

To: Claudia Cappio, Assistant City Administrator
Honorable Mayor Libby Schaaf
Oakland City Council
City Attorney Barbara Parker

From: Lora Jo Foo
No Coal in Oakland

Date: June 2, 2016

Subject: Covers for rail transport of coal

I. ECOFAB COVER FOR RAIL TRANSPORT OF COAL HAS NEVER BEEN
FIELD TESTED FOR COAL DUST EMISSIONS NOR HAS IT RECEIVED FRA
APPROVAL

In responses to concerns raised by the public that the transport of coal by rail through Oakland will endanger the health and safety of Oakland residents, Terminal Logistics Solutions (TLS) has repeatedly stated, most recently in its May 22, 2016 press advisory, that:

Any coal that may be shipped through Oakland Global will not emit coal dust – in fact, coal will never see the light of day. Rail cars will be covered from their point of origin using proven technology, an elaborate underground transloading system, enclosed dome storage, and a completely encapsulated operation.¹

The proven technology that TLS was referring to for rail car covers is a design by EcoFab. At a press conference on May 23, 2016, when asked whether TLS was doing testing to be sure no coal dust escaped the rail cars, Jerry Bridges, CEO of TLS, responded:

"FRA last year approved these particular covers, Ecofab is the name of the company, they approved these rail car covers for the transportation of coal."

Bridges also told the East Bay Times that EcoFab tested the covers.²

Contrary to Bridge's assertions, in fact, EcoFab has never tested the covers to determine their effectiveness in preventing leakages of fugitive coal dust. Nor has the Federal Rail Administration (FRA) approved EcoFab covers.

¹ <http://www.businesswire.com/news/home/20160522005047/en/MEDIA-ADVISORY-Oakland-Community-Civic-Leaders-Voice>

² See Erin Baldassari, Supporters of shipping coal through Oakland say it will bring jobs, East Bay Times (05/24/2016) http://www.eastbaytimes.com/breaking-news/ci_29929850/supporters-shipping-coal-through-oakland-say-it-will

In the week of May 23, I interviewed Doug Bock, EcoFab's Vice President of Marketing and Sales, and also communicated with him by email regarding covers for rail transport of coal.

Bock stated in an email dated May 27, 2016 regarding Bridges' press conference statement that:

If Jerry has said that the FRA has approved our cover for coal, he is mistaken. Ecofab has at no time sought or received FRA approval for the cover we have presented to TLS.³

In our phone conversation on May 24, 2016, Bock stated that EcoFab has never done specific testing of its covers for coal transport.

I also interviewed and communicated by email with Dr. Harold Blankenship, Mechanical Engineer in the Office of Railroad Safety of the FRA about the approval process for coal car covers. He made clear that the FRA does not issue approvals for rail car covers and is not involved with testing for coal dust emissions. In an email dated May 26, 2016,⁴ Dr. Blankenship responded to my questions as follows:

Q: Does the federal rail authority have to "approve" these covers before they are made commercially available?

Ans: Yes and No. The FRA and our Canadian Regulatory partner—Transport Canada work to enforce safety on all north American railroads. We do not "approve" coal car covers, HOWEVER, if for instance a company designs a "cover" and wants a safety review, the FRA will do this as a courtesy, with the intent to see that such a cover does not interfere with employee safety, block access to side ladders, end ladders, sill steps, handbrakes, or introduce an unacceptable risk to railroad employees.

Q: Is testing for leakage of fugitive coal dust required in the approval process?

Ans: No, FRA does not get involved with any fugitive coal dust emission tests as far as I know.

Q: Are there any other companies who have received approval or whose approval is pending?

Ans: FRA does NOT approve covers EXCEPT when requested to provide guidance for a particular design as it relates to the safety appliance arrangement contained in the proposal. Once reviewed, the FRA may issue a letter that the proposed design may or

³ The full text of Doug Bock's email response is attached below.

⁴ The full text of Dr. Harold Blankenship's email is attached below.

may not comply with current safety appliance regulations contained in AAR S-2044 and Title 49 Code of Federal Regulations (CFR) Part 231.

In summary, the proven technology that Bridges claims exists for rail car covers for coal is a mirage. EcoFab never tested its cover to determine if it is effective in preventing coal dust leakage. And the FRA performs safety reviews of rail car covers but does not review whether the covers prevent leakage of coal dust. Thus, neither FRA nor any federal agency has established standards for field testing the effectiveness of coal covers' containment of coal dust.

