

3M Transcript for the following interview: Episode 58 - Naturally Occurring

Asbestos

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Welcome to the 3M Science of Safety podcast presented by 3M Australia and New Zealand Personal Safety Division. This is a podcast that is curious about the signs and systems of all things work, health and safety, that keep workers safe and protect their health. I am Mark Reggers, an occupational hygienist, who likes to ask the questions Why, How, and Please Explain. Whether you are a safety professional, occupational hygienist, or someone with any level of WHS responsibility in the workplace, maybe you are a user of safety products or maybe you are a bit of a safety nerd who finds this stuff really interesting, then this is a podcast for you.

(R) Today, we're talking about Naturally Occurring Asbestos with Linda Apthorpe. Welcome back, Linda.

(A) Hi Mark.

(R) You're becoming a bit of a regular, which is great.

(A) Thank you.

(R) So, for those that haven't heard any previous episodes, we just spoke about asbestos in soils. Early on, when we first launched the podcast, we did a whole bunch about what is asbestos. But for those that may not have listened to any of those previous episodes, can you please introduce yourself, who are you and where are you from?

(A) Thanks, Mark. I'm a consultant occupational hygienist and I have been for over 20 years. I'm a certified occupational hygienist and I've also done a lot of analytical work related to asbestos. I also work at the University of Wollongong where I'm a lecturer in the work health and safety program for folks who want to learn a little bit more about work health and safety and also to specialise in occupational hygiene.

(R) Now, we've spoken on a number of episodes and I have with other guests, and we always talk about asbestos is this naturally occurring mineral or fibre, but we haven't really delved too much deeper into what does it actually mean? Obviously, it starts in the ground, but how do we assess and manage those types of things? So, what is naturally occurring asbestos?

(A) Well, there's naturally occurring asbestos, sometimes known as NOA, means the natural geological occurrence of asbestos minerals found in association with geological deposits including rock, sediments and soils. Now, generally, this NOA refers to asbestos that's not been extracted or refined for commercial purposes. Rather, it's been exposed unintentionally by excavation, road building or other construction type works. Or it could also be found when there's mining for other minerals. And in the majority of workplaces, the asbestos that is encountered and poses a risk to health and safety would generally be found in manufactured products such as asbestos cement sheeting and so on. However, some workplaces may actually have to deal with asbestos in its natural state and that is this NOA.

(R) So, how does this asbestos form in the ground? What has happened to have asbestos be created or formed?

(A) Well, I'm no geologist, Mark, however when talking about NOA, we must remember that asbestos is a naturally occurring mineral fibre, which we've been mining for many years to use in thousands of different products. So, similar to lots of minerals that we find in the earth's crust, there may be many types and forms of them that like asbestos, we would want to mine them from a commercial perspective because we want those minerals which have uniform characteristics and properties and will use them in various products or for various purposes. There are also bands of minerals in the earth like asbestos but don't have uniform properties and these bands maybe at the boundaries or as a contaminant in other minerals which we may mine. An example here is iron ore. They may also appear as deposits, bands or even veins in other associated rocks such as serpentinite rock or ultramafic rocks. And NOA usually contains intermixed phases of different types of mineral polymorphs or crystalline structures

they're known as and as such, the NOA has various chemical compositions with varying fibrous and semi-fibrous morphologies and that refers to its internal structure. So, this NOA may not be properly or fully formed as in a commercial grade of one of the six regulated forms of asbestos, but it can still have a somewhat fibrous habit which can potentially be a hazard to human health.

(R) When we talk about asbestos in buildings and other products, we're trying to educate workers that it may be in a fibre cement sheet, but what does this naturally occurring asbestos look like? Obviously, very different from a building product when we're talking about this raw form and these different colours and bands that you've just mentioned.

