are you working in multiple locations at a time.

Interviewee
32:52
Yes, right now, projects that we have going on, and the ones that are coming back because we're all shutting down now. We'll be through in [REDACTED – community] and I can't get the equipment up to spring. hurcs stop flying in there. [REDACTED – community], [REDACTED – community], You know, else we're going to on those are the main ones for now and there's a couple others that are probably going to come up.

Interviewer
33:28
Has COVID affected things. COVID, like,

Interviewee
33:34
Oh. Oh. The crew I just brought in from [REDACTED – community]. And they've been there for nine weeks.

Interviewee

33:45
Because if we, if we change them out there is an arbitrary two week quarantine in the village before they go to work. So that's yes that's a major thing we've been dealing with.

Interviewer
34:03
How long is the stay usually nine weeks is a long time.

Interviewee
34:08
I try to rotate guys every two weeks, two to three weeks.

Interviewer
34:16
Sounds more reasonable than nine weeks,

Interviewee
34:20
the living conditions are not the greatest either, let me tell you.

Interviewer
34:24
Where do you stay. When you're there.

Interviewee
34:28
We try to find a local house if there's one that is liveable or usually fortunately there's a, like a public hotel very small. Crews can stay there. Anaktuvik they had moved a construction camp in because they had a bunch of construction going to happen next year. As far as the waterworks and all that sort of thing. So we were able to take over. There's nobody in the camp, they have a kitchen and all that. So we were we were able to take over a room, and keep the kitchen heated so that you guys can live and sleep there and eat nine weeks of work in 10 to 12 hours a day. Plus going home and cooking and trying to get rest.

Interviewer
35:18
Yeah. That's a lot

Interviewer
35:28
Yeah. So I guess, um, is there anything else you feel like I should know, be aware of.

Interviewee
35:36
I don't think so at this point, you just really got me thinking and probably vice versa. So yeah, feel free to call back if you come up with any other ideas or questions.

Interviewer
35:45
Well, I appreciate your perspective your 80 years of experience.

Interviewee
35:53
Not 80 years, 50 years

Interviewer
35:54
I know I know I know

Interviewee
35:58
One thing I want to emphasize is this is not the place for a consultant, who's never worked in Alaska before to come up with a job and then come up here and then design and construct, and we get a lot of them.

Interviewer
36:17
And why is that what it like what is that person that I spoke

Interviewee
36:20
[REDACTED – example company name] engineering firms, [REDACTED – example company name] I pulled off the top of my head but they actually got some good local people they have highly developed. A lot of these projects are come out, you know there's on the national bidders list [REDACTED – company from lower 48] says shoot we're kind of low on work. Let's take a look at this Alaska thing, you know you can always hire somebody you know that sort of approach.

Interviewer
36:56
And so what is that what is that outside consultant, like missing What are they failing to grasp are multiple things. Hmm.

Interviewee
37:06
They haven't been here. For one thing I send you one a name that I'm sure you've heard black and Beach.

Interviewer
37:16
Yeah.

Interviewee
37:18
They've got a term contract with the Corps of Engineers, so they design, large production wells, which we've had some work the last for years. So, up at the conflict, or on the start of the Air Force development. And the designed eight 2,500 gallons a minute wells. Reverse circulation. 40 inch diameter. 48 inch diameter reverser circ, etc. in an area that's only above freezing about three months a year. If you work with any reverse cerc, when you're drilling holes that large, you got to have a lake for the water source. Because that's what keeps the hole design with static head. That's the kind of stuff that you run into I mean I could go on. I've often thought about putting together a talk about that specific project and all the errors and nothing, you're drilling contractor but you're supposed to hire a PE geo hydrologist, try and find one of those to direct and make critical decisions on your work. Period. I can region almost vertically the way it reads, stuff like that. [REDACTED – personal detail].

Interviewer
39:06
Well thank you for your time. I appreciate the call. Thanks.