II. OF THE COVERS FOR COAL TRAINS NOW COMMERCIALY AVAILABLE, NONE HAVE BEEN FIELD TESTED AND NONE HAVE MADE IT TO MARKET.

To determine whether covers for coal train cars are used anywhere in the U.S., whether any are commercially available, and whether they have been tested for their effectiveness in controlling fugitive coal dust, I interviewed the companies that have reportedly designed rail car covers for coal.

Dave Gambrel, a coal transportation consultant and former director of transportation for Peabody Energy, in a 2013 article in Coal Age listed the five companies that have worked on "different rail car cover designs to prevent coal dust from flying out the tops of rail cars."⁵ I reached these companies by phone and posed these questions to them:

- 1) Why did you decide to go into this product line?
- 2) Did you go beyond the design stage? Did you produce a prototype? Is this design now commercially available?
- 3) Did you do testing to determine if the covers prevented leakage of coal dust? If yes, what were the results?

In summary, while three of the five companies state they have commercially available covers, none have manufactured any to date. While two companies performed functionality tests, that is, to determine if the covers opened and closed as designed, none of these covers has been field tested to determine their efficiency in keeping coal dust from escaping during transport. Below is a summary of the responses from the five companies to the questions I posed to them.

1. Strategic Rail System (Rush-Co) (<http://www.rush-co.com/srs-rail/>)

On May 23, 2016, I interviewed Evan Jones, President of Strategic Rail System (SRS). SRS was approached by Union Pacific (UP) to design covers for coal cars. Around four years ago, SRS built seven prototypes and tested them on UP lines. SRS designed covers that would automatically open and close for quicker loading and unloading, using a rotary system, not

⁵ <http://www.coalage.com/departments/transportation-tips/2736-coal-dust-control-in-the-pacific-northwest.html#.VzuPOGZrXhO>

bottom dump. Anticipating that the federal government would soon adopt a regulation requiring covers of coal train cars, SRS bought a plant to gear up for production. Its covers were commercially available. But no regulation was adopted so there was no demand for the covers. SRS mothballed the project. The field testing that was done on UP lines was for functionality, that is, to determine if the covers opened and closed as they were designed to do. The covers worked as designed. However, one issue remained and that was how long the solar-powered batteries that are mounted on each car/cover to open and close the covers would last. SRS did not perform any field tests to determine the effectiveness of the covers in preventing leakage of coal dust.

2. CoalCap (Global One Transport) (<http://www.coalcap.com/>)

On May 23, 2016, I interviewed Jason Dial and Darrell Dial of Global One Transport (GOT). BNSF asked GOT to design covers to test and use for the export market. Five years ago, they built a cover and tested it from the Powder River Basin to Ohio. They had one test car behind the locomotive. They made several trips logging approximately 40,000 miles. They tested for functionality and it was a success – the cover stayed on the car and rotated fine. FRA has asked for certain modifications on their design, including placing handholds on the side of the cars. While Darrell Dial claims that dust is 100% contained, he did not perform field testing for coal dust emissions. He did videotape from time to time and saw no coal dust escaping and saw no dust on top of the covers or anywhere on the covers. When asked whether he might not have seen coal dust because it may have blown away during transport, he admitted that was possible. GOT's product is "commercially available" but they won't go into production until they receive an order.

3. CleaRRails, LCC

On May 23, 2016, I interviewed Mark Pettibone of CleaRRails. In 2015, his design (Coal Guard) received approval for safety from the FRA. He doesn't have a prototype yet. He hasn't done modeling for whether or not coal dust will be 100% contained. While other companies' covers have two doors that come off on the side of the car, his is a front-to-back design. A canister sits on either the front or back of car with a rolled up aluminum cover, like a garage door.

4. EcoFab (<http://www.ecofab.com>)

On May 24, 2016, I interviewed Doug Bock of EcoFab. A Utah coal mining company approached EcoFab about covers for coal cars. EcoFab adapted an existing cover, the Roto Cover, for transporting coal. The existing cover has been used for 40 years in the transport of lead, copper, zinc and low level radioactive material. Because TLS plans for bottom dump and not rotary cars, EcoFab adapted the Roto Cover for coal. The existing cover lifts off. The cover for coal is the same cover but is hinged and opens automatically. It is fixed permanently on the train car and removed only for preventative maintenance. EcoFab has never done specific testing for covers for coal. For that matter, it has never tested the existing covers used for transport of lead, copper and zinc to determine if dust or particles from these commodities have

escaped during transport. As stated above, in an email dated May 27, 2016, Bock stated that EcoFab has at no time sought or received FRA approval for the cover it presented to TLS.