(A) Well, it can be a rough or fibrous looking rock which is very flaky and have coarse bits that fall off it. Sometimes it can be a light grey in colour or even be greenish or have white colourings on it. And sometimes they fibres can also - or the semi-fibrous material can look quite weathered. When we look at NOA under the microscope, it can be a semi fibrous material or be individual crystal type fragments without any formal bundle structure like what commercial grades of asbestos are. It can also have fragile or brittle structures which crumble or disintegrate very easily and it's a very difficult fibre to analyse because it differs from commercial grades of asbestos due to its varying chemical and physical properties.

(R) This is probably going to show how much of an asbestos nerd I have been in the past, but I know I follow a few people on LinkedIn and different social media stuff and they'll post pictures of raw asbestos and it's quite amazing and quite beautiful at times with different colours and widths of the seams and in different rocks. So, it really can come in all these different shapes and sizes and seams. So, if you do a little bit of Googling about raw asbestos, you'll see that a variety of what it actually looks like and when you see those veins, it gives you an appreciation of what the miner used to have to do to actually crush up all this rock to break out the fibre, and which then obviously creates those health hazards that we're very aware of from an historical point of view, but it really is quite diverse and interesting. If you people are interested in it, I do recommend going and having a look. It can be quite beautiful at times.

(A) Absolutely. The range of colours; it can have this amazing lustre on it which just looks spectacular, but as you say, it's a fibre with a hazard.

(R) So, it's hard to identify. It's not in buildings, so where across Australia is naturally occurring asbestos found? How would a property owner or landowners find out whether their property has a potential to maybe have some NOA there?

(A) That's a good question because there are some maps available which can help indicate where potential naturally occurring asbestos can be found and they are generally created based on the geology of the area. So, as an example, in New South Wales, the Office of Planning and Environment has published a map which can give the guidance on where NOA can be found and these maps can usually be found on the internet when you know where to look. Remember that less than 1% of the land surface in New South Wales is estimated to have potential for NOA within around ten metres of the land surface and the potential for these asbestos bearing rocks is about 0.2% of the land area in eastern Australia. So, it's not very common to find. But that said, if it is in your area and you are planning to disturb the ground, then you definitely need to know about it so you can take the right precautions.

(R) When you think about mining in Australia, how much would be getting disturbed on a day-to-day basis? We're not mining for asbestos, but does that mean that they'd have a lot of asbestos controls in these mining environments?

(A) Yes, they absolutely do. They need to predict when it's going to be present and take the appropriate precautions to control exposure.

(R) So, we think about workplaces and asbestos, but now we're talking land and property owners. So, why is it so critical for them to identify whether they may have a slim percentage, but there's still a chance, that they may come across naturally occurring asbestos on a property?

(A) Yes, in areas where NOA can be present based on that geological information, it's absolutely possible to disturb it during any activity which breaks the soil or rock formations. So, when there's mining activities that occur in these areas, or whether it's underground or even aboveground in a quarry, this NOA can be disturbed and for sites where it's present, there are certain precautions required to protect workers from being exposed during those works and to prevent the NOA from entering or being present in the product that they're actually producing.

(R) If you don't capture it at that source location, you're then potentially having that asbestos go through the product and the supply chain, and we start talking about asbestos in imported items, which is a big factor. So, if you identify it early, we can minimise, control, assess, all those things that we're all very aware of.

(A) Yep, for sure.

(R) So, what about people in rural areas, not necessarily a commercial operation, but why is it important for them to also identify this NOA on their property or land that they may use?

(A) It's absolutely essential to know where the potential for NOA is present on your property and this helps to ensure that you can take precautions whenever the soil or there's rock disturbance occurring such as for agriculture or construction works for buildings or even large infrastructure projects such as roads and so on.

(R) So, we always talk about risk and health risk when it comes to asbestos and the other materials. When it comes to NOA, what are the potential health risks for workers or landowners, and what are some of those activities that may be creating a potential exposure?

