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BOARD OF LAND AND NATURAL RESOURCES  
FOR THE STATE OF HAWAII

IN THE MATTER OF ) Case No. BLNR-CC-16-002  
)  
A Contested Case Hearing Re Conservation; ) CINDY FREITAS EIGHTH  
Use Application (CDUA) HA-3568 For the ) SUPPLEMENTAL EXHIBIT  
Thirty Meter Telescope at the Mauna Kea ) LIST; CERTIFICATE OF  
Science Reserve, Ka'ohe Mauka, Hamakua, ) SERVICE  
Hawai'i TMK(3)4-4-015:009 )  
)  
)  
)

**CINDY FREITAS EIGHTH SUPPLEMENTAL EXHIBIT LIST**

Ex No.	Description
S-17a	Susan Rosier Written Direct Testimony Amended

Kailua Kona HI; February 14, 2017

  
Cindy Freitas Petitioner

## **Susan Rosier – Witness Direct Testimony**

My name is Susan Rosier.

I live in the Waikahekahe Ahupua'a, Puna, Moku O Keawe (Hawai'i Island).

This is my amended testimony to be considered as an addition to my Written Direct Testimony of my experience and background pages submitted on 11/1/2016 (S-17)

In that testimony I spoke of my experience with a certain excavator that had a broken house lock and had to be chained from underneath between the tracks. There is in evidence in this hearing, a picture of a leaky excavator that was parked for months on Mauna Kea summit (S-14f).

Hydraulic leaks are so common and that is what concerns me deeply as the drinking water on these islands is precious and running out rapidly as wells turn salty from water levels lowering into the sea level water.

Government agencies are becoming more concerned as is evidenced in the USGS 7 year study of Hawaiian water resources. In the past studies such as the one by the DLNR themselves in 1970 titled "An Inventory of Basic Water Resources (S-18b1) were done to help the plantation industries find new sources for their diversion systems and to know how much was available from certain springs and streams.

The USGS' "Groundwater in Hawai'i" (S-18l) is another example that goes even further to explain about dikes and permeation of different lava flows. This report even talks about 'fogdrip' that seeps into the ground and contributes to high level water tables. Another word for fog would be mist like that of the mists of Lilinoe that surrounds the summit of Mauna Kea almost daily. You can see her usual daily cloud cycles from East Hawai'i as she rolls in and then the clouds subside by nightfall..

When I see pictures such as the one in S-18m, it is hard to believe that a 'professional operator' would leave his/her equipment under hydraulic pressure with the ripper bar in the elevated position and the shank erect sticking in the ground or the blade not set right upon the ground. This machine was up there for months in extreme weather conditions making it ripe for a hydraulic hose leak or bursting.

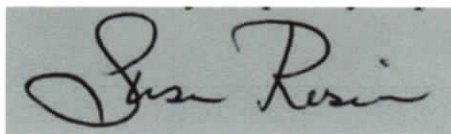
As you will see in my exhibit numbered S-18a entitled Hydraulics 101, it is not a question of when hydraulic fluid will leak out, it is only a question of how. Will a hose fray? Will it burst under pressure as the two hoses that were flailing in the air spewing hot oil all over me and the tourists convertibles at Maui Intercontinental Hotel.

TMT themselves admit it: “ ... leakage will typically occur in worn, cracked or frayed hoses, sticking air valves and cylinder packing.” (S-18g) Of course they were speaking of inside the observatory, but that is where we should least expect it. Sadly it has happened more than once inside Mauna Kea Observatories.

The Cal Tech Observatory called CSO had a doozy! (S-18d) It required disposal of 3500 lbs. Of contaminated backfill that was removed from the drain. Of course all that hydraulic fluid wasn't theirs. Chemical analysis would prove that some was most likely from construction more than 20 years prior. The oil leak had spread laterally under the concrete foundation of the observatory. It was supposed to be removed upon the decommissioning of the telescope in 2016. Well, I see that hasn't happened since this is 2017 and the facility is still up there! The good news is there is no drain planned for TMT so they should be able to keep it inside like the Subaru telescope claims to have achieved when they had their mercury spill.

Heavy equipment though is by far the greatest risk of contamination seeping into the soil and gravitationally being pulled downward towards the high level water table. Just the ground preparation equipment (S-18c) alone could spill huge amounts in a minute! Let's take my excavator experience as an example. That machine has a hydraulic tank that holds 107.5 gallons in its system. The main system cycles 203 gallons per minute! Doesn't take too long to empty the main system when 2 under pressure hoses burst or their fittings fail with the load. Do you see my point? It makes me wonder how much contamination has already occurred on Mauna Kea through the construction of 13 telescopes. S-18c tells the tale of Hydraulic hoses, fittings and couplings and their leakage potential.

I shutter to think of the construction of the first ones in the 60's when oil disposal was dumping it out on the ground. We have learned a lot since then. Possibly we have learned when enough is enough; I hope so. For we are talking of Conservation Land. Land that is to be preserved not contaminated. We are also talking of future generations here on Hawai'i Island that might not have fresh water to drink. As one of the witnesses said it might take hundreds of years to reach the ocean. How long will it take to reach the high level water table? Yes, there is one. I hope you now understand how deeply concerning this project should be to everyone.

A handwritten signature in black ink, appearing to read "John R. R. R. R.", is centered at the bottom of the page. The signature is written in a cursive, flowing style.



BOARD OF LAND AND NATURAL RESOURCES  
STATE OF HAWAII

Contested Case Hearing Re Conservation  
District use Application (CDUA) HA-3568  
For the Thirty Meter Telescope of the Mauna  
Kea Science Reserve, Ka'ohe Mauka,  
Hamakua, Hawaii, TMK (3) 4-4-015.009

BLNR Contested  
Case HA-16-02 --  
Document Title

CERTIFICATE OF SERVICE

The undersigned hereby certifies that the above reference document was served upon the  
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