5. Structural Composite of Indiana (United Rail Covers) (<http://www.railcarcovers.com>)

URC designed three types of covers. But a year ago, the new owner of the company decided to drop the product line. I was not able to reach anyone at the company who was involved in designing the covers.

III. CONCLUSION

Coal dust can break down to as small as PM2.5. According to the California EPA and World Health Organization, there is no safe level of exposure to PM2.5. Therefore, rigorous testing is needed to determine if the covers that are now commercially available can prevent the escape of particles this small. However, as my interviews with four of the five companies that have designs and/or prototypes for coal covers reveal, none of them has done field testing to determine their effectiveness in preventing coal dust from escaping during transport.

For around four decades, railroads have been using covers for the transport of grain, fertilizer, copper, zinc, lead and other commodities. Tests for fugitive dust for the above commodities may or may not have been done at some point. We do not know if these covers are effective in preventing the escape of dust of these commodities. Even if they are, we don't know if the covers would work as effectively for coal dust. EcoFab's Roto Cover has been adapted to transport coal. TLS has stated that it plans to use this cover. While this cover may have been used to transport other commodities for decades, will the adapted version for coal do what it was designed to do, that is keep coal dust from escaping? Moreover, with covered coal cars, is there a potential for explosive concentrations of coal dust to form inside the containment? Might a blast occur from a static electricity discharge or other accidental source of ignition? Without field testing over a long period, we do not know.

Numerous questions remain unanswered because no such field testing has been done. Do these other commodities break down to as small as PM2.5? Can the seals on covers keep PM2.5 from leaking out? With particles this small, can the naked eye even see them escaping from the cars? How long do the seals last when coal rather than grain is the commodity? Without field testing over a period of time, we don't know how the covers will perform over time and in differing weather. Will they freeze up or malfunction when there is snow or ice or rain? Will they deform or twist or turn in the wind? Will they be as effective on the current fleet of train cars as on the latest generation of cars? Without field testing over a period of time, we do not know the answers to these questions.

EMAIL CORRESPONDENCE ON COVERS FOR COAL TRAINS

From: "Doug Bock" <DBock@ecofab.com>
Date: May 27, 2016 1:03 PM
Subject: Ecofab Covers
To: "lora jo foo" <ljfoo70@gmail.com>

If Jerry has said that the FRA has approved our cover for coal, he is mistaken. Ecofab has at no time sought or received FRA approval for the cover we have presented to TLS. Having said that Ecofab did receive approval for covering and containing low level radioactive material with the very same cover. In 1994 the US Department of Transportation (DOT) determined that the Ecofab Cover System met the criteria for a closed transport vehicle as specified in "Title 49 CFR 173.403 (c)." The approval of our cover system was sought and achieved by our customer at the time.

From: **lora jo foo** <ljfoo70@gmail.com>
Date: Fri, May 27, 2016 at 11:09 AM
Subject: Re: Covered coal cars
To: Doug Bock <DBock@ecofab.com>

Thanks for quick response. At a press conference earlier this week, when asked about whether TLS was doing testing to be sure no coal dust escaped the rail cars, Jerry Bridges responded:

"FRA last year approved these particular covers, Ecofab is the name of the company, they approved these rail car covers for the transportation of coal."

I reviewed my notes and thought you said EcoFab did not seek FRA approval. Is that correct? Did Bridges misunderstand?

lora jo

From: **Doug Bock** <DBock@ecofab.com>
Date: Fri, May 27, 2016 at 10:53 AM
Subject: RE: Covered coal cars
To: lora jo foo <ljfoo70@gmail.com>

Yes we have spoken to and given a presentation to Terminal Logistics Solutions. Yes it was a Utah based mining company.

From: **lora jo foo** <ljfoo70@gmail.com>
Date: Fri, May 27, 2016 at 10:37 AM

Subject: Covered coal cars
To: Doug Bock <DBock@ecofab.com>

Dear Doug,

We spoke earlier this week about covers for coal train cars. I have two follow up questions I hope you can answer. You said that it was a mining company that approached EcoFab about your covers. Has anyone from Terminal Logistics Solutions, TLS, the company that will build and operate the Oakland export terminal contacted you or anyone else in your company to inquire about the covers? The principles of TLS are Jerry Bridges and Omar Benjamin. And can you tell me which mining company contacted you about the covers? Was it a Utah company? Any assistance would be greatly appreciated.