(A) Well, this form of asbestos can become airborne whenever the parent materials are disturbed during activities such as earthmoving or construction works or even agriculture and mining activities, also through to urban developments and even the natural weathering process for the NOA that's present on the surface of the ground. So, persons who are most at risk of potential exposure to this type of asbestos from natural sources include workers who may work the land or live in areas even doing agriculture work where asbestos materials may be routinely disturbed by their land activities. Also, construction workers involved in large scale earthworks or infrastructure and construction projects in areas where there are these asbestos bearing rocks or of course miners or quarry workers who unknowingly disturb asbestos bearing materials.

(R) There's probably a wider range of workplaces just mentioned that I probably would've initially thought about when you're talking about naturally occurring asbestos. I always think of it out the back in the bush somewhere, but there's quite a few places you should be aware of this stuff.

(A) Absolutely and some of the petrographic and geological work that's done prior to large infrastructure projects such as road building and quarries, and where they're actually using aggregate materials to help support land in these projects, it's really important to know where the potential for this NOA can be.

(R) So, what are some actual activities these workplaces or workers may be doing to help get people thinking about activities they may be doing or some activities in their workplaces that they should be maybe thinking about this?

(A) It's based on whenever the land is actually being disturbed and that can occur whenever you're drilling, ploughing, cultivation type activities, excavation works when you're making a dam or digging

foundations for a pool or something like that, or laying formwork for residential or farm structures, laying of water pipes, drainage, etcetera, when of course you're doing quarrying or mining activities, road construction, maintenance work. Sometimes even when vehicles are travelling on unsealed roads and through dry paddocks where there's plenty of the asbestos on the surface of the ground. Maybe even some sporting activities on dry or dusty playing fields in areas where there's a high potential for this NOA to be present.

(R) So, when we think of buildings and the built environment, they have requirements to have asbestos management plans. Do landowners who may have the potential for NOA on their property, do they need a specific management plan? Is that a legislative requirement when it comes to this?

(A) Oh yes, they do, an asbestos management plan is mandatory if there's any work that's going to be conducted on properties in regions where this NOA can be found or identified or even assumed to be present. And so, these management plans, they help to manage all sorts of asbestos in any asbestos of work or the community and it's required to prevent exposure to people and also to protect the environment and it's really useful to have whenever there's removal or remediation work in the area and of course, it's important to dispose of it in a lawful way as well.

(R) So, the legal requirements; is that all based on the work health and safety side of things, from that workplace point of view?

(A) Well, the work health and safety or equivalent legislation in each jurisdiction requires that the management plan must be in place whenever there's asbestos or NOA present. Also, with regard to legal requirements, there's no special license required to work with NOA, however the management plan must detail safe work practices whenever NOA can be disturbed or present in the workplace. There's also local councils; they're part of the regulatory scheme for NOA as well and they want to make sure that it remains undisturbed whenever possible and also to manage any development applications and look after any compliance issues in areas where the NOA can be found. The state safe work regulators are also the lead with regard to work processes that may disturb NOA and of course the EPA agencies within each state, they also are the lead regulator for lawful transport and disposal of that material. The state departments of planning and environment, including mineral resources departments, also play a regulatory role where NOA is part of a mineral extraction process.

(R) It covers so many different areas of regulations because it's found in so many locations and transported and handled, so there's quite a myriad there of things you may need to be aware of if you are working with asbestos in general, not just naturally occurring asbestos, so a fair bit there.

(A) Absolutely.

(R) So, let's talk about the important stuff; the controls. So, what are some NOA safe work practices or procedures that workplaces can put in place if this may be in their workplace?

(A) Well, first up, we've got to have that asbestos management plan and a risk assessment that's prepared based on knowledge of the site, where you think you can find the NOA, and also the type of NOA that can be found on your site. And some of the elements of that plan includes worksite access, signage and restrictions, etcetera, site clearance and decontamination procedures. You might need some respiratory protection equipment or other types of PPE. How are you going to use dust suppression techniques to keep the dust and fibre levels low? Operation of mobile and fixed plant equipment and procedures, also how are you going to manage vehicle movement on the site and also know how you're actually going to do the waste management of it as well as decontaminate equipment and workers.

(R) It sounds very similar to asbestos in a built environment as far as every one of those steps, so really, you're treating it no differently from a control point of view. Obviously, you've got to identify it and look at the situation and watch the condition, but every one of those of the way really doesn't sound any different to asbestos in the built environment or removal situations. Is that the way to think of it, but obviously it's in the ground rather than on a building where you may be finding it.

(A) Yeah, absolutely. Good points.

(R) So, to go outside the workplace here, what if I'm a homeowner and I just live in an area that NOA may be present, what are some of those things that they can do to reduce exposures around the house and in different environments like that?

(A) Well, if you know that it's present in the area where you live and you've got it on your land and you may have come in contact with it, there's some basic info to keep in mind and that is think about dirt and keeping dirty boots and shoes outside of your home. Avoid tracking the soil and dust indoors by using doormats and keeping your dirty shoes outside, using a wet cloth or mop to actually clean

surfaces and keep the dust levels down. Use removable rugs that you can easily wash. You don't want to create any airborne material whenever you're doing any cleaning activities.

(R) Like bashing out the carpet on the clothesline or something like that and spreading the dust across the household. Avoid that stuff.

(A) Yeah, best not to do that. And also, think about what your pets do and make sure they don't track in this dirty material inside. Even if on windy days, you want to keep your windows and doors closed, particularly if there's any road maintenance or construction work that's happening nearby.

(R) There's a lot of dust control strategies there, but on the home point of view rather than a workplace dust control strategy.

(A) That's it.

(R) What about in the garden? So, that's household stuff. Any things you can do outside the house?

(A) Well, again it's related to generation of airborne dust and those machines like leaf blowers; you want to perhaps not use those. You can use water to reduce the dust generation. Remember that whenever you use pressure cleaners and water blasting, those activities are prohibited on any asbestos containing material, including the NOA. Keep the yard well maintained, get groundcover or aggregate down. Seal or pave your pathways and generally it's related to minimising airborne dust that can be generated in your garden and yard.

(R) Like all topics, there is a lot to this, but where can people go online to find a bit more about it, if it is something that they need to do something about?

(A) Well, there's the federal regulator, SafeWork Australia and also the state regulators and WorkSafe Victoria, SafeWork Queensland and so on. They've got information on NOA. There's also the Asbestos Safety and Eradication Agency, the EPA in your local area and there's some other good internet resources for NOA.

(R) The asbestosawareness.com.au I found is a really good one as far as specific NOA resources, if any, out of all of those, I'd start there. They've got some really good resources and templates for homeowners and businesses. I really wanted to highlight them, specifically at this point, because they've got some really good stuff. But to sum it all up, we were talking about naturally occurring asbestos, what would you want to leave with our listeners today?

(A) Like anything to do with asbestos and NOA included, make sure you know it's there so you can take the precautions to prevent exposure. And remember, there's plenty of resources out there to help you on where it can be found and what to do with it when you find it.

(R) Well, thank you so much for coming in, once again, Linda. Much appreciated.

(A) Thanks very much, Mark. It's been a pleasure.

(R) Thanks for listening, everyone. You can get in contact with the show by sending an email to scienceofsafetyanz@mmm.com. If you have any questions or topic suggestions or other guests you think would be great to get into the studio, or if you just need help around the workplace when it comes to PPE and things like that, 3M are certainly here to help. You can also visit our website, 3m.com.au/sospodcast for further resources on naturally occurring asbestos, as well as the transcript that Linda and I have just had. Be sure to subscribe and share through Apple Podcasts, Spotify, Google Podcasts or wherever you get this podcast from and as Jean Driscoll said, "The only limitations are those you place on yourself and those you allow other people to place on you." Thanks for listening and have a safe day.