

BULK FEATURE: Container tipping forges on at Port Adelaide

REFERENCE: Lloyds List DCN - by [Oliver Probert](#) — last modified Apr 24, 2014 10:29 AM

In 2010, South Australian port operator, Flinders Ports started providing container tipping services to iron ore junior, IMX Resources. Four years on, Flinders Ports' head of logistics, and tipping guru, Andrew Pellizzari, speaks with OLIVER PROBERT about progress.

Q: Give us an update about the tipping facilities over the last 12 months.

Andrew Pellizzari (AP): We've tripled our tonnages. Basically there's more customers, and the more we educate them to understand the benefits that they get from this process – those clients that are more aligned towards the environmental slant – they are moving more towards this process. There's no doubt about that.

Also, we've invested, in the last twelve months, a considerable amount of money. We've got another crane [at Port Adelaide's inner harbour green field site] so we can work two cranes at once, so there's increased productivity. And we've got two new patents out on our misting systems, because of inroads in different vessels.

Q: Tell us about those misting systems.

AP: It's not one-size-fits-all when it comes to this misting system, so we've had to develop that further. That's been another enhancement to the whole process.

I keep going back to when we started this, over three years ago. Tipping a container in a hold is not what this process is about; it's about total containment. The actual dust suppression system is pretty key to this whole process.

It's different per product, and it's also about the ship, the hold of the ship, as well as the wind, the humidity... We've spawned out of a company that has not got that stevedore mind, so we're focused on very much an environmental solution.

It was trial and error for the first six months of operation.

Our original misting system that we had was not as successful with, say copper concentrates as it was with iron ore, and that's because of the technology behind it. Now we've perfected that, that's fine.

Now there's different vessels that we get, where we can't get the actual misting system around all four sides of the hatch – where we needed to come up with a different solution, which we've now got another patent for.

It's almost like a plug-n-play, where you'll put in another system, which has a greater throw

across the hatch, so that's good for when it's a windy day, or when it's a hatch configuration where we can't get misting around all four sides.

Q: You mentioned you're handling different types of products?

AP: Over the last twelve months, there are more customers that are coming to us, and asking us about the system. We have taken on, and we've now got more customers using the system, ranging from iron ore, to mineral sands, to copper concentrates. So it's a wide, diverse product range that we can use this process for.

The technology in the containers has changed, as well – you can't underestimate the yard system that you've got to have to make this work. We've got customers now that have got five grades of product, and five sub-grades within those grades. And we can blend at the port, because our system can track every type of product in every container, in the whole supply chain.

Q: So you blend straight into the hold of the ship, essentially?

AP: Yes, that's exactly right. That's a big selling point to this process as well. But to execute that you've got to have the yard system, which has been developed in house with a key supplier of software that we use out of our container terminal.

Q: Now these misting systems – with any of these materials, is liquefaction a risk?

AP: There's too little liquid involved. But what we also do is we know, in each container, the moisture content of that container. And before we tip it, that goes into our yard management system – this is how it's all integrated – and then we sequence those specific containers into the hold of the vessel.

So we know the total moisture level inside the container, and in each hatch, and then we meter and log how much water we're using on our misting systems.

So we know exactly how much water we use. That doesn't mean that's how much [water] goes into the hold, this is a worst case scenario ... and then we monitor that against the transportable moisture limit. We never go over, and in fact we've never come close to it. The actual system we've got now, funnily enough, uses about a third of the water we used to use in our original misting system. So it actually saves us water. That's part of the innovation process, and the continuous improvement process, that we've been through.

Q: So what sort of volumes are you guys handling?

AP: We're doing approximately 2.5mtpa. We've got four major clients at the moment.

Q: What are the secrets to navigating that much bulk volume in container form?

AP: The first thing is that the containers are filled with the product at the mine ... and then transported down to the port, either by road or rail, and we've got clients that do both.

Then we gate in all those containers into our yard management system, and what happens is all the information attached to one of those containers (i.e. the product, the product grade, the moisture, any other information – whatever the clients want to attach to that) we can keep in our yard management system.

The container is then put into a slot in our yard, so we know exactly where it is. Then, when a ship is booked, we sequence those containers based on what the client needs so far as grade and the product type, into each hold of the vessel, for our yard management system. And then we've got tablets in all our machines that tell the operators what the next container is to be put under which crane, to go in which hatch.

Q: How do you manage empty containers?

AP: With an empty container, we put it back onto an internal transfer vehicle like a truck, and that goes to the stack. That actually gets put back in the stack, with that container number, so we know what's empty, because that's very important. They all look the same when they're in the stack, but you want to know what's full and what's empty.

That's until the next truck comes in, or train comes in, then [the container] gets placed on the truck, or the back of the train, and goes back up to the mine and gets filled again.

Q: Are there any future development planned?

AP: There are other refinements in improving productivity.

We're using a slewing crane, like a mobile harbour crane, to actually attach to the containers a lot quicker, and reduce the damage, so that's increased productivity. But it also takes the tagline man off the wharf.

What we have is a tagline on the end of the tippler, and there has to be someone on the ground, guiding that either on the back of a truck, or on the wharf. Now, with this guidance system that we've got, we eliminate having that person on the wharf, and everyone's in a machine. So we've improved the safety, there. We only had one person out, that was not in a machine, and that was that person. Now we've taken him off.

That's our container guidance system.

Q: I know recently Flinders Ports acquired full ownership of the container port in the outer harbour of Port Adelaide, which used to be run by DP World. Have you learnt anything through running that which applies to your tipping process?

AP: There's nothing that we've taken from outer harbour, or with the container terminal, and brought into our other operations, at this stage, other than improving the yard management system, improving the misting system, and the creation of the container guidance apparatus with the slewing cranes.

We've actually now got tipping operations out at that container terminal, as well as at the inner harbour site.

Q: So you've added some tipping operations at the container terminal in the outer harbour, to join the dedicated inner harbour site. To summarise: what does your tipping operation look like in terms of overall assets?

AP: We've got four cranes [at the container terminal in the outer harbour], but we only use one on this [tipping] operation. That's about 1.5 to 1.7mtpa of iron ore. We've now got two mobile Gottwald cranes [at the dedicated tipping site in the inner harbour].

Q: And you've got enough patents on it to hopefully protect your IP?

AP: We just don't want people to pick up what we're doing and try and replicate it. I understand some of this stuff's not rocket science. But things like the misting system – the original one – won't cut it for these concentrates, and we've developed it, and that's what we're focused on.

As far as the process is concerned, it is what it is and we do it well. I can give you quotes of companies that have said they've seen other operations like this, and that we are the benchmark in the world.

That's a good feather in the cap of my guys. It's not me that does it – I support them, they do it, and they do it very well.

This article was originally published in our sister journal, Australia Bulk Handling Review, January-February, 2014.