Lora Jo

From: **Blankenship, Harold (FRA)** <harold.blankenship@dot.gov>
Date: Thu, May 26, 2016 at 4:53 AM
Subject: RE: Covers for coal train cars
To: lora jo foo <ljfoo70@gmail.com>

Lora Jo,

Before we begin, I think I should give you some background as to my expertise, resume, etc.

I am a registered professional engineer with an electrical engineering degree, a mechanical engineering degree, an MBA and doctorate in operations management.

2. I spent 30 years with Norfolk Southern Railroad in a variety of management positions in the operating (mechanical and transportation) departments.
3. At present I have been with the FRA here in Washington, DC for 16 years, so basically I have 46 years of "hands on" railroad experience.
4. All my work is centered around "Railroad Safety" and regulation enforcement.

I am attaching a copy of my current position description and primary responsibilities here at the U.S. Department of Transportation Federal Railroad Administration (FRA).

Answers/Responses to Lora Jo's questions:

1. What was the impetus for the proposed rule? Ans. There are many federal agencies that may have at some point explored whether a "rule" was needed to govern the transport of coal, (EPA? DOT? Commerce?) so, without seeing a "hard copy" of a proposed rule, it would be hard to make any

assumption here. Again, why was the “rule” not pursued? Without “seeing” what was proposed we cannot accurately give an opinion as it would be conjecture only.

2. Does the federal rail authority have to “approve” these covers before they are made commercially available? Ans. Yes and No. The FRA and our Canadian Regulatory partner—Transport Canada work to enforce safety on all north American railroads. We do not “approve” coal car covers, HOWEVER, if for instance a company designs a “cover” and wants a safety review, the FRA will do this as a courtesy, with the intent to see that such a cover does not interfere with employee safety, block access to side ladders, end ladders, sill steps, handbrakes, or introduce an unacceptable risk to railroad employees.

3. Is testing for leakage of fugitive coal dust required in the approval process? Ans. No, FRA does not get involved with any fugitive coal dust emission tests as far as I know.

4. Are there any other companies who have received approval or whose approval is pending? Ans. FRA does NOT approve covers EXCEPT when requested to provide guidance for a particular design as it relates to the safety appliance arrangement contained in the proposal. Once reviewed, the FRA may issue a letter that the proposed design may or may not comply with current safety appliance regulations contained in AAR S-2044 and Title 49 Code of Federal Regulations (CFR) Part 231.

5. Has EcoFab applied for approval of its covers? Ans. Without a file number or correspondence control number, I cannot tell whether the EcoFab cover has received an FRA safety appliance review.

.....

From: **lora jo foo** <ljfoo70@gmail.com>

Date: Wed, May 25, 2016 at 11:54 AM

Subject: Covers for coal train cars

To: harold.blankenship@dot.gov

Dear Dr. Blankenship,

I left a voice message and thought I'd email you my questions for you to consider. I am assisting Dr. Heather Kuiper who coordinates an independent Public Health Experts Panel assessing evidence to determine the health impacts of the transport of coal from Utah to Oakland, CA. Their conclusions will be submitted to the Oakland City Council who is considering an ordinance to ban or regulate coal. One of the issues the council will look at is whether there are measures that would prevent leakage of fugitive coal dust during the rail transport of coal. Here's my questions:

- 1) A few years back a federal agency was considering adopting a rule requiring all coal trains be covered. In the end, no rule was issued. What was the impetus for the proposed rule? And why was the rule not pursued?
- 2) I have interviewed four companies who have designed covers for coal train cars. Does the Federal Rail Authority have to approve these covers before they are made commercially available? Is testing for leakage of fugitive coal dust required in the approval process? One of the companies stated that they did not need FRA approval for their covers since they've been used for decades for other commodities such as zinc, lead, and copper. I understand that Mark Pettibone's ClearRails covers were FRA approved and that CoalCap's (Global One Transport)

approval is pending. Are there any other companies who have received approval or whose approval is pending? In particular, has EcoFab applied for FRA approval of its covers?

I can be reached at 510-842-0647 or 510-282-9454. Looking forward to speaking with you.

Lora